Multi-Modal Corridor Study

Frederick and Montgomery Counties, Maryland

Draft Environmental Impact Statement and Section 4(f) Evaluation

US Department of Transportation
Federal Highway Administration
Federal Transit Administration

Maryland Department of Transportation
State Highway Administration
Maryland Transit Administration

I-270/US 15 Multi-Modal Corridor Study

Administrative Action

Draft Environmental Impact Statement and Section 4(f) Evaluation

Submitted pursuant to Section 102(2)(c), PL 91-190 of the National Environmental Policy Act of 1969; 42 USC. 4332(2); 49 USC Section 303; 49 USC Sections 5301(e), 5309(e)(2)-(7), 5323(b) and 5324(b) (formally Sections 3(d), 3(i) and 14 of the Federal Transit Act, as amended); and CEQ Regulations (40 CFR 1500 (et. seq.).

Prepared by

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Federal Highway Administration
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The purpose of the I-270/US 15 Multi-Modal Corridor Study is to investigate options to relieve congestion and improve safety conditions along the I-270/US 15 Corridor. The I-270/US 15 Corridor is approximately 31 miles (50 kilometers) and extends from the Shady Grove Metro Station (south of I-370) to the US 15/Biggs Ford Road intersection, north of Frederick. Alternates under consideration include the No-Build, the TSM/TDM Alternate, and Alternates 3A/B, 4A/B and 5A/B/C, which consist of several combinations of highway and transit strategies including general-purpose lanes, auxiliary lanes, HOV lanes, collector-distributor (C-D) lanes, LRT, BRT, Premium Bus, and others. This document describes and summarizes the potential transportation and environmental impacts, costs, and a comparative evaluation of the multi-modal transportation alternatives (refer to Table S.2 in the Summary Chapter for a summary of impacts).

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Information on the date, time, and location of the public hearing will be published in local and regional newspapers. Comments on this document are due August 16, 2002 and may be submitted in writing to the above addresses or made orally at the public hearings.

SUMMARY

SUMMARY

A. ADMINISTRATIVE ACTION

(X) Draft Environmental Impact Statement
( ) Environmental Assessment
(X) Section 4(f) Evaluation

B. INFORMATIONAL CONTACTS

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D. DESCRIPTION OF ACTION/ PURPOSE AND NEED

The I-270/US 15 Corridor is a vital component of the surface transportation system in the Metropolitan Washington region and includes portions of I-270, US 15, and US 40 in Montgomery and Frederick Counties (Refer to **Chapter I, Figure I-4**). Interstate 270, which begins at the Capital Beltway (I-495) and ends at I-70 in Frederick, provides one of the two interstate highway connections between the nation's capital and points west (the other connection is I-66 in Virginia) and north. As an interstate highway, I-270 is a fully access-controlled facility with a variable number of lanes ranging from four to twelve. In Maryland, US 15 extends from the Virginia state line near Point of Rocks to the Pennsylvania state line near Emmitsburg, and

provides a major north-south route located between the interstate corridors of I-81 to the west and I-83/I-95 to the east. US 15 provides an important crossing of the Potomac River as well. Throughout most of its approximate 30-mile length in Maryland, US 15 is a multi-lane highway, with varying degrees of access control.

The purpose of the I-270/US 15 Multi-Modal Corridor Study is to investigate options to address congestion and improve safety conditions along the I-270/US 15 Corridor. The limits for this study extend from I-370 in Montgomery County to US 15 at Biggs Ford Road in Frederick County. The I-270/US 15 Corridor provides an essential connection between the Washington, DC metropolitan area and both central and western Maryland and is an important corridor for carrying local and long distance trips, both within and beyond the Corridor (Refer to **Chapter I, Figure I-1**). The I-270/US 15 Corridor is currently served by a variety of transportation modes (including interstate highway, high-occupancy vehicle lanes, commuter rail, and bus service) and intermodal opportunities (including park and ride lots and Metrorail). However, even with the variety of modal options available, the Corridor is highly congested at many locations within the project area. These problems are expected to become more severe as continued growth in population and employment occur over the next quarter century.

The major factors affecting commuter travel through the project area are the 19% increase in population in Montgomery County and the 50% increase in population in Frederick County expected between 2000 and 2025. Even with the transportation improvements underway or planned, future development that is expected as a response to the increases in population and employment will cause increased congestion.

E. ALTERNATES CONSIDERED

Several combinations of highway and transit strategies are evaluated, including general-purpose lanes, auxiliary lanes, high occupancy vehicle (HOV) lanes, collector-distributor (C-D) lanes, Light Rail Transit (LRT), Bus Rapid Transit (BRT), and Premium Bus alternates. The specific alternatives under consideration are summarized below and described in detail in **Section II.C**.

1. Alternate 1: No-Build Alternate

The No-Build Alternate provides a foundation for comparing all of the other alternates. The No-Build Alternate reflects current and programmed conditions within the I-270/US 15 Corridor and consists of the elements adopted from the 2000 Constrained Long Range Transportation Plan. However, the construction of a southbound HOV lane between MD 121 and I-370 is excluded from the No-Build Alternate because it is included in several of the alternates under consideration. Under the No-Build Alternate, no major capacity improvements would be made on I-270 or US 15. Only routine maintenance and spot improvements are included.

2. Alternate 2: Transportation System Management (TSM)/ Transportation Demand Management (TDM) Alternate

The TSM/TDM Alternate includes a number of relatively low cost measures meant to improve the overall operation of the existing transportation facilities but they do not address the need for capacity improvements. Under the TSM/TDM Alternate, no major capacity improvements would be made on I-270 or US 15. The TSM measures included in this alternate are:

- Increase and improve existing bus service in the Corridor.
- Integrate the bus service improvements with enhanced feeder and distributor service.
- Enhance feeder bus service to Metro and MARC stations.
- Provide interactive transit information at major employment centers in the Corridor.

The TDM measures included in this alternate are:

- Additional park and ride spaces or lots.
- Enhanced rideshare program in the project area, including interactive ride matching at major employment centers and implementation of a regional Guaranteed Ride Home program.
- Comprehensive vanpool program in the project area, including financial start-up assistance, increased vanpool eligibility for Metrocheck, a consolidated matching database and establishment of a vanpool loaner program.
- Improved pedestrian access to the Shady Grove Metro station and to the MARC stations in the project area.
- Completion of specific components of the Metropolitan Washington Council of Governments (MWCOG) Constrained Long Range Plan Bicycle Element, such as constructing specific critical segments of the MWCOG Bicycle Element to provide for a fully linked system in the Corridor.
- Improved regional telecommuting program.
- Encouragement of flexible work hours.

3. Build Alternates

a. Alternate 3A: Master Plan HOV/LRT Alternate
Alternate 3B: Master Plan HOV/BRT Alternate

Alternates 3A/B consist of a TSM/TDM component; a highway component with general-purpose lanes, HOV lanes, C-D lanes, new interchanges, and improvements to existing interchanges; and a transit component of either LRT (3A) or BRT (3B) on the CCT alignment. Refer to **Chapter II, Figure II-1** for a description of the Build Alternates.

TSM/TDM Component

The TSM/TDM component is the same as described in **Section S.E.2**.

Highway Component

Alternates 3A/B consist of adding general-purpose lanes, HOV lanes, auxiliary lanes, C-D lanes and direct access ramps to I-270 and adding general-purpose and auxiliary lanes to US 15. Only one additional lane is being considered on I-270 between MD 121 and I-70 and this additional lane will be evaluated as an HOV lane in Alternates 3A/B. The highway component of Alternates 3A/B are described below.

General-Purpose, HOV, and Auxiliary Lane Additions

- **I-370 to Middlebrook Road** - Convert the existing I-270 southbound inside general-purpose lane to an HOV lane, see **Volume 2 of 2, Chapter XI, plan sheets HWY 1, HWY 2 and HWY 3**.

- **Middlebrook Road to Father Hurley Boulevard** – Convert the existing southbound inside general-purpose lane to an HOV lane and add an additional general-purpose lane to the outside to replace the converted lane. Between MD 118 and Father Hurley Boulevard, the northbound HOV lane would be converted to a general-purpose lane and a new HOV lane would be added through inside widening, see **Volume 2 of 2, Chapter XI, plan sheets HWY 3 and HWY 4**.

- **Father Hurley Boulevard to MD 121** – Convert the northbound HOV lane to a general-purpose lane; add a new HOV lane to the inside in both the northbound and southbound directions; and add an additional general-purpose lane through outside widening in both the northbound and southbound directions, see **Volume 2 of 2, Chapter XI, plan sheets HWY 4 and HWY 5**.

- **MD 121 to MD 85** – Add an HOV lane to the inside in both the northbound and southbound directions, see **Volume 2 of 2, Chapter XI, plan sheets HWY 5 through HWY 11**.

- **MD 85 to I-70** – Add an HOV lane to the inside in both the northbound and southbound directions and add an auxiliary lane between the interchange acceleration/deceleration ramps to the outside in the southbound direction. In addition, improvements would be made along I-270 northbound as part of the proposed MD 85 interchange improvements, see **Volume 2 of 2, Chapter XI, plan sheet HWY 11**.

- **I-70 to US 15/US 340/Jefferson Street** – Add one additional northbound and southbound general-purpose lane through inside widening, see **Volume 2 of 2, Chapter XI, plan sheets HWY 11 and HWY 12**.

- **US 15/US 340/Jefferson Street to MD 26** – In both the northbound and southbound directions, add one general-purpose lane to the inside and one auxiliary lane connecting interchange acceleration/deceleration ramps (not a continuous outside lane) to the outside, see **Volume 2 of 2, Chapter XI, plan sheets HWY 12 through HWY 14**.

- **MD 26 to Trading Lane** - Add one general-purpose lane in both the northbound and southbound directions through outside widening, see **Volume 2 of 2, Chapter XI, plan sheet HWY 14**.

- **Trading Lane to Biggs Ford Road** - Add one general-purpose lane through inside widening in the northbound and southbound directions, see **Volume 2 of 2, Chapter XI, plan sheets HWY 14 and HWY 15**.

Collector-Distributor Lanes

C-D lanes are local lanes that run parallel to the highway, carry traffic merging on and off of the freeway, (referred to as mainline lanes), and are separated from the mainline lanes by a barrier. Slip ramps accommodate the traffic between the mainline and C-D lanes. In Alternates 3A/B, the C-D lanes that begin at I-370 (southbound) and end at MD 124 (northbound) will be extended to Father Hurley Boulevard, see **Volume 2 of 2, Chapter XI, plan sheets HWY 1 through HWY 4**.

Direct Access Ramps

HOV only direct access ramps are being considered at the proposed Newcut Road and Watkins Mill Road interchanges to facilitate movements to the existing and proposed transit stations at COMSAT and Metropolitan Grove, respectively (see **Volume 2 of 2, Chapter XI, plan sheet HWY 5)**. At the Newcut Road interchange, direct access ramps are located in the median of the freeway to provide access to the interchange directly from the I-270 HOV lane. Direct access ramps at the Watkins Mill Road interchange will be developed based on further federal, state, and local coordination, with a potential option for the direct access ramps located between existing MD 124 and proposed Watkins Mill Road, as an extension of Metropolitan Grove Road.

The direct access ramps being considered would provide on and off access from both directions of the highway via one lane to the center of the interchange bridge. The ramps would only be in operation during the peak periods in the peak direction (i.e. from/to I-270 southbound during the AM peak period and from/to I-270 northbound during the PM peak period). Barricades and variable message signs would indicate when the ramps are not in operation.

Both the proposed HOV lanes and direct access ramps will enhance bus service along I-270 to serve employment and residential areas that are not served by the CCT and Metrorail.

Proposed Interchanges

New interchanges at I-270/Newcut Road, I-270/MD 75 Extended, US 15/Trading Lane, and US 15/Biggs Ford Road are proposed as part of Alternates 3A/B, see **Volume 2 of 2, Chapter XI, plan sheets HWY 5, HWY 7, HWY 14 and HWY 15**, respectively.

Interchange Improvements

Improvements to the following interchanges are proposed as part of Alternates 3A/B: I-270/MD 117, I-270/Middlebrook Road, I-270/MD 118, I-270/Father Hurley Boulevard, I-270/MD 121, I-270/MD 109, I-270/MD 80, I-270/MD 85, and Jefferson Street /US 15/US 340.

Transit Component

The proposed transit alignment for Alternates 3A/B is the Corridor Cities Transitway (CCT), see **Volume 2 of 2, Chapter XI, plan sheets TRAN 1 through TRAN 6**. It is approximately 13.5 miles in length and generally runs northwest from the existing Shady Grove Metro Station to the COMSAT facility. The following 18 stations are proposed: Shady Grove, East Gaither, West Gaither, Washingtonian, Crown Farm (Master Plan beyond 2025), DANAC, Decoverly, School Drive, Quince Orchard, NIST, First Field (Master Plan beyond 2025), Metropolitan Grove, Middlebrook (Master Plan beyond 2025), Germantown Center, Cloverleaf, Manekin (Master Plan beyond 2025), Dorsey Mill, and COMSAT. In the future, the CCT may be extended to Frederick. The transit alignment is the same for both Alternates 3A and 3B and the alignment includes a hiker/biker trail. However, the transit mode proposed is different in each alternate.

The transit mode proposed in Alternate 3A is a double-tracked LRT system. Track centers would be spaced approximately 14 feet apart and the overall width of the typical section would generally range between 50 and 75 feet. Implementing LRT along the CCT would require a rail yard associated with maintenance and storage of vehicles. Ridership analysis indicates that this facility must accommodate storage for approximately 50 light rail vehicles. Several locations are currently being considered for the rail yard. These include the Shady Grove Metro Station area, the Metropolitan Grove area, and the COMSAT area.

The transit mode proposed in Alternate 3B is a BRT system. BRT uses buses to emulate the speed, reliability, and image of light rail. Bus service would operate in two general formats: (1) line haul along the CCT and (2) smaller feeder buses which would circulate through neighborhoods before using the busway. The CCT would be a paved roadway used exclusively by buses. The roadway would be constructed with one 12-foot lane in each direction. The overall width of the typical section would range from 45 to 70 feet. Implementing BRT along the CCT alignment would also require a bus yard/shop facility associated with maintenance and storage of vehicles. However, this facility could be located at one of the three areas being considered for the LRT facility (Shady Grove Metro Station, Metropolitan Grove, or COMSAT), or it could be located at another off-line facility. A hiker/biker trail is also proposed along the BRT alignment.

b. Alternate 4A: Master Plan General-Purpose/LRT Alternate
Alternate 4B: Master Plan General-Purpose/BRT Alternate

Alternates 4A/B consist of a TSM/TDM component; a highway component with general-purpose lanes, HOV lanes, and C-D lanes, new interchanges, and improvements to existing interchanges; and a transit component of either LRT (4A) or BRT (4B) on the CCT alignment. Refer to **Chapter II, Figure II-1** for a description of the Build Alternates.

TSM/TDM Component

The TSM/TDM component is the same as described in **Section S.E.2**.

Highway Component

The highway component in Alternates 4A/B is the same as the highway component described in Alternates 3A/B except a general-purpose lane instead of an HOV lane would be added to I-270 in both directions between MD 121 and I-70. Between MD 121 and I-70, Alternates 4A/B propose the following:

- **MD 121 to MD 85** – Add a general-purpose lane to the inside in both the northbound and southbound directions, see **Volume 2 of 2, Chapter XI, plan sheets HWY 5 through HWY 11**.

- **MD 85 to I-70** – Add a general-purpose lane to the inside in both the northbound and southbound directions and add an auxiliary lane between the interchange acceleration/deceleration ramps to the outside in the southbound direction. In addition, improvements would be made along I-270 northbound as part of the proposed MD 85 interchange improvements, see **Volume 2 of 2, Chapter XI, plan sheet HWY 11**.

Transit Component

The transit component for Alternates 4A and 4B are the same as the transit component described in Alternates 3A/B, see **Volume 2 of 2, Chapter XI, plan sheets TRAN 1 through TRAN 6**.

c. Alternate 5A: Enhanced Master Plan HOV/General-Purpose/LRT Alternate
Alternate 5B: Enhanced Master Plan HOV/General-Purpose/BRT Alternate
Alternate 5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus Alternate

Alternates 5A/B/C consist of a TSM/TDM component; a highway component with general-purpose lanes, HOV lanes, C-D lanes, new interchanges, and improvements to existing interchanges; and a transit component of either LRT (5A) or BRT (5B) on the CCT alignment, or Premium Bus on the HOV lanes (5C). Refer to **Chapter II, Figure II-1** for a description of the Build Alternates.

TSM/TDM Component

The TSM/TDM component is the same as described in **Section S.E.2**.

Highway Component

General-Purpose, HOV and Auxiliary Lane Additions

The highway component for Alternate 5A/B is the same as described in Alternate 3A/B except along I-270 between MD 121 and I-70. Along this section of I-270, one general-purpose lane would be added in each direction, in addition to the HOV lanes described in Alternate 3A/B.

(The proposed I-270 section between MD 121 and I-70 consists of three general-purpose lanes and one HOV lane in each direction.) Between MD 121 and I-70, Alternates 5A/B are as follows:

- **MD 121 to MD 85** - Between MD 121 and MD 85, an HOV lane would be added to the inside and one general-purpose lane would be added to the outside in both the northbound and southbound directions, see **Volume 2 of 2, Chapter XI, plan sheets HWY 5 through HWY 11**.

- **MD 85 to I-70** - Between MD 85 and I-70, an HOV lane would be added to the inside in both the northbound and southbound directions and one additional general-purpose lane and one auxiliary lane between the interchange acceleration/deceleration ramps would be added to the outside in the southbound direction. In addition, improvements would be made along I-270 northbound as part of the proposed MD 85 interchange improvements, see **Volume 2 of 2, Chapter XI, plan sheet HWY 11**.

The highway component of Alternate 5C is the same as described in Alternates 5A/B, except for the locations of direct access ramps and the northern limit of the HOV lanes.

In Alternate 5C, the HOV lanes described between MD 121 and I-70 in Alternate 5A/B would be terminated at the proposed direct access ramps at the proposed Shockley Drive overpass approximately 0.5 mile south of MD 85. The Alternate 5C highway component between MD 121 and I-70 proposes the following:

- **MD 121 to MD 85 –** In both directions, add an HOV lane to the inside and one general-purpose lane to the outside. The HOV lanes would terminate at the proposed direct access ramps at the Shockley Drive overpass approximately 0.5 mile south of MD 85. The Shockley Drive overpass is part of a separate planning study, and is designated as a local roadway in the Frederick County Draft Master Plan, see **Volume 2 of 2, Chapter XI, plan sheets HWY 5 through HWY 11**.

- **MD 85 to I-70** - Add one additional general-purpose lane and one auxiliary lane between the interchange acceleration/deceleration ramps to the outside in the southbound direction. In addition, improvements would be made along I-270 northbound as part of the proposed MD 85 interchange improvements, see **Volume 2 of 2, Chapter XI, plan sheet HWY 11**.

Direct Access Ramps

In addition to the direct access ramps at the Watkins Mill Road and Newcut Road interchanges, direct access ramps are being considered at the I-370, MD 118, and MD 85 (Shockley Drive) interchanges, see **Volume 2 of 2, Chapter XI, plan sheets HWY 1, HWY 3 and HWY 11**, respectively.

The direct access ramps proposed at MD 85 would be located at the proposed Shockley Drive overpass, which is part of a separate planning study. Direct access ramps would be located in the

median of the freeway and would provide access to the interchange directly from the HOV lane. With the exception of the ramps at I-370 and MD 85 (Shockley Drive), the direct access ramps would provide on and off access from both directions of the highway. The direct access ramps at I-370 would only provide access to/from the north. The direct access ramps at MD 85 (Shockley Drive) would only provide access to/from the south. The ramps would provide access via one lane to the center of the interchange bridge, except for I-370 where the ramps would provide access directly to the HOV lanes on I-370. The ramps would only be in operation during the peak period in the peak direction (i.e. to/from I-270 southbound during the AM peak period and to/from I-270 northbound during the PM peak period). Barricades and variable message signs would indicate when the ramps are in operation.

Transit Component

The transit component of Alternates 5A/B/C consists of three alternatives, see **Volume 2 of 2, Chapter XI, plan sheets TRAN 1 through TRAN 6**. Alternates 5A (LRT) and 5B (BRT) are the same as Alternates 3A (LRT) and 3B (BRT), respectively. Alternate 5C proposes implementing premium/limited stop bus service on the proposed HOV lanes instead of operating LRT or BRT on the CCT. Alternate 5C includes HOV direct access ramps to service high occupancy vehicles and buses to access the Shady Grove Metro Station (via I-370), Metropolitan Grove MARC Station (via Watkins Mill Road), Germantown Transit Center (via MD 118), COMSAT (via Newcut Road), and the MARC Monocacy Station (via MD 85/Shockley Drive). Express bus service, which offers non-stop service between origins and destinations, would be provided along the I-270 HOV lanes, as would an extended feeder bus system.

F. SUMMARY OF TRANSPORTATION/MOBILITY IMPACTS

1. Transit Component Impacts

The assessment of transportation impacts represents one of the most critical analytical aspects of this study. It encompasses an assessment of service benefits and impacts under the proposed alternatives, anticipated ridership levels and station impacts.

The effectiveness of transit service is dependent upon several factors including geographic coverage, hours of operation and frequency of service, door-to-door travel times, travel time reliability, number and convenience of transfers required, comfort and safety. A useful indicator of quality of service is travel time savings. Travel time savings indicate the amount of time saved by commuters in taking transit versus driving to their destinations.

Within the transit component, the largest savings of in-vehicle travel time occur as a result of the BRT alternate, which provides more than 30 minutes of potential travel time savings using transit for work trips (89,200). The Premium Bus alternate provides the next highest number of trips that save 30 minutes or more (53,400). For one to 20 minutes of time saved the LRT alternates provide the same order of magnitude of time savings as the BRT and Premium Bus alternates.

A measure of effectiveness of the different alternates is the number of new riders who would not otherwise be attracted to transit. These riders reflect the number of people diverted from auto

usage because the various alternates provide an attractive transit choice in terms of travel time, convenience, and cost.

The LRT alternates are projected to result in 2,800 more transit riders than the TSM/TDM Alternate. The BRT Alternates result in the most new riders (11,400) when compared to the TSM/TDM Alternate, followed by the Premium Bus alternate, which is projected to generate 10,800 new transit riders. While LRT and BRT achieve approximately the same overall ridership, more new riders are generated by the BRT alternate. Furthermore, the Premium Bus alternate generates nearly as many new riders as the BRT alternate.

The forecasted access modes of passengers boarding at the various stations were analyzed as a transportation impact. The highest peak period boardings are typically at those stations that provide large park and ride facilities and feeder bus service. Transit patrons will generally walk to a rail station when the distance does not exceed one-half mile. Beyond a half mile, access is provided either by feeder bus service, automobile to a park and ride facility where the vehicle is parked and the driver and passengers then ride transit, or by automobile to a kiss and ride facility where the transit passenger is dropped off and picked up after their return trip by a motorist.

For the LRT alternate, approximately half of the total passengers are arriving at the stations by auto access. Bus access and walk access make up the other half. Walk access to the Decoverly group is the highest overall, although auto access is the highest mode for that group where 3,500 passengers board. More passengers use the Decoverly area stations than any other. Two-thirds of the passengers boarding at the King Farm area stations walk to those stations, however this group of stations has the lowest number of users, only 800 passengers use those stations during the morning peak period. The most northern group, which includes the COMSAT station, has the highest number patrons who use auto to access transit and the most southern group, which includes King Farm, has the lowest number.

For the BRT alternate, access to stations is almost evenly divided among the three access modes. Again, the most northern area stations, which includes the COMSAT station, has the highest number patrons who use auto to access transit (1,600); the most southern group of stations, which includes King Farm, and the Germantown group have the lowest (200).

The stations for the Premium Bus alternate vary significantly from LRT and BRT. Approximately half of the passengers used autos to access the Premium Bus stations, approximately 30% used bus and 20% walked. The lowest number of passengers arrived at the MD 75 and MD 85 stations at the northern end of the Corridor. Overall, the most passengers used Metropolitan Grove, COMSAT, and Germantown stations, with the majority of the passengers accessing the stations by either auto or bus.

Overall, boardings for MARC commuter rail are highest for No-Build, followed by TSM/TDM, BRT, and LRT, while Premium Bus is the lowest. The Germantown to Gaithersburg stations have the highest boardings for each alternate. The Frederick to Monocacy stations are the only group of stations where LRT is higher than BRT. For Metrorail boardings, Premium Bus was the highest alternate, followed by BRT, LRT, TSM/TDM and No-Build.

2. Roadway Component Impacts

Operations of highway facilities are evaluated using qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers. Traffic operations are characterized by level of service (LOS). Each LOS is given letter designations, from A to F, with LOS A representing the best operating conditions or free flow conditions with few interactions between vehicles and LOS E representing capacity of the facility. LOS F represents the worst conditions when a facility is being used to its fullest capacity and severe congestion is experienced. LOS is determined using techniques that are continuously being refined by research performed for the Transportation Research Board (TRB). Periodically recommendations for LOS analysis are published by TRB. The freeway analyses performed for this study are based on the Highway Capacity Manual published by TRB in 1998.

The LOS along mainline I-270 and US 15, and at the corridor and ramp terminal intersections, will degrade over the next 25 years. In general, the 2025 No-Build scenario results in LOS E/F conditions along mainline I-270/US 15 and at the corridor and ramp terminal intersections during the AM and PM peak periods.

With the proposed highway improvements (Alternates 3A/B, 4A/B, and 5A/B/C), the Montgomery County mainline and C-D lane sections of I-270 will continue to be congested, operating at LOS E/F conditions during the AM and PM peak periods. The corridor and ramp terminal intersections are expected to operate above capacity.

The Frederick County mainline section of I-270 will also continue to operate at LOS E/F conditions during the 2025 AM and PM peak periods. In general, the section of I-270 between MD 121 and I-70 will operate at LOS E/F conditions regardless of the proposed number of lanes (six lanes in each direction in Alternates 3A/B and 4A/B versus eight lanes in each direction in Alternates 5A/B/C). This is due to the travel demand projections which show that additional capacity improvements made along I-270 result in additional traffic volumes along the corridor. There are some minor improvements in traffic LOS along southbound I-270 in Alternates 4A/B and 5A/B/C versus Alternates 3A/B (LOS E versus LOS F, respectively) due to these alternates having three general-purpose lanes in each direction, while Alternates 3A/B have only two general-purpose lanes in each direction (note that Alternates 5A/B/C also have an additional HOV lane in each direction).

The general trend along US 15 through the City of Frederick is that traffic conditions will improve over the No-Build conditions with the proposed build alternates and will be consistent with the existing traffic conditions. All three of the build alternates yield similar results along US 15 due to the fact that the proposed alternates are identical in this segment.

The overall traffic analyses show that I-270 and US 15 will continue to be congested (with the proposed build alternates) to 2025 and beyond due to the existing and projected growth along the corridor. However, the build alternates do provide congestion relief in that projected traffic operations would be worse with the No-Build conditions. For instance, reviewing the difference in mainline segment miles that operate under LOS F between the build alternatives and No-Build conditions illustrates this congestion relief, as indicated in **Table S-1**:

TABLE S-1
I-270/US 15 LEVEL OF SERVICE IMPROVEMENTS

	Alternates 1 & 2 (No-Build & TSM/TDM)	Alternates 3A/B	Alternates 4A/B	Alternates 5A/B/C
Year 2025 Mainline Segment Mileage of LOS F Conditions [1]				
I-270/US 15 Northbound (PM Peak Hour)	25	18	14	18
I-270/US 15 Southbound (AM Peak Hour)	25	21	13	14
Total Mileage of LOS F Segments	**50**	**39**	**27**	**32**
Year 2025 Mileage Reduction of LOS F Segments from No-Build and TSM/TDM Alternates				
I-270/US 15 Northbound (PM Peak Hour)	N/A	7	11	7
I-270/US 15 Southbound (AM Peak Hour)	N/A	4	12	11
Total Mileage Reduction of LOS F Segments	**N/A**	**11**	**23**	**18**

Note: 1. Total I-270/US 15 corridor length is approximately 31 miles.

Alternates 3A/B would provide an eleven mile total reduction in the mainline segments operating at LOS F (seven miles reduction northbound, four miles reduction southbound). Alternates 4A/B would provide a 23 mile total reduction in the mainline segments operating at LOS F (eleven miles reduction northbound, twelve miles reduction southbound). Alternates 5A/B/C would provide an 18 mile total reduction in the mainline segments operating at LOS F (seven miles reduction northbound, eleven miles reduction southbound). Therefore, Alternates 4A/B offer the greatest reduction in miles of LOS F along the corridor, Alternates 5A/B/C offer the second most reduction, and Alternates 3A/B offer the least amount of congestion relief compared to the expected No-Build conditions.

G. SUMMARY OF ENVIRONMENTAL IMPACTS AND PERMITS REQUIRED

A summary of the impacts associated with the alternates under consideration is presented in this section and in **Table S-2**.

TABLE S-2
SUMMARY OF IMPACTS

Resources	Alternate 1 No-Build	Alternate 2 TSM/TDM	Alternate 3A LRT	Alternate 3B BRT	Alternate 4A LRT	Alternate 4B BRT	Alternate 5A LRT	Alternate 5B BRT	Alternate 5C Premium Bus
Right-of-way Required (Acres)									
Highway	0	0	374		374		404		428
Park-and-Ride Lots	0	18	18		18		18		18
Transitway[1]	0	0	170[1]		170[1]		170[1]		0
Total	0	18	562		562		592		446
Residential Displacements	0	0	64-127				64-128		127-385
Business Displacements	0	0	4-11				4-12		2-11
Number of Farmlands Affected	0	0	30				30		27
Farmlands Required (Acres)	0	6	133				143		106
Number of Public Parks Affected	0	0	11				12		13
Public Park Property Required (Acres)	0	0	37				44		48
Number of Historic Sites Impacted	0	0	7				7		5
Linear feet of Streams Impacted	0	0	14,185				16,331		13,407
100-Year Floodplains Required (Acres)	0	3	23				24		21
Wetlands Impacted (Acres)	0	0.5	10.7				11.6		10.7
Forests Impacted (Acres)	0	0	183				199		180
Hazardous Materials (Number of Properties Affected)	0	0	6	4	6	4	6	4	4
RTE Species Affected	0	0	0				0		0
Number of Air Quality Receptors with CO Violations	0	0	0				0		0
Number of Noise Monitoring/Modeling Locations Exceeding Abatement Criteria[2]	33		52[2]				51[2]		35
Consistent With Area Land Use Plans (Yes/No)	No	No	Yes				No		No
Capital Costs (Millions of 2001 Dollars)	0	$33	$2,662	$2,597	$2,662	$2,597	$2,955	$2,890	$2,519

***Notes**: 1. Transitway right-of-way impacts do not include a yard/shop facility.*

2. Includes noise monitoring/modeling locations along the transitway alignment; includes transit horn noise impacts.

1. Socioeconomic

The No-Build Alternate will not directly affect community facilities and services. However, the No-Build Alternate does not address the need for additional capacity or enhanced mobility and will exacerbate traffic congestion and safety hazards along I-270 that will occur with the planned growth in the Corridor. This increased traffic congestion will adversely impact school bus safety and emergency response times. The TSM/TDM Alternate, which will improve the efficiency of existing roadways, is not expected to have a direct impact on existing community facilities and services. All of the build alternates would, to varying degrees, improve overall access and mobility in the project area. Both the transit and highway components will have various impacts on existing community facilities and services.

No right-of-way acquisition is required for the No-Build Alternate. Approximately 18 acres will be required for the TSM/TDM Alternate due to the preliminary park and ride lot concepts at MD 26, Trading Lane and Biggs Ford Road. Between 446 and 592 acres of right-of-way acquisition will be required for the build alternates. The transitway components of the build alternates will have eight residential and business displacements. The highway components will result in approximately 64 to 385 residential displacements along I-270 depending upon the proposed alternate and the use of retaining walls. Up to twelve businesses will be displaced. Additional detail on residential and business displacements are presented in **Section III.B.1.e**.

The Brighton West, Deer Park Place, London Derry, and Fox Chapel/Middlebrook Hill communities are located in census tracts that exhibit higher proportions of minority and/or low-income populations than the total project area. These communities may experience disproportionately high or adverse impacts due to a substantial number of displacements under the highway component of the build alternates. However, the proposed direct access ramps at the I-370 interchange have been identified as a non-preferred alternate due to the number of residential displacements associated with these ramps (see Non-Preferred Alternates discussion in **Section S.I**, Issues to be Resolved and **Section III.V.E**, Trade-Off Analysis). The project team will continue to confirm and refine the locations of minority and low-income populations during subsequent stages of the project. Efforts to inform these populations and involve them in the project planning process will continue. Should a build alternate be selected that impacts these populations, the project team will develop potential mitigation measures in consultation with the affected communities. Other communities within census tracts exhibiting higher proportions of minority and/or low-income populations than the project area will not incur "disproportionately high or adverse impacts" as a result of the proposed transportation improvements. Right-of-way, noise, and visual impacts for these census tracts are comparable to other locations throughout the project area. Where possible, providing noise barriers can mitigate potential noise impacts and visual impacts can be mitigated using the measures described above. Additional environmental justice analysis appears in **Section III.B.2.**

Numerous publicly owned parks and recreation areas are located in the project area. Up to 48 acres of property to be acquired from the following 13 parks and recreational areas: Morris Park (Alternate 5C only), Malcolm King Park, Seneca Creek State Park, Middlebrook Hill Park, North Germantown Greenway/Little Seneca Greenway, Black Hill Regional Park, Little Bennett Regional Park, Urbana Lake Fish Management Area, Urbana Elementary School, Urbana

Community Park, Monocacy National Battlefield (a National Historic Landmark), Baker Park, and Rose Hill Manor Historic Park. A more detailed analysis of impacts to parks and recreational facilities, including a discussion of efforts to avoid, minimize and mitigate adverse impacts can be found in **Chapter VI**, Section 4(f) Evaluation.

Because there are many known archaeological sites within the project area, the project area is considered likely to have high historic and archaeological potential. The Maryland SHPO has concurred that 31 historic sites and districts within the project's area of potential effect are on or eligible for inclusion on the NRHP. Of the 31 historic sites, the alternates will have either an adverse or no adverse effect on up to seven sites: England/Crown Farm (M 20/17), Belward Farm (M 20/21), Monocacy National Battlefield (F 3/42), Schifferstadt (F 3/47), Rose Hill Manor (F 3/126), Spring Bank (F 3/22), and Birely-Roelkey Farmstead (F 3/134). Further coordination with the Maryland Historical Trust (MHT) is ongoing (refer to letters in **Chapter VII**) to determine the extent of effects to cultural resources, including historic standing structures and archaeological resources.

Phase I archaeological identification investigations were conducted for the mainline improvements for the project in 1999. The survey resulted in the identification of seven prehistoric archaeological sites and one historic archaeological site. Five previously identified prehistoric sites and two previously identified historic sites were reinvestigated. None of the newly identified sites were considered significant by virtue of their low research potential and lack of integrity. Sufficient testing was conducted at the reinvestigated sites to confirm their low research potential and lack of integrity. The MHT concurred with these findings in a letter dated November 5, 1999 and agreed that no additional archaeological investigations were warranted for the project. The National Park Service has also commented on the results of the previous archaeological identification investigations conducted within the Monocacy National Battlefield and had concurred in 1999 that no additional work is required. SHA is completing consultation with the State Historic Preservation Officer regarding project effects to historic properties including resolution of an adverse effect through development of a draft Memorandum of Agreement.

2. Natural Environment

The build alternates will impact up to 291 acres of prime farmland soils and up to 392 acres of soils of statewide importance. Coordination is being completed with the Natural Resources Conservation Service (NRCS) offices of Frederick and Montgomery Counties.

Streams in the project area are Class I, Class III, and Class IV, and may require time-of-year restrictions from March 1 through June 15 (Class I), from March 1 through May 31 (Class IV), and from October 1 through April 30 (Class III) for any in-stream construction. Major streams included in the project area from south to north are: Muddy Branch, Long Draught Branch, Great Seneca Creek, Gunner's Branch, Little Seneca Creek, Cabin Branch, Tenmile Creek, Little Bennett Creek, Bennett Creek, the Monocacy River, Rock Creek, Carroll Creek, and Tuscarora Creek. The transitway alignment will impact approximately 2,940 linear feet of streams, and the proposed highway improvements will impact approximately 11,245 linear feet to 13,407 linear feet of streams.

Numerous non-tidal high quality wetlands are located throughout the project area. Degree of impact on the wetland varies by alternate. There are no impacts to wetlands associated with the No-Build Alternate. Between 10.7 and 11.6 acres of wetlands will be disturbed by the build alternates. An agency field verification of potential wetland areas for proposed park and ride lot sites at Trading Lane and Biggs Ford Road has not been conducted. There were no wetlands or waterways present within the proposed park and ride lots at MD 26 as determined during the field review in August 2001. Most of the transit station and yard/shop facilities have been field verified for the presence of wetlands and waterways, in comparison to the DNR wetland maps. Potential wetlands and waterways in the vicinity of the transit stations at COMSAT, Decoverly, Metropolitan Grove Station, Quince Orchard, and the National Institute of Standards and Technology have yet to be field verified with the agencies.

Germantown Bog is a Wetland of Special State Concern (WOSSC) and has been specially designated by the State of Maryland as deserving of special protections due to its ecological significance. The build alternates will not directly impact Germantown Bog, which lies approximately 400 feet east of the project area. However, the alternates will impact Wetland 57E, which is hydrologically connected to the Germantown Bog by a tributary. Wetland 57E has been previously disturbed from the construction of a road crossing with a culvert and fill slope. Coordination with the MDE and the DNR Wildlife and Heritage Division will be required to determine the extent of the impact and determine whether the impact would diminish the ecological significance of the wetland.

The Maryland Piedmont Sole Source Aquifer traverses I-270 between MD 80 (Urbana) and MD 118 (Germantown). This aquifer is a source of well water supply for most of Montgomery County. The U.S. Environmental Protection Agency (EPA) will assess effects in terms of the amount of new paved areas that will reduce the total area of groundwater recharge for the aquifer as well as the potential for measurable contamination to individual wells by infiltration of roadway runoff. Coordination with appropriate agencies including the EPA regarding the creation of additional impervious surfaces and development of stormwater management facilities will be undertaken.

Project alternates are configured so that substantial longitudinal floodplain encroachments will not occur. The majority of floodplain encroachments will be from transverse crossings for each of the build alternates (encroachment from roadway development that crosses the valley widths of floodplains). There are no floodplain impacts for the No-Build Alternate. Approximately, three (3) acres of floodplains will be affected by the construction of the Trading Lane park and ride lot in the TSM/TDM Alternate. Floodplain impact on 100-year floodplains for the build alternates varies between approximately 21 acres and 24 acres.

Impacts to terrestrial forests with the highway component range from 156 acres to 180 acres depending on the alternate. The transitway component will impact 27 acres of terrestrial forests. The largest contiguous forested areas (50 acres or more) provide habitat for Forest Interior Dwelling Birds, and the Maryland Department of Natural Resources has previously requested that those areas be protected and addressed in project development plans. Regulations regarding reforestation will be followed to mitigate any unavoidable impacts.

Coordination with the Maryland Department of Natural Resources and the US Fish and Wildlife Service indicates that there are no known federal or state threatened or endangered plant or wildlife species in the project area.

3. Air Quality

The project is not predicted to cause or exacerbate a violation of the applicable National Ambient Air Quality Standards (NAAQS). The project will not have a meaningful impact on regional pollutant burdens.

4. Noise and Vibration

Highway Component Impacts

Future predicted 2025 build noise levels under both highway alternates 3B and 5A exceed the 66 dBA SHA Noise Abatement Criteria at 36 and 35 noise monitoring/modeling locations, respectively. Future No-Build and build noise levels exceed 66 dBA at 26 residential noise monitoring/modeling locations scattered throughout the study area. Noise impacts also occur at parkland locations abutting the corridor, including the Monocacy National Battlefield.

Transitway Component Impacts

Noise impacts were determined at 18 transitway sites, by applying the FTA guidelines contained in *Transit Noise and Vibration Impact Assessment* (FTA, April 1995). The results of the noise analysis show noise impacts that were identified for the LRT alternate under two different scenarios: a) without the train horn and b) with the train horn. An impact assessment was also performed by applying the APTA guidelines and WMATA criteria, both of which specify maximum allowable limits for single pass-by train noise levels (L_{max}) at sensitive land uses along the corridor.

Under the build alternate, 10 noise monitoring/modeling locations would be affected without the train horn and 16 sites would be affected with the train horn. Of the 10 locations under the "without train horn" category nine sites would be categorized as "impacts" and one site would be categorized as "severe impact." Of the 16 locations under the "with train horn" category four sites would be categorized as "impacts" and 12 sites would be categorized as "severe impacts." For purposes of comparison, the results of the impact analysis performed by applying the APTA guidelines and WMATA criteria show noise impacts at five sites and no impacts at the remaining 13 locations. Noise levels generated by the proposed BRT traveling along the transitway corridor will generally produce noise levels which are lower than those caused by the LRT option.

Projected vibration levels throughout the transit corridor stay below impact threshold. Commuter buses are not heavy enough to cause any perceptible ground-borne vibration. Vibration levels generated by buses will be lower than those reported under the LRT option.

5. Permits Required

Construction of this project would require review and approval for the following permits:

Permit Required	Permitting Agency
Section 401 Water Quality Certificate	MDE
Section 404 Wetland Permit	USACOE/MDE
Non-tidal Wetland and Waterways Permit	MDE
Stormwater Management Plan Approval	MDE
Sediment and Erosion Control Plan Approval	MDE
National Pollution Discharge Elimination System (NPDES) permit for point discharges	MDE

H. GOALS/OBJECTIVES/MEASURES OF EFFECTIVENESS (MOE)

Goals, Objectives, and Measures of Effectiveness (MOE) were established over the course of the study for purposes of evaluating the proposed alternates. The alternates can be evaluated based on the measures. The measures of effectiveness are presented in **Chapter V,** and the goals are presented below.

Goal 1: Support Orderly Economic Growth

Support the orderly economic development of the I-270/US 15 Corridor consistent with the existing local government land use plans and the State's Smart Growth Policies.

Goal 2: Enhance Mobility

Provide enhanced traveler mobility through the I-270/US 15 Corridor.

Goal 3: Improve Goods Movement

Facilitate the movement of goods within and through the I-270/US 15 Corridor and improve the delivery of services in support of the regional and local economies.

Goal 4: Preserve the Environment

Deliver transportation services in a manner that preserves, protects, and enhances the quality of life and natural environment in the I-270/US 15 Corridor.

Goal 5: Optimize Public Investment

Provide a transportation system in the I-270/US 15 Corridor that makes optimal use of the existing transportation infrastructure while making cost effective investments in facilities and services that support other project goals.

I. SUMMARY OF COSTS AND FINANCIAL ANALYSIS

A summary of the capital and operating cost estimates for each build alternate is found in **Table S-3**. The costs for the build alternates range between $33 million (Alternate 2) and $2,955 million (Alternate 5A). These estimates are total project costs including project planning, engineering, right-of-way and construction.

TABLE S-3
CAPITAL COST ESTIMATES
FOR ALTERNATES (MILLIONS OF 2001 DOLLARS)

Cost Component	Alternate 2	Alternate 3A	Alternate 3B	Alternate 4A	Alternate 4B	Alternate 5A	Alternate 5B	Alternate 5C
Highway Capital Costs								
Project Planning	-	$9	$9	$9	$9	$9	$9	$9
Preliminary Engineering	-	$216	$216	$216	$216	$255	$255	$271
Right-of-Way	-	$139	$139	$139	$139	$139	$139	$139
Construction	-	$1,441	$1,441	$1,441	$1,441	$1,695	$1,695	$1,804
Subtotal Highway	-	$1,805	$1,805	$1,805	$1,805	$2,098	$2,098	$2,223
Transit Capital Costs								
Subtotal Transit	$33	$857	$792	$857	$792	$857	$792	$296
Total Cost of Alternate	$33	$2,662	$2,597	$2,662	$2,597	$2,955	$2,890	$2,519

Note: *Based on the Maryland Department of Transportation's 2003 to 2008 Consolidated Transportation Program cost estimate.*

Source: *Rummel, Klepper & Kahl, LLP, March 2002 (Highway Capital Costs) and Parsons, Brinckerhoff, Quade & Douglas, Inc., February 2002 (Transit Capital and O&M Costs).*

1. Operating and Maintenance (O&M) Costs

The operations and maintenance (O&M) cost funding strategy is in its formative stages. Highway O&M costs are relatively low; they include routine repairs and periodic road resurfacing. Once the proposed improvements are constructed, it is anticipated that recurring highway O&M costs will be included in the overall repair cycle for the affected segments of I-270/US 15.

It is assumed transit O&M costs for the I-270/US 15 Corridor transit improvements will be met from two sources: system-generated revenues and an operating subsidy. System-generated revenues include passenger fares, advertising revenues and other miscellaneous sources. They are typically not sufficient to meet all O&M costs. The net operating deficit that remains after system-generated revenues are applied to O&M costs must be met from other sources. While federal operating assistance is available, this source is declining. It is assumed that all available federal financial assistance for transit operations will be applied to existing transit operations

within the Washington, DC region and no federal O&M subsidy will be available for the transitway. The O&M subsidy will be provided from state and/or local sources.

The MTA estimates O&M costs for the transitway to be $25 million per year for the LRT option, $64 million for the BRT option, and $32 million for Premium Bus at full system implementation. No decision has been made as to the operating entity for the transitway. That decision, and the development of a detailed financial plan, will be made during subsequent phases of project development.

The estimated O&M costs for the I-270/US 15 highway and transit improvement alternatives are shown in **Table S-4**.

TABLE S-4
PROJECTED I-270/US 15 CORRIDOR O&M COSTS
(MILLIONS OF 2001 DOLLARS)

Alternative		Estimated Annual O&M Costs ($ Millions)		
		Highway	Transit	Total
Alternate 2	TSM/TDM	-	$28	$28
Alternate 3A	Master Plan HOV/LRT	-	$25	$25
Alternate 3B	Master Plan HOV/BRT	-	$64	$64
Alternate 4A	Master Plan General- Purpose/LRT	-	$25	$25
Alternate 4B	Master Plan General-Purpose/BRT	-	$64	$64
Alternate 5A	Enhanced MP HOV/General- Purpose/LRT	-	$25	$25
Alternate 5B	Enhanced MP HOV/General- Purpose/BRT	-	$64	$64
Alternate 5C	Enhanced MP HOV/General- Purpose/Premium Bus	-	$32	$32

Source: *Parsons, Brinckerhoff, Quade & Douglas, Inc., February 2002 (Transit Capital and O&M Costs).*

2. Financial Analysis

A complete discussion of the fiscal impacts of the proposed alternatives can be found in **Section V.F**.

All things considered, the BRT alternates would produce the most positive economic development impacts, followed by the Premium Bus alternate, and finally by the LRT alternates. Within these groups, the alternates that include an additional general-purpose lane between I-70 and MD 121 (either with or without an additional HOV lane) tend to perform slightly better. The final, relative ranking of the alternates, from most to least positive, is:

- Alternates 4B (BRT) and 5B (BRT)
- Alternate 3B (BRT)
- Alternate 5C (Premium Bus)
- Alternates 4A (LRT) and 5A (LRT)
- Alternate 3A (LRT)

3. Cost Effectiveness

This DEIS contains estimates of the total costs and benefits of the I-270/US 15 Multi-Modal Corridor Study. The costs include annualized capital and annual operating costs. The benefits are measured by the additional annual transit patronage attracted and the annual value of travel time savings to existing riders. The cost-effectiveness index includes total capital costs, annual O&M costs, and annual benefits to both existing transit riders and new transit riders. The use of a cost-effectiveness measure allows analysis of added benefits and added costs of the I-270/US 15 Multi-Modal Corridor project as compared to lower cost options such as the TSM/TDM alternative. The cost index is included here because it is used by FTA to rate proposed major capital transportation projects around the country, which are being considered for federal funding.

The cost-effectiveness index for the alternates (**Table S-5**) range from $5.07 to $10.94 relative to the No-Build and $4.16 to $17.99 relative to the TSM/TDM. The index for the I-270/US 15 Multi-Modal Corridor project is comparable to many projects funded with FTA Section 5309 funds.

TABLE S-5
FTA COST EFFECTIVENESS INDICES AND INPUT VALUES

Alternative	Change in O&M Costs from No-Build (000's)	Change in O&M Costs from TSM/TDM (000's)	Change in Equivalent Annual Capital Costs from No-Build (000's)	Change in EAC from TSM/TDM (000's)	Change in Annual Riders from No-Build (000's)	Change in Annual Riders from TSM/TDM (000's)	C/E Relative to No-Build[1]	C/E Relative to TSM/TDM[1]
TSM/TDM	$27,800	-	$4,100	-	5,100	-	-	-
5A LRT	$24,800	-$3,000	$68,400	$64,300	8,500	3,400	$10.94	$17.99
5B BRT	$63,900	$36,100	$65,700	$61,600	12,400	7,300	$10.45	$13.40
5C Premium Bus	$32,050	$4,250	$27,450	$23,350	11,750	6,650	$5.07	$4.16

Note: 1. The lower the cost effectiveness number, the more cost effective the alternate.

J. ISSUES TO BE RESOLVED

The DEIS is one step in a decision making process that may lead to transportation improvements for the I-270/US 15 Corridor. A number of issues will be addressed in subsequent steps or phases of the project:

- Operation of a transit facility
- Potential project construction phasing due to funding constraints
- Coordination with local agencies and developers on specific site locations and designs for stations, parking facilities, noise walls and maintenance facilities
- Minimization of residential and business displacements
- Minimization of impacts to natural resources
- Land Use/ Smart Growth

Non-Preferred Alternates

Due to the potential for significant residential impacts/displacements in two areas along the I-270 Corridor, the Project Team has identified the following items as Non-Preferred Alternates:

- I-270/I-370 Direct Access Ramps (included in Alternate 5C)
- Slope Limits along I-270 Northbound, South of Middlebrook Road along Staleybridge Road (retaining wall to be provided) (included in Alternates 3A/B, 4A/B, 5A/B/C)

I-270/I-370 Direct Access Ramps (included in Alternate 5C)

The proposed direct access ramps at the I-270/I-370 interchange are considered a non-preferred alternate, as the ramps and associated highway widening would result in a substantial number of residential/townhouse unit displacements. If direct access ramps are not provided, this would potentially avoid displacing up to 261 additional residential units, resulting in a potential total of either 91 to 124 displacements (without retaining walls) or 59 to 96 displacements (with retaining walls). The resulting displacements are identical to the impacts in Alternates 5A/B. Elimination of the I-270/I-370 direct access ramps would also potentially avoid up to one additional business displacement.

The elimination of the I-370 direct access ramps would likely reduce the Premium Bus transit ridership in Alternate 5C by approximately 4,000 riders during the AM peak period. This would decrease the total projected 2025 AM peak period ridership from 14,500 to 10,500 riders. In addition, the elimination of these ramps would decrease total corridor transit ridership (MARC commuter rail, local bus, and premium bus) by approximately 800 riders, and would increase traffic volumes in the corridor by approximately 650 additional low occupancy vehicle trips.

Slope Limits along I-270 Northbound, South of Middlebrook Road along Staleybridge Road (included in Alternates 3A/B, 4A/B, 5A/B/C)

Slope limits along I-270 northbound, south of Middlebrook Road are considered a non-preferred alternate, as these slope limits would result in the displacement of a substantial number of single-

family residences. In lieu of slope limits in this area, a retaining wall would be provided along I-270 northbound, south of Middlebrook Road in order to avoid displacements to residences located along Staleybridge Road. Retaining walls in this area would reduce residential impacts from potential displacements of between 26 and 35 residences (total without retaining walls) to between nine and 13 residences

K. RELATED PROJECTS IN THE PROJECT AREA

The Maryland Department of Transportation is engaged in a variety of efforts to find solutions to the I-270/US 15 Corridor's transportation problems. There are a number of other projects ongoing or completed in the project area which are related to the traffic studies in the I-270/US 15 Multi-Modal Corridor Study:

MD 117 Corridor Study: Includes proposed intersection modifications along the MD 117 Corridor. This project is currently in the planning phase. However, much of the MD 117 Corridor will be designed and constructed as part of other studies (listed below). Alternates include auxiliary lanes and an off-street hiker/biker trail.

Congestion Relief Study (CRS): Includes congestion relief along MD 117, centered at the intersection with MD 124. New sidewalks and bikeways are to be included. This project is currently in the design phase and is funded for construction in 2003. In addition, there is an interim project to relieve congestion at the intersection of MD 355 and MD 124. This project is currently under construction.

MD 117 (From I-270 to Muddy Branch Road): Includes improvements to the I-270/MD 117 interchange and along MD 117, as well as the construction of a Park-and-Ride facility. New sidewalks and bikeways are included. The project is currently under construction.

I-270/MD 124 Interchange Modifications: Modifications to the interchange, including the implementation of a park and ride facility. This project was recently completed.

I-270/Watkins Mill Road Extended Study: Improved access (vehicular, pedestrian, bicycle and transit) to and from the transportation network to accommodate and provide sufficient capacity to serve planned economic development in designated growth areas (Priority Funding Areas) of northern Gaithersburg. In addition, it is important to improve access to the Metropolitan Grove MARC Station to facilitate increased transit use. This project planning study was recently completed.

MD 80 Improvements: Developer improvements have been completed at I-270 and MD 80. These improvements have relocated MD 80 between I-270 and MD 355 and widened the road from a two-lane undivided roadway to a four-lane divided roadway. This project also included the reconfiguration of the I-270/MD 80 Park and Ride lot to incorporate both a north and south lot, expanding from 193 spaces to 392 spaces.

MD 85 Study: MD 85, between Spectrum Drive and English Muffin Way is a separate project planning study to evaluate highway widening.

I-270 and I-70 Improvements: Improvements at I-270/I-70 include providing the missing movements from I-270 northbound to I-70 eastbound and I-70 westbound to I-270 southbound, an additional through lane on eastbound and westbound I-70, widening of existing New Design Road to four lanes and widening the existing ramps. This project is currently under construction.

Jefferson Street/US 15/US 340 Interchange Improvements: Includes the construction of left-turn spur ramps off the existing outer ramps in the southeast and northwest quadrants; removal of the northeast and southwest quadrant loop ramps; and reconstruction of the southeast quadrant loop ramp, which has been closed since the early 1990's. Also includes new traffic signals, and lighting/signing modifications. This project is currently under construction.

I-70/MD 355 Interchange: Includes the replacement of the existing eastbound ramps at I-70 to MD 355, reconstruction of MD 85 at the MD 355 intersection, and widening of MD 355 from south of I-70 for approximately 2,500 linear feet. This project is currently under construction.

US 15/MD 26 Interchange Improvements: Ongoing study includes improvements at US 15/MD 26 which are being considered to address the missing movements to-and-from US 15 north and to-and-from the west of the interchange. Improvements would enhance both safety and access (vehicular, pedestrian, bicycle and transit) to and from the transportation network.

MARC Frederick Extension: The Maryland Transit Administration (MTA) extended the Maryland Commuter Rail (MARC) system to provide service from Point of Rocks to Frederick. This project was completed in December 2001.

Separate Transit Studies: Montgomery and Frederick counties have performed separate but coordinated transit easement studies, each of which has identified feasible alternatives for further study. Montgomery County sponsored two studies: the I-270 Corridor Cities Transit Easement Study by the Maryland-National Capital Park and Planning Commission (M-NCPPC), and the Shady Grove/Clarksburg Transitway Study by the Montgomery County Department of Transportation (MCDOT). Frederick County sponsored a study prepared by the M-NCPPC called the I-270 Corridor Cities Transit Easement Study - Frederick County Extension.

L. ENVIRONMENTAL ASSESSMENT FORM

The Environmental Assessment Form (EAF) is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4 (k) and 1506.2 and 1506.6 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommend that duplication of Federal, State and Local procedures be integrated into a single process.

The checklist identifies specific areas of the natural and socioeconomic environment that have been considered while preparing this environmental assessment. The reviewer can refer to the appropriate section of the document, as indicated in the "Comment" column of the form, for a description of specific characteristics of the resource and the potential impacts, beneficial or adverse, that the action may incur. The "No" column indicates that during the scoping and early coordination processes, a specific area of the environment was not identified to be within the project area or would not be impacted by the proposed action

ENVIRONMENTAL ASSESSMENT FORM

I-270/US 15 MULTI-MODAL CORRIDOR STUDY
ENVIRONMENTAL ASSESSMENT FORM

	Yes	No	Comments
A. LAND USE CONSIDERATIONS			
1. Will the action be within the 100 year floodplain?	X		See Section III.F.6
2. Will the action require a permit for construction or alteration within the 50 year floodplain?		X	
3. Will the action require a permit for dredging, filling draining or alteration of a wetland?	X		See Section III.F.1
4. Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?		X	
5. Will the action occur on slopes exceeding 15%?	X		See Section III.E.1
6. Will the action require a grading plan or a sediment control permit?	X		See Section III.F.1
7. Will the action require a mining permit for deep or surface mining?		X	
8. Will the action require a permit for drilling a gas or oil well?		X	
9. Will the action require a permit for airport construction?		X	
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?		X	
11. Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	X		See Chapter VI: Section 4(f) Evaluation
12. Will the action affect the use of any natural or man-made features that are unique to the county, state, or nation?	X		See Chapter VI: Section 4(f) Evaluation
13. Will the action affect the use of an archaeological or historical site or structure?	X		See Chapter VI: Section 4(f) Evaluation
B. WATER USE CONSIDERATIONS			
14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	X		See Section III.F
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?		X	

	Yes	No	Comments
16. Will the action change the overland flow of storm water or reduce the absorption capacity of the ground?	X		See Section III.F
17. Will the action require a permit for the drilling of a water well?		X	
18. Will the action require a permit for water appropriation?		X	
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?		X	
20. Will the action require a permit for the construction and operation of facilities for sewage treatment and/ or land disposal of liquid waste derivatives?		X	
21. Will the action result in any discharge into surface or subsurface water?	X		See Section III.F
22. If so, will the discharge affect ambient water quality parameters and/ or require a discharge permit?	X		See Section III.F
C. AIR USE CONSIDERATIONS			
23. Will the action result in any discharge into the air?	X		See Section III.J.2
24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?		X	
25. Will the action generate additional noise which differs in character or level from present conditions?	X		See Section III.J.2
26. Will the action preclude future use of related air space?		X	
27. Will the action generate any radiological, electrical, magnetic, or light influence?		X	
D. PLANTS AND ANIMALS			
28. Will the action cause the disturbance, reduction or loss of any rare, unique or valuable plant or animal?	X		See Section III.H.3
29. Will the action result in any significant reduction or loss of any fish or wildlife habitats?		X	
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical or radiological control agents?		X	
E. SOCIO-ECONOMICS			
31. Will the action result in a pre-emption or division of properties or impair their economic use?	X		See Section III.A
32. Will the action cause relocation of activities structures, or result in a change in the population density or distribution?	X		See Section III.B

	Yes	No	Comments
33. Will the action alter land values?	X		See Section III.C.2
34. Will the action affect traffic flow and volume?	X		See Section IV.E
35. Will the action affect the production, extraction, harvest or potential use of scarce or economically important resource?		X	
36. Will the action require a license to construct a sawmill or other plant for for the manufacture of forest products		X	
37. Is the action in accord with federal, state, regional and local comprehensive or functional plan, including zoning?	X		See Section III.A
38. Will the action affect the employment opportunities for persons in the area?	X		See Section III.C
39. Will the action affect the ability of the area to attract new sources of tax revenue?	X		See Section III.C
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	X		See Section III.C
41. Will the action affect the ability of the area to attract tourism?		X	
F. OTHER CONSIDERATIONS			
42. Could the action endanger the public health, safety, or welfare?		X	
43. Could the action be eliminated without deleterious affects to the public health, safety, welfare or natural environment?		X	
44. Will the action be of statewide significance?		X	
45. Are there any other plans or actions (federal, state, county or private) that, in conjunction with the subject action could result in a cumulative or synergistic impact on the public health, safety, welfare, or environment?	X		See Section III.O
46. Will the action require additional power generation or transmission capacity?		X	
G. CONCLUSION			
47. This agency will develop a complete environmental effects report on the proposed action.	X		See Document

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GLOSSARY

Below is a selection of the terms, definitions and acronyms believed to be of most use to the readers of the I-270/ US 15 DEIS.

A-Weighted Decibels (dBA):

A noise measurement unit that corresponds to the average response of the human ear.

AADT:

Annual Average Daily Traffic. The number of vehicles passing a given point over a 24-hour period (daily traffic), averaged over an entire calendar or fiscal year.

Access Control:

The restriction of direct access between a roadway and an immediate adjacent property. 1) Full Access Control -- Allows access to a highway facility via interchange only (i.e. no at-grade crossings), eliminating private driveway access. 2) Partial Access Control – Allows access to a highway facility from public roads and from private driveways through intersections or interchanges. 3) Uncontrolled Access – Access is limited only to safe locations dependent upon the horizontal and vertical characteristics of the highway. All crossroads, driveways, etc. may have points of ingress or egress to the highway.

Access Management:

Limits and/or removes the number of points at which vehicles may enter or exit a highway. Access management may include combining entrances and parking lots and adding service roads.

ADT:

Average Daily Traffic. The number of vehicles that pass a specified location over a 24-hour period.

AGP:

Annual Growth Policy. The AGP helps Montgomery County officials coordinate the timing of private development with the availability of public facilities. The AGP is designed to affect the timing of development not the total amount, type, or mix of development.

Air Pollution:

The presence of unwanted material in the air in sufficient amount and under such circumstances as to interfere significantly with human comfort, health, or welfare, or with full use and enjoyment of property.

Alignment:

The horizontal and vertical location of a roadway, railroad, transit route or other linear transportation facility.

Alternates:

Two or more reasonable options for addressing Corridor transportation problems.

Ambient Air Quality:

A physical and chemical measure of the concentration of various chemicals in the outside air, usually determined over a specific time period, for example, 5 minutes, 1 hour, or 1 day.

APE:

Area of potential effect. The geographic area within which a transportation project may cause changes in the character of or use of historic properties.

APFO:

Adequate Public Facilities Ordinance. APFOs are local ordinances that require adequate public facilities and services to be available before new development can be built.

Aquifer:

A water-bearing unit or stratum of permeable rock, sand, or gravel capable of yielding considerable quantities of water to wells and springs.

ARDS:

Alternates Retained for Detailed Study. A set of transportation strategies that are evaluated in the SHA Stage II Project Planning process. In Stage II, as part of the NEPA process, the alternates retained from previous studies (in this case, the No-Build, TSM/TDM, Alternates 3A/B, 4A/B and 5A/B/C) were evaluated under a new MWCOG travel forecasting model run with revised traffic volume information; detailed engineering and environmental analyses were performed; and a Draft Environmental Impact Statement (DEIS) was produced that reviews the detailed alternates and environmental impacts.

Arterial:

A major thoroughfare, used primarily for through traffic rather than for access to abutting land, that is characterized by high vehicular capacity and continuity of movement.

Baseline Conditions:

Existing conditions from which the environmental effects (air quality, water quality, traffic, noise and vibration) are measured.

Best Management Practice (BMP):

Measures to control the quantity and quality of stormwater leaving a drainage basin. Local and state jurisdictions have adopted BMPs to counteract physical development and construction activity that may concentrate stormwater or produce soil erosion.

BRT:

Bus rapid transit. BRT uses buses to emulate the speed, reliability, and image of light rail. Bus service will operate in two general formats: (1) line haul along the CCT; and (2) smaller feeder buses which circulate through neighborhoods before using the busway.

Busway:

A roadway exclusively reserved for transit buses.

CAA:

Clean Air Act. The Clean Air Act Amendments of 1990 (CAA) directed the EPA to implement strong environmental policies and regulations that will ensure cleaner air quality.

Calibration:

1) Reconciliation of an instrument with an established standard. 2) In modeling, the procedure used to estimate the parameters of a model or to adjust a model to replicate actually measured conditions.

Capital Cost:

The expense of transportation improvement project construction, materials procurement, equipment installation, and vehicles.

CBD:

Central Business District. The downtown area of a city.

CCT:

Corridor Cities Transitway. A transit alignment from the Shady Grove Metro Station to COMSAT for a separate busway or light rail transit system.

CERCLA:

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund. Enacted by Congress on December 11, 1980, this law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

CERCLIS:

The Comprehensive Environmental Response, Compensation and Liability Information System is a compilation of sites the USEPA has investigated or is currently investigating for a release of hazardous substances pursuant to CERCLA.

Champion Tree:

The largest tree of its species within the US, the state, county, or municipality as determined by each jurisdiction.

CHART:

Coordinated Highway Action Response Team. It is comprised of a number of sub-systems, including traffic monitoring, traveler information, incident management, and traffic management. All of these mechanisms help with the flow of traffic throughout the state of Maryland.

CLRP:

Constrained Long Range Plan. Responds to federal requirements that funding sources be identified for all strategies and projects included in long-range plans. Updated at least every three years, the CLRP includes only those projects and strategies that can be implemented over the planning period with funds that are reasonably expected to be available.

CMS:

Congestion Management System. CMS was introduced as a requirement by the Intermodal Surface Transportation Efficiency Act (ISTEA) and provides for comprehensive monitoring, evaluation and enhancement of multi-modal transportation system performance in metropolitan areas with a population of over 200,000. The program requires that planning for all projects, which may add highway capacity in non-attainment areas, consider CMS strategies that reduce single-occupant vehicle travel and improve transportation efficiency.

COMAR:

Code of Maryland Regulations. A permanent compilation of all Maryland agency regulations. Started in 1977, COMAR is divided into 31 titles, with each title usually corresponding to a department or agency within State government.

Commuting Patterns:

Travel behavior patterns in a given area for persons traveling to and from their place of employment.

Commercial Areas:

Areas in which commercial (retail) activity is the predominant land use.

Comprehensive Plan:

An overall plan stating public policy intentions for the future development of a community or jurisdiction, including the general location and character of development. Also, called a general or master plan, it provides official guidelines for growth and change in a community.

Conceptual Engineering:

The level of design at which the basic characteristics of each alternate is defined, including location on the ground, height, location of possible stations, frequency of service and operating policies, and general capital, operating and maintenance costs.

Conformity:

The Clean Air Act stipulates that any approved transportation project, plan, or program must conform to the State Implementation Plan (SIP), a document that prescribes procedures for the implementation, maintenance, and enforcement of primary and secondary air pollutants.

Corridor:

A strip of land between two termini within which topography, environmental and other characteristics are evaluated for transportation purposes.

Cost-Effectiveness:

An analytical technique used to choose the most effective method for achieving a program or policy goal. The costs of alternates are measured by their requisite estimated monetary expenditures. Effectiveness is defined by the degree of goal attainment and may also (but not necessarily) be measured in monetary terms.

CSIS:

Candidate Safety Improvement Section (formerly known as an High Accident Section, or HAS) is defined as a half-mile section (or less) of roadway with an accident rate exceeding the statewide average, discounting intersection-related accidents.

CSPS:

Countywide Stream Protection Strategy. The first countywide assessment of stream resource conditions based upon assessment of aquatic life and stream channel habitat indicators in addition to typically applied stream chemistry measurements.

CTP:

Consolidated Transportation Program. A report developed each year in draft form and presented to every county in Maryland and Baltimore City. Following distribution of the draft document, the Maryland Department of Transportation representatives visit each county both to present the information and receive comments on the plan and program.

Cumulative Effects:

The impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency (Federal, or non-Federal) or person undertakes such other actions.

dBA:

Decibels (A-weighted scale which adjusts to simulate human hearing).

DEIS/EIS:

Draft Environmental Impact Statement/Environmental Impact Statement. A comprehensive study of likely environmental impacts that will result from major federally assisted projects. The National Environmental Policy Act of 1969 requires an EIS.

Density (land use):

Refers to the concentration of development in a given geographical area.

DBH:

Diameter at Breast Height. Diameter of trees at breast height (about 4.5 feet from the ground).

DEP:

Montgomery County Department of Environmental Protection. The Department of Environmental Protection protects and enhances the quality of life through conservation, **preservation, and restoration of the environment, guided by the principles of science,** resource management, sustainability, and stewardship. The two components of the department are Watershed Management and Environmental Policy and Compliance.

DNR:

Maryland Department of Natural Resources. State agency responsible for the protection, restoration and enhancement of natural resources such as fisheries, wildlife resources, forests, aquatic habitat, threatened and endangered species, etc. under its jurisdiction.

Effect:

For purposes of this DEIS, refers to a measurable change precipitated by the proposed transportation improvement.

EJ:

Environmental Justice. A term referring to unjust dispersion of adverse effects to human health and the environment on minority or low-income populations resulting from public infrastructure projects, such as construction of highways and land fills.

Endangered:

An organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.

Equity:

In transportation planning, a normative measure of fairness among recipients of mobility benefits, costs and impacts.

Express Bus:

A bus that makes few or no stops between the start and end points of the bus route.

Feeder Bus:

Local bus routes connecting to rail stations.

FEIS:

Final Environmental Impact Statement. The final version of one or more drafts and supplemental draft environmental impact statements for a given federally assisted project.

FEMA:

Federal Emergency Management Agency. FEMA has ten regional offices, and two area offices. Each region serves several states, and regional staff work directly with the states to help plan for disasters, develop mitigation programs, and meet needs when major disasters occur.

FHWA:

Federal Highway Administration. A component of the US Department of Transportation, established to oversee the development of a national road and highway system. The FHWA assists states in constructing highways and roads and provides financial aid at the local level.

FIRM:

Flood Insurance Rate Maps. Maps produced by the Federal Emergency Management Agency (FEMA) to determine the locations of flood risks and hazards.

Floodplain:

Land that is periodically inundated by floodwaters.

Forecast Zone:

Large aggregate analysis areas comprised of several individual transportation analysis zones (TAZs are small analysis areas formed by jurisdictional boundaries, major highways, and barriers to travel such as rivers).

FPPA:

Farmland Protection Policy Act. Congress enacted the Farmland Protection Policy Act as a subtitle of the 1981 Farm Bill. The FPPA stipulates that federal programs be compatible with state, local and private efforts to protect farmland. For the purposes of the law, federal programs include construction projects – such as highways, airports, dams and federal buildings – sponsored or financed in whole or in part by the federal government, and the management of federal lands. The US Department of Agriculture's Natural Resources Conservation Service is charged with oversight of the FPPA.

FTA:

Federal Transit Administration. A component of the US Department of Transportation, established to oversee the development of the public transportation system. The FTA assists states in constructing public transit systems and provides financial aid at the local level.

Fugitive Dust:

Dust created by the movement of construction equipment over exposed land.

Future Design Year:

The year for which traffic projections have been made and transportation needs analyzed; 2025 is the Future Design Year for the I-270/US 15 Multi-Modal Corridor DEIS.

GIS:

Geographic Information System.

Grade:

1) Refers to a rise in elevation within a specified distance. For example, a 1% grade is a 1-foot or 0.305 meter rise in elevation in 100 feet or 30.5 meters of horizontal distance. 2) "At grade" refers to a transportation facility built at ground level.

Guideway:

The structure or surface upon which a transit vehicle will operate.

Headway:

Refers to the number of minutes between transit service, bus or train departures.

HOV:

High Occupancy Vehicle. Motorcycles or vehicles containing two or more occupants may use a dedicated lane for HOV use. HOV lanes are used to encourage commuters to carpool.

Hydric Soils:

"A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation," according to current wetlands delineation methodology (USCOE, 1987).

ISA:

Initial Site Assessment. Consists of a database search for prior hazardous materials violations and a site reconnaissance to identify environmental conditions, such as dumping or stained soils, that warrant additional investigation.

ISTEA:

Intermodal Surface Transportation Efficiency Act of 1991, a major authoring legislation for surface transportation. Includes various programs and initiatives for improving transportation safety, protecting communities and the natural environment, and advancing the nation's economic growth through efficient and flexible transportation.

ITS:

Intelligent Transportation System. Broad range of diverse technologies, including information processing, communications, control, and electronics that enables people and goods to move more safely and efficiently through a state-of-the-art intermodal transportation system.

JD:

Jurisdictional Determination. A map or document prepared in accordance with US Army Corps of Engineers (USCOE) standards and procedures to identify the locations and extent of wetlands and waters of the US under their jurisdiction.

Kiss-and-Ride:

An access mode to transit whereby passengers (usually commuters) are driven to a transit stop and left to board a transit unit and then met after their return trip. Transit stations usually provide a designated area for dropping off and picking up such passengers.

L_{eq}:

A descriptor commonly used to represent fluctuating sound levels over an extended period of time as a constant value.

L-A-C:

Local Activity Center. A zoning category consisting of a mixture of commercial retail and service uses along with complimentary residential densities within a hierarchy of centers servicing three distinct service areas: neighborhood, village, and community.

LOS:

Level of Service. 1) A set of characteristics that indicate the quality and quantity of transportation service provided, including characteristics that are quantifiable (system performance, e.g., frequency, travel time, travel cost, number of transfers, safety) and those that are difficult to quantify (service quality, e.g., availability, comfort, convenience, modal image). 2) For highway systems, a qualitative rating of the effectiveness of a highway or highway facility in serving traffic, in terms of operating conditions. The Highway Capacity Manual identifies operating conditions ranging from A, for best operations (low volume, high speed), to F, for worst conditions.

LOV:

Low occupancy vehicles.

LRT:

Light Rail Transit. An electrically powered transit mode using overhead wires that can be operated in street, in mixed traffic, with street crossings and in exclusive rights of way.

M-A-C:

Major Activity Center. A zoning category consisting of a mixture of high concentration uses such as commercial and other public and private sector businesses that serve a regional residential market or provide concentrated employment, arranged to allow easy pedestrian access between uses. May also include other land uses including residential and recreational uses.

Major Employment Center:

An area characterized by a high concentration of public and private employment.

MARC:

Maryland Rail Commuter. The local commuter rail passenger service operated by the Maryland Transit Administration (MTA). MARC service offers three lines: Penn Line from Perryville, MD (Cecil County) to Baltimore and Washington, DC; Camden Line from downtown Baltimore to Washington, DC; and Brunswick Line from Martinsburg, WV to Washington, DC.

MBSS:

Maryland Biological Stream Survey. Maintained by the Maryland Department of Natural Resources Monitoring and Non-Tidal Assessment Division.

MDE:

Maryland Department of the Environment. State agency responsible for the protection, restoration and quality of Maryland's air, water and land resources including wetland habitats, ground and surface waters, mineral resources, etc. under its jurisdiction.

MDOT:

Maryland Department of Transportation. A cabinet-level state agency of the State of Maryland with responsibility for the development and management of transportation facilities and services within the State.

MDP:

Maryland Department of Planning. State agency responsible for consideration of transportation alternatives under the State's growth policies including the Smart Growth and Neighborhood Conservation Initiatives, including the Priority Funding Areas Act (PFA).

SHA:

Maryland State Highway Administration. An agency of the Maryland Department of Transportation with responsibility for the planning, development, operation and maintenance of the state's highway and road network.

Median:

The center portion of a divided highway separating opposing lanes of traffic.

MIS:

Major Investment Study. The MIS is a transportation planning process undertaken to decide the design concept and scope of a major transportation investment for a given corridor. This process is required for a major metropolitan transportation investment that is identified and in which Federal funds may be involved.

Mitigation Measures:

Steps taken to moderate or reduce the adverse effects of constructing or operating a major transit improvement.

Mixed Traffic:

The use of a single guideway or street by various types of transportation vehicles, such as cars, buses, and trucks.

M-NCPPC:

Maryland-National Capital Park and Planning Commission. An agency of the State of Maryland responsible for a variety of public property management activities in Montgomery County including the preparation and adoption of the General Plan for physical development of the Maryland-Washington Regional District and the acquisition, development, operation and maintenance of public parkland.

Modal Split (Mode Split):

1) The proportion of total person trips that uses each of various specified modes of transportation. 2) The process of separating total person trips into the modes of travel used. 3) A term that describes how many people use alternative forms of transportation. It is frequently used to describe the percentage of people who use private automobiles, as opposed to the percentage who use public transportation.

Mode:

A particular form of travel, for example, walking, traveling by automobile, traveling by bus, traveling by train.

Model:

1) A mathematical or conceptual presentation of relationships and actions within a system. It is used for analysis of the system or its evaluation under various conditions; examples include land use, economic, socioeconomic, transportation. 2) A mathematical description of a real life situation that used data on past and present conditions to make a projection about the future.

MPDU:

Moderately Priced Dwelling Unit Program. Montgomery County ordinance that requires projects with 50 or more units to have 12.5% to 15% moderately priced units, defined as units affordable at 65% of the County's median income.

MPO:

Metropolitan planning organization. Regional planning organization that integrates urban transportation planning at the local level.

MTA:

Maryland Transit Administration. An agency of the Maryland Department of Transportation responsible for the development and management of mass transit services within the State.

Multi-Modal:

A transportation study, plan, project and/or evaluation involving more than one transportation mode.

MVM:

Million vehicle miles.

MWCOG:

Metropolitan Washington Council of Governments. A regional public agency with responsibility for coordinating a variety of public services, including transportation, for the greater Washington metropolitan area.

NAAQS:

National Ambient Air Quality Standards. A level of air pollution concentration, as defined by the US Environmental Protection Agency, that cannot be exceeded as mandated by the Federal Clean Air Act. A concentration is an amount of pollution in the air over a given time period.

NEPA:

National Environmental Policy Act of 1969. A comprehensive Federal law requiring an analysis of the environmental effects of Federally-assisted actions and projects, including the preparation of an Environmental Impact Statement (EIS) for every major Federal project that significantly affects the quality of the human environment.

Network:

1) In planning, a system of links and nodes that describes a transportation system. 2) In highway engineering, the configuration of highways that constitutes the total system. 3) In transit operations, a system of transit lines or routes, usually designed for coordinated operation.

NHPA:

National Historic Preservation Act of 1969, as amended. Federal legislation to safeguard the Nation's prehistoric resources and historic buildings sites, and environments.

NIH:

National Institutes of Health. The NIH is one of eight health agencies of the Public Health Services, which in turn, is part of the US Department of Health and Human Services. Comprised of 27 separate components, mainly Institutes and Centers, NIH has 75 buildings on more than 300 acres in Bethesda, MD.

NIST:

National Institute of Standards and Technology. Non-regulatory federal agency within the US Department of Commerce responsible for development of measurement, standards, and technology to enhance productivity, facilitate trade, and improve quality of life.

NPDES:

National Pollution Discharge Elimination System. All industrial and municipal wastewater treatment facilities which discharge effluents into Maryland's waters must have a National Pollutant Discharge Elimination System (NPDES) permit. This permit is issued by the Maryland Department of the Environment (MDE) and sets discharge limitations and contains various restrictions and monitoring requirements to insure that the discharge will not degrade water quality or harm aquatic life. The permits require the dischargers to monitor their effluents and submit their own data to show that they are complying with these restrictions.

NRCS:

Natural Resources Conservation Service. Agency under the US Department of Agriculture to help people conserve, improve, and sustain natural resources on private lands and in the environment.

NRHP:

National Register of Historic Places. A United States catalog that gives formal recognition to sites, structures, and districts of historic significance.

NWI:

National Wetland Inventory. The US Fish and Wildlife Service produces the NWI with information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats.

NTWSSC:

Nontidal Wetlands of Special State Concern. Nontidal wetlands of Special State Concern are the best examples of Maryland's nontidal wetland habitats and are designated for special protection under the State's nontidal wetlands regulations. These 365 wetland sites with exceptional ecological and educational value offer landowners opportunities to observe and safeguard the beauty and natural diversity of Maryland's best remaining wetlands. Many of these special wetlands contain the last remaining populations of native plants and animals that are now rare and threatened with extinction in the state.

Off-Peak Period:

In transit, the time of day during which vehicle requirements and schedules are not influenced by peak-period passenger volume demands (e.g., between morning and afternoon peak periods). At this time, transit riding is fairly constant and usually low to moderate in volume when compared with peak-period travel.

Park and Ride:

A parking area designed for use by mass transit patrons who start their trip by private automobile and then transfer to transit.

Patronage:

Refers to the potential ridership attracted to a transit system or a transit station.

Peak Period:

1) The period during the day in which the maximum amount of travel typically occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak. 2) The period when demand for transportation service is heaviest.

PFA:

Priority Funding Areas. PFAs consist of existing communities and other locally designated areas for future growth as determined by local jurisdictions in accordance with Maryland's Smart Growth guidelines.

Preferred Alternate:

A single alternate from a list of several alternates that is believed to best address transportation problems.

Project Area:

The immediate geographical boundaries of a given transportation improvement project.

Public Hearing:

A formal meeting called to receive public comment on a proposed action.

Public Meeting:

An informal meeting called to present information about and to discuss a proposed action.

PUD:

Planned urban development. Consists of residential buildings clustered or laid out with reduced setbacks and amenities, such as adequate open spaces and other design provisions, to create a more desirable environment.

RCRA:

Resource Conservation and Recovery Act of 1976. Federal legislation that provides for the environmentally safe disposal of hazardous materials.

Reverse Commuting:

A commuting travel pattern that is characterized by travel from the central city location to suburban locations, typically during peak hours.

Ridership:

Current or expected users of public transit.

ROD:

Record of Decision. A document prepared by the Division Office of the Federal Highway Administration that presents the basis for selecting a specific transportation proposal that has been evaluated through the various environmental and engineering studies of the Transportation Project Development Process. Typically, the ROD identifies that alternate selected in the Final Environmental Impact Statement (FEIS), the alternates considered, measures to minimize harm, monitoring or enforcement programs, and itemized commitments and mitigation measures.

ROW:

Right-of-Way. Land owned by state and/or local jurisdictions that is necessary to accommodate construction, drainage, and proper maintenance of transportation or other public facilities.

RTE:

Rare, threatened and endangered species. Species of fish, wildlife and plants facing extinction and subject to special protection.

SCEA:

Secondary and Cumulative Effects Analysis. Secondary or indirect impacts are "…caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." (40 CFR § 1508.8(b). Cumulative effects are "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal, or non-Federal) or person undertakes such other actions." (40 CFR § 1580.7, 1997).

Scoping:

A process occurring near the beginning of a Draft Environmental Impact Statement that defines the alternates to be studied, identifies issues to be addressed, and defines a public involvement program. A key feature is intensive public, interest group, and government agency involvement.

Scoping Meeting:

A formal opportunity for the public, interest group and government agency representatives to provide input on the alternates to be evaluated and the issues to be addressed in a Draft Environmental Impact Statement.

Screening of Alternates:

To evaluate many suggested alternates in order to identify the most reasonable alternates for, and to eliminate unreasonable alternates from, further consideration. Alternates proposed during Scoping will be screened during the analysis to determine their responsiveness to project goals, Scoping meeting and written input and System Planning findings, to compare their general design and operations characteristics, rough cost, and environmental impact potential.

SDWA:

Safe Drinking Water Act. The SDWA, which celebrated its 25th anniversary in 1999, is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.

Secondary Effects:

Effects that are caused by the action and are later in time, or farther removed in distance, but are still reasonable foreseeable.

Section 4(f):

Refers to Section 4(f) of the US Department of Transportation Act of 1966, which includes a national policy to make special effort to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and significant historic sites.

Section 106:

Refers to Section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to consider the potential effects of proposed federal action on any known or potential historic, architectural or archaeological resources.

Service Roads:

Parallel roadways constructed on the outside of major highways to accommodate local traffic and provide access to adjacent landowners.

SHPO:

State Historic Preservation Officer. The SHPO coordinates State participation in identifying historic properties, accessing effects to them, and considering alternatives to avoid or reduce those effects in compliance with NEPA and Section 106 of the National Historic Preservation Act.

SIP:

State Implementation Plan. SIPs are the adopted planning documents, which determine how the state will meet federal air quality standards. A SIP exists for each of six criteria pollutants identified and considered by USEPA to be the primary air pollutants of concern to human health. The criteria pollutants are: Ozone (O_3); Particulate Matter (PM_{10} and $PM_{2.5}$); Carbon Monoxide (CO); Nitrogen Dioxide (NO_2); Sulfur Dioxide (SO_2); and Lead (Pb).

SOV:

Single occupancy vehicles.

TAZ:

Transportation Analysis Zone. TAZs are small analysis areas formed by jurisdictional boundaries, major highways, and barriers to travel such as rivers.

TCM:

Transportation Control Measures. Strategies, which seek to reduce travel demand by changing the behavior of motorists. These strategies include the promotion of public transit, encouraging ridesharing and carpooling, and organizing employer-sponsored flexible work hour programs. Such strategies form part of an overall Travel Demand Management program.

TDM:

Transportation Demand Management. A program consisting of strategies, which seek to reduce travel demand rather than increase capacity. Examples of strategies included in a TDM program are regional telecommuting programs, ridesharing programs, public transit options, and non-intensive physical changes to existing infrastructure. TCM and TSM strategies are specific components of a Travel Demand Management program.

TEA-21:

Transportation Equity Act for the 21st Century. Congress passed TEA-21 on May 22, 1998 authorizing highway, highway safety, transit and other surface transportation programs until 2004.

TIP:

Transportation Improvement Program. The TIP contains funding information and schedules for various transportation divisions including highways, aviation, enhancements, public transportation, rail, bicycle and pedestrians, and the Governor's Highway Safety Program.

TDS:

Total dissolved solids. Total dissolved solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and small amounts of organic matter that are dissolved in water. TDS in drinking water originate from natural sources, sewage, urban run-off, and industrial wastewater. Salts used for road de-icing in some countries may also contribute to the TDS content of drinking water. Concentrations of TDS in water vary considerably in different geological regions owing to differences in the solubility's of minerals.

Traffic Volume:

The measurement of traffic flow on a particular roadway as expressed in vehicles per day.

Transit Dependent:

A person who through choice, economic and/or physical or mental conditions must rely on public transit to meet local transportation needs.

Transportation Disadvantaged (Low-Mobility Group):

People whose range of transportation alternatives is limited, especially in the availability of relatively easy-to-use and inexpensive alternatives for trip making. Examples include the young, the elderly, the poor, the disabled, and those who do not have automobiles.

TSM:

Transportation System Management. Transportation strategies that seek to reduce travel demand through non-intensive changes to existing infrastructure. These strategies do not seek to provide additional capacity, but attempt to improve circulation. TSM strategies consider such options as improvements to public transit systems, minor intersection improvements, signal timing improvements, and traffic management.

TSS:

Total suspended solids. TSS are solids in water that can be trapped by a filter. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewage. High concentrations of suspended solids can cause many problems for stream health and aquatic life.

USACOE:

United States Army Corps of Engineers. An agency of the federal government that regulates the discharge of fill or dredged material into waters of the US, including jurisdictional wetlands, as well as construction activities that could obstruct or impede navigation in navigable Waters of the US.

USDA:

United States Department of Agriculture. The USDA serves all Americans, the two percent who farm as well as everyone who eats, wears clothes, lives in a house, or visits a rural area or a national forest. USDA remains committed to assisting America's farmers and ranchers.

USEPA:

United States Environmental Protection Agency. An agency of the federal government responsible for the development and implementation of regulatory policies designed to protect natural and human environmental resources. Responsibilities include implementation of the National Environmental Policy Act of 1969 and the development and implementation of the national air quality emissions standards as provided for in the Clean Air Act Amendments of 1990.

USFWS:

United States Fish and Wildlife Service. Federal agency responsible for conservation, maintenance and management of the nation’s fish and wildlife resources.

USGS:

United States Geological Survey. The USGS, the sole science agency for the Department of the Interior, has natural science expertise and vast earth and biological data holdings to help resolve complex natural resource problems across the Nation and around the world.

V/C:

Volume-to-Capacity Ratio. A measurement of highway/roadway service quality which compares the number of vehicles using or expected to use a given road or segment of a road with the number of vehicles that the facility is designed to handle safely.

VMT:

Vehicle Miles of Travel. A measurement of total miles traveled by all vehicles on a given area or corridor over a given time period. It is calculated by multiplying the number of vehicles by the total number of miles traveled on a given corridor over a given period of time.

Watershed:

The region from which a river or stream receives its supply of water.

Wetlands:

A lowland area that is saturated with water and that contains plant and animal life characteristic of water areas. Wetlands are broadly classified according to where they are located. The major classifications are *marine* (oceanic), *estuarine* (tidal), *riverine* (river), *lacustrine* (lake), and *palustrine* (marsh).

WMATA:

Washington Metropolitan Area Transit Authority. Regional agency that provides bus and rail transit service to Washington, DC and neighboring communities.

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GLOSSARY

Below is a selection of the terms, definitions and acronyms believed to be of most use to the readers of the I-270/ US 15 DEIS.

A-Weighted Decibels (dBA):

A noise measurement unit that corresponds to the average response of the human ear.

AADT:

Annual Average Daily Traffic. The number of vehicles passing a given point over a 24-hour period (daily traffic), averaged over an entire calendar or fiscal year.

Access Control:

The restriction of direct access between a roadway and an immediate adjacent property. 1) Full Access Control -- Allows access to a highway facility via interchange only (i.e. no at-grade crossings), eliminating private driveway access. 2) Partial Access Control – Allows access to a highway facility from public roads and from private driveways through intersections or interchanges. 3) Uncontrolled Access – Access is limited only to safe locations dependent upon the horizontal and vertical characteristics of the highway. All crossroads, driveways, etc. may have points of ingress or egress to the highway.

Access Management:

Limits and/or removes the number of points at which vehicles may enter or exit a highway. Access management may include combining entrances and parking lots and adding service roads.

ADT:

Average Daily Traffic. The number of vehicles that pass a specified location over a 24-hour period.

AGP:

Annual Growth Policy. The AGP helps Montgomery County officials coordinate the timing of private development with the availability of public facilities. The AGP is designed to affect the timing of development not the total amount, type, or mix of development.

Air Pollution:

The presence of unwanted material in the air in sufficient amount and under such circumstances as to interfere significantly with human comfort, health, or welfare, or with full use and enjoyment of property.

Alignment:

The horizontal and vertical location of a roadway, railroad, transit route or other linear transportation facility.

Alternates:

Two or more reasonable options for addressing Corridor transportation problems.

Ambient Air Quality:

A physical and chemical measure of the concentration of various chemicals in the outside air, usually determined over a specific time period, for example, 5 minutes, 1 hour, or 1 day.

APE:

Area of potential effect. The geographic area within which a transportation project may cause changes in the character of or use of historic properties.

APFO:

Adequate Public Facilities Ordinance. APFOs are local ordinances that require adequate public facilities and services to be available before new development can be built.

Aquifer:

A water-bearing unit or stratum of permeable rock, sand, or gravel capable of yielding considerable quantities of water to wells and springs.

ARDS:

Alternates Retained for Detailed Study. A set of transportation strategies that are evaluated in the SHA Stage II Project Planning process. In Stage II, as part of the NEPA process, the alternates retained from previous studies (in this case, the No-Build, TSM/TDM, Alternates 3A/B, 4A/B and 5A/B/C) were evaluated under a new MWCOG travel forecasting model run with revised traffic volume information; detailed engineering and environmental analyses were performed; and a Draft Environmental Impact Statement (DEIS) was produced that reviews the detailed alternates and environmental impacts.

Arterial:

A major thoroughfare, used primarily for through traffic rather than for access to abutting land, that is characterized by high vehicular capacity and continuity of movement.

Baseline Conditions:

Existing conditions from which the environmental effects (air quality, water quality, traffic, noise and vibration) are measured.

Best Management Practice (BMP):

Measures to control the quantity and quality of stormwater leaving a drainage basin. Local and state jurisdictions have adopted BMPs to counteract physical development and construction activity that may concentrate stormwater or produce soil erosion.

BRT:

Bus rapid transit. BRT uses buses to emulate the speed, reliability, and image of light rail. Bus service will operate in two general formats: (1) line haul along the CCT; and (2) smaller feeder buses which circulate through neighborhoods before using the busway.

Busway:

A roadway exclusively reserved for transit buses.

CAA:

Clean Air Act. The Clean Air Act Amendments of 1990 (CAA) directed the EPA to implement strong environmental policies and regulations that will ensure cleaner air quality.

Calibration:

1) Reconciliation of an instrument with an established standard. 2) In modeling, the procedure used to estimate the parameters of a model or to adjust a model to replicate actually measured conditions.

Capital Cost:

The expense of transportation improvement project construction, materials procurement, equipment installation, and vehicles.

CBD:

Central Business District. The downtown area of a city.

CCT:

Corridor Cities Transitway. A transit alignment from the Shady Grove Metro Station to COMSAT for a separate busway or light rail transit system.

CERCLA:

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund. Enacted by Congress on December 11, 1980, this law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

CERCLIS:

The Comprehensive Environmental Response, Compensation and Liability Information System is a compilation of sites the USEPA has investigated or is currently investigating for a release of hazardous substances pursuant to CERCLA.

Champion Tree:

The largest tree of its species within the US, the state, county, or municipality as determined by each jurisdiction.

CHART:

Coordinated Highway Action Response Team. It is comprised of a number of sub-systems, including traffic monitoring, traveler information, incident management, and traffic management. All of these mechanisms help with the flow of traffic throughout the state of Maryland.

CLRP:

Constrained Long Range Plan. Responds to federal requirements that funding sources be identified for all strategies and projects included in long-range plans. Updated at least every three years, the CLRP includes only those projects and strategies that can be implemented over the planning period with funds that are reasonably expected to be available.

CMS:

Congestion Management System. CMS was introduced as a requirement by the Intermodal Surface Transportation Efficiency Act (ISTEA) and provides for comprehensive monitoring, evaluation and enhancement of multi-modal transportation system performance in metropolitan areas with a population of over 200,000. The program requires that planning for all projects, which may add highway capacity in non-attainment areas, consider CMS strategies that reduce single-occupant vehicle travel and improve transportation efficiency.

COMAR:

Code of Maryland Regulations. A permanent compilation of all Maryland agency regulations. Started in 1977, COMAR is divided into 31 titles, with each title usually corresponding to a department or agency within State government.

Commuting Patterns:

Travel behavior patterns in a given area for persons traveling to and from their place of employment.

Commercial Areas:

Areas in which commercial (retail) activity is the predominant land use.

Comprehensive Plan:

An overall plan stating public policy intentions for the future development of a community or jurisdiction, including the general location and character of development. Also, called a general or master plan, it provides official guidelines for growth and change in a community.

Conceptual Engineering:

The level of design at which the basic characteristics of each alternate is defined, including location on the ground, height, location of possible stations, frequency of service and operating policies, and general capital, operating and maintenance costs.

Conformity:

The Clean Air Act stipulates that any approved transportation project, plan, or program must conform to the State Implementation Plan (SIP), a document that prescribes procedures for the implementation, maintenance, and enforcement of primary and secondary air pollutants.

Corridor:

A strip of land between two termini within which topography, environmental and other characteristics are evaluated for transportation purposes.

Cost-Effectiveness:

An analytical technique used to choose the most effective method for achieving a program or policy goal. The costs of alternates are measured by their requisite estimated monetary expenditures. Effectiveness is defined by the degree of goal attainment and may also (but not necessarily) be measured in monetary terms.

CSIS:

Candidate Safety Improvement Section (formerly known as an High Accident Section, or HAS) is defined as a half-mile section (or less) of roadway with an accident rate exceeding the statewide average, discounting intersection-related accidents.

CSPS:

Countywide Stream Protection Strategy. The first countywide assessment of stream resource conditions based upon assessment of aquatic life and stream channel habitat indicators in addition to typically applied stream chemistry measurements.

CTP:

Consolidated Transportation Program. A report developed each year in draft form and presented to every county in Maryland and Baltimore City. Following distribution of the draft document, the Maryland Department of Transportation representatives visit each county both to present the information and receive comments on the plan and program.

Cumulative Effects:

The impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency (Federal, or non-Federal) or person undertakes such other actions.

dBA:

Decibels (A-weighted scale which adjusts to simulate human hearing).

DEIS/EIS:

Draft Environmental Impact Statement/Environmental Impact Statement. A comprehensive study of likely environmental impacts that will result from major federally assisted projects. The National Environmental Policy Act of 1969 requires an EIS.

Density (land use):

Refers to the concentration of development in a given geographical area.

DBH:

Diameter at Breast Height. Diameter of trees at breast height (about 4.5 feet from the ground).

DEP:

Montgomery County Department of Environmental Protection. The Department of Environmental Protection protects and enhances the quality of life through conservation, **preservation, and restoration of the environment, guided by the principles of science,** resource management, sustainability, and stewardship. The two components of the department are Watershed Management and Environmental Policy and Compliance.

DNR:

Maryland Department of Natural Resources. State agency responsible for the protection, restoration and enhancement of natural resources such as fisheries, wildlife resources, forests, aquatic habitat, threatened and endangered species, etc. under its jurisdiction.

Effect:

For purposes of this DEIS, refers to a measurable change precipitated by the proposed transportation improvement.

EJ:

Environmental Justice. A term referring to unjust dispersion of adverse effects to human health and the environment on minority or low-income populations resulting from public infrastructure projects, such as construction of highways and land fills.

Endangered:

An organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.

Equity:

In transportation planning, a normative measure of fairness among recipients of mobility benefits, costs and impacts.

Express Bus:

A bus that makes few or no stops between the start and end points of the bus route.

Feeder Bus:

Local bus routes connecting to rail stations.

FEIS:

Final Environmental Impact Statement. The final version of one or more drafts and supplemental draft environmental impact statements for a given federally assisted project.

FEMA:

Federal Emergency Management Agency. FEMA has ten regional offices, and two area offices. Each region serves several states, and regional staff work directly with the states to help plan for disasters, develop mitigation programs, and meet needs when major disasters occur.

FHWA:

Federal Highway Administration. A component of the US Department of Transportation, established to oversee the development of a national road and highway system. The FHWA assists states in constructing highways and roads and provides financial aid at the local level.

FIRM:

Flood Insurance Rate Maps. Maps produced by the Federal Emergency Management Agency (FEMA) to determine the locations of flood risks and hazards.

Floodplain:

Land that is periodically inundated by floodwaters.

Forecast Zone:

Large aggregate analysis areas comprised of several individual transportation analysis zones (TAZs are small analysis areas formed by jurisdictional boundaries, major highways, and barriers to travel such as rivers).

FPPA:

Farmland Protection Policy Act. Congress enacted the Farmland Protection Policy Act as a subtitle of the 1981 Farm Bill. The FPPA stipulates that federal programs be compatible with state, local and private efforts to protect farmland. For the purposes of the law, federal programs include construction projects – such as highways, airports, dams and federal buildings – sponsored or financed in whole or in part by the federal government, and the management of federal lands. The US Department of Agriculture's Natural Resources Conservation Service is charged with oversight of the FPPA.

FTA:

Federal Transit Administration. A component of the US Department of Transportation, established to oversee the development of the public transportation system. The FTA assists states in constructing public transit systems and provides financial aid at the local level.

Fugitive Dust:

Dust created by the movement of construction equipment over exposed land.

Future Design Year:

The year for which traffic projections have been made and transportation needs analyzed; 2025 is the Future Design Year for the I-270/US 15 Multi-Modal Corridor DEIS.

GIS:

Geographic Information System.

Grade:

1) Refers to a rise in elevation within a specified distance. For example, a 1% grade is a 1-foot or 0.305 meter rise in elevation in 100 feet or 30.5 meters of horizontal distance. 2) "At grade" refers to a transportation facility built at ground level.

Guideway:

The structure or surface upon which a transit vehicle will operate.

Headway:

Refers to the number of minutes between transit service, bus or train departures.

HOV:

High Occupancy Vehicle. Motorcycles or vehicles containing two or more occupants may use a dedicated lane for HOV use. HOV lanes are used to encourage commuters to carpool.

Hydric Soils:

"A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation," according to current wetlands delineation methodology (USCOE, 1987).

ISA:

Initial Site Assessment. Consists of a database search for prior hazardous materials violations and a site reconnaissance to identify environmental conditions, such as dumping or stained soils, that warrant additional investigation.

ISTEA:

Intermodal Surface Transportation Efficiency Act of 1991, a major authoring legislation for surface transportation. Includes various programs and initiatives for improving transportation safety, protecting communities and the natural environment, and advancing the nation's economic growth through efficient and flexible transportation.

ITS:

Intelligent Transportation System. Broad range of diverse technologies, including information processing, communications, control, and electronics that enables people and goods to move more safely and efficiently through a state-of-the-art intermodal transportation system.

JD:

Jurisdictional Determination. A map or document prepared in accordance with US Army Corps of Engineers (USCOE) standards and procedures to identify the locations and extent of wetlands and waters of the US under their jurisdiction.

Kiss-and-Ride:

An access mode to transit whereby passengers (usually commuters) are driven to a transit stop and left to board a transit unit and then met after their return trip. Transit stations usually provide a designated area for dropping off and picking up such passengers.

L_{eq}:

A descriptor commonly used to represent fluctuating sound levels over an extended period of time as a constant value.

L-A-C:

Local Activity Center. A zoning category consisting of a mixture of commercial retail and service uses along with complimentary residential densities within a hierarchy of centers servicing three distinct service areas: neighborhood, village, and community.

LOS:

Level of Service. 1) A set of characteristics that indicate the quality and quantity of transportation service provided, including characteristics that are quantifiable (system performance, e.g., frequency, travel time, travel cost, number of transfers, safety) and those that are difficult to quantify (service quality, e.g., availability, comfort, convenience, modal image). 2) For highway systems, a qualitative rating of the effectiveness of a highway or highway facility in serving traffic, in terms of operating conditions. The Highway Capacity Manual identifies operating conditions ranging from A, for best operations (low volume, high speed), to F, for worst conditions.

LOV:

Low occupancy vehicles.

LRT:

Light Rail Transit. An electrically powered transit mode using overhead wires that can be operated in street, in mixed traffic, with street crossings and in exclusive rights of way.

M-A-C:

Major Activity Center. A zoning category consisting of a mixture of high concentration uses such as commercial and other public and private sector businesses that serve a regional residential market or provide concentrated employment, arranged to allow easy pedestrian access between uses. May also include other land uses including residential and recreational uses.

Major Employment Center:

An area characterized by a high concentration of public and private employment.

MARC:

Maryland Rail Commuter. The local commuter rail passenger service operated by the Maryland Transit Administration (MTA). MARC service offers three lines: Penn Line from Perryville, MD (Cecil County) to Baltimore and Washington, DC; Camden Line from downtown Baltimore to Washington, DC; and Brunswick Line from Martinsburg, WV to Washington, DC.

MBSS:

Maryland Biological Stream Survey. Maintained by the Maryland Department of Natural Resources Monitoring and Non-Tidal Assessment Division.

MDE:

Maryland Department of the Environment. State agency responsible for the protection, restoration and quality of Maryland's air, water and land resources including wetland habitats, ground and surface waters, mineral resources, etc. under its jurisdiction.

MDOT:

Maryland Department of Transportation. A cabinet-level state agency of the State of Maryland with responsibility for the development and management of transportation facilities and services within the State.

MDP:

Maryland Department of Planning. State agency responsible for consideration of transportation alternatives under the State's growth policies including the Smart Growth and Neighborhood Conservation Initiatives, including the Priority Funding Areas Act (PFA).

SHA:

Maryland State Highway Administration. An agency of the Maryland Department of Transportation with responsibility for the planning, development, operation and maintenance of the state's highway and road network.

Median:

The center portion of a divided highway separating opposing lanes of traffic.

MIS:

Major Investment Study. The MIS is a transportation planning process undertaken to decide the design concept and scope of a major transportation investment for a given corridor. This process is required for a major metropolitan transportation investment that is identified and in which Federal funds may be involved.

Mitigation Measures:

Steps taken to moderate or reduce the adverse effects of constructing or operating a major transit improvement.

Mixed Traffic:

The use of a single guideway or street by various types of transportation vehicles, such as cars, buses, and trucks.

M-NCPPC:

Maryland-National Capital Park and Planning Commission. An agency of the State of Maryland responsible for a variety of public property management activities in Montgomery County including the preparation and adoption of the General Plan for physical development of the Maryland-Washington Regional District and the acquisition, development, operation and maintenance of public parkland.

Modal Split (Mode Split):

1) The proportion of total person trips that uses each of various specified modes of transportation. 2) The process of separating total person trips into the modes of travel used. 3) A term that describes how many people use alternative forms of transportation. It is frequently used to describe the percentage of people who use private automobiles, as opposed to the percentage who use public transportation.

Mode:

A particular form of travel, for example, walking, traveling by automobile, traveling by bus, traveling by train.

Model:

1) A mathematical or conceptual presentation of relationships and actions within a system. It is used for analysis of the system or its evaluation under various conditions; examples include land use, economic, socioeconomic, transportation. 2) A mathematical description of a real life situation that used data on past and present conditions to make a projection about the future.

MPDU:

Moderately Priced Dwelling Unit Program. Montgomery County ordinance that requires projects with 50 or more units to have 12.5% to 15% moderately priced units, defined as units affordable at 65% of the County's median income.

MPO:

Metropolitan planning organization. Regional planning organization that integrates urban transportation planning at the local level.

MTA:

Maryland Transit Administration. An agency of the Maryland Department of Transportation responsible for the development and management of mass transit services within the State.

Multi-Modal:

A transportation study, plan, project and/or evaluation involving more than one transportation mode.

MVM:

Million vehicle miles.

MWCOG:

Metropolitan Washington Council of Governments. A regional public agency with responsibility for coordinating a variety of public services, including transportation, for the greater Washington metropolitan area.

NAAQS:

National Ambient Air Quality Standards. A level of air pollution concentration, as defined by the US Environmental Protection Agency, that cannot be exceeded as mandated by the Federal Clean Air Act. A concentration is an amount of pollution in the air over a given time period.

NEPA:

National Environmental Policy Act of 1969. A comprehensive Federal law requiring an analysis of the environmental effects of Federally-assisted actions and projects, including the preparation of an Environmental Impact Statement (EIS) for every major Federal project that significantly affects the quality of the human environment.

Network:

1) In planning, a system of links and nodes that describes a transportation system. 2) In highway engineering, the configuration of highways that constitutes the total system. 3) In transit operations, a system of transit lines or routes, usually designed for coordinated operation.

NHPA:

National Historic Preservation Act of 1969, as amended. Federal legislation to safeguard the Nation's prehistoric resources and historic buildings sites, and environments.

NIH:

National Institutes of Health. The NIH is one of eight health agencies of the Public Health Services, which in turn, is part of the US Department of Health and Human Services. Comprised of 27 separate components, mainly Institutes and Centers, NIH has 75 buildings on more than 300 acres in Bethesda, MD.

NIST:

National Institute of Standards and Technology. Non-regulatory federal agency within the US Department of Commerce responsible for development of measurement, standards, and technology to enhance productivity, facilitate trade, and improve quality of life.

NPDES:

National Pollution Discharge Elimination System. All industrial and municipal wastewater treatment facilities which discharge effluents into Maryland's waters must have a National Pollutant Discharge Elimination System (NPDES) permit. This permit is issued by the Maryland Department of the Environment (MDE) and sets discharge limitations and contains various restrictions and monitoring requirements to insure that the discharge will not degrade water quality or harm aquatic life. The permits require the dischargers to monitor their effluents and submit their own data to show that they are complying with these restrictions.

NRCS:

Natural Resources Conservation Service. Agency under the US Department of Agriculture to help people conserve, improve, and sustain natural resources on private lands and in the environment.

NRHP:

National Register of Historic Places. A United States catalog that gives formal recognition to sites, structures, and districts of historic significance.

NWI:

National Wetland Inventory. The US Fish and Wildlife Service produces the NWI with information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats.

NTWSSC:

Nontidal Wetlands of Special State Concern. Nontidal wetlands of Special State Concern are the best examples of Maryland's nontidal wetland habitats and are designated for special protection under the State's nontidal wetlands regulations. These 365 wetland sites with exceptional ecological and educational value offer landowners opportunities to observe and safeguard the beauty and natural diversity of Maryland's best remaining wetlands. Many of these special wetlands contain the last remaining populations of native plants and animals that are now rare and threatened with extinction in the state.

Off-Peak Period:

In transit, the time of day during which vehicle requirements and schedules are not influenced by peak-period passenger volume demands (e.g., between morning and afternoon peak periods). At this time, transit riding is fairly constant and usually low to moderate in volume when compared with peak-period travel.

Park and Ride:

A parking area designed for use by mass transit patrons who start their trip by private automobile and then transfer to transit.

Patronage:

Refers to the potential ridership attracted to a transit system or a transit station.

Peak Period:

1) The period during the day in which the maximum amount of travel typically occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak. 2) The period when demand for transportation service is heaviest.

PFA:

Priority Funding Areas. PFAs consist of existing communities and other locally designated areas for future growth as determined by local jurisdictions in accordance with Maryland's Smart Growth guidelines.

Preferred Alternate:

A single alternate from a list of several alternates that is believed to best address transportation problems.

Project Area:
The immediate geographical boundaries of a given transportation improvement project.

Public Hearing:
A formal meeting called to receive public comment on a proposed action.

Public Meeting:
An informal meeting called to present information about and to discuss a proposed action.

PUD:
Planned urban development. Consists of residential buildings clustered or laid out with reduced setbacks and amenities, such as adequate open spaces and other design provisions, to create a more desirable environment.

RCRA:
Resource Conservation and Recovery Act of 1976. Federal legislation that provides for the environmentally safe disposal of hazardous materials.

Reverse Commuting:
A commuting travel pattern that is characterized by travel from the central city location to suburban locations, typically during peak hours.

Ridership:
Current or expected users of public transit.

ROD:
Record of Decision. A document prepared by the Division Office of the Federal Highway Administration that presents the basis for selecting a specific transportation proposal that has been evaluated through the various environmental and engineering studies of the Transportation Project Development Process. Typically, the ROD identifies that alternate selected in the Final Environmental Impact Statement (FEIS), the alternates considered, measures to minimize harm, monitoring or enforcement programs, and itemized commitments and mitigation measures.

ROW:
Right-of-Way. Land owned by state and/or local jurisdictions that is necessary to accommodate construction, drainage, and proper maintenance of transportation or other public facilities.

RTE:
Rare, threatened and endangered species. Species of fish, wildlife and plants facing extinction and subject to special protection.

SCEA:

Secondary and Cumulative Effects Analysis. Secondary or indirect impacts are "…caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." (40 CFR § 1508.8(b). Cumulative effects are "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal, or non-Federal) or person undertakes such other actions." (40 CFR § 1580.7, 1997).

Scoping:

A process occurring near the beginning of a Draft Environmental Impact Statement that defines the alternates to be studied, identifies issues to be addressed, and defines a public involvement program. A key feature is intensive public, interest group, and government agency involvement.

Scoping Meeting:

A formal opportunity for the public, interest group and government agency representatives to provide input on the alternates to be evaluated and the issues to be addressed in a Draft Environmental Impact Statement.

Screening of Alternates:

To evaluate many suggested alternates in order to identify the most reasonable alternates for, and to eliminate unreasonable alternates from, further consideration. Alternates proposed during Scoping will be screened during the analysis to determine their responsiveness to project goals, Scoping meeting and written input and System Planning findings, to compare their general design and operations characteristics, rough cost, and environmental impact potential.

SDWA:

Safe Drinking Water Act. The SDWA, which celebrated its 25th anniversary in 1999, is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.

Secondary Effects:

Effects that are caused by the action and are later in time, or farther removed in distance, but are still reasonable foreseeable.

Section 4(f):

Refers to Section 4(f) of the US Department of Transportation Act of 1966, which includes a national policy to make special effort to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and significant historic sites.

Section 106:

Refers to Section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to consider the potential effects of proposed federal action on any known or potential historic, architectural or archaeological resources.

Service Roads:

Parallel roadways constructed on the outside of major highways to accommodate local traffic and provide access to adjacent landowners.

SHPO:

State Historic Preservation Officer. The SHPO coordinates State participation in identifying historic properties, accessing effects to them, and considering alternatives to avoid or reduce those effects in compliance with NEPA and Section 106 of the National Historic Preservation Act.

SIP:

State Implementation Plan. SIPs are the adopted planning documents, which determine how the state will meet federal air quality standards. A SIP exists for each of six criteria pollutants identified and considered by USEPA to be the primary air pollutants of concern to human health. The criteria pollutants are: Ozone (O_3); Particulate Matter (PM_{10} and $PM_{2.5}$); Carbon Monoxide (CO); Nitrogen Dioxide (NO_2); Sulfur Dioxide (SO_2); and Lead (Pb).

SOV:

Single occupancy vehicles.

TAZ:

Transportation Analysis Zone. TAZs are small analysis areas formed by jurisdictional boundaries, major highways, and barriers to travel such as rivers.

TCM:

Transportation Control Measures. Strategies, which seek to reduce travel demand by changing the behavior of motorists. These strategies include the promotion of public transit, encouraging ridesharing and carpooling, and organizing employer-sponsored flexible work hour programs. Such strategies form part of an overall Travel Demand Management program.

TDM:

Transportation Demand Management. A program consisting of strategies, which seek to reduce travel demand rather than increase capacity. Examples of strategies included in a TDM program are regional telecommuting programs, ridesharing programs, public transit options, and non-intensive physical changes to existing infrastructure. TCM and TSM strategies are specific components of a Travel Demand Management program.

TEA-21:

Transportation Equity Act for the 21st Century. Congress passed TEA-21 on May 22, 1998 authorizing highway, highway safety, transit and other surface transportation programs until 2004.

TIP:

Transportation Improvement Program. The TIP contains funding information and schedules for various transportation divisions including highways, aviation, enhancements, public transportation, rail, bicycle and pedestrians, and the Governor's Highway Safety Program.

TDS:

Total dissolved solids. Total dissolved solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and small amounts of organic matter that are dissolved in water. TDS in drinking water originate from natural sources, sewage, urban run-off, and industrial wastewater. Salts used for road de-icing in some countries may also contribute to the TDS content of drinking water. Concentrations of TDS in water vary considerably in different geological regions owing to differences in the solubility's of minerals.

Traffic Volume:

The measurement of traffic flow on a particular roadway as expressed in vehicles per day.

Transit Dependent:

A person who through choice, economic and/or physical or mental conditions must rely on public transit to meet local transportation needs.

Transportation Disadvantaged (Low-Mobility Group):

People whose range of transportation alternatives is limited, especially in the availability of relatively easy-to-use and inexpensive alternatives for trip making. Examples include the young, the elderly, the poor, the disabled, and those who do not have automobiles.

TSM:

Transportation System Management. Transportation strategies that seek to reduce travel demand through non-intensive changes to existing infrastructure. These strategies do not seek to provide additional capacity, but attempt to improve circulation. TSM strategies consider such options as improvements to public transit systems, minor intersection improvements, signal timing improvements, and traffic management.

TSS:

Total suspended solids. TSS are solids in water that can be trapped by a filter. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewage. High concentrations of suspended solids can cause many problems for stream health and aquatic life.

USACOE:

United States Army Corps of Engineers. An agency of the federal government that regulates the discharge of fill or dredged material into waters of the US, including jurisdictional wetlands, as well as construction activities that could obstruct or impede navigation in navigable Waters of the US.

USDA:

United States Department of Agriculture. The USDA serves all Americans, the two percent who farm as well as everyone who eats, wears clothes, lives in a house, or visits a rural area or a national forest. USDA remains committed to assisting America's farmers and ranchers.

USEPA:

United States Environmental Protection Agency. An agency of the federal government responsible for the development and implementation of regulatory policies designed to protect natural and human environmental resources. Responsibilities include implementation of the National Environmental Policy Act of 1969 and the development and implementation of the national air quality emissions standards as provided for in the Clean Air Act Amendments of 1990.

USFWS:

United States Fish and Wildlife Service. Federal agency responsible for conservation, maintenance and management of the nation’s fish and wildlife resources.

USGS:

United States Geological Survey. The USGS, the sole science agency for the Department of the Interior, has natural science expertise and vast earth and biological data holdings to help resolve complex natural resource problems across the Nation and around the world.

V/C:

Volume-to-Capacity Ratio. A measurement of highway/roadway service quality which compares the number of vehicles using or expected to use a given road or segment of a road with the number of vehicles that the facility is designed to handle safely.

VMT:

Vehicle Miles of Travel. A measurement of total miles traveled by all vehicles on a given area or corridor over a given time period. It is calculated by multiplying the number of vehicles by the total number of miles traveled on a given corridor over a given period of time.

Watershed:

The region from which a river or stream receives its supply of water.

Wetlands:

A lowland area that is saturated with water and that contains plant and animal life characteristic of water areas. Wetlands are broadly classified according to where they are located. The major classifications are *marine* (oceanic), *estuarine* (tidal), *riverine* (river), *lacustrine* (lake), and *palustrine* (marsh).

WMATA:

Washington Metropolitan Area Transit Authority. Regional agency that provides bus and rail transit service to Washington, DC and neighboring communities.

I. PURPOSE AND NEED

I. PURPOSE AND NEED

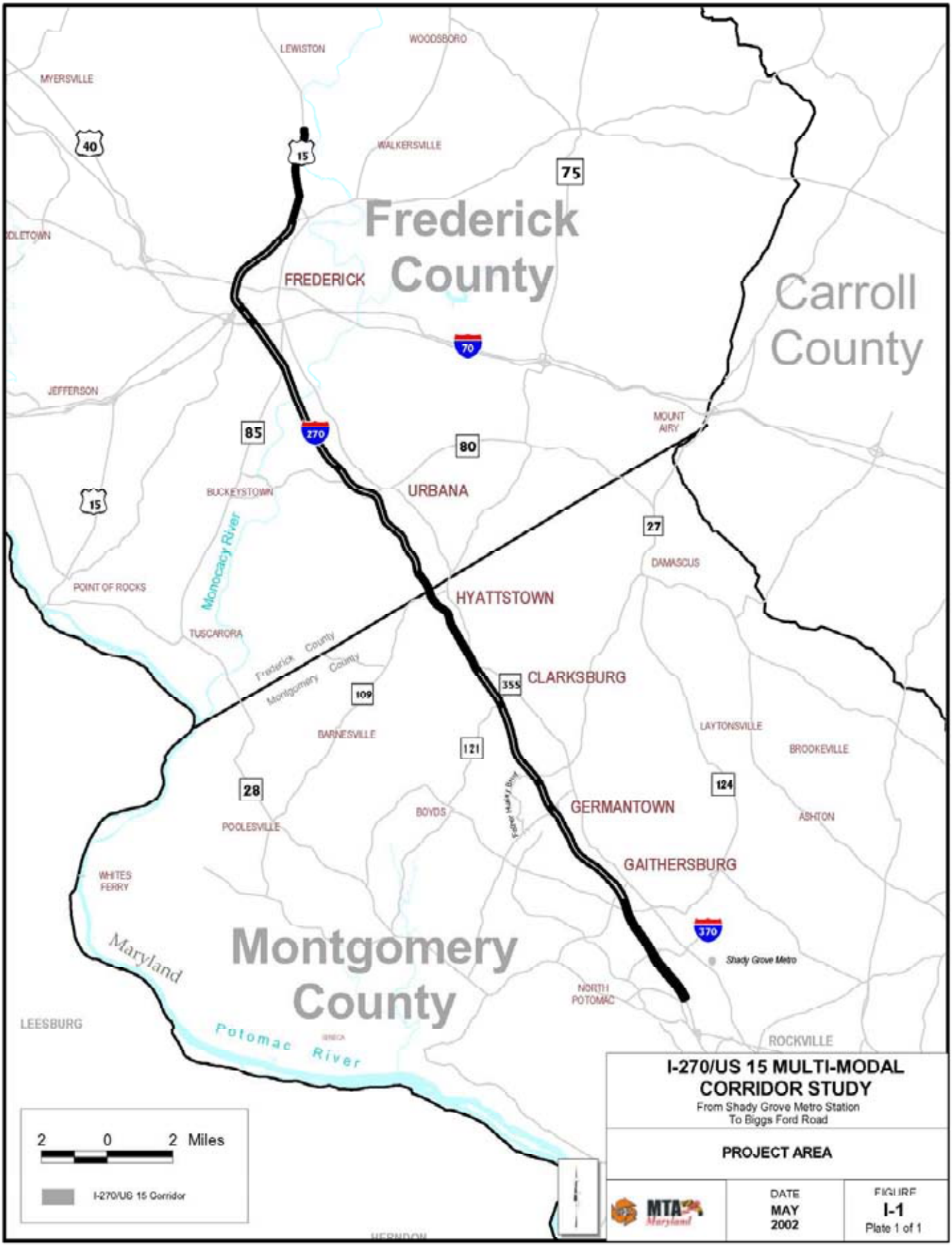
A. INTRODUCTION/SUMMARY STATEMENT OF PURPOSE AND NEED

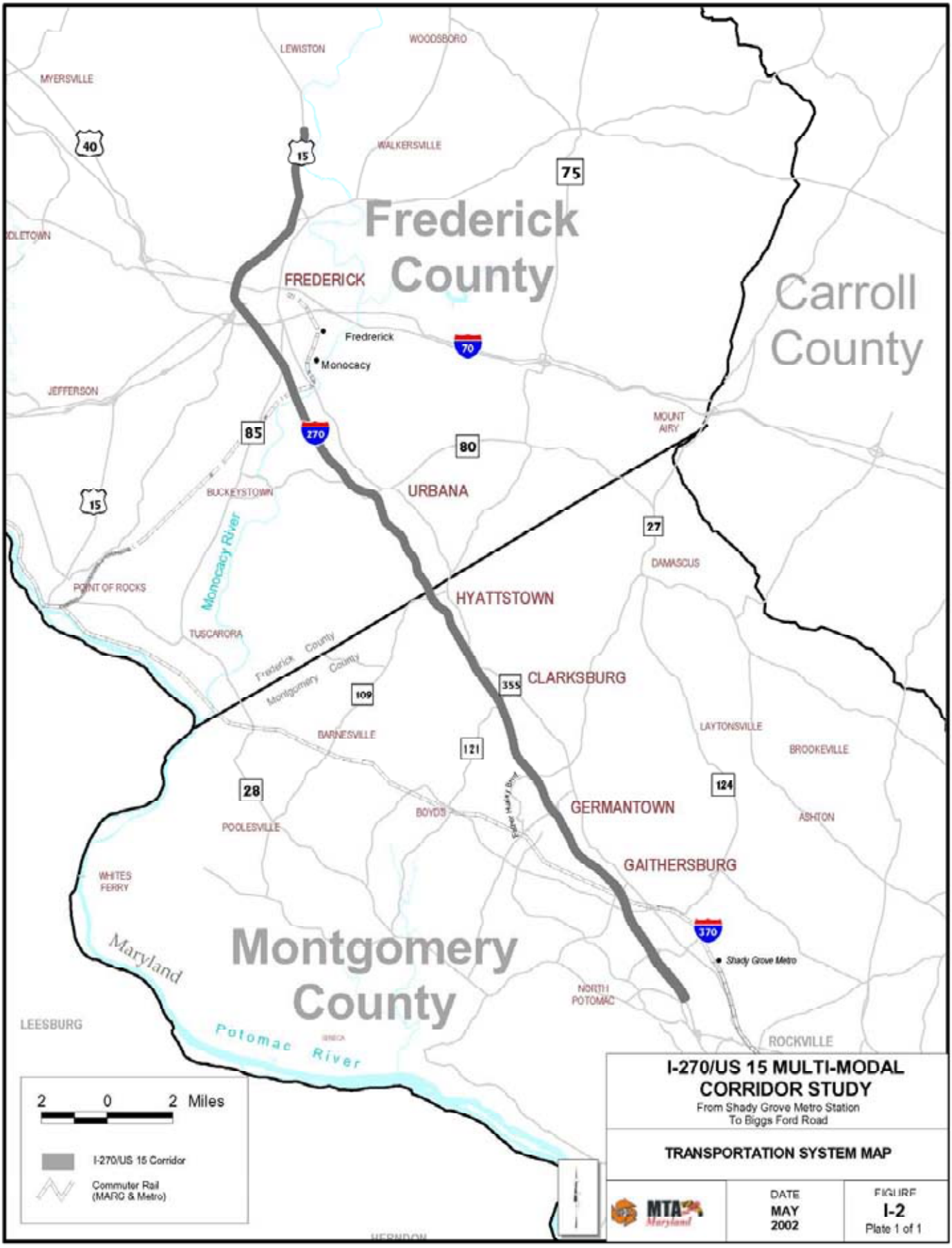
The purpose of the I-270/US 15 Multi-Modal Corridor Study is to investigate options to address congestion and improve safety conditions along the I-270/US 15 Corridor. The I-270/US 15 Corridor provides an essential connection between the Washington, DC metropolitan area and both central and western Maryland and is an important corridor for carrying local and long distance trips, both within and beyond the Corridor. The National Highway System (NHS) Designation Act of 1995 adopted both I-270 and US 15 as elements of the NHS. A variety of transportation modes are utilized in the I-270/US 15 Corridor (including interstate highway, high-occupancy vehicle lanes, commuter rail, and bus service) and intermodal opportunities (including park and ride lots and Metrorail). However, even with the variety of options available, the Corridor is currently highly congested at many locations. These problems are expected to become more severe as continued planned development occurs over the next quarter century.

B. PROJECT LOCATION AND DESCRIPTION

The project area generally extends from the Shady Grove Metro Station south of I-370 (Montgomery County) to the US 15/Biggs Ford Road intersection north of the City of Frederick (Frederick County), as shown in **Figure I-1**. The I-270/US 15 Corridor is a vital component of the surface transportation system in the Mid-Atlantic region. The Corridor includes portions of I-270, US 15, and US 40 in Montgomery and Frederick counties. I-270, which begins at the Capital Beltway (I-495) and ends at I-70 in Frederick, provides one of the two interstate highway connections between the nation's capital and points west (the other connection is I-66 in Virginia) and north. As an interstate highway, I-270 is a fully access-controlled facility with a variable number of lanes ranging from four to twelve. In Maryland, US 15 extends from the Virginia state line near Point of Rocks to the Pennsylvania state line near Emmitsburg, and provides a major north-south route located between the interstate corridors of I-81 to the west and I-83/I-95 to the east. US 15 provides an important crossing of the Potomac River as well. Throughout most of its approximate 30-mile length in Maryland, US 15 is a multi-lane highway, with varying degrees of access control.

Transit is available throughout the region in various forms and serves a variety of users (**Figure I-2**). The MARC Brunswick Line, a commuter rail service operated by MTA, generally follows the Potomac River from Martinsburg, WV to south of Point of Rocks, MD where it continues inland through Germantown, MD and on to Rockville, MD and terminates in Washington, DC. This rail line offers connections to the Metrorail at Rockville and Union Station and Metrobus and Montgomery County's Ride On local bus service at various stations south from Germantown. An extension of this line opened in December 2001 and connects several stations in Frederick to the Point of Rocks station. Local bus service along the project corridor is available in Montgomery County with Metrobus and Ride On and in Frederick County with TransIT. These routes cross I-270 and US 15 at numerous locations, and on some routes, run parallel to the Corridor. A commuter bus service operated by MTA provides service along the corridor from Hagerstown to the Shady Grove Metrorail Station with a stop in Frederick.


LEWISTON
WOODSBORO
MYERSVILLE
WALKERSVILLE
Frederick County
FREDERICK
Carroll County
JEFFERSON
MOUNT AIRY
URBANA
BUCKEYSTOWN
Monocacy River
POINT OF ROCKS
DAMASCUS
HYATTSTOWN
TUSCARORA
Frederick County
Montgomery County
CLARKSBURG
BARNESVILLE
LAYTONSVILLE
BROOKEVILLE
GERMANTOWN
ASHTON
BOYDS
POOLESVILLE
GAITHERSBURG
WHITES FERRY
Shady Grove Metro
Montgomery County
Maryland
NORTH POTOMAC
LEESBURG
Potomac River
ROCKVILLE
HERNDON
2 0 2 Miles
I-270/US 15 Corridor
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
PROJECT AREA
MTA Maryland
DATE
MAY
2002
FIGURE
I-1
Plate 1 of 1


LEWISTON
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BARNESVILLE
LAYTONSVILLE
BROOKEVILLE
GERMANTOWN
ASHTON
POOLESVILLE
BOYDS
GAITHERSBURG
WHITES FERRY
Shady Grove Metro
Montgomery County
Maryland
NORTH POTOMAC
LEESBURG
Potomac River
ROCKVILLE
HERNDON
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75
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85
270
80
27
355
109
121
124
28
370
2 0 2 Miles
I-270/US 15 Corridor
Commuter Rail (MARC & Metro)
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station To Biggs Ford Road
TRANSPORTATION SYSTEM MAP
MTA Maryland
DATE MAY 2002
FIGURE I-2 Plate 1 of 1

The I-270/US 15 Corridor serves local and long distance trips between the Washington, DC metropolitan area, central and western Maryland, and beyond. Known as the "Technology Corridor", this area is home to many high-tech industries and research facilities as well as commercial, cultural and recreational activities. The I-270/US 15 Corridor is a major commuting route for tens of thousands of workers each day.

I-270/US 15 has three distinct sections that differ in terms of physical characteristics, traffic service provided, and future needs. The three sections include: I-270 from Shady Grove Road to I-70; US 15/US 40 from I-70 to MD 26; and US 15 from MD 26 to Biggs Ford Road. I-270 is classified as an urban interstate from I-495 to the Little Seneca Creek, a rural interstate from the Little Seneca Creek to the Monocacy River, and an urban interstate from the Monocacy River to I-70. US 15 between I-70 and MD 26 is a four lane divided fully access-controlled roadway. US 15 between MD 26 and Biggs Ford Road is a four lane divided highway, with access provided by means of at-grade intersections. Left turns onto US 15 from side roads are generally prohibited in this area, and U-turn bays are located along the median to provide for this movement. The differences between these sections are described in **Section I.D**, Project Need.

C. PROJECT BACKGROUND AND HISTORY

The I-270 Corridor has been the subject of transit service studies as far back as 1970. Portions of the transportation alternatives presented in the DEIS are a continuation of various transportation studies throughout the Corridor. The following describes the previous transportation study efforts either partially or wholly contained within the I-270/US 15 Multi-Modal Corridor Study project limits. The current I-270/US 15 Multi-Modal Corridor Study DEIS is the latest manifestation of this series of transportation studies conducted by various local and state agencies to address transportation needs in the corridor. The DEIS represents Stage II of a three stage project planning process with the Maryland State Highway Administration and Maryland Transit Administration and is a transition between prior concept planning work and Stage II Final Environmental Impact Statement.

Washington Metropolitan Area Transit Authority (WMATA) conducted a sketch planning study in 1970 to identify a preliminary location for a Shady Grove to Metropolitan Grove transit alignment. In 1988, SHA planning activities began for a highway widening of I-270 and US 15 from MD 121 to Hayward Road, and later in the Interstate Development and Evaluation portion of the 1989-1994 Consolidated Transportation Program (CTP). In 1990, two additional highway components were added to the study. The project was extended from Hayward Road north to Biggs Ford Road because of its direct connection to Walkersville, an area in which substantial growth is expected. The project was extended from MD 121 south to MD 124 because of changing traffic patterns in the area, as well as the opportunity to consider the extension of the collector-distributor or "local" lanes that exist south of MD 124 (northbound), and I-370 (southbound).

The Maryland Department of Transportation's (MDOT) *Statewide Commuter Assistance Study* was completed in 1990, and identified the need for a multi-modal corridor study for the I-270/US 15 Corridor. Subsequently, transit easement options were added to the study. Also in 1990, Montgomery County and the M-NCPPC sponsored the I-270 *Corridor Cities Transit*

Easement Study. This two-phase study identified alternative transit alignment corridors and the applicable transit modes for these corridors. This effort resulted in the recommendation of two corridors: CSX for heavy rail (to Metropolitan Grove) and the Corridor Cities Transitway (CCT) for light rail or busway (to Clarksburg). The second phase of the study also investigated potential yard and shop facility sites for transit vehicles, however, no recommendations for a site(s) were made and no property was acquired or reserved for future consideration.

Further, in 1991, Frederick County sponsored a *Transit Easement Study* within the County to identify feasible alignments and transit modes from the Frederick/Montgomery County line to downtown Frederick. This resulted in three alignments being declared feasible for engineering purposes. One alignment ran parallel and adjacent to I-270, which was compatible for light rail and busway modes.

In 1992, four alternatives packages were developed and submitted to the Metropolitan Washington Council of Governments (MWCOG) for traffic modeling. The multi-modal options included Transportation System Management (TSM), Transportation Demand Management (TDM), High Occupancy Vehicle (HOV) lanes, Light Rail Transit (LRT), and a Busway. Montgomery County began a separate transit alignment feasibility study around the same time. In the vicinity of the I-270/US 15 Corridor three more studies began in 1993, including an access control study along US 15 from MD 26 to the Pennsylvania line (the Montgomery County Transit Corridor Easement Study); a study to extend the Maryland Rail Commuter (MARC) commuter rail line to Frederick from Point of Rocks (the Frederick County Transit Corridor Easement Study); and a feasibility study to investigate the widening of I-270/US 15 from MD 121 to Hayward Road.

Based on the MWCOG traffic modeling, the four alternatives were further evolved into "stand alone" transportation strategies that consisted of TSM/TDM, HOV lanes, a Transitway (light rail or bus) and Highway Widening. The modeling and impacts analyses of these transportation strategies resulted in the conclusion that no one of these elements individually would satisfy the corridor's transportation needs. As a result, the transportation strategies were combined to create the alternates under consideration with this environmental evaluation.

In addition to the development of the combined transportation strategies, the evaluation of potential transitway yard and shop facility sites has been included to screen for feasible locations. The evaluation screening reviews environmental and transit operational issues to develop a reduced candidate list of facility sites for further consideration during the Final EIS phase of this study.

1. Goals

In order to more effectively evaluate the proposed transportation strategies and alternates, the project team with the concurrence of the I-270/US 15 focus group developed a list of five goals for this project:

Support Orderly Economic Growth
Support the orderly economic development of the I-270/US 15 Corridor consistent with the local government land use plans and Maryland's Economic Growth, Resource Protection and Planning Act.

Enhance Mobility
Provide enhanced traveler mobility throughout the I-270/US 15 Corridor by: optimizing travel choices by destination, mode and route; minimizing delay; and improving the safety and overall efficiency of the transportation system.

Improve Goods Movement
Facilitate the movement of goods within and through the I-270/US 15 Corridor and improve the delivery of services in support of the regional and local economies.

Preserve and Protect the Environment
Deliver transportation services in a manner that preserves, protects and enhances the quality of life and social and cultural environment in the I-270/US 15 Corridor.

Optimize Public Investment
Provide a transportation system in the I-270/US 15 Corridor that makes optimal use of existing transportation infrastructure while making cost effective investments in facilities and services that support other project goals.

2. Master Plan Context

In general, master plans provide a set of comprehensive recommendations and guidelines that reflect a vision for the future development of local communities. Master plan recommendations and guidelines present a vision for a 20-year time horizon from the date of adoption, although the plans are generally updated approximately every 10 years.

The Montgomery County planning process is based upon the concept of "Wedges and Corridors", developed in the 1960s to preserve open space in a developing suburban environment. The Wedges and Corridors concept represents development along radial transportation corridors, which are separated by wedges of open space. In contrast, Frederick County's regional plan is based on centering development around clusters. The success of both concepts is dependent upon the provision of acceptable levels of transportation service along key transportation and/or development corridors.

In general, the master plans for the I-270/US 15 Corridor identify the desirability of increased reliance on multi-occupant vehicles, generally calling for 30% (or more) non-single occupant vehicle usage. Local master plans also identify the desirability of transportation system improvements in the project area:

- The *Gaithersburg Vicinity-Shady Grove Master Plan Amendment* (November 1996) amends the location of the Corridor Cities Transitway alignment and reserves additional right-of-way along Decoverly Drive between Diamondback Drive and Great Seneca Highway.

- The *Gaithersburg Vicinity Master Plan Amendment* (July 1990) recommends the widening of right-of-way for major highways, including I-270, and a "northern transitway" extending from the Shady Grove Metro Station to Great Seneca Highway.
- The *Germantown Master Plan* (1990) recommends eight lanes on I-270 and the provision of local (collector-distributor) lanes on I-270 from Gaithersburg to Clarksburg. The Plan suggests providing a transitway through the planning area, increased bus service, two park and ride lots and expansion of area MARC facilities.
- The *Clarksburg Master Plan and Hyattstown Special Study Area* (1994) presents the following transportation-related recommendations:

  Transit: --A regional transitway linking the region from the City of Frederick to north of the Shady Grove Metro Station through Clarksburg

  --Regional and local bus routes linking developed areas to transit stations

  --Improved MARC service

  --Additional Park and ride lots

  Highway: The Plan recommends widening I-270 to eight lanes plus local (collector-distributor) lanes up to MD 121, and six lanes plus local (collector-distributor lanes) from MD 121 to the county line. One new interchange at Newcut Road and the closure of the I-270 interchange at Old Hundred Road (MD 109) are also recommended.
- The *Frederick Region Plan* (1992) identifies the desirability of replacing five at-grade intersections along US 15 north of MD 26 with grade-separated interchanges, as well as upgrading the existing MD 85 interchange along I-270. The plan also identifies a transitway into downtown Frederick.
- The *Frederick County Comprehensive Plan* (October 1998) supports the development of a transitway along the I-270 Corridor that connects the Shady Grove Metro Station with downtown Frederick.
- The *Urbana Region Plan* (1993) recommends three new interchanges along I-270: (I-270 and MD-75, I-270 and MD 85 - South Urbana, and I-270 and MD 80 - North Urbana), a new park and ride lot and relocation of an existing lot. To better serve proposed development, the plan recommends a transitway from the Montgomery/Frederick county line to the City of Frederick and two transit stations.
- The *City of Frederick Comprehensive Plan* (August 1995) supports direct transit service to the Montgomery County/Washington, DC employment market and identifies a transitway into downtown Frederick. The Plan also recommends improvements to the I-270/I-70 and US 15/MD 26 interchanges, as well as new interchanges at the existing at-grade intersections of US 15/Trading Lane and US 15/Biggs Ford Road.

In addition, Montgomery and Frederick counties have each performed separate but coordinated transit easement studies, each of which has identified feasible alternatives for further study. Montgomery County has sponsored two studies: the *I-270 Corridor Cities Transit Easement*

Study by the Maryland-National Capital Park and Planning Commission (M-NCPPC), and the *Shady Grove/Clarksburg Transitway Study* by the Montgomery County Department of Transportation. Frederick County's study is called the *I-270 Corridor Cities Transit Easement Study -- Frederick County Extension*.

In early 2000, the Maryland Transit Administration (MTA) initiated a long-term master plan of the entire MARC system, which includes the Brunswick Line within the project area. Because CSX and Amtrak own the railroad tracks on which the MARC system operates, MTA is working with CSX and Amtrak officials to complete the plan, which will identify the future needs and goals in the MARC corridor for the next 24 years. The *MARC Needs Assessment and Master Plan Study* will consider system capacity and operational improvements. The study is ongoing and anticipated for completion in mid-2003, pending concurrence and approval from both railroads.

D. PROJECT NEED

The I-270/US 15 Corridor is one of the most traveled north-south transportation corridors in Maryland. The Corridor provides an essential connection between the Washington, DC metropolitan area and central and western Maryland, and is critical from both a personal transport and goods transport perspective. It also provides a connection to the Midwest via I-70 and I-68.

Substantial freight traverses the Corridor, using both highway and rail. Trucks account for approximately 9% of the daily traffic along I-270, this compares to trucks accounting for 6% of the daily traffic on I-495 near MD 191 and 8% of the daily traffic on US 15/US 340 near Rosemont Avenue. The Corridor also serves a major commuter population that works in the District of Columbia, southern Montgomery County, and Frederick County, and provides access to employment opportunities within the Corridor itself. The majority of these commuters travel from the City of Frederick or upper Montgomery County into central and lower Montgomery County (i.e. Bethesda, Rockville, and Gaithersburg) and Washington, DC. In addition, the Corridor provides the primary travel path from the population centers of the Washington metropolitan area to recreational sites located in western Maryland and to historic resources within/near the project area, such as the Monocacy National Battlefield and the C&O Canal National Historical Park.

The area is currently served by a variety of transportation modes (including interstate highway, high-occupancy vehicle lanes, commuter rail, and bus service) and intermodal opportunities (including park and ride lots and Metrorail). However, even with this existing transportation system, current operating conditions are congested at many locations within the project area. These problems are expected to become more severe as continued growth in both population and employment occur over the next quarter century.

Analysis of current and projected traffic volumes, and recent accident experience reveals that I-270 and US 15 can be divided into three distinct components. Their differences will be considered when identifying and evaluating alternatives. These components differ in terms of

physical characteristics and type of traffic service provided, and therefore differ in terms of need as well. The components are:

- **I-270 from Shady Grove Road to I-70**. Traffic conditions on this section are expected to worsen dramatically by 2025 due to projected increases in population and employment as the result of planned development along this Montgomery County portion of the Corridor, and the projected expansion of suburban residential development in the Frederick area. The primary needs of this component are to relieve existing congestion and provide capacity for projected development in Montgomery County and Frederick County.
- **US 15/US 40 from I-70 to MD 26**. Although existing and projected traffic volumes on this section of US 15 are not quite as high as those along I-270, congestion is still a problem. This component serves as a fully access-controlled connector from I-70 and I-270 to northern Frederick County, as well as a route for local traffic within the City of Frederick. Primary need for improvement of this component include providing safe travel for the collection and dispersal of local traffic to and from interchanges, as well as I-270 and I-70, while providing for US 15 traffic from the north as a result of existing and planned development.
- **US 15 from MD 26 to Biggs Ford Road**. This component of the Corridor serves an arterial function with limited control of access and with lower traffic volumes. The provision of access controls for safe and efficient access to planned long-term development as it occurs must be addressed.

As part of the overall evaluation of future conditions along the I-270/US 15 Corridor, the project team reviewed projected travel times. **Table I-1** highlights selected origins and destinations within the corridor and provides the year 2025 projected No-Build travel time (in minutes) for each origin-destination pair. **Chapter IV** compares the travel times for build alternates with the No-Build alternate.

TABLE I-1
YEAR 2025 PROJECTED NO-BUILD TRAVEL TIME (IN MINUTES) BETWEEN SELECTED ORIGINS AND DESTINATIONS

Origins	Destinations	Transit via Walk Access[1]	Transit via Auto Access[2]	Low Occupancy Vehicle[3]	High Occupancy Vehicle[4]
Germantown	Downtown DC (Connecticut Avenue and K Street)	78	62	78	70
Germantown	Bethesda	64	48	50	42
Germantown	Rockville Town Center	44	32	28	26
Germantown	Life Sciences Center	36	52	18	18
Clarksburg	Downtown DC (Connecticut Avenue and K Street)	99	71	87	79
Clarksburg	Bethesda	62	57	59	51
Clarksburg	Life Sciences Center	79	61	27	27
Clarksburg	Germantown	50	N/A	11	11
Frederick City	Downtown DC (Connecticut Avenue and K Street)	109	110	110	109
Frederick City	Bethesda	95	96	88	80
Frederick City	Rockville Town Center	75	76	66	64
Frederick City	Life Sciences Center	101	105	57	57
Frederick City	Germantown	61	62	46	46

Notes:

1. *Travel times shown include time to access the transit vehicle via walking to the boarding location.*
2. *Travel times shown include time to access the transit vehicle via driving to the boarding location.*
3. *Low occupancy vehicle is defined as a vehicle with two or less occupants (driver alone or driver with one passenger).*
4. *High occupancy vehicle is defined as a vehicle with driver and two or more passengers.*

***Source**: MWCOG Travel Forecasts 4/2001-7/2001*

1. Existing Transportation Services and Facilities

a. Highways

Originally built in the early 1950s as a four-lane freeway called the Washington National Pike (US 240), the travel route now referred to as I-270 has been improved and widened over the years. I-270 is classified as an urban interstate from I-495 to the Little Seneca Creek, a rural interstate from the Little Seneca Creek to the Monocacy River, and an urban interstate from the Monocacy River to I-70. Currently, I-270 is configured as follows:

- **Y-split (just north of 1-495) to I-370**: Three general-purpose lanes, one HOV lane and two collector-distributor, or local lanes, northbound and southbound.
- **I-370 to MD 124**: Three general-purpose lanes, one HOV lane and two collector-distributor, or local lanes, northbound; four general-purpose lanes southbound.

- **MD 124 to MD 118**: Three general-purpose lanes and one HOV lane northbound; four general-purpose lanes southbound.
- **MD 118 to MD 121**: Two general-purpose lanes and one HOV lane northbound; three general-purpose lanes southbound.
- **MD 121 to I-70**: Two general-purpose lanes northbound and southbound.

Within the project limits, US 15 is classified as an urban freeway/expressway from I-70 to north of Biggs Ford Road, where it is then classified as a rural principal arterial. Currently, US 15 is configured as follows:

- **I-70 to MD 26**: Four-lane divided fully access-controlled roadway.
- **MD 26 to Biggs Ford Road**: Four-lane divided highway, with access provided by means of at-grade intersections. Left turns onto US 15 from side roads are generally prohibited in this area, and U-turn bays are located within the median to provide for this movement.

There are a limited number of alternate north-south routes available to meet the current transportation needs of the Corridor. The only roadway facility that parallels I-270/US 15 for the length of the project area is MD 355. In the southern portion of the Corridor from I-495 to the northern outer limits of Gaithersburg (near Watkins Mill Road), MD 355 is a multi-lane highway with no control of access. It is primarily a two-lane rural highway from Gaithersburg north (a majority of the project length), except for a short four-lane section just south of the City of Frederick. In the two-lane component, MD 355 has geometric limitations that restrict its traffic-carrying capabilities. These characteristics include steep grades, rolling terrain, poor sight distance, and numerous private entrances. MD 355 is classified as an urban principal arterial from the southern end of the Corridor until its intersection with MD 118, where it is classified as a rural minor arterial. North of Brink Road, it becomes a rural major collector, continuing into Frederick County until MD 85 (Buckeystown Pike). From there, it is considered an urban minor arterial or collector until its intersection with US 15. Other routes providing north south access in the vicinity include MD 85 to MD 28 or MD 112/MD 190, however these routes do not provide the capacity nearing that of either I-270/US 15 or MD 355.

b. Transit

MARC Commuter Rail

Commuter rail service is available in the Corridor through MTA's MARC system. MARC offers service from Martinsburg, West Virginia through Point of Rocks, Maryland to Washington, DC. The stations and passenger service along this Corridor are primarily oriented toward commuters working in downtown Washington, DC, as well as commuters who work in Rockville, Silver Spring or other locations in Montgomery County. Transfers are available to the WMATA Metrorail train system in Rockville, Silver Spring and Union Station. The MARC Brunswick Line currently serves approximately 2,524 riders during the AM peak period and 5,047 riders daily. Frederick County Transit currently operates a "Meet the MARC" shuttle service between Point of Rocks and the City of Frederick, which transports an average daily ridership of 72 people. An extension of the MARC line from Point of Rocks to downtown Frederick began passenger service in December 2001.

Metrorail (WMATA) – Washington, DC Metropolitan area

The northwestern terminus of the Metrorail system is the Shady Grove Station, which is located at the southern end of the project area. Direct connections to Metrorail from MARC are available in Rockville and Union Station. Metrorail provides service to the south, but does not currently provide service into or through the project area. Currently, the Shady Grove Metro Station serves approximately 8,301 riders during the AM (5:30-9:30 AM) peak period (and 20,762 daily Metrorail boardings). The station serves as a major intermodal transfer facility, with about 2,400 people entering the station by bus daily. The station currently provides 5,791 parking spaces for commuters, with a total of 7,800 spaces anticipated by 2010.

MTA Commuter Bus

In addition to MARC Rail, MTA provides transit service through a contract with a privately operated commuter bus service (# 991) between Hagerstown, Frederick and the Shady Grove Metro Station. This service currently transports 95 riders during the AM peak period and 189 riders daily on a typical weekday.

TransIT – Frederick County

Approximately 929 riders per day use Frederick TransIT's local bus system. This system operates primarily within the City of Frederick, but also provides service to other locations in Frederick County, such as the Francis Scott Key Mall.

Ride On – Montgomery County

Montgomery County provides bus service within the project area via Ride On, which generally operates in support of Metrorail, Metrobus and MARC services. In the Gaithersburg/northern Rockville area, Ride On transit serves approximately 26,000 AM peak period riders.

Metrobus - WMATA

Metrobus service provided by WMATA primarily serves the areas south of the Shady Grove Metro Station, serving approximately 14,369 riders per day.

Table I-2 indicates the average daily ridership for transit service provided in the Corridor.

TABLE I-2
TRANSIT DAILY RIDERSHIP

	MTA [1]		WMATA [2]		Montgomery County [3]	Frederick County [4]	
	MARC Brunswick Line	Commuter Bus # 991	Shady Grove Metrorail	MetroBus Service	Ride On Bus	TransIT Bus	Meet the MARC
Annual	1,286,985	48,195	5,190,385	3,592,286	21,700,000	236,076	18,286
Average Daily	5,047	189	20,762	14,369	74,500	929	72
AM Peak	2,524	95	8,301	4,360	26,000	N/A	N/A

***Sources**: 1. MTA (2000)*
2. WMATA (FY 2001)
3. Montgomery County DPW&T, Transit Services Division (FY 2001)
4. TransIT Services of Frederick County (FY 2001)
N/A Not Available

c. High Occupancy Vehicle (HOV) Lanes

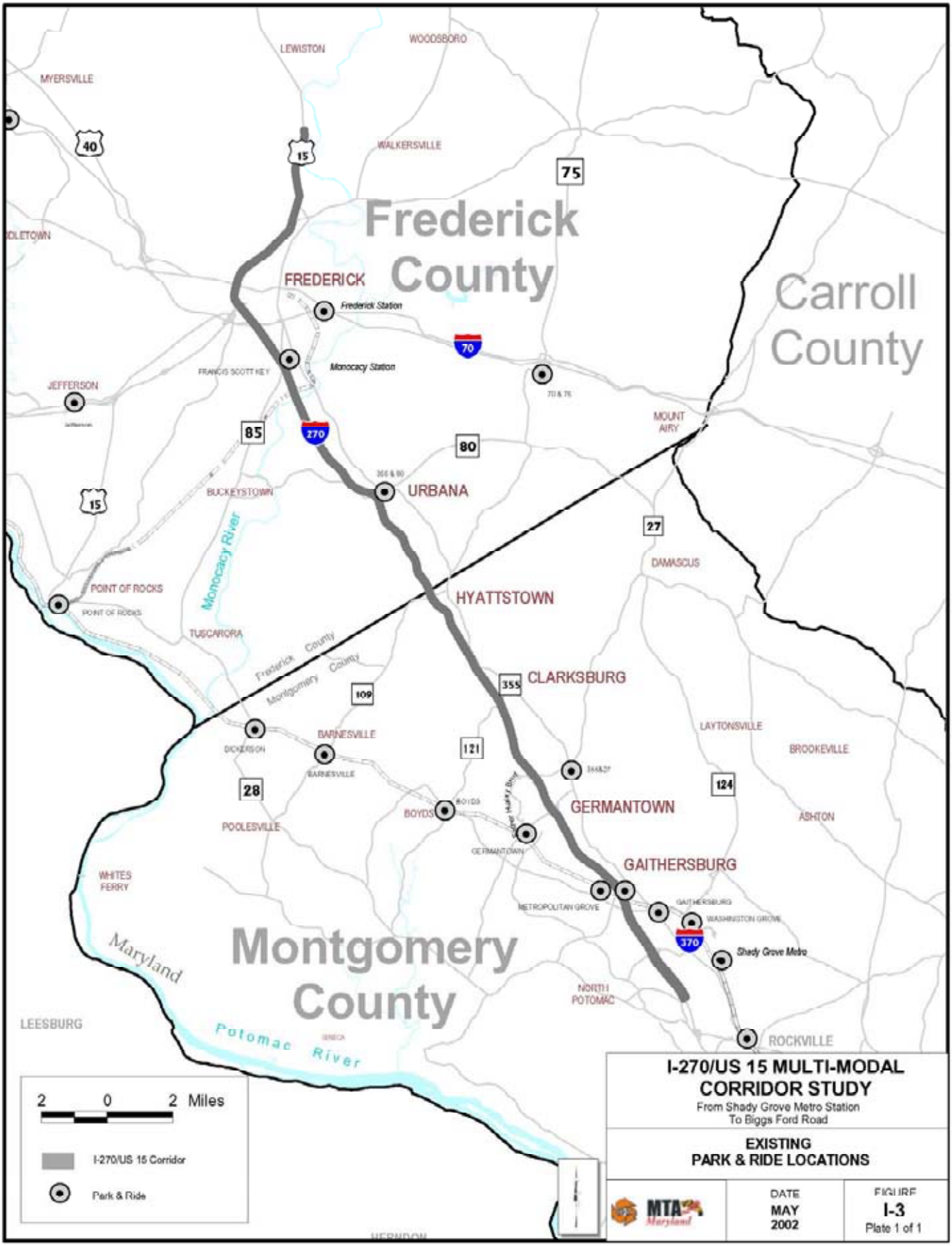
HOV lanes currently exist on the east and west spurs (both northbound and southbound) of I-270 from I-495 north to the Y-split and both northbound and southbound on I-270 from the Y-split to I-370 (approximately nine miles). HOV lanes also exist on northbound I-270, from I-370 to MD 121 (approximately nine miles for an 18 mile HOV lane on northbound I-270 from I-495 to MD 121). These HOV lanes have been evaluated in the Corridor since their implementation in September 1993 and have been meeting national occupancy standards. Generally, the Federal government allows State governments to establish the occupancy requirements for HOV lane usage, as long as there is a minimum of 2 people in the vehicle. For example, State Highway Administration (SHA) reports that the average auto occupancy along the I-270 Corridor is 2.41 passengers per vehicle as of March 2000 (2.49 southbound east Spur; 2.32 southbound west spur; 2.44 northbound east spur; and 2.39 northbound west spur) and the travel time savings is approximately 5 minutes for travel along the Corridor between the I-495 and MD 121 (March 2000).

d. Park and Ride Lots

Park and ride lots (shown on **Figure I-3**) are available throughout the project area to accommodate ridesharing and multi-modal travel. These facilities range in size from 15 spaces at the Washington Grove MARC Station to 4,260 (7,810 by 2010) spaces at the Shady Grove Metro Station.

2. Regional Growth

The Metropolitan Washington Region, as defined by MWCOG, consists of the District of Columbia; the Maryland counties of Frederick, Montgomery, and Prince George's; the Virginia counties of Arlington, Fairfax, Loudoun and Prince William; as well as select cities within some of these Maryland and Virginia counties **(Figure I-4)**. In addition, Calvert and Charles counties (Maryland) and Stafford County (Virginia) are included for air quality planning and conformity.



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

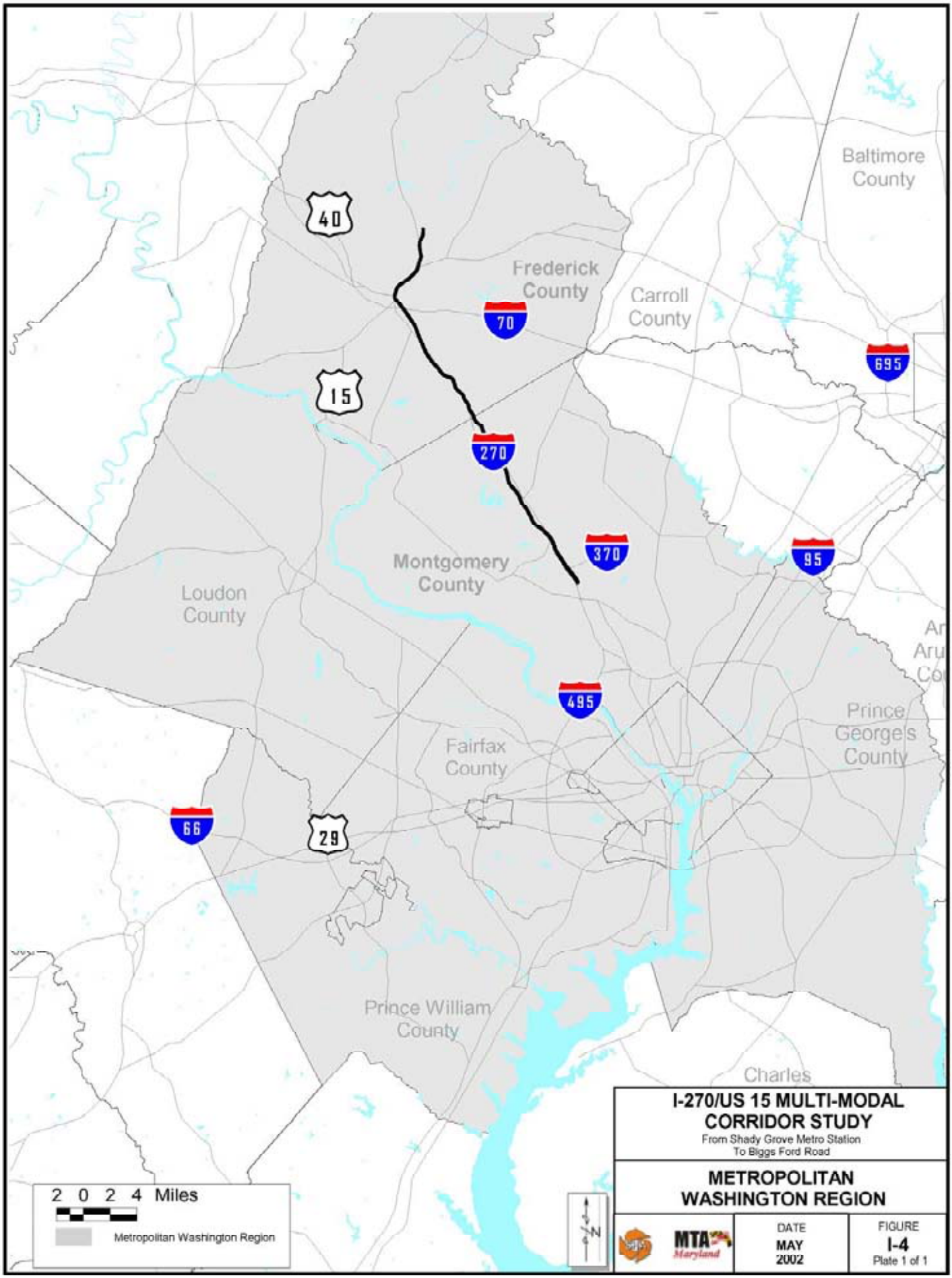
From Shady Grove Metro Station
To Biggs Ford Road

EXISTING PARK & RIDE LOCATIONS

MTA Maryland

DATE
MAY
2002

FIGURE
I-3
Plate 1 of 1


Baltimore County
Frederick County
Carroll County
Montgomery County
Loudon County
Fairfax County
Prince George's County
Prince William County
Charles
40
15
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370
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Metropolitan Washington Region
N
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
METROPOLITAN WASHINGTON REGION
MTA Maryland
DATE
MAY
2002
FIGURE
I-4
Plate 1 of 1

This delineation is consistent with the Cooperative Forecasting Program initiated by MWCOG, the M-NCPPC, and the local governments of the Washington metropolitan area.

Round 6.2 Cooperative Forecasts of demographics produced by MWCOG in April 2000 indicate that considerable population, household, and employment growth has happened and is expected to continue in the Metropolitan Washington Region, as well as both Montgomery and Frederick counties, between 1990 and 2025:

- Regional employment is expected to total nearly 3.9 million jobs by 2025, a 56% increase over 1990 employment of 2.5 million jobs. Also under the Round 6.2 Cooperative Forecasts, regional population is forecast to increase 50%, reaching almost 5.9 million in 2025. The number of households is expected to attain almost 2.3 million in 2025, a 56% increase over 1990 estimates.
- Population in Montgomery County is expected to increase by almost 35%, and population in Frederick County is expected to grow by 102%.
- In both counties, employment is expected to increase at an even faster rate than population, 45% growth is expected in Montgomery County and 201% growth is expected in Frederick County.

Table I-3 indicates the demographic data upon which all travel demand forecasts for the design year of 2025 were developed. The first forecast, referred to as the "2025 No-Build" forecast, is based upon the premise that, in addition to the existing transportation infrastructure serving the project area, the planned and/or programmed improvements cited in **Table I-4** will be in existence in the year 2025. Outside of the project area all projects included in the MWCOG 2025 Constrained Long Range Plan (CLRP) were included in the travel forecasts. The substantial population and employment growth within the I-270/US 15 Corridor will create travel demand exceeding the capacity of the existing transportation system. Without sufficient improvements, traffic congestion will worsen, which can increase commuter travel times, accidents and pollution.

TABLE I-3
DEMOGRAPHIC FORECASTS

Area	1990 Population	2025 Population	Percent Change	1990 Employment	2025 Employment	Percent Change
Montgomery County	757,000	1,020,000	35%	466,000	685,000	47%
Frederick County	150,200	303,400	102%	54,000	162,500	201%
Metropolitan Washington Region*	3,923,600	5,893,000	50%	2,488,300	3,880,700	56%

Note: **The Metropolitan Washington Region includes: Calvert, Charles, Frederick, Montgomery, and Prince Georges Counties in Maryland; Arlington Fairfax, Loudoun, Prince William, and Stafford Counties in Virginia; the cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park in Virginia; and the District of Columbia.*

Source: *MWCOG, Round 6.2 Cooperative Forecasts, April 2000.*

Much of the anticipated development is planned to occur in identified activity centers such as Gaithersburg, Germantown, Clarksburg, Urbana, and Frederick. However, even these activity centers represent a further dispersion of population and employment throughout the Corridor than currently exists. Especially noteworthy are the projected increases in households and employment in Clarksburg and Urbana. Residential development is ongoing in Clarksburg, while residential, commercial, and a planned urban development (PUD) are expected in Urbana. The City of Frederick also anticipates a substantial increase in residential development and employment, causing the projected number of households to almost double.

Varied land uses exist throughout the project area. The southern portion of the project area, generally south of MD 121, consists of residential (a mixture of single-family homes, townhomes, and condominiums) and commercial with office/industrial development along both sides of I-270. North of MD 121, most of the anticipated development is concentrated east of I-270, mainly consisting of office/light industrial uses. Most of the land west of I-270 is expected to remain agricultural/conservation. Residential and some commercial uses exist in Clarksburg and Urbana. Land uses in the vicinity of the City of Frederick are a mixture of residential and commercial, with some agricultural and industrial designations north of the Frederick city limits. Parks and woodlands also exist throughout the Corridor.

3. Travel Demand

a. Highway

Average Daily Traffic (ADT) volumes have been increasing steadily on I-270/US 15 as well as other roadways in the project area. Throughout most of the Corridor, volumes on I-270/US 15 increased at an average rate of approximately 1-3 % per year between 1993 and 1997, depending on the roadway section. Volumes on MD 355 and other roadways in the area also increased substantially, with annual percent growth similar to that observed on I-270/US 15.

The existing (1998) ADT volumes along the I-270/US 15 Corridor vary greatly depending upon location. These volumes generally decrease as one travels away from Washington, DC. The traffic volumes in the Corridor range from almost 175,000 vehicles per day at the southern end of the project area to about 36,000 vehicles per day at the northern end. In the vicinity of Frederick, traffic volumes increase slightly due to local traffic using US 15. Current ADT volumes on MD 355 also vary, ranging from 13,000 vehicles per day near MD 26 at the northern end of the project to 36,000 vehicles per day near Shady Grove Road at the southern end.

Table I-5 highlights the existing and forecasted ADT volumes at selected locations along the I-270/US 15 Corridor; the locations identified are illustrated on the Plan Sheets in **Chapter XI**.

TABLE I-4
TRANSPORTATION IMPROVEMENTS PROGRAMMED FOR I-270/US 15 CORRIDOR INCLUDED IN 2025 FORECASTS

Location	Description	Projected Completion Date
Highway Upgrade, Reconstruction, Extension and Widening Projects		
I-270 from Middlebrook Road to MD 121	Additional lane in each direction (HOV in peak period); Interchange reconstruction/reconfiguration and associated bridge work at I-270/MD 118 and I-270/MD121	1996 (completed)
MD 118 from MD 117 to I-270	Upgrade MD 118 to multi-lane, divided highway	1999 (completed)
MD 124 from MD 28 to Longdraft Road	Reconstruct MD 124 to a 6-lane highway	2002
MD 355 from MD 124 to Middlebrook Road	Reconstruct MD 355 to a 6-lane highway	2000 (completed)
MD 355 from Middlebrook Road to MD 27	Reconstruct MD 355 to a 4-lane highway	1997 (completed)
I-270 from Father Hurley Blvd to MD 144	Construction of new interchange and roadway extension	1995 (completed)
I-70 from Mt. Philip Road to MD 144	Reconstruction I-70/I-270/US 15/US 340 interchange complex and upgrade highway to current design standards	2010
I-270 from I-495 to north of MD 121	Implement HOV median lane during peak	1999 (completed)
MD 26 from Trading Lane to MD 194	Widen MD 26 to 4-lane highway	1996 (completed)
MD 28 from Rifleford Road to Shady Grove Road	Widen MD 28 to 4/6-lane highway	2004
Transit Extensions and Parking Expansion Projects		
Point of Rocks to City of Frederick	Extension of MARC service	2001 (completed)
MARC Brunswick Station	Expansion of parking lot	1999 (completed)
MARC Germantown Station	Expansion of parking lot	1999 (completed)
Montgomery County	Construction of transit centers at Olney, Lakeforest Mall and Burtonsville	2010 1998 2003
MD 118/Crystal Rock Drive	Construction of park and ride lot opening in 2001	2005
MD 118/Crysal Rock Drive	Germantown Transit Center	2001
Shady Grove Metro Station	Expansion of parking lot	2010

TABLE I-5
AVERAGE DAILY TRAFFIC (ADT) VOLUMES (NO-BUILD ALTERNATE)

Location	1998 ADT Volumes	2025 ADT Volumes	Percent Growth
I-270: Shady Grove Road and I-370	174,900	254,000	45%
I-270: MD 124 and Middlebrook Road	119,600	213,500	79%
I-270: MD 118 and Father Hurley Boulevard	83,100	130,200	57%
I-270: MD 109 and MD 80	68,350	102,800	50%
I-270: MD 80 and MD 85	71,250	125,600	76%
US 15: Opossumtown Pike and MD 26	68,700	80,400	17%
US 15: Hayward Road and Biggs Ford Road	35,700	61,900	73%

Traffic volume growth on both I-270 and MD 355 is expected to be substantial. The 2025 No-Build ADT volumes on I-270/US 15 range from approximately 254,000 vehicles per day at the southern end of the project area to approximately 61,900 vehicles per day at the northern end. Projected volumes on MD 355 are expected to range from 105,000 vehicles per day at the southern end of the project area to 34,000 vehicles per day at the northern end.

Level-of-service (LOS) is a qualitative measure of traffic operating conditions, and is designated using a grading system much like academic grading. LOS A indicates free flowing traffic, while LOS B and LOS C represent stable flow in which the presence of other users in the traffic stream begins to be noticeable. Generally, LOS D indicates moderate traffic volumes that slightly impact the flow of traffic. LOS E indicates traffic volumes are approaching the capacity of the street or intersection and speeds are reduced to a lower, but relatively uniform value. This represents substandard conditions and results in significant congestion. LOS F represents stop-and-go, standstill traffic conditions.

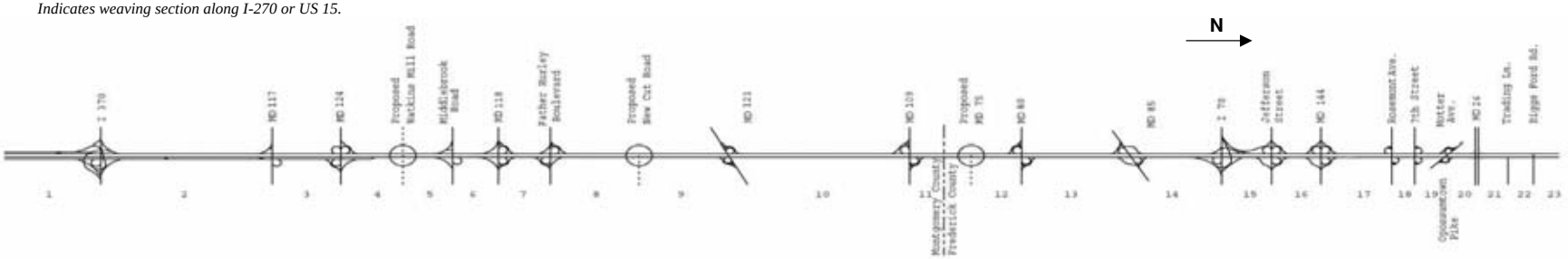
The volume-to-capacity (V/C) ratio compares the number of vehicles using or expected to use a segment of a road to the number of vehicles the road segment can handle safely and conveniently. When the V/C ratio is equal to or greater than 1.0 traffic congestion and delays increase at a faster rate, resulting in LOS F conditions. At the present time, most of I-270/US 15 experiences recurring congestion during the peak commuting periods. **Table I-6** shows the existing roadway segment LOS and the corresponding V/C ratios. Almost all of the mainline segments currently experience LOS rankings of D, E or F during the peak periods, with several links along the Corridor either at or over their capacity. Most of I-270 will continue to experience congested operating conditions during the peak periods in the design year 2025, even with all of the planned improvements in the Corridor. The substantial projected growth in employment and population is expected to result in increased Corridor traffic volumes and the corresponding increase in congestion.

TABLE I-6
EXISTING (1998) AND 2025 NO-BUILD AM (PM) PEAK HOUR LEVELS OF SERVICE (LOS) [1, 2] / VOLUME TO CAPACITY (V/C) RATIOS [3] ALONG I-270 AND US 15

I-270/US 15 Highway Segments	Existing (1998)				Alternate 1 (2025 No-Build)			
	Northbound		Southbound		Northbound		Southbound	
	I-270 Mainline	I-270 C-D Lanes	I-270 Mainline	I-270 C-D Lanes	I-270 Mainline	I-270 C-D Lanes	I-270 Mainline	I-270 C-D Lanes
1. South of I-370					C (D)	C (F) / – (1.91)	F (C) / 1.22 (–)	F (C) / 1.10 (–)
2. I-370 to MD 117	B (D)	A (C)	E (C)	-	C (F) / – (1.03)	A (E)	F (D) / 1.37 (–)	-
3. MD 117 to MD 124	B (D)	A (C)	E (B)	-	C (F) / – (1.09)	B (E)	F (D) / 1.41 (–)	-
4. MD 124 to Proposed Watkins Mill Road	B (E)	-	E (B)	-	D (F) / – (1.83)	-	F (D) / 1.49 (–)	-
5. Proposed Watkins Mill Road to Middlebrook Road								
6. Middlebrook Road to MD 118	A (D)	-	E (B)	-	C (F) / – (1.39)	-	F (D) / 1.51 (–)	-
7. MD 118 to Father Hurley Boulevard	B (E) [4]	-	D (B)	-	C (F) [4]	-	E (C)	-
8. Father Hurley Boulevard to Proposed Newcut Road	B (D)	-	C (B)	-	D (F) / – (1.94)	-	F (E) / 1.21 (–)	-
	I-270/US 15 Mainline		I-270/US 15 Mainline		I-270/US 15 Mainline		I-270/US 15 Mainline	
9. Proposed Newcut Road to MD 121	B (D)		C (B)		D (F) / – (1.94)		F (E) / 1.21 (–)	
10. MD 121 to MD 109	C (E)		E (C)		D (F) / – (1.45)		F (E) / 1.15 (–)	
11. MD 109 to Proposed MD 75	C (E)		E (C)		D (F) / – (1.25)		F (E) / 1.16 (–)	
12. Proposed MD 75 to MD 80								
13. MD 80 to MD 85	C (E)		E (C)		E (F) / – (1.41)		F (F) / 1.37 (1.00)	
14. MD 85 to I-70	B (D)		E (D)		C (F) / – (1.05)		F (F) / 1.48 (1.01)	
15. I-70 to Jefferson Street/US 15/US 340	C (E) [4]		C (B)		C (E) [4]		D (C)	
16. Jefferson Street/US 15/US 340 to MD 144/US 40	B (D) [4]		D (C) [4]		D (F) [4]		E (D) [4]	
17. MD 144/US 40 to Rosemont Avenue	D (E)		E (E)		E (F) / – (1.21)		F (F) / 1.04 (1.03)	
18. Rosemont Avenue to 7th Street	D (E)		E (D)		E (E)		E (E)	
19. 7th Street to Opossumtown Pike	D (E)		E (D)		D (E)		E (E)	
20. Opossumtown Pike to MD 26	C (E)		D (C)		C (E)		E (D)	
21. MD 26 to Trading Lane	B (C)		B (A)		D (F) / – (1.10)		F (C) / 1.00 (–)	
22. Trading Lane to Biggs Ford Road	A (C)		C (A)		C (E)		E (C)	
23. North of Biggs Ford Road								

Source: *BMI, 2001*

1. *LOS A - free flowing traffic; LOS B and C – stable flow of traffic; LOS D – slight impact to traffic flow; LOS E – traffic volumes approaching capacity of facility; LOS F – stop and go, standstill conditions.*
2. *Mainline levels of service were calculated based on existing traffic counts for the Existing (1998) Scenario, and traffic projections for the 2025 No-Build Scenario.*
3. *Volume to capacity (v/c) ratios reported for mainline (freeway) level of service F conditions only.*
4. *Indicates weaving section along I-270 or US 15.*



b. Transit

The I-270/US 15 Corridor is currently served by MTA MARC commuter rail service from Washington, DC to Brunswick and Frederick MD, WMATA Metrorail service along the Red Line to the Shady Grove and Rockville Metrorail Stations, MTA Commuter Bus service from Hagerstown and Frederick to the Shady Grove Metro Station, Montgomery County Ride-On bus service, Frederick County TransIt bus service, and WMATA Metrobus service. The 2025 MWCOG CLRP includes improved transit service for the I-270/US 15 Corridor, including the MARC line to Frederick (which opened in December 2001) and more frequent service on existing Ride-On routes. Transit use in 2025 was projected for the 2025 No-Build alternate that included this new transit service and projected new development in the corridor.

The 2025 land use forecast for the corridor focuses on developing areas that are transit friendly and well served by transit. This includes developing denser residential sites along transit routes, as well as having employment centers located near well-served transit corridors. The object of this land use plan is to provide added access to households and jobs via other means than the automobile. Proposed growth along the corridor will be served by auto as well as transit modes.

As can be seen in **Table I-7**, the No-Build travel demand forecast estimated that by 2025, rail transit use in the corridor could increase 62 percent. More significantly, passengers on the MARC line are projected to increase from approximately 5,100 today to nearly 24,000 in 2025, nearly 370%. This increase in MARC ridership would not have a substantial effect on congestion relief in the corridor. As discussed in the previous section, the 2025 traffic forecasts along I-270 and US 15 result in a significant increase in demand, greater than the available capacity. In 2025 transit will be used for nearly ten percent of the work trips that are made on an average weekday, even without new transit service beyond that included in the CLRP. The largest increase in demand for rail transit is expected to be for MARC service along the Brunswick and Frederick Lines. The projected future demand significantly exceeds MARC capacity included in the CLRP. The substantial new demand for MARC service can be attributed to major increases in housing expected to occur near MARC stations. New development near the existing Metrorail stations is not expected to be nearly as extensive.

TABLE I-7
AVERAGE WEEKDAY RAIL PATRONAGE

Mode	2000 Observed	2025 Forecast (No-Build)	Percent Change
Commuter Rail (MARC)	5,100	23,900	369%
Metrorail	35,100	41,100	17%
Total	40,200	65,000	62%

Highway improvements alone will not be able to address future demand for travel in the corridor, therefore alternative transportation solutions, in addition to highway improvements are needed. Public transit is one alternative that provides effective mobility solutions for those who might otherwise use the automobile as well as those who cannot drive a car. The majority of trips will continue to be made by automobile, but with the continued development and congestion in the corridor, improved transit service may possibly provide another good option for travel. The

projected transit demand demonstrates a need to study expanded transit service throughout the I-270/US 15 Corridor.

4. Safety

Accident analyses have been performed for I-270/US 15 (1996 to 1999 data) and MD 355 (1998 to 2000 data) within the project area. The accident rate and statewide average are based on 100 million vehicle miles (mvm) of travel.

The average accident rate along sections of I-270 within the study limits was lower than, or consistent with, the statewide average rate for similarly designed highways, with the exception of US 15 between I-70 and MD 26. As **Table I-8** indicates, the average accident rate of 81.5 accidents/100 mvm in this segment of the corridor was almost twice as high as the statewide average rate of 44.3 accidents/100 mvm for similarly designed highways. However, there were higher concentrations of accidents in several interchange areas along the corridor, primarily due to the conflict of vehicles entering and exiting the highway.

TABLE I-8
I-270/US 15 CORRIDOR
(SHADY GROVE METRO STATION TO BIGGS FORD ROAD)
ACCIDENT DATA (1996 – 1999)

Segment	Type	Number of Accidents	Corridor Accident Rate [1]	Statewide Accident Rate [1]
I-270 from I-370 to MD 124	Fatal	1	0.2	0.3
	Total	216	46.4	44.3
I-270 from MD 124 to MD118	Fatal	0	0	0.3
	Total	207	38.4	44.3
I-270 from MD 118 to MD121	Fatal	1	0.3	0.5
	Total	137	34.3	42.7
I-270 from MD 121 to I-70	Fatal	7	0.5	0.5
	Total	503	35.3	41.8
US 15 from I-70 to MD 26	Fatal	0	0	0.3
	Total	270	**81.5** [2]	44.3
US 15 from MD 26 to Biggs Ford Road	Fatal	0	0	1
	Total	80	60.2	89.1

***Source**: Maryland State Highway Administration*

1. 100 mvm; rate per 100 million vehicle miles

2. Significantly higher than the statewide average rate

The high accident rate in the US 15 segment between I-70 and MD 26 may be attributed to the mixture of local traffic and high-speed through traffic, which has to travel through closely spaced interchanges within the City of Frederick and at-grade intersections north of the city.

A Candidate Safety Improvement Section (CSIS, formerly known as an High Accident Section, or HAS) is defined as a half-mile section (or less) of roadway with an accident rate exceeding the statewide average, discounting intersection-related accidents. Seven sections of I-270/US 15 met the criteria for a CSIS in 1998, including:

- I-270 in the vicinity of the MD 124, Middlebrook Road and MD 109 interchanges
- US 15 in the vicinity of the MD 180, Patrick Street (US 40), Rosemont Avenue and the West 7th Street interchanges

Several sections along MD 355 within the project limits experienced greater than average accident frequency. High accident locations occurred mainly in urbanized areas, most likely due to the many traffic signals and commercial driveways in these areas.

As the volume and congestion along I-270/US 15 increase, motorists will seek other travel routes. This would result in increased use of the local roadway system, making conditions on the local roadway network more congested and potentially unsafe. The higher than statewide average accident experience along MD 355, combined with the lack of access, areas of urbanization, and areas with poor geometric characteristics, reinforces the need to discourage motorists from over-using this alternate route. In addition, based on the assumption that as traffic volumes rise, accident numbers rise proportionately (due to congestion-related accidents), increased congestion may continue to worsen the already high accident rate along US 15 and may result in an increased accident rate along I-270.

E. PLANNING CONTEXT AND PROJECT DEVELOPMENT PROCESS

1. Role of the DEIS in Transit Project Development

Since the late 1970s, the Federal Transit Administration (FTA) has required projects requesting discretionary federal funding aid to follow a five-step development process. In brief, the five steps are: 1) System Planning; 2) Major Investment Study (MIS); 3) Preliminary Engineering/Final Environmental Impact Statement (PE/FEIS); 4) Final Design; and 5) Construction. This DEIS was developed consistent with the National Environmental Policy Act (NEPA). As part of the MIS, the project team worked with the MWCOG, as well as the public and participating resource and regulatory agencies, to identify the design concept and scope of the transportation investment.

Metropolitan Planning Organizations (MPOs) require that a proposed project be included in a metropolitan area's CLRP and Transportation Improvement Program (TIP) in order to advance into the Preliminary Engineering phase. The CLRP and TIP under MPO regulations are financially constrained (identifies funding sources for construction and operations and maintenance) and conforming (i.e., meeting the federal air quality standards).

On May 22, 1998, Congress passed the Transportation Equity Act for the 21st Century (TEA-21) authorizing highway, highway safety, transit and other surface transportation programs for the next six years. TEA-21 generally preserves the 1991 Intermodal Surface Transportation Efficiency Act's (ISTEA's) transportation planning process emphasizing the role of state and

local officials in cooperation with transit operators, in tailoring the planning process to meet metropolitan and state transportation needs.

The DEIS has particularly important implications for the federally mandated project development process for major public transportation improvements. The preparation of an Environmental Impact Statement (EIS), together with its required public circulation and review procedures, ensures that significant transportation and environmental effects are assessed and that public participation and comments help guide the decision-making process. The cost-effectiveness analysis, performed as a part of the previous study and updated for this EIS (see **Section V.B**), further helps ensure that the limited funds available for transportation improvements are directed toward the most cost-effective solution. Similarly, the identification, examination, and assessment of all promising options are necessary to meet NEPA requirements, as well as State of Maryland environmental regulations. This DEIS assesses the type and extent of potential environmental effects of the alternates considered for the I-270/US 15 Multi-Modal Corridor. Potential mitigation measures for adverse impacts are identified and will be further developed in subsequent project phases, together with estimates of the costs and effectiveness of such measures.

2. Summary of Local Decision-Making and Analytical Work to Date

a. Summary of Local Decision-Making

The I-270/US 15 Multi-Modal Corridor Study began in June 1994 as a jointly sponsored effort by SHA and the MTA. The original study encompassed the I-270/US 15 Corridor from the vicinity of the Shady Grove Metro Station (Montgomery County) to Biggs Ford Road (Frederick County) as well as existing MARC and future Frederick MARC service.

The resource and regulatory agencies, which included the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACOE), the US Environmental Protection Agency (EPA) and the US Fish and Wildlife Service (USFWS), concurred with the project's purpose and need in November 1995. These agencies, along with the National Park Service (NPS), Maryland Department of Natural Resources (DNR) and Maryland Department of the Environment (MDE), concurred with the Alternates Retained for Detailed Study (ARDS) in Fall 1998. The FTA is a joint sponsor, with the FHWA, for the project.

Stage I

The project team, with input from the public and the I-270/US 15 citizen's focus group, identified various transportation improvements (strategies) and goals and objectives to be used for evaluating I-270/US 15 Corridor improvements. Performance measures or Measures of Effectiveness (MOE) were established to quantify how well transportation improvements met the goals and objectives. Transportation improvements and strategies that were evaluated included the following:

- No-Build
- Intersection/Interchange Improvements
- Additional Telecommuting Centers (TDM)
- Additional Park and Ride Lots (TSM)
- Encouraging Flexible Work Hours (TDM)
- Growth Management Strategies (TDM)
- Intelligent Transportation Systems (ITS)
- Transit Improvements (LRT and Busway)
- Highway Widening (General-Purpose Lanes)
- Highway Widening (High Occupancy Vehicle (HOV) Lanes)
- Highway Widening (Collector-Distributor (C-D) Lanes)

Conclusion of Stage I

Based on these goals, objectives and MOE, the project team determined that ***no single strategy would solve these transportation challenges***. Therefore, the project team joined the transportation strategies into truly multi-modal alternates referred to as the Baseline, TSM/TDM, Combination A, Combination B and Combination C Alternates. A detailed discussion on the transportation alternates is presented in **Chapter II**. Even though the preliminary investigations of the stand-alone transit strategies, for either bus or LRT, showed little demand for additional transit by the design year of 2025, there was local interest to give transit another opportunity. Therefore, the project team reevaluated transit along two alignments (Corridor Cities Transitway (CCT) and CSX) and with two modes (LRT and bus) to serve the corridor cities. These evaluations included investigating various northern termini (Metropolitan Grove, Germantown, COMSAT, and Frederick), alternative fare structures (comparable with Metrorail), a reduced number of transit stations, an aggressive feeder bus network and increased land use densities within one-half mile of the transit stations.

The results of these analyses indicated that COMSAT (approximately 13.5 miles distant from Shady Grove) as the farthest north feasible terminus by the design year (versus the original Metropolitan Grove terminus with a distance of approximately 6.5 miles) to evaluate in the DEIS. In addition, a CSX light rail alignment between the Shady Grove Metro station and the Metropolitan Grove MARC station was not carried forward for further study. This alignment does not provide service to emerging growth areas west of I-270. It is also inconsistent with local and regional 2020 land use priorities. Due to priorities of the local jurisdictions and the travel demand results, the decision was made that a transitway alignment (either Bus Rapid Transit (BRT) or LRT) from the Shady Grove Metro Station to COMSAT would be carried into several of the alternates for more detailed engineering and environmental studies. The CCT alignment and the COMSAT terminus were chosen for detailed study based on cost effectiveness, local and state transit service goals, ridership and impacts, the Premium Bus alternate was also chosen for detailed study, based on the same measures.

Stage II

By early 2001 the counties had not identified recommended maintenance facility sites. Therefore, the project team expanded the project scope to include the identification and investigation into this aspect of the project improvements.

The project team presented the project goals, objectives and MOEs, as well as the initial transportation strategies and the proposed alternates at the February 12, 2001 (Montgomery County) and February 20, 2001 (Frederick County) Informational Public Meetings for review and comment. The goals, objectives and MOE were used to evaluate how each of the initial transportation strategies would address the Corridor's transportation challenges. Refer to the Summary of Public Involvement section in **Chapter VII. Comments and Coordination, Page VII-4** for more information on public meetings held in this study.

The project team also revised the horizon year for analysis from 2020 to 2025. As part of the NEPA process, the updated alternates were evaluated under a new MWCOG travel forecasting model run with revised socioeconomic information. This DEIS presents the detailed alternates and analyzes the environmental impacts. A Location/Design Public Hearing will be held in 2002 following the completion and circulation of the DEIS for agency and public comment. Comments received during the Location/Design Public Hearing and during the circulation period for the DEIS will be considered prior to selection of any preferred alternative for the corridor. The disposition of comments received will be incorporated into the Final Environmental Impact Statement (FEIS).

b. Analytical Work to Date

Land Use Expert Panel

As part of the I-270/US 15 Multi-Modal Corridor Study, MDOT conducted a Land Use Expert Panel. The panel's final report is presented in **Appendix F**. The panel was selected to assess likely future events, or the impacts of potential transportation investments on land use, by responding to several rounds of questions. The expert panel process consists of two phases. The first phase provided a qualitative assessment of the likely locations and intensities of development that may result from three hypothetical transportation scenarios. The second phase involved estimating population and employment changes for 19 Forecast Zones according to three transportation alternatives. MDOT received a Federal Transportation, Community, and System Preservation (TCSP) grant to carry out this expert panel process, the result of which is the land use basis of this DEIS' Secondary and Cumulative Effects evaluation, see **Section III.K**. In addition, the I-270/US 15 Land Use Expert Panel will be included as one of several case studies for a National Cooperative Highway Research Program (NCHRP) report on expert panels.

Congestion Management System

ISTEA and TEA-21 have challenged states to improve transportation system performance and more effectively use various modes of travel. Part of the challenge of ISTEA and TEA-21 is to alleviate or prevent congestion in the transportation system through better management of

existing services and facilities and consideration of both multi-modal improvement options and strategies to manage the need and demand for travel. The *Final Rule on Management and Monitoring Systems*, December 19, 1996, defines a congestion management system (CMS) as: "…a systematic process for managing congestion that provides information on transportation system performance and alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to meet state and local needs."

In compliance with this rule, MDOT is responsible for developing, implementing and maintaining the CMS for Maryland. The CMS Oversight Committee, comprised of the MPOs, and State and Federal representatives, manages preparation of this analysis and report. The Baltimore and Washington region MPOs (Baltimore Regional Transportation Board and the Transportation Planning Board, respectively) have developed CMSs for their respective regions, which support and supplement statewide congestion management activities.

The CMS is a decision-making support system, used for identifying existing and projected congestion mobility problems and needs and evaluating alternate strategies for addressing problems in both a metropolitan and statewide transportation context. The CMS process provides information so that decision-makers can make informed choices about transportation investment options and policy.

The function of the CMS in Maryland is to provide for a systematic, comprehensive analysis of causes and solutions to traffic congestion and mobility needs in 29 identified transportation corridors throughout the State. The CMS Corridor #2 extends from Rockville to Frederick. The CMS involved the MPO, Federal, State, and local transportation and planning agencies, and CMS Oversight Committee representatives. The CMS will be implemented in corridors that experience major travel demand, and will seek to address the demand on the congested facilities in these corridors by considering and recommending a set of strategies to address the identified needs and problems.

The CMS considers a number of strategies ranging from low cost, operationally oriented improvements, to transit service and facility capital improvements, high occupancy vehicle (HOV) options, and options that can reduce the need for certain types of travel, or that can shift it out of the periods of peak congestion. Strategies to increase general-purpose highway capacity through widening of existing roads or building new roads are considered in situations where other strategies cannot adequately address the identified needs and problems in the Corridor. This DEIS uses a corridor approach, consistent with the CMS, for problem identification, strategy evaluation, and strategy implementation to evaluate the I-270/US 15 Corridor. A list of the CMS strategies evaluated in this study is presented in **Appendix H**.

3. Livable Communities Initiatives and Transit Supportive Development

In 1994, the FTA undertook a program called the Livable Communities Initiative. This program promotes transit as a way to strengthen the link between transportation and communities. It encourages planning in and around transit facilities to improve a community's access to major economic and community activities without reliance on single occupant vehicles. Planning for livable communities includes a vital community outreach component to ensure that such

planning meets with the goals and objectives of community residents and businesses. A community-oriented, user-friendly and well-designed development would include readily available customer information; a safe environment; easy access to pedestrian, bicycle and transit facilities; nearby customer services; and an architectural design that reflects the community in which it is located.

The first priority of transit-friendly/transit-oriented development is to establish density gradients that put dense development near transit stops and lines. This type of development is also "pedestrian friendly." Successful transit-oriented development contains a mix of complementary and related uses that can be easily accessed by foot.

Several of the master plans in the project area address and support the livable communities initiatives and transit supportive development concepts. The *Gaithersburg Vicinity Master Plan Amendment Stage III: Shady Grove Study Area* (July 1990) proposes a land use pattern that is strongly oriented to the Corridor Cities Transitway. The Plan states:

"The importance of transit to the future of the Shady Grove Study Area cannot be underestimated. This Plan designates three separate transitways as well as high priority regional and neighborhood bus routes. Higher intensity uses are directed to transit stops. In portions of the Study Area where lower intensity employment uses are recommended, the Plan encourages the clustering of buildings toward bus routes."

The *Germantown Master Plan* encourages the careful design of its Town Center to include joint development of office, transit and high density housing to act as a major gateway to Germantown. (October 1989, page 53).

The *Clarksburg Master Plan* recommends a transit-oriented land use pattern within some of its development districts, including the Town Center and the Transit Corridor District, located east of I-270. "Clustering residential uses close to the transit stop will allow residents to walk to transit." (June 1994, page, 51). The Plan also endorses a transit-oriented development pattern in the Cabin Branch Neighborhood, located east of MD 355 that will "facilitate bus access and circulation within the neighborhood and which will place all residents within convenient walking distance (one-quarter mile) of a bus stop". (Ibid. page 68).

The *Frederick County Comprehensive Plan* encourages transit-oriented development adjacent to MARC stations and around the proposed stations along the I-270 transitway. (October 1998, page 7-28)

The *City of Frederick Comprehensive Plan* (August 1995) does not address higher density development around transit stations specifically; however, the plan does encourage a basic philosophy of FTA's livable communities initiatives by recommending a mix of residential density units and a reduction in the number of single occupancy vehicles, especially on I-270.

II. ALTERNATES CONSIDERED

II. ALTERNATES CONSIDERED

This chapter describes the physical and operating characteristics and presents estimated capital costs and operating and maintenance costs for each alternate under consideration for the I-270/US 15 Multi-Modal Corridor. This chapter also describes the initial set of alignment and technology alternates considered and explains the reasons for eliminating certain of them from further consideration in this study.

A. INITIAL TRANSPORTATION STRATEGIES

1. Congestion Management System (CMS)

The beginning stage of the study was used to define the CMS for the I-270/US 15 Corridor (known as Corridor #2 in Maryland's CMS, completed in December 1998). The function of the CMS is to provide for a systematic, comprehensive analysis of the causes and solutions to traffic congestion and mobility needs in 29 identified transportation corridors throughout the State. By applying performance measures defined in the CMS, and included in the Purpose and Need chapter, to the existing and planned facilities in the Corridor, the CMS is able to provide a scale of the extent of congestion and permit evaluation of the effectiveness of mobility-enhancing strategies for the movement of people and goods.

2. CMS Identified Transportation Strategies

The following is a brief description of each of the initial transportation strategies identified by the CMS analysis. A full list of the CMS strategies is presented in **Appendix H** of this DEIS.

a. Baseline (No-Build)

The Baseline (No-Build) strategy serves as a basis for comparison for all other strategies. It includes elements adopted from the 1997 Constrained Long Range Transportation Plan (CLRP) (i.e., MARC commuter rail service from Point of Rocks to Frederick). No major capacity improvements would be made on I-270 or US 15. Only routine maintenance and spot improvements, such as resurfacing, re-striping, signing, and lighting, are included.

b. Transportation System Management (TSM)/Transportation Demand Management (TDM)

A number of relatively low-cost strategies, which are meant to improve the overall operation of the existing transportation system without adding capacity, are classified as TSM/TDM strategies. These include intersection/interchange improvements, hiker/biker trails, additional telecommuting centers, additional park and ride lots, encouraging flexible work hours, growth management strategies, and Intelligent Transportation Systems (ITS) technology.

c. Transitway

This strategy consists of either a busway or light rail transit along a separate transitway alignment with stations and parking facilities. This facility would generally parallel I-270 while serving the Corridor's residential areas and business centers.

d. High Occupancy Vehicle (HOV) Lanes

This strategy consists of adding an additional lane in each direction along I-270, which would be designated for vehicles carrying more than one (HOV 2+) or two (HOV 3+) passengers. The additional lane would begin at I-370 in the southbound direction and at MD 121 in the northbound direction and would continue north to I-70.

e. Highway Widening

This strategy consists of adding new general-purpose and auxiliary lanes along I-270 and US 15. The existing highway would be widened to the inside (in the median), to the outside, or both. Widening I-270 to add a general-purpose lane could be accomplished in combination with the HOV strategy.

3. Implementation Table

Table II-1 contains an Implementation Table that has been created to track all of these strategies as part of the Maryland CMS.

4. Preliminary Alternates Development

The project team concluded, after preliminary analyses of each of the initial transportation strategies, that no single transportation strategy alone would meet the projected travel demand within the Corridor. Therefore, the project team began combining strategies into several multi-modal alternative packages. In addition to a No-Build Alternate and a TSM/TDM Alternate, three multi-modal alternative packages, known as Combination Alternates A, B and C, were developed. Each of these packages included elements from the No-Build and TSM/TDM alternates as well as a series of highway improvements and a transit component. The Combination Alternates that were originally developed included the following elements:

TABLE II-1
CORRIDOR IMPLEMENTATION

Recommended Congestion Management Strategy	Potential Agency Identified for Implementation	Implementation Time Frames Short 1-5 years Medium 5-10 years Long 10+ years
TSM Strategies		
• Intersection Improvements.	SHA	Medium
• Interchange Improvements (MD 85, MD 26).	SHA	Medium/Long
• Hiker/Biker Trails.	SHA; Counties	Medium/Long
TDM Strategies		
• Encourage/Initiate Park and Ride Lots.	SHA; MTA Counties	Short/Medium/Long
• Encourage/Initiate Telecommuting Centers.	MPO; Counties	Medium/Long
• Encourage/Initiate Flexible Work Hours.	Counties	Short/Medium
Growth Management Strategies		
• Strengthen local land use plans to attract and focus compact, mixed-use growth in designated areas or Priority Funding Areas (PFAs).	Counties	Long
• Discourage development in rural areas not designated for growth.	Counties	Long
• Improve balance between jobs/housing.	Counties	Long
Transit Improvements		
• Corridor Cities Transitway from Shady Grove Metro Station to COMSAT.	MTA; WMATA	Medium/Long
• Preserve right-of-way for the Corridor Cities Transitway from COMSAT to Frederick City.	Counties	Short/Medium/Long
• Enhanced express bus service from the Corridor Cities Transitway to Shady Grove Metro.	MTA; WMATA; Counties	Medium/Long
• Enhanced feeder/local bus service throughout the Corridor.	MTA; WMATA; Counties	Medium
Highway Capacity Improvement		
• General use lane expansion (MD 118 to Biggs Ford Road).	SHA	Medium/Long
• Additional auxiliary lane (Jefferson Street to MD 26).	SHA	Medium/Long
• Additional Collector-Distributor or local lanes (I-370 to Father Hurley Boulevard).	SHA	Medium/Long
• (HOV lane expansion (I-370 to I-70).	SHA	Medium/Long
• Interchange Management (with or without HOV only access).	SHA	Medium/Long
Intelligent Transportation System (ITS) Strategies		
• Enhanced Traveler Advisory Radio (TAR).	SHA	Short/Medium
• Increased usage of Office of Coordinated Highways Action Response Team (CHART)/Transportation Operations Center (TOC).	SHA; Counties	Short/Medium

Note: *Potential funding sources are presented in Section V-F.*

a. Combination Alternate A

Highway widening consists of additional general-purpose lanes in both counties, extended HOV lanes, auxiliary and Collector-Distributor lanes, and interchange improvements.

Transit improvements consist of the Corridor Cities Transitway (CCT) from Shady Grove Metro Station to COMSAT as a separate alignment for a busway or light rail transit system. Both light rail transit (LRT) and bus rapid transit (BRT) modes are being evaluated as part of the CCT Alignment. Therefore, both Combination Alternate A-1 (LRT) and Combination Alternate A-2 (BRT) are being evaluated.

b. Combination Alternate B

Highway widening consists of additional general-purpose lanes in both counties, extended HOV lanes, auxiliary and Collector-Distributor lanes, and interchange improvements. For this alternate, both high occupancy vehicle lanes and express "premium" bus services would utilize the inside HOV lane. In addition, High Occupancy/Toll (HOT) lanes were considered in this alternate. HOT lanes provide the opportunity for single occupancy vehicles to purchase their admittance into this lane for a premium, more reliable trip, based on the traffic flow or congestion in the HOV/HOT lane. However, MDOT has decided not to pursue HOT lanes further. (refer to Section II.B.8 for more information). Transit improvements consists of premium/express bus service from the Shady Grove Metro Station to Frederick as a busway along the HOV lanes of I-270 with exclusive slip ramps for key intermodal connections.

c. Combination Alternate C

Highway widening consists of additional general-purpose lanes in both counties, extended HOV lanes, auxiliary and Collector-Distributor lanes, and interchange improvements. As per the Montgomery County Master Plans, only one additional inside lane is being pursued on I-270 and I-70. This lane will be evaluated as either on HOV lane or a general-purpose lane

Transit improvements consists of the Corridor Cities Transitway (CCT) from Shady Grove Metro Station to COMSAT as a separate alignment for a busway or light rail transit system. Both light rail transit (LRT) and bus rapid transit (BRT) modes are being evaluated as part of the CCT Alignment. Therefore, both Combination Alternate C-1 (LRT) and Combination Alternate C-2 (BRT) are being evaluated.

An Alternates Workshop/Public Hearing was held in March 1997 and Combination Alternates A, B and C were presented. The purpose of this meeting was to share the progress of the study with the public and to gain feedback on the additional results of the transportation strategies analyses. These analyses yielded the investigation of additional strategies, such as extended C-D lanes, premium express bus service, proposed new interchanges and a new roadway called Technology Boulevard in Frederick County. These meetings also gave the public the opportunity to provide private verbal or written testimony for inclusion in the official "Public Transcript" concerning the preliminary Combination Alternates A, B, and C, and, specifically, the recommendation to preserve or protect right-of-way for the Corridor Cities Transitway alignment from the Shady

Grove Metro Station to Frederick. Protective right-of-way acquisitions for this transitway could begin subsequent to these public hearings, as part of the local master plan process.

Informational Public Meetings were held in February 2001. The information presented at the meetings included more detailed engineering plans of highway and transitway alignments for Combination Alternates A, B, and C. Preliminary right-of-way and environmental impacts, preliminary cost estimates, and traffic conditions for 2020 No-Build and Build scenarios were also presented. These meetings provided the public with an opportunity to submit written comments on the Combination Alternates presented.

Following the February 2001 Public Meetings, the alternatives were repackaged in an effort to simplify the Combination Alternates. The alternates were renamed and include general-purpose lanes, auxiliary lanes, HOV lanes, collector-distributor (C-D) lanes, LRT, BRT, Premium Bus and others. Specifically, the following alternatives are under consideration:

- Alternate 1: No-Build Alternate
- Alternate 2: TSM/TDM Alternate
- Alternate 3A: Master Plan HOV/LRT Alternate (formerly Combination Alternate C-1 (LRT))
- Alternate 3B: Master Plan HOV/BRT Alternate(formerly Combination Alternate C-2 (BRT))
- Alternate 4A: Master Plan General-Purpose/LRT Alternate (formerly Combination Alternate C-1 (LRT))
- Alternate 4B: Master Plan General-Purpose/BRT Alternate (formerly Combination Alternate C-2 (BRT))
- Alternate 5A: Enhanced Master Plan HOV/General-Purpose/LRT Alternate (formerly Combination Alternate A-1 (LRT))
- Alternate 5B: Enhanced Master Plan HOV/General-Purpose/BRT Alternate (formerly Combination Alternate A-2 (BRT))
- Alternate 5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus Alternate (formerly Combination Alternate B)

B. ALTERNATES ELIMINATED FROM CONSIDERATION

The following is a brief description of alternates no longer being considered in the I-270/US 15 Multi-Modal Corridor Study, as well as the reasons for their elimination.

1. Heavy Rail Transit

A heavy rail transit (Metrorail) extension from the Shady Grove Metro station to the Metropolitan Grove MARC station was not carried forward for further study. This alignment is also not identified as a recommended transportation project in the Maryland-National Capital Park and Planning Commission's (M-NCPPC) Transportation Policy Report. This type of facility would be dependent on higher land use densities within this area than are called for in current local master plans. In addition, the right-of-way requirements would preclude the opportunity to provide adjacent bicycle/pedestrian facilities. Underground construction would impact CSX

freight service and result in substantial construction cost increases of up to $300 million above the CCT western alignment (this figure only covers an estimated cost of an alignment to Metropolitan Grove; therefore; the cost of heavy rail transit to COMSAT would be more expensive). If not constructed underground, heavy rail transit would require visually intrusive aerial structures or fencing and it would have less operational flexibility. Up to 65 displaced buildings could result from the at-grade, double track option.

2. CSX Alignment for Light Rail Transit

A CSX light rail alignment between the Shady Grove Metro station and the Metropolitan Grove MARC station was not carried forward for further study. This alignment does not provide service to emerging growth areas west of I-270. It is also inconsistent with local and regional 2020 land use priorities. Underground construction of this facility, much like the heavy rail transit option, would impact CSX freight service and result in significant cost increases in the range of $34 to $48 million dollars above the CCT western alignment. There are also potential impacts to historic resources along this alignment. Further, up to 65 building displacements could result from the at-grade, double track option.

3. Corridor Cities Transitway (CCT) Alignment from COMSAT to Frederick

Transit along the CCT alignment from COMSAT to Frederick was not carried forward for further study. Projected ridership for the project horizon year is not sufficient to support the increased operational and maintenance costs associated with extending the proposed transit service to Frederick. The CCT alignment and the COMSAT terminus were chosen based on cost effectiveness, local and state transit service goals, ridership and impacts. Extensions of the CCT alignment further north into Clarksburg were also considered during the study. However, based on past experience by the Maryland Department of Transportation, parking needs are most significant at terminal stations. The Clarksburg Master Plan assumes limited parking and a high level of pedestrian access at the Clarksburg Town Center. A major reason for selecting the COMSAT terminus is that this location provides for a parking facility with approximately 1,000 spaces that will service the majority of commuters accessing the transitway from the north. According to Year 2025 travel demand forecasts, a significant number of morning transitway riders will gain access to the transitway at this location and will travel through to the Shady Grove Metro Station, where they will connect with the Metrorail Red Line.

COMSAT has also been identified as a potential location for a maintenance yard and shop facility. If this site were selected, it would also provide for a critical component of the CCT necessary to support and address the operational requirements for future extensions of the transitway north of COMSAT to Clarksburg, Urbana, and Frederick. While construction of the transitway north of COMSAT in this study is not being considered at this time, the project team recommends that the CCT transitway alignment through Clarksburg to the City of Frederick be maintained within the Washington Metropolitan Region's Long Range Plan as well as local master plans for right-of-way preservation and implementation beyond 2025.

4. Monorail

Monorail technology is not being carried forward for detailed study. Monorail has not previously been implemented in this region and has not been used for a system of this magnitude. A monorail system able to serve the anticipated demand of the Corridor Cities would be at least as visually obtrusive as a typical elevated rail system. Although a monorail would be less visually obtrusive for smaller systems, a smaller system would not be able to meet the anticipated demand of a system that could ultimately be built to Frederick. Therefore, a larger system with larger aerial structures and stations would be needed. Monorail is typically used to serve smaller areas and shorter routes. Since reasonable alternatives exist, the project team recommends that the Corridor Cities Transitway not be the testing ground for what could be the largest monorail system ever built.

In addition, considerable operational and safety issues also exist. The structures required for monorail systems make providing crossovers (facilities that allow trains to move from one set of tracks to another) very difficult and expensive. Without crossovers, service would be interrupted for track maintenance or failure of a train or track segment. Montgomery County's own Transportation Policy Report states "...given the importance in Montgomery County of using transit investment to support focused development, LRT is preferred for the alignments being considered".

5. Technology Boulevard

The Technology Boulevard alignment was not carried forward for further study. The alignment was proposed to run along the east side of I-270, extending north from an intersection with proposed MD 75 extended to connect with MD 80 and MD 355 in Urbana. Technology Boulevard was intended to provide a parallel roadway alignment to I-270 that would serve existing and planned development in Frederick County, as well as provide for a future transitway right-of-way in the median. The travel demand modeling efforts for the study showed that the proposed roadway did not provide relief to the traffic congestion along I-270, and was therefore dropped from consideration in this study. However, the Technology Boulevard alignment is currently under consideration in the Frederick County master plan process.

6. Watkins Mill Road Extension Interchange

The Watkins Mill Road Extended interchange was not carried forward for further study as part of the I-270/US 15 Multi-Modal Corridor Study. The interchange was moved from this project to allow the State Highway Administration to proceed with a separate project planning study. The proposed interchange is located along I-270 in Gaithersburg, south of the Middlebrook Road interchange and Seneca Creek State Park, and north of the MD 124 interchange. An Environmental Assessment was completed in November 2000. This study is considered a separate, breakout project and has addressed the need to provide a full interchange at this location to better accommodate local travel patterns. The proposed improvements developed as part of the Watkins Mill Road study are compatible with the improvement scenarios along I-270 developed as part of the I-270/US 15 Multi-Modal Corridor Study.

7. US 15/MD 26 Interchange

The US 15/MD 26 interchange was not carried forward for further study as part of the I-270/ US 15 Multi-Modal Corridor Study. The interchange was moved from this project to allow the SHA to proceed with a separate project planning study. The existing interchange is located along US 15 at the northern limits of the City of Frederick, south of the proposed Trading Lane interchange (currently an existing intersection), and north of the Opossumtown Pike/Motter Avenue interchange. The study is considered a separate, breakout project and will be examining the need to provide the missing ramp movements to better accommodate local travel patterns. The proposed improvements developed as part of the US 15/MD 26 study would be compatible with the US 15 improvement scenarios developed as part of the I-270/US 15 Multi-Modal Corridor Study.

8. High Occupancy/Toll (HOT) Lanes

The Maryland Department of Transportation (MDOT) has been considering an array of alternatives to ease congestion on our roadways. One alternative under study was the possible conversion of High Occupancy Vehicle (HOV) lanes into High Occupancy/Toll (HOT) lanes.

Important concerns have been raised about the economic impact that such a toll could have on some commuters. MDOT has, therefore, decided not to pursue HOT lanes further, and is continuing to pursue other strategies to ease congestion. These strategies include expanding the capacity of our highway and transit systems, managing travel demand through the use of transit subsidies, encouraging individuals to telecommute, creating HOV lanes for individuals who carpool, providing express bus service, and deploying technology that enables travelers to make better use of the existing transportation system. Over the long term, Maryland's Smart Growth program also will reduce traffic congestion by encouraging better land-use planning.

C. ALTERNATES RETAINED FOR DETAILED STUDY

Consistent with the requirements of the CMS, a full range of multi-modal strategies was identified to be retained for detailed study. Several combinations of transit and highway strategies are being evaluated, including general-purpose lanes, auxiliary lanes, HOV lanes, collector-distributor (C-D) lanes, LRT, BRT, Premium Bus, and others. Specifically the following alternates are under consideration for the I-270/US 15 Multi-Modal Corridor Study:

1. Alternate 1: No-Build (Modified Baseline) Alternate

The No-Build (Modified Baseline) Alternate serves as a basis for comparing all of the other alternatives. It consists of the elements adopted from the 2000 Constrained Long Range Transportation Plan (e.g. MARC commuter train extension from Point of Rocks in Frederick County to the City of Frederick). The No-Build Alternate reflects current and programmed conditions within the I-270/US 15 Corridor. However, the southbound HOV lane between MD 121 and I-370 is excluded since it is part of several alternates under consideration. No major capacity improvements would be made on I-270 or US 15. Only routine maintenance and spot improvements are included.

2. Alternate 2: TSM/TDM Alternate

The proposed TSM/TDM Alternate includes a number of relatively low cost measures meant to improve the overall operation of the existing transportation facilities without major capacity improvements. The proposed TSM measures included in this alternate are as follows:

- Increase and improve existing bus service in the Corridor
- Integrate the bus service improvements with enhanced feeder and distributor service and work with existing providers/programs in the area
- Enhance feeder bus service to Metro and MARC stations
- Provide interactive transit information at major employment centers in the Corridor

The proposed TDM measures included in this alternate are as follows:

- Additional park and ride lot/spaces throughout the corridor. Preliminary concepts were developed at US 15 interchanges with MD 26, Trading Lane, and Biggs Ford Road. The park and ride locations were based on the October 1997 Summary Report from the I-270 Park and Ride Site Identification Study.
- Enhanced rideshare program in the study area, which includes interactive ride matching at major employment centers and implementation of a regionally supported Guaranteed Ride Home (GRH) program. MWCOG currently provides a GRH program for commuters who regularly carpool, vanpool, bike, walk or take transit to work with a reliable ride home when one of life's unexpected emergencies (such as personal crises or unscheduled overtime) arises. This free program is available up to four times per year and operates on weekdays from 6:00 AM to 10:00 PM.
- Comprehensive vanpool program in the study area, which includes financial start-up assistance, increased vanpool eligibility for Metrochek, a consolidated matching database and establishment of a vanpool loaner program.
- Improved pedestrian access to the Shady Grove Metro station and MARC stations
- Completion of specific components of the Metropolitan Washington Council of Governments (MWCOG) Constrained Long Range Plan Bicycle Element, such as constructing specific critical segments of the MWCOG Bicycle Element to provide for a fully linked system in the Corridor.
- Improved regional telecommuting program
- Encouragement of flexible work hours

The estimated costs (2001 dollars) for Alternate 2 are $33 Million for capital costs (for bus vehicles) and $28 Million for operations and maintenance costs.

3. Alternate 3A: Master Plan HOV/LRT Alternate
Alternate 3B: Master Plan HOV/BRT Alternate

Alternates 3A/B consists of a TSM/TDM component; a highway component with general-purpose, HOV, and C-D lanes, proposed interchanges, and improvements to existing interchanges; and either LRT (3A) or BRT (3B) on the CCT.

a. Proposed TSM/TDM Component

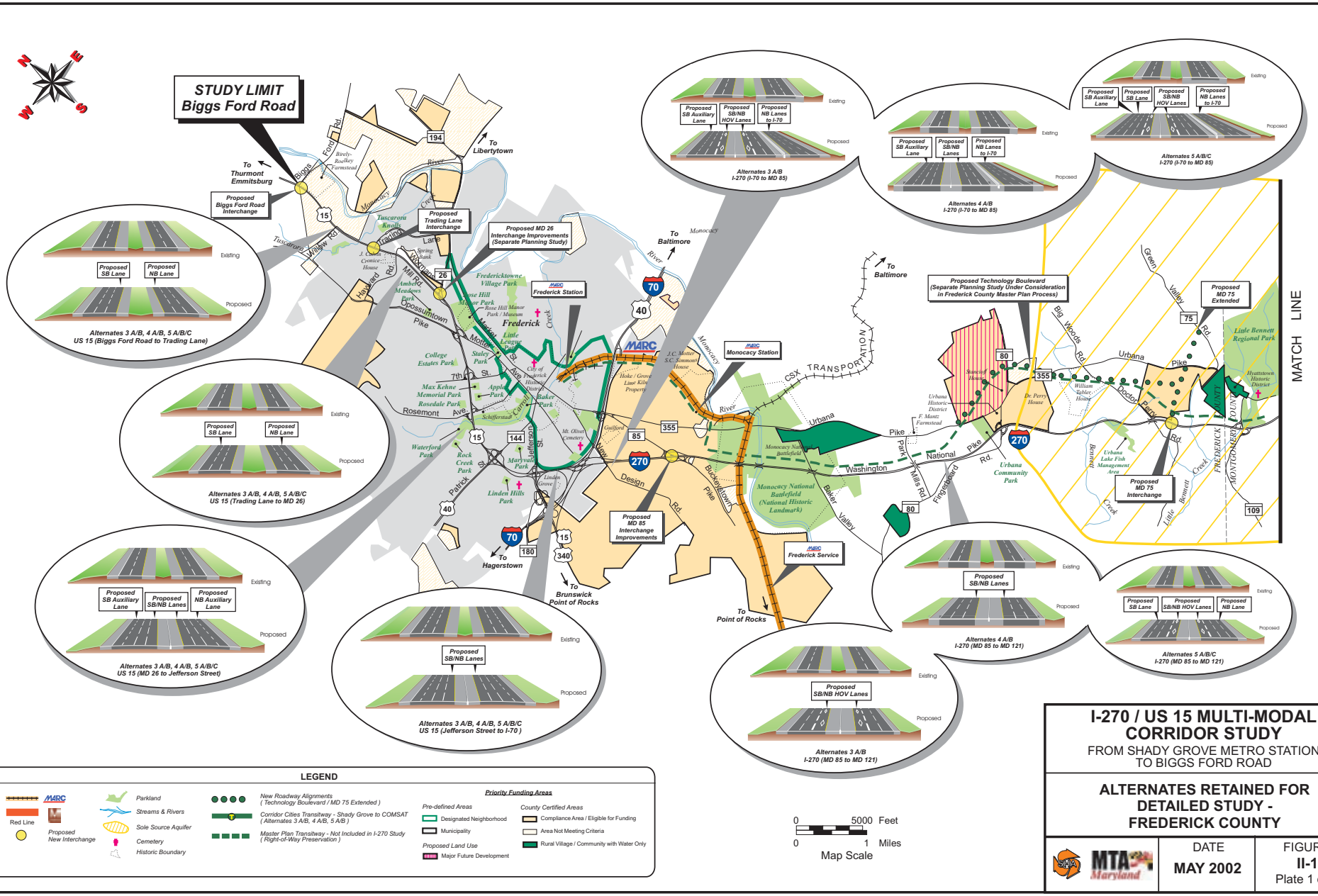
The proposed TSM/TDM component is the same as described in Alternate 2.

b. Proposed Highway Component

Alternate 3A/B consists of adding general-purpose lanes, HOV lanes, auxiliary lanes and direct access ramps along I-270, and general-purpose and auxiliary lanes along US 15. **Figure II-1** shows the Alternates Retained for Detailed Study, including the proposed highway typical sections. As per the Montgomery County master plans identified in **Chapter I**, only one additional lane is being considered on I-270 between MD 121 and I-70. This additional lane will be evaluated as an HOV lane in Alternate 3A/B. The proposed I-270 section between MD 121 and I-70 would include two general-purpose lanes and one HOV lane in each direction. For safety and HOV enforcement purposes, an inside shoulder width of 14-feet has been included in the design of the proposed alternates. An outside shoulder width of 12-feet has been included in the proposed alternates to allow for a safe refuge area for vehicles. The following describes the highway component from the south (I-370) to the north (Biggs Ford Road) (see engineering plans, sheets **HWY 1 through HWY 15 and MD 75, in Volume 2 of 2, Chapter XI**).

General-Purpose, HOV and Auxiliary Lane Additions:

- **I-370 to Middlebrook Road** - Between I-370 and Middlebrook Road, Alternate 3A/B consists of converting the existing I-270 southbound inside general-purpose lane to an HOV lane.
- **Middlebrook Road to Father Hurley Boulevard** - Between Middlebrook Road and Father Hurley Boulevard, the existing southbound inside general-purpose lane would be converted to an HOV lane and an additional general-purpose lane would be added to the outside to replace the converted lane. Between MD 118 and Father Hurley Boulevard, the northbound HOV lane would be converted to a general-purpose lane and a new HOV lane would be added through inside widening.
- **Father Hurley Boulevard to MD 121** - Between Father Hurley Boulevard and MD 121, the northbound HOV lane would be converted to a general-purpose lane; a new HOV lane would be added to the inside in both the northbound and southbound directions; and an additional general-purpose lane would be added through outside widening in both the northbound and southbound directions.
- **MD 121 to MD 85** - Between MD 121 and MD 85, an HOV lane would be added to the inside in both the northbound and southbound directions. In addition, the acceleration and deceleration lanes for both the I-270 northbound and I-270 southbound Weigh Stations have been extended as part of this study.
- **MD 85 to I-70** - Between MD 85 and I-70, an HOV lane would be added to the inside in both the northbound and southbound directions and an auxiliary lane between the interchange acceleration/deceleration ramps would be added to the outside in the southbound direction.
- **I-70 to Jefferson Street/US 15/US 340** - Between I-70 and Jefferson Street, one additional northbound and southbound general-purpose lane would be added through inside widening.

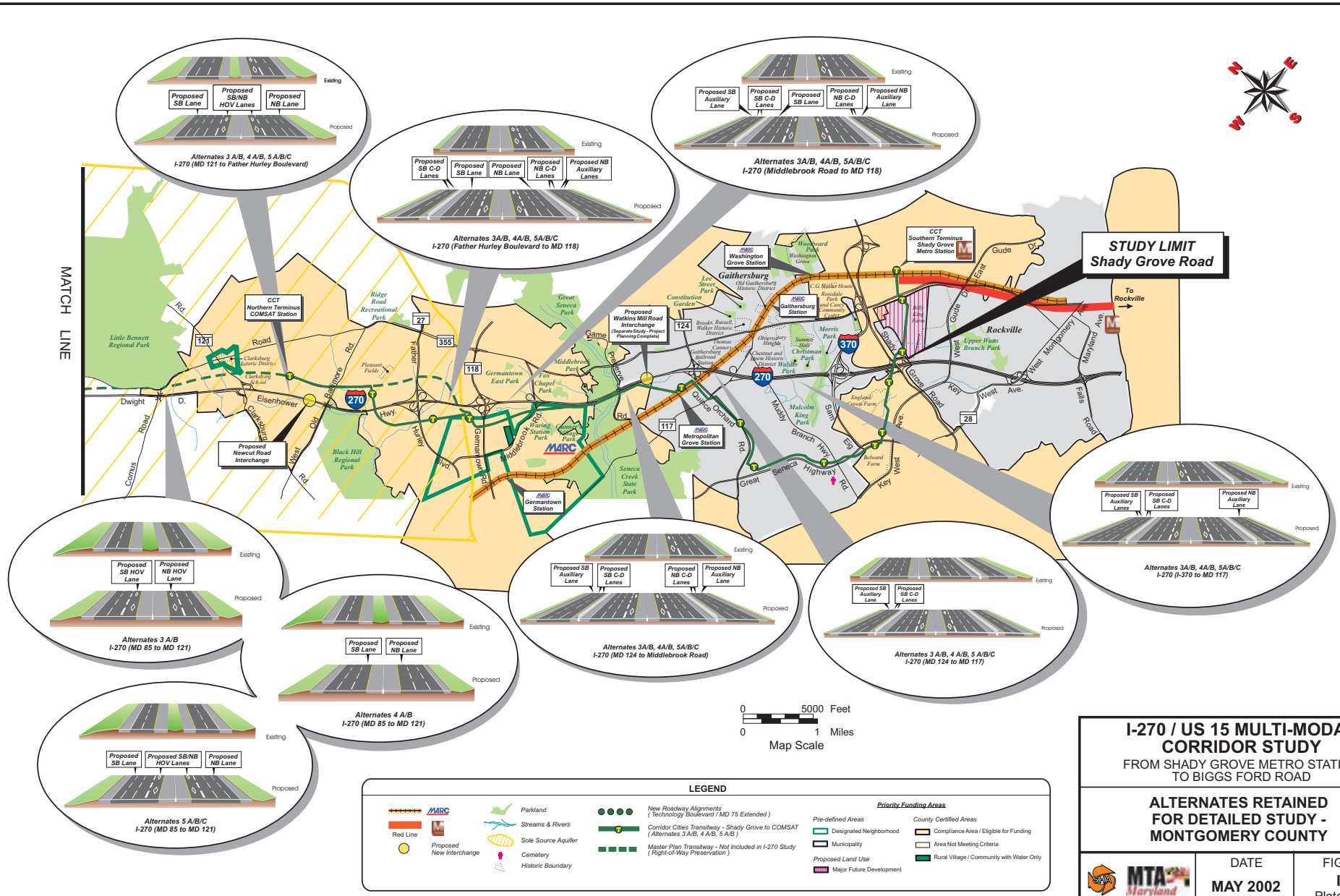


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES RETAINED FOR DETAILED STUDY - FREDERICK COUNTY

SHA MTA Maryland	DATE MAY 2002	FIGURE II-1 Plate 1 of 2



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES RETAINED FOR DETAILED STUDY - MONTGOMERY COUNTY

MTA Maryland

DATE
MAY 2002

FIGURE
II-1
Plate 2 of 2

- **Jefferson Street/US 15/US 340 to MD 26** - Between Jefferson Street and MD 26, one general-purpose lane would be added to the inside and one auxiliary lane connecting interchange acceleration/deceleration ramps (not a continuous outside lane) would be added to the outside in both the northbound and southbound directions.
- **MD 26 to Trading Lane** - Between MD 26 and Trading Lane, one general-purpose lane would be added in both the northbound and southbound directions through outside widening.
- **Trading Lane to Biggs Ford Road** - Between Trading Lane and Biggs Ford Road one general-purpose lane would be added in both the northbound and southbound directions through inside widening.

Collector-Distributor Lanes

Alternates 3A/B consists of extending the I-270 C-D lanes that currently begin at I-370 (southbound) and end at MD 124 (northbound) to Father Hurley Boulevard. C-D lanes are local lanes, parallel to the freeway (referred to as mainline lanes) and separated by a barrier, that carry traffic merging on and off of the freeway. Slip ramps accommodate traffic between the mainline and C-D lanes.

In the northbound direction, the two-lane C-D roadway would be extended from just south of MD 124 to Father Hurley Boulevard. Slip ramps from the mainline lanes to the C-D lanes would be located between MD 124 and Watkins Mill Road (one-lane slip ramp); Middlebrook Road and MD 118 (one-lane slip ramp); and MD 118 and Father Hurley Boulevard (two-lane slip ramp). A one-lane slip ramp from the C-D lanes to the mainline lanes would be located between Middlebrook Road and MD 118. The C-D lanes would join the mainline lanes approximately 3,000 feet north of Father Hurley Boulevard. An auxiliary lane would be located along the C-D lanes between the Watkins Mill Road and Middlebrook Road interchanges. An auxiliary lane would also be located between the slip-ramp from the mainline lanes at Middlebrook Road to the slip ramp from the C-D lanes, approximately 1,600 feet south of MD 118.

In the southbound direction, the two-lane C-D roadway would begin approximately 3,000 feet north of Father Hurley Boulevard and would tie into the existing C-D lanes, approximately 1,100 feet south of I-370. One-lane slip ramps from the mainline lanes to the C-D lanes would be located between Middlebrook Road and Watkins Mill Road and MD 117 and I-370. One-lane slip ramps from the C-D lanes to the mainline lanes would be located between Father Hurley Boulevard and MD 118; MD 118 and Middlebrook Road; and MD 124 and MD 117. An auxiliary lane would be located along the C-D lanes between the Father Hurley Boulevard and MD 118 interchanges; between the Middlebrook Road and Watkins Mill Road interchanges; between the Watkins Mill Road and MD 124 interchanges; and between the MD 117 and I-370 interchanges. An auxiliary lane would also be located between the slip-ramp from the C-D lanes approximately 700 feet north of MD 117 to the slip ramp from the mainline lanes, approximately 2,800 feet south of MD 117.

Direct Access Ramps

As part of the highway component in Alternate 3A/B, HOV only direct access ramps are being considered at the proposed Newcut Road and Watkins Mill Road interchanges to facilitate movements to the existing and proposed transit stations at COMSAT and Metropolitan Grove, respectively. At the Newcut Road interchange, direct access ramps are located in the median of the freeway to provide access to the interchange directly from the I-270 HOV lane. Direct access ramps at the Watkins Mill Road interchange will be developed based on further federal, state, and local coordination, with a potential option for the direct access ramps located between existing MD 124 and proposed Watkins Mill Road, as an extension of Metropolitan Grove Road.

The direct access ramps being considered would provide on and off access from both directions of the highway via one lane to the center of the interchange bridge. The ramps would only be in operation during the peak periods in the peak direction (i.e. from/to I-270 southbound during the AM peak period and from/to I-270 northbound during the PM peak period). Barricades and variable message signs would indicate when the ramps are not in operation.

Both the proposed HOV lanes and direct access ramps will enhance bus service along I-270 to serve employment and residential areas that are not served by the CCT and Metrorail.

Proposed Interchanges

Four new interchanges are proposed as part of Alternate 3A/B.

- I-270/Newcut Road - The proposed I-270/Newcut Road interchange would be located in Montgomery County, approximately 1.1 miles south of the MD 121 interchange, as shown on the Clarksburg Master Plan and Hyattstown Special Study Area. The interchange would provide access to/from the east side of I-270 but would not preclude a future extension of Newcut Road west of I-270 to MD 121. In addition, this interchange would include direct access ramps from the HOV lanes to provide on and off access from both directions of the highway via one lane to the center of the interchange bridge. Proposed Newcut Road would intersect with proposed Observation Drive Extended and proposed Gateway Center Drive Extended, approximately 1,500 feet east of I-270 and approximately 1,000 feet north of West Old Baltimore Road. The proposed interchange configuration is a partial cloverleaf/partial diamond interchange with one loop ramp and one outer ramp located in the northwest quadrant, and outer ramps located in the northeast and southeast quadrants.
- I-270/MD 75 Extended - The proposed I-270/MD 75 interchange would be located in Frederick County, approximately 1.2 miles north of the MD 109 interchange in Montgomery County, as identified on the Urbana Region Comprehensive Plan. This interchange would only access the east side of I-270; no connection would be provided to the west in order to be consistent with State/County Smart Growth initiatives and to preserve the agricultural land uses on the west side of I-270. Proposed MD 75 extended (a two-lane roadway) would connect the proposed I-270/MD 75 interchange with MD 355, approximately 100 feet south of the existing MD 355/Lewisdale Road intersection. The alignment would then extend further east to connect with the existing MD

75/Lewisdale Road intersection. The interchange concept is a trumpet interchange, with one loop ramp and one outer ramp located in the northwest quadrant, and outer ramps located in the northeast and southeast quadrants.

- US 15/Trading Lane - A new interchange is proposed at the current at-grade intersection of US 15 and Trading Lane in Frederick County, as shown on the Frederick County Comprehensive Plan. With grade separation of the Trading Lane intersection, the median openings at Trading Lane, Hayward Road/Wormans Mill Road (1,700 feet south of Trading Lane) and Willow Road (3,100 feet north of Trading Lane) will be closed. The median openings are currently channelized, allowing only left turns from US 15 into the cross streets and U-turns on US 15. Traffic desiring to travel south on US 15 from Trading Lane currently must travel north to make a U-turn at the Willow Road median opening. This new interchange, along with closure of the median openings, will improve safety conditions along US 15 in this vicinity by eliminating the U-turns and left turns across a high-speed roadway.

  The preliminary Trading Lane interchange configuration is proposed as a standard diamond interchange. To the east, Trading Lane will be widened to a four-lane divided highway to tie into the existing four-lane divided highway at the railroad tracks. To the west, Trading Lane will be extended as a four-lane divided highway to intersect with Thomas Johnson Drive.

- US 15/Biggs Ford Road - A new interchange is proposed at the current at-grade intersection of US 15 and Biggs Ford Road in Frederick County, as shown on the Frederick County Comprehensive Plan. The Frederick County Comprehensive Plan shows Biggs Ford Road being extended to the west of US 15; however, that extension is not included in the preliminary design of this proposed interchange. With grade separation of the Biggs Ford Road intersection, the median openings at Biggs Ford Road and Sundays Lane (1,800 feet north of Biggs Ford Road) will be closed. The median openings are currently channelized, allowing only left turns from US 15 into the cross streets and U-turns. Traffic desiring to travel south on US 15 from Biggs Ford Road currently must travel north to make a U-turn at the Sundays Lane median opening. This new interchange, along with the closure of the median openings, will improve safety conditions along US 15 in this vicinity by eliminating the U-turns and left turns across a high-speed roadway.

  The preliminary Biggs Ford Road interchange configuration is proposed as a partial cloverleaf interchange. In the northbound direction, a loop ramp and outer ramp will be located in the southeast quadrant. In the southbound direction, the off-ramp is proposed to connect with a proposed service road which parallels US 15 from Sundays Lane to Biggs Ford Road. The off-ramp will intersect the proposed service road approximately 800 feet north of Biggs Ford Road. The on-ramp will be a standard outer ramp from Biggs Ford Road.

  Note: The proposed I-270/Watkins Mill Road interchange would be located in Montgomery County, approximately 0.7 mile north of the MD 124 interchange, as shown on the Gaithersburg Master Plan. Watkins Mill Road was initially part of

the I-270/US 15 Multi-Modal Corridor Study but was broken out to be evaluated as a separate project planning study.

Interchange Improvements

- I-270/MD 117 - The MD 117 interchange will be modified in the southbound direction. The modification will include a loop ramp from southbound I-270 to eastbound MD 117 in the southwest quadrant. This additional ramp is proposed to supplement the left turn movement from southbound I-270 to eastbound MD 124. In order to accommodate this proposed southbound loop ramp, the existing MD 117 to southbound I-270 ramp in the southwest quadrant will need to be shifted to the west. Separate design studies are currently underway, which include widening MD 117 from the I-270 interchange to Muddy Branch Road, and the construction of a park and ride lot in the northeast quadrant loop ramp. In addition, this existing loop ramp from northbound I-270 to westbound MD 117 will be modified to provide connections to both eastbound and westbound MD 117 at a new signalized intersection. This modification, independent of the I-270/US 15 project, will provide the missing eastbound movement to Olde Towne Gaithersburg.
- I-270/Middlebrook Road - The Middlebrook Road interchange includes two potential modifications in the southbound direction. The first modification consists of adding one lane to the Middlebrook Road to southbound I-270 ramp in the southwest quadrant (creating a two-lane ramp). An alternative modification consists of providing a westbound Middlebrook Road to southbound I-270 loop ramp in the northwest quadrant.
- I-270/MD 118 - The MD 118 interchange will be modified to include an additional lane on the ramp from eastbound MD 118 to southbound I-270 in the southwest quadrant (creating a two-lane ramp). In addition, the outer lane on the MD 118 ramp to northbound I-270 will be extended to the off-ramp to Father Hurley Boulevard.
- I-270/Father Hurley Boulevard - The Father Hurley Boulevard interchange will be modified to include an additional lane on the ramp from northbound I-270 to Father Hurley Boulevard in the southeast quadrant (creating a two-lane ramp).
- I-270/MD 121 - The MD 121 interchange includes slight improvements to the outer ramp from I-270 northbound to MD 121. The purpose of this geometric improvement is to remove the existing sharp curve on the ramp in order to provide for a safer design speed when exiting the highway.
- I-270/MD 109 - The MD 109 interchange modifications consist of full or partial closure of the interchange; however, no improvements may also be considered as an option. The full or partial closure of the MD 109 interchange would occur only in conjunction with the proposed MD 75 extended interchange.
- I-270/MD 80 - The MD 80 interchange includes one potential modification scenario. The scenario assumes a northbound I-270 to eastbound MD 80 ramp in the southeast quadrant as part of a separate Interstate Access Point Approval design effort. In addition, the scenario consists of improving the tight radius of the MD 80 to northbound I-270 ramp in the northeast quadrant and the tight radius of the MD 80 to southbound I-270 ramp in the

southwest quadrant in order to improve safety conditions and increase design speed. In addition, a new southbound I-270 to eastbound MD 80 ramp is proposed in order to improve the level of service on the southbound ramp terminal. This ramp would eliminate the left turns required off the existing loop ramp. The southbound I-270 to eastbound MD 80 ramp intersects with MD 80 directly across from the Thurston Road/MD 80 intersection approximately 800 feet west of the southbound I-270 ramp terminal.

- I-270/MD 85 - The MD 85 interchange will be modified in the northbound direction to include a collector-distributor road to eliminate the weave between traffic from MD 85 destined to northbound I-270 and northbound I-270 traffic destined to I-70. Approximately 0.6 mile south of the MD 85 interchange, a three-lane barrier separated C-D roadway will split from the I-270 mainline for traffic destined to the MD 85 and I-70 interchanges. Approximately 1,000 feet south of the MD 85 interchange, this C-D roadway will separate into a two-lane C-D roadway to I-70 and a two-lane exit ramp to MD 85. The C-D roadway to I-70 will cross MD 85 on a new structure parallel to mainline I-270. The MD 85 exit ramp will consist of a westbound MD 85 double left-turn lane, which will intersect with MD 85 between the I-70 C-D roadway and the I-270 mainline; and an eastbound MD 85 lane, which will tie into MD 85 at the existing northbound I-270 ramp terminal. The existing loop ramp from northbound I-270 to westbound MD 85 will be removed. MD 85 traffic destined to I-70 will access the C-D roadway at the current northbound I-270/MD 85 ramp terminal intersection. MD 85 traffic destined to I-270 northbound will access the highway via a new ramp, which will be constructed between mainline I-270 and the I-70 C-D roadway.

- Jefferson Street/US 15/US 340 - The Jefferson Street interchange potential modification scenario consists of adding a one-lane flyover ramp from the median of eastbound Jefferson Street to the median of northbound US 15. As part of a separate SHA design effort, the following improvements are being considered:

    - In the southeast quadrant, a left-turn ramp from northbound US 40 to westbound Jefferson Street and an eastbound Jefferson Street to northbound US 15 loop ramp will be added.

    - In the northeast quadrant, the existing northbound US 40 to westbound US 15/US 340 loop ramp will be removed.

    - In the northwest quadrant, a left-turn movement from southbound US 15 to eastbound Jefferson Street will be added to replace the southwest quadrant loop ramp, which will be removed.

- US 15/MD 26 - The MD 26 interchange improvements were initially a part of the I-270/US 15 Multi-Modal Corridor Study but have since been broken out as part of a separate planning study. The proposed improvements to this interchange include providing the missing ramp movements to and from south and west of this interchange, as well as a potential extension of MD 26 to Thomas Johnson Drive. As part of the I-270/US 15 Multi-Modal Corridor Study both a standard diamond and an urban diamond

interchange were developed; however, additional interchange concepts will be evaluated as part of the separate study.

Park and Ride Lots

Three park and ride lots are being considered as part of the proposed alternates:

- northeast quadrant of the US 15/MD 26 proposed interchange (as shown on the engineering plans, sheet **HWY 14, in Volume 2 of 2, Chapter XI**).
- northwest quadrant of the US 15/Trading Lane proposed interchange (as shown on the engineering plans, sheet **HWY 14, in Volume 2 of 2, Chapter XI**).
- northwest quadrant of the US 15/Biggs Ford Road interchange (as shown on the engineering plans, sheet **HWY 15, in Volume 2 of 2, Chapter XI**).

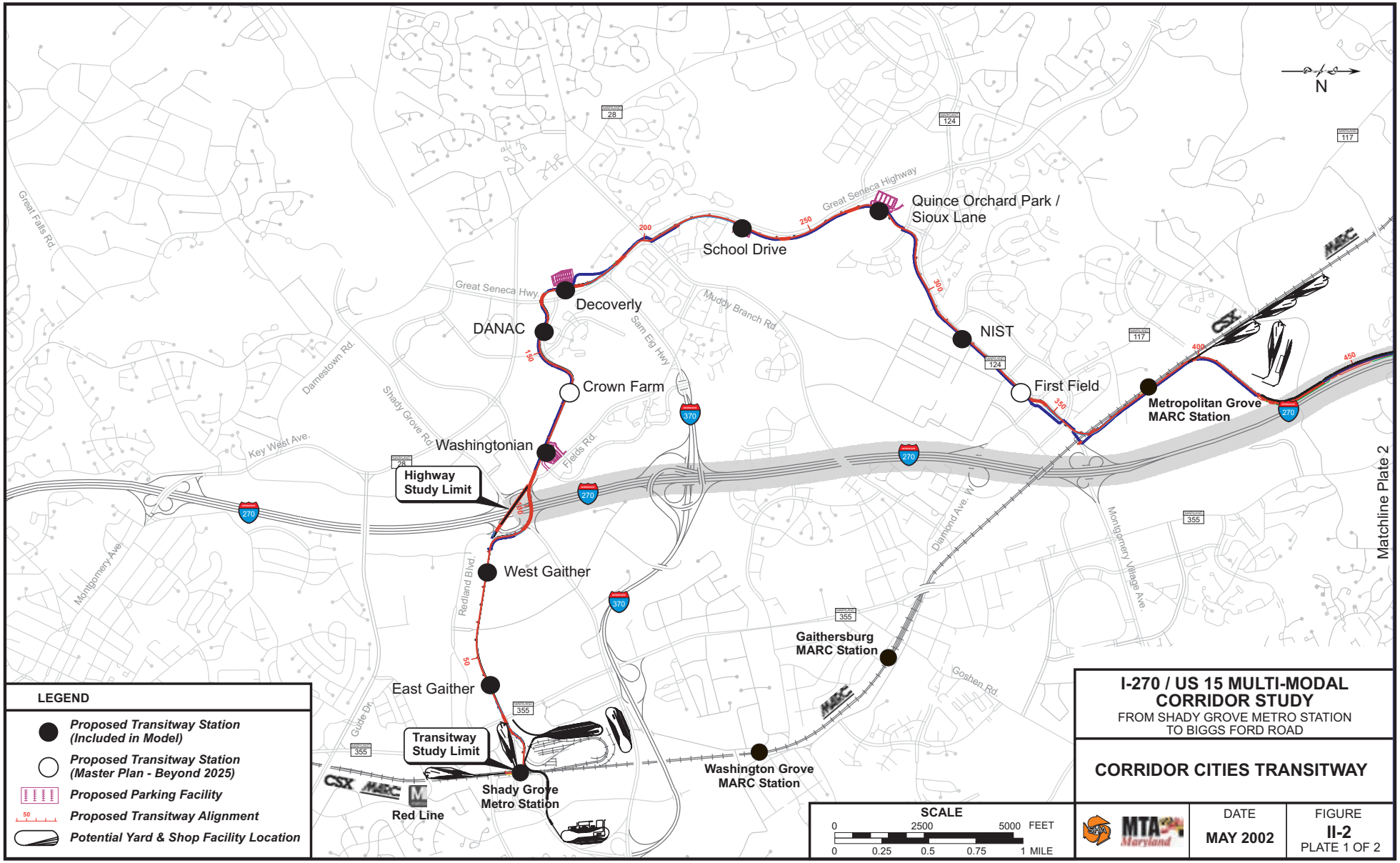
c. <u>Proposed Transit Component</u>

The proposed transit component is featured as an element of I-270 Corridor improvements. The transit component consists of two options. Alternate 3A includes LRT and a hiker/biker trail along a separate right-of-way, known as the CCT. Alternate 3B includes BRT and a hiker/biker trail along the CCT (see engineering plans, sheets **TRAN 1 through TRAN 6, in Volume 2 of 2**, **Chapter XI**).

Corridor Cities Transitway

The CCT is a proposed transit alignment within the I-270 Corridor. It is approximately 13.5 miles in length and generally runs northwest beginning at the existing Shady Grove Metro Station and ending at the COMSAT facility, south of Clarksburg, though in the future it may be extended to Frederick. **Figure II-2** shows the proposed CCT alignment and the locations of the 18 proposed stations. The proposed CCT alignment begins at the Shady Grove Metro Station and heads west across MD 355 and parallel to Redland Road before crossing I-270 at the Shady Grove Road interchange. It continues west across Omega Drive and through Decoverly Industrial Park and turns to the northwest upon reaching Great Seneca Highway. The CCT follows along the west side of Great Seneca Highway until it reaches Muddy Branch Road, where it crosses to the east side, either at-grade (Option 1) or above grade (Option 2). Prior to the Great Seneca Highway/Quince Orchard Road intersection, the alignment turns to the north to go through Quince Orchard Park. It then continues north along Quince Orchard Road to the existing CSX rail line where it turns to the northwest.

The alignment parallels the CSX tracks to a point just beyond the Metropolitan Grove MARC station and then heads north again until it reaches I-270. It runs parallel to the west side of I-270 until it reaches Middlebrook Road, where it curves slightly more to the west to serve the Middlebrook Tech Park and the Department of Energy. The CCT continues in this direction crossing MD 118 (Germantown Road) before making a sharp turn to the northeast along Century Boulevard. Running in the median of Century Boulevard, the alignment turns sharply back to the northwest and continues across MD 27 (Father Hurley Boulevard) before again turning sharply to the east and crosses I-270 to run in the median of Observation Drive. The CCT remains in the



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

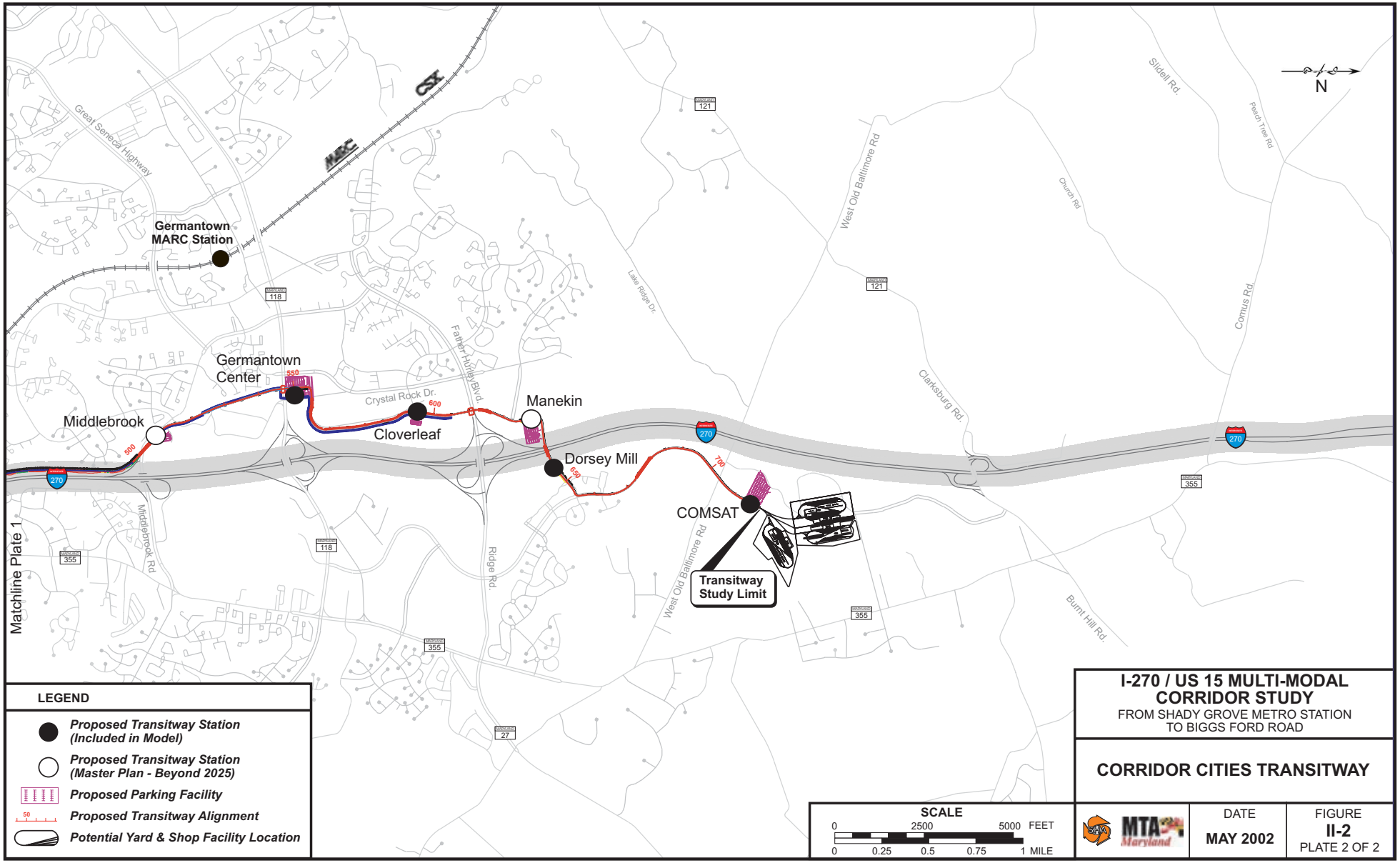
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

CORRIDOR CITIES TRANSITWAY

MTA Maryland

DATE: MAY 2002

FIGURE: II-2
PLATE 1 OF 2



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

CORRIDOR CITIES TRANSITWAY

MTA Maryland

DATE
MAY 2002

FIGURE
II-2
PLATE 2 OF 2

median of Observation Drive, which turns back to the northwest, and continues until it reaches its terminus at the existing COMSAT facility. This proposed Master Plan alignment serves those areas identified and approved by Montgomery County and result in a number of sharp turns along the alignment, as described above. The sharp turns are required for the following reasons:

- reduce right-of-way impacts and displacements;
- accommodate existing and proposed/approved developments;
- prevent interference with intersection traffic flow and maintain continuous traffic movements;
- provide for a safe, pedestrian friendly environment.

Table II-2 provides additional detail for each of the proposed transit stations. As indicated in the table, all proposed stations are to be at grade regardless of the technology selected, except for First Field Station. Based on the vertical geometrics of the CCT alignment, an at-grade station would preclude LRT because of grade restrictions, however, BRT could be accommodated (Option 1). An above-grade/elevated station can accommodate either BRT or LRT technology (Option 2).

TABLE II-2
PRELIMINARY TRANSITWAY STATIONS

Station Name [1] (Approximate Mileage Along CCT Alignment)	Timeframe	Access	Proposed Master Plan Spaces [2]
Shady Grove (0.0)	2025 Included in Model	Park and Ride/Bus	7,800 spaces by 2010 (Metro parking)
East Gaither (King Farm) (0.6±)	2025 Included in Model	Initially walk only; Master Plan Park and Ride/Bus	100 spaces 4 bus berths
West Gaither (King Farm) (1.2±)	2025 Included in Model	Initially walk only; Master Plan Park and Ride/Bus	100 spaces 4 bus berths
Washingtonian (2.1±)	2025 Included in Model	Park and Ride/Bus	250 spaces 4 – 6 bus berths
Crown Farm (2.3±)	Master Plan (beyond 2025)	Park and Ride/Bus	To be determined
DANAC (2.8±)	2025 Included in Model	Walk Only	0 spaces
Decoverly (3.1±)	2025 Included in Model	Park and Ride/Bus	250 spaces 4 – 6 bus berths
School Drive (4.2±)	2025 Included in Model	Walk Only	0 spaces 4 – 6 bus berths
Quince Orchard (4.9±)	2025 Included in Model	Park and Ride/Bus	500 spaces Structured 4- 6 bus berths
NIST (5.8±)	2025 Included in Model	Walk Only/Bus	0 spaces Bus Turnouts
First Field (6.5±) Option 1: At-grade - BRT only Option 2: Elevated - LRT/BRT	Master Plan (beyond 2025)	Walk Only	0 spaces

TABLE II-2 (CONTINUED)
PRELIMINARY TRANSITWAY STATIONS

Station Name [1] (Approximate Mileage Along CCT Alignment)	Timeframe	Access	Proposed Master Plan Spaces [2]
Metropolitan Grove (7.1±)	2025 Included in Model	Park and Ride/Bus	*1st Study* 700 spaces 5 bus berths *2nd Study* 1,000 spaces (north side) 350 spaces (south side) 8 bus berths 30 kiss 'n ride
Middlebrook (9.4±)	Master Plan (beyond 2025)	Park and Ride/Bus	50 spaces 2 bus berths 8 kiss 'n ride
Germantown Center (10.3±)	2025 Included in Model	Park and Ride/Bus	600 spaces 9 bus berths 20 kiss 'n ride
Cloverleaf (10.9±)	2025 Included in Model	Walk Access/Bus	50 spaces 2 bus berths 10 kiss 'n ride
Manekin (11.7±)	Master Plan (beyond 2025)	Park and Ride/Bus	500 spaces 2 bus berths 10 kiss 'n ride
Dorsey Mill (12.1±)	2025 Included in Model	Park and Ride/Bus	500 spaces 4 bus berths 10 kiss 'n ride
COMSAT (13.5±)	2025 Included in Model	Park and Ride/Bus	1,000 spaces 4 bus berths 30 kiss 'n ride

Notes:

1. *All stations are at-grade unless otherwise noted. (refer to Section II.C.3.c)*
2. *Preliminary park and ride facilities are subject to change; to be integrated with future land use.*

Alternate 3A: Light Rail Transit on the CCT

Alternate 3A includes a double-tracked LRT system along the CCT. Track centers would be spaced approximately 14 feet apart and the overall width of the typical section would generally range between 50 and 75 feet. This right-of-way would also include the overhead catenary system used to power the light rail vehicles. The placement of the catenary poles could be between the two tracks or to the outside of each track. For study purposes, MTA light rail vehicle design specifications, such as those used for Baltimore Central Light Rail Line, were used.

Implementing LRT along the CCT would require a rail yard associated with maintenance and storage of track and vehicles. The 2025 ridership projections indicate that this facility must accommodate approximately 50 light rail vehicles. Three locations are currently being

considered for the rail yard - Shady Grove Metro Station area, Metropolitan Grove area, and the COMSAT area.

A number of bikeway and equestrian trails exist or are planned in the I-270/US 15 Corridor. Bikeways and trail resources provide a travel alternate to the automobile and complement the recreational aspects of park resources. The *Montgomery County Master Plan of Bikeways* (1980; currently being revised) contains recommendations for future bikeway routes. The *Gaithersburg Master Plan* (1990) indicates that continued use and enjoyment of the equestrian trails is being threatened by development. The Plan recommends that an attempt be made to accommodate these trails as development occurs. The *City of Frederick Comprehensive Plan* (1995) indicates that the City will prepare a Bikeway Plan to address short and long-range needs and implementation issues.

Bicycle and pedestrian access, as called for in the county's master plans will be provided along the transitway alignment, which will increase the transportation options available in the area.

Alternate 3B: Bus Rapid Transit on the CCT

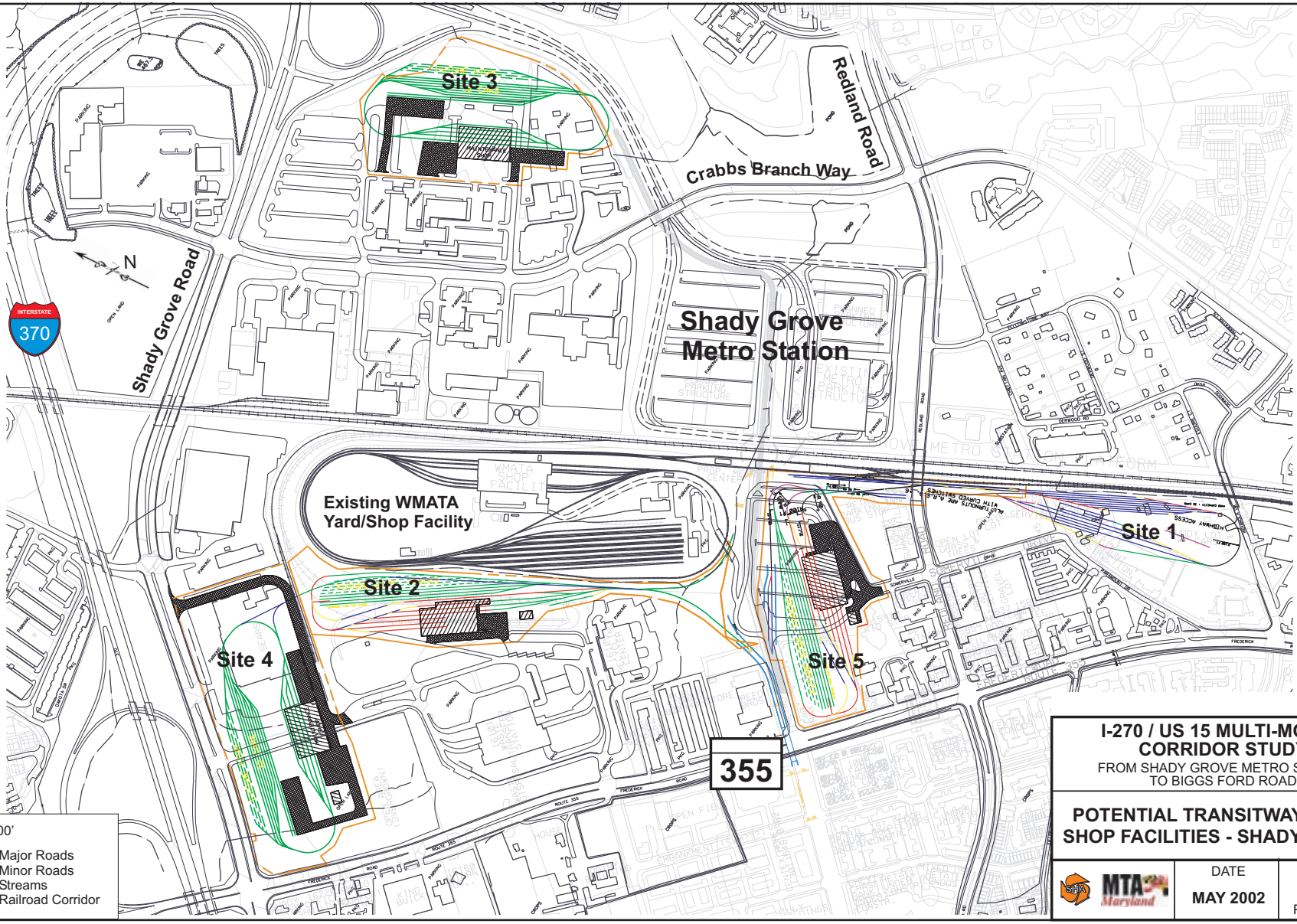
Alternate 3B includes BRT along the CCT. BRT uses buses to emulate the speed, reliability, and image of light rail. Bus service will operate in two general formats: (1) line haul along the CCT; and, (2) smaller feeder buses which circulate through neighborhoods before using the busway. The buses themselves can be more modern in appearance, offering a more "rail-like" image. To enhance boarding and alighting, the buses can be low floor, with multiple doors. Fare collection can be barrier free and "pre-paid," similar to light rail operations. The CCT would be a paved roadway used exclusively by buses. The roadway would be constructed with one 12-foot lane in each direction, however, passing lanes would be provided at stations. The overall width of the typical section would range from 45 to 70 feet. Service on the BRT facility would be augmented by express bus service to the Shady Grove Metro Station using the I-270 HOV lanes.

The BRT alignment (Alternate 3B) also includes a hiker/biker trail such as that described in Alternate 3A above.

d. Transitway Yard/Shop Facilities

Along the I-270/US 15 Multi-Modal Corridor, the project team evaluated three distinct areas, with various site options, to determine the potential for constructing a transitway yard/shop facility. A yard/shop facility provides storage and maintenance facilities where transit vehicles are inspected, repaired, cleaned and stored. The yard/shop facility locations that have been evaluated could be used for either the LRT or BRT alternate. However, additional storage capacity may be required for the BRT facility, which may result in increased right of way requirements or additional sites to be evaluated. Based on the operations, a single facility is adequate for initial operations from Shady Grove to COMSAT but a storage/tail track will be needed to improve internal operation and reduce the deadhead travel times for the LRT alternate.

Figure II-3 indicates the three areas that were investigated: Shady Grove, Metropolitan Grove, and COMSAT. Moreover, these locations are consistent with the master plans for the area,



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

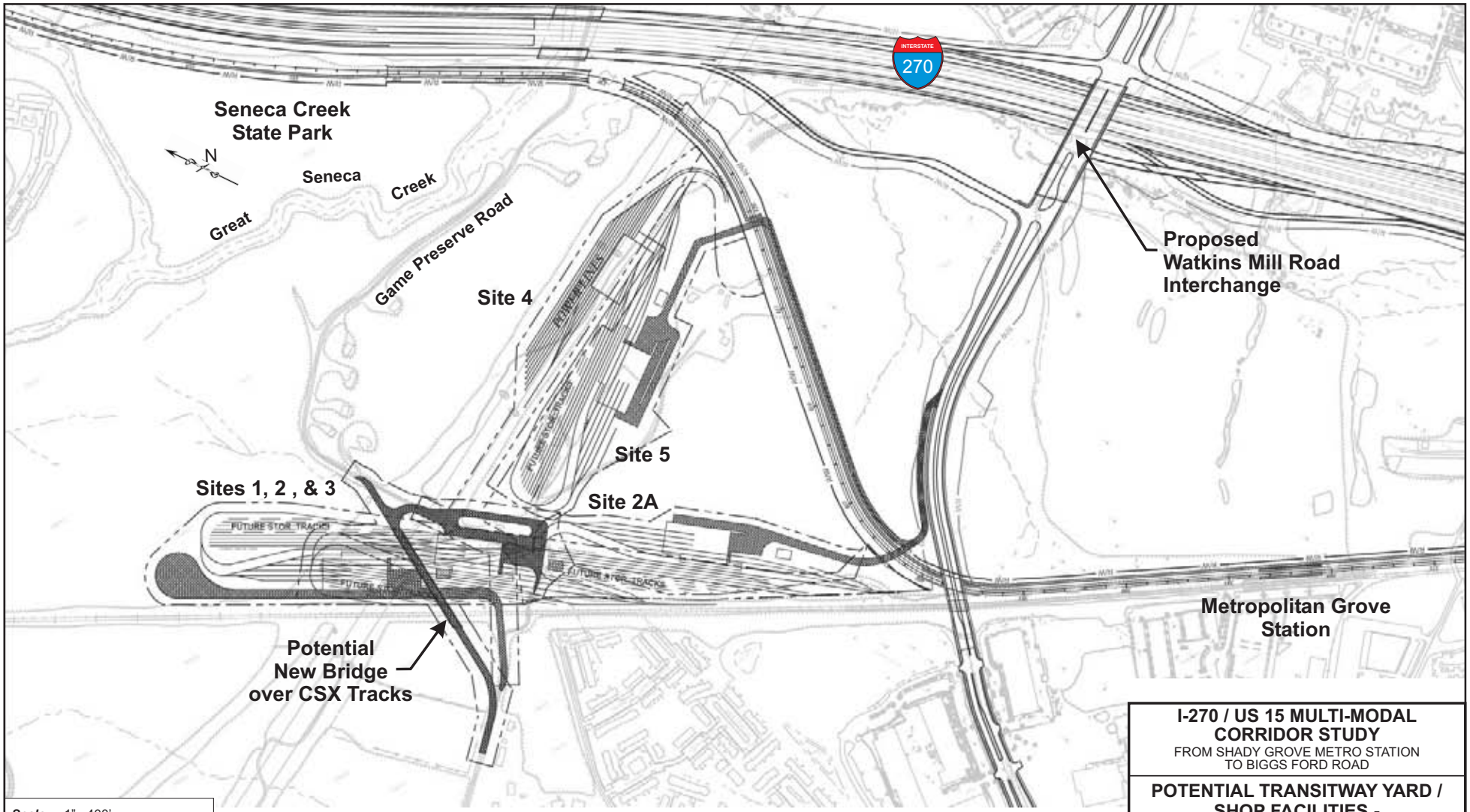
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

POTENTIAL TRANSITWAY YARD/ SHOP FACILITIES - SHADY GROVE

MTA Maryland

DATE
MAY 2002

FIGURE
II-3
PLATE 1 OF 3



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

POTENTIAL TRANSITWAY YARD / SHOP FACILITIES - METROPOLITAN GROVE

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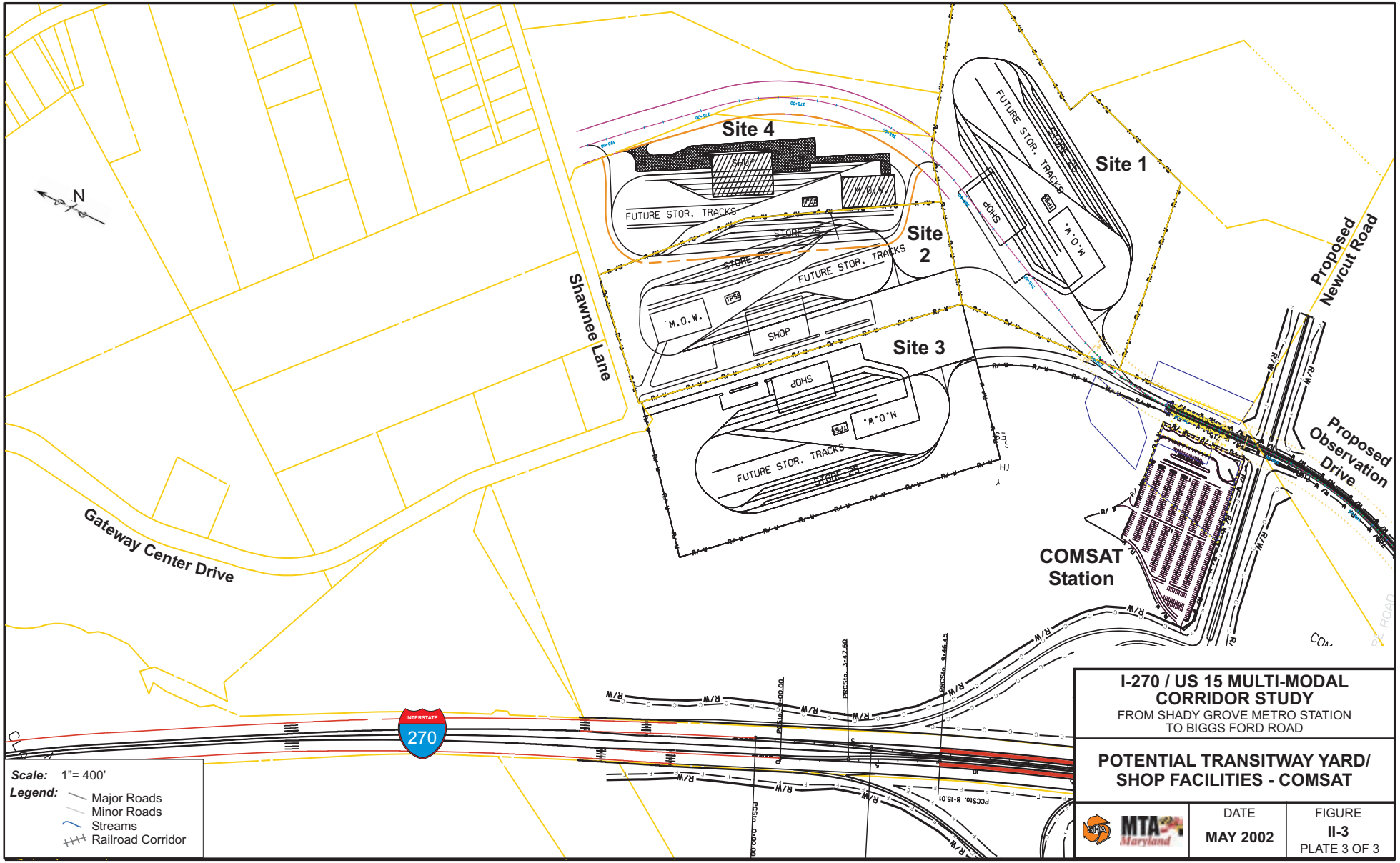
FIGURE
II-3
PLATE 2 OF 3



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

POTENTIAL TRANSITWAY YARD/ SHOP FACILITIES - COMSAT

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FIGURE
II-3
PLATE 3 OF 3

although some sites have been altered to accommodate environmental and engineering conditions and/or development, as needed. The increased development patterns for the communities are incorporating the transit alignment in their plans. Although 15 site configuration options are being analyzed, only one of them (potentially) would be selected as the yard/shop facility for this phase of the project. Another site will probably be needed in the future – north of COMSAT in support of extending the transitway into Frederick County. These locations will have the capacity to store approximately 50 vehicles immediately with some site options having capacity for expansion (approximately 5 to 10 additional vehicles) in the future. All configurations noted below have room for expansion within the current proposed right-of-way except the two sites with the stub-in configuration (Site #4 at Shady Grove and Site #5 at Metropolitan Grove) that have limited capacity for expansion.

Shady Grove Area Sites

There are five sites located within the Shady Grove Metro Station area and four of them have been retained for further study by the project team. The Shady Grove sites are located at the northern terminus of the existing Metro red line. This area was selected for further examination, as it would be the starting point for the proposed CCT alignment.

Site 1 – Vicinity of Indianola Drive and CSX/Metro Railroad Tracks - Retained for Additional Study

This site has been retained for detailed study and is located adjacent to the southbound CSX/Metro railroad tracks at the Shady Grove Metro Station and, with new track construction, will offer direct track connection between the proposed transitway yard/shop facility and existing revenue service trips. The track extension would begin at the existing Metro station and continue across Redland Road and Paramount Drive, travel parallel to Somerville Drive before the facility boundary ends at Indianola Drive.

Site 2 – Adjacent to existing WMATA Shady Grove Yard/Shop Facility – Eliminated from Further Consideration

The second site is located between the existing WMATA Shady Grove yard/shop facility and the Montgomery County Waste Transfer Station. Despite this site being located within an industrial park setting, the project team decided to eliminate it from further consideration based on the substantial impacts to the Montgomery County Waste Transfer Facility.

Site 3 – Vicinity Shady Grove Road and Crabbs Branch Way (behind buildings) - Retained for Additional Study

The third site in the Shady Grove area that has been retained for further evaluation by the project team is located near the Shady Grove Road and Crabbs Branch Way intersection – between WMATA parking facilities and behind the Montgomery County administration buildings (Department of Parks, Transfer and Facility Maintenance and public school bus parking area).

Site 4 - Intersection of Shady Grove and Frederick Roads – Eliminated from Further Consideration

This site is located adjacent to Site 2 and the existing WMATA yard/shop facility, at the intersection of Shady Grove and Frederick roads. It was eliminated from consideration because all vehicles entering and exiting the facility would be required to cross the railroad tracks. Across Frederick Road from this location is Shady Grove Plaza that houses an office building, Comfort Inn hotel, gas station and car dealership.

Site 5 – Intersection of Frederick Road and King Farm Blvd – Retained for Additional Study

This site is located on existing WMATA property at Frederick Road, across from King Farm Boulevard and has been retained for detailed study. The M-NCPPC has expressed concern regarding the location of this site as they have long term plans to target this area for high-density, mixed-use development. They would like to see access to the Shady Grove Metro Station from the King Farm development (currently no access exists) via this proposed development.

Metropolitan Grove Area Sites

There are six sites in the Metropolitan Grove area that are under consideration for location of the new transitway yard/shop facility. Overall, this area is situated in the middle of the proposed alignment that spans from Shady Grove to COMSAT. This location provides less deadheading movements since it is located in the middle of the alignment. Additionally, the Metropolitan Grove location provides a logical terminus for first stage construction and operation of the transitway alignment.

Sites 1, 2 and 3 – Game Preserve Road and Existing CSX Railroad Tracks – Eliminated from Further Consideration

These three sites although different configurations, are intermingled and located near the existing CSX railroad tracks near the Game Preserve Road and Seneca Creek State Park intersection. As you travel west on Game Preserve Road, one side is residential while the other is Seneca Creek State Park where PEPCO transmission towers and lines are located. The proposed disturbances to parkland resources (reforestation would probably be needed) and the relocation of utilities would be extensive in the area. Based on the existing and proposed conditions, the project team eliminated these sites from further consideration.

Site 2A – North of CSX Railroad Tracks and Game Preserve Road – Retained for Additional Study

Site 2A is located adjacent to the CSX railroad tracks just east of Game Preserve Road. It is situated inside the town limits of the City of Gaithersburg and has been retained for further study. This site has been retained because it has minimal impacts to the transmission lines and towers and is situated near the proposed transit alignment.

Site 4 – Under PEPCO Transmission Lines, East of Game Preserve Road – Retained for Additional Study

This site is has been retained for detailed study although it is located on hilly terrain under existing PEPCO transmission lines near the I-270 and Game Preserve Road intersection.

Site 5 – Adjacent to PEPCO Transmission Lines, South of the CSX Railroad Tracks – Retained for Additional Study

Site 5 is adjacent to site 4 and situated south of sites 1, 2 and 3 near existing I-270 and has been retained for detailed study.

COMSAT Area Sites

Initially, three sites were presented at the February 2001 Informational Public Meeting however, since then, two of these sites have been eliminated and a fourth site has been identified. All four of these sites are situated on the COMSAT property near Shawnee Lane. Although staging the transitway alignment, thereby constructing southern portions first (due to cost considerations) appears likely, preliminary assessment of sites at this location have been retained to provide a comprehensive listing of potential candidates.

Site 1 – East Side of Shawnee Lane – Eliminated from Further Consideration

This site was eliminated from further consideration because of substantial agricultural and business impacts and impacts to Little Seneca Creek tributary and stream valley.

Site 2 – Gateway Center Drive and Shawnee Lane – Retained for Additional Study

This site is located at the intersection of Gateway Center Drive and Shawnee Lane and has been retained for detailed study. Currently, this land appears to be vacant of existing structures although a wooded area would be affected.

Site 3 – COMSAT Drive and Gateway Center Drive – Eliminated from Further Consideration

This site was eliminated from further consideration because of substantial agricultural and business impacts and direct impacts to COMSAT parking, buildings/trailers, satellite dishes and a pond.

Site 4 – Northeast Side of Shawnee Lane – Retained for Additional Study

This site is located off of Shawnee Lane and traverses a portion of Sites 1 and 2. Building structures, parking and some wooded areas would be directly affected if this site is selected for the transitway yard/shop facility.

e. Costs

Table II-3 indicates the costs for Alternates 3A Master Plan HOV/LRT Alternate and Alternate 3B Master Plan HOV/BRT Alternate.

TABLE II-3
ALTERNATES 3A/B CAPITAL COSTS ($ MILLIONS OF 2001 DOLLARS)

Cost Component	Alternate 3A	Alternate 3B
Highway Capital Costs ($ in millions)		
Project Planning	$9	$9
Preliminary Engineering	$216	$216
Right-of-Way	$139	$139
Construction	$1,441	$1,441
Subtotal Highway	$1,805	$1,805
Transit Capital Costs ($ in millions)		
Subtotal Transit	$857	$792
Total Cost of Alternate	$2,662	$2,597

Note: *Based on the Maryland Department of Transportation's 2003 to 2008 Consolidated Transportation Program cost estimate.*

The estimated annual transit operations and maintenance costs (2001 dollars) for Alternates 3A/B are as follows:

- Alternate 3A (LRT) $25 Million
- Alternate 3B (BRT) $64 Million

4. Alternate 4A: Master Plan General-Purpose/LRT Alternate
Alternate 4B: Master Plan General-Purpose/BRT Alternate

Alternates 4A/B consist of a TSM/TDM component; a highway component with general-purpose, HOV, and collector-distributor lanes; proposed interchanges and improvements to existing interchanges; and either LRT (4A) or BRT (4B) on the CCT.

a. Proposed TSM/TDM Component

The proposed TSM/TDM component is the same as described in Alternate 2.

b. Proposed Highway Component

The proposed highway component is the same as described in Alternate 3A/B except along I-270 between MD 121 and I-70 (see engineering plans, sheets **HWY 1 through HWY 15 and MD 75 in Volume 2 of 2, Chapter XI**). Along this section of I-270, one general-purpose lane per direction would be added in place of the HOV lane described in Alternate 3A/B. (The proposed I-270 section between MD 121 and I-70 consists of three general-purpose lanes in each direction). Between MD 121 and I-70, Alternate 4A/B is as follows:

- **MD 121 to MD 85** - Between MD 121 and MD 85, a general-purpose lane would be added to the inside in both the northbound and southbound directions.
- **MD 85 to I-70** - Between MD 85 and I-70, a general-purpose lane would be added to the inside in both the northbound and southbound directions and an auxiliary lane between the interchange acceleration/deceleration ramps would be added to the outside in the southbound direction.

c. Proposed Transit Component

The proposed transit component for Alternates 4A and 4B are the same as the transit component described in Alternates 3A and 3B (see engineering plans, sheets **TRAN 1 through TRAN 6, in Volume 2 of 2, Chapter XI**).

d. Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities for Alternates 4A and 4B are the same as described in Alternates 3A and 3B.

e. Costs

Table II-4 indicates the costs for Alternate 4A Master Plan General-Purpose/LRT Alternate and Alternate 4B Master Plan General-Purpose/BRT Alternate:

TABLE II-4
ALTERNATES 4A/B CAPITAL COSTS ($ MILLIONS OF 2001 DOLLARS)

Cost Component	Alternate 4A	Alternate 4B
Highway Capital Costs ($ in millions)		
Project Planning	$9	$9
Preliminary Engineering	$216	$216
Right-of-Way	$139	$139
Construction	$1,441	$1,441
Subtotal Highway	$1,805	$1,805
Transit Capital Costs ($ in millions)		
Subtotal Transit	$857	$792
Total Cost of Alternate	$2,662	$2,597

Note: *Based on the Maryland Department of Transportation's 2003 to 2008 Consolidated Transportation Program cost estimate.*

The estimated annual transit operations and maintenance costs (2001 dollars) for Alternates 4A/B are as follows:

- Alternate 4A (LRT) $25 Million
- Alternate 4B (BRT) $64 Million

5. Alternate 5A: Enhanced Master Plan HOV/General-Purpose/LRT
Alternate 5B: Enhanced Master Plan HOV/General-Purpose/BRT
Alternate 5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus

Alternates 5A/B/C consist of a TSM/TDM component; a highway component with general-purpose, HOV, and collector-distributor lanes; proposed interchanges, improvements to existing interchanges; and either LRT (5A) or BRT (5B) on the CCT alignment or Premium Bus on the HOV Lanes (5C). This alternate is referred to as enhanced as it includes one additional general-purpose lane in each direction along I-270 between MD 121 and the County line, beyond that which is proposed in the Montgomery County Master Plans.

a. Proposed TSM/TDM Component

The proposed TSM/TDM component is the same as described in Alternate 2.

b. Proposed Highway Component

General-Purpose, HOV and Auxiliary Lane Additions

The proposed highway component is the same as described in Alternate 3A/B except along I-270 between MD 121 and I-70 (see engineering plans, sheets **HWY 1 through HWY 15 and MD 75, in Volume 2 of 2, Chapter XI**). Along this section of I-270, one general-purpose lane per direction would be added in addition to the HOV lanes described in Alternate 3A/B. (The proposed I-270 section between MD 121 and I-70 consists of three general-purpose lanes and one HOV lane in each direction.) Between MD 121 and I-70, Alternate 5A/B/C is as follows:

- **MD 121 to MD 85** - Between MD 121 and MD 85, an HOV lane would be added to the inside and one general-purpose lane would be added to the outside in both the northbound and southbound directions.
- **MD 85 to I-70** - Between MD 85 and I-70, an HOV lane would be added to the inside in both the northbound and southbound directions and one additional general-purpose lane and one auxiliary lane between the interchange acceleration/deceleration ramps would be added to the outside in the southbound direction.

In addition, as part of Alternate 5A/B/C, HOV lanes are being considered.

c. Proposed Transit Component

The proposed transit component of Alternate 5A/B/C consists of three alternatives. Alternates 5A and 5B are the same as Alternates 3A and 3B (see engineering plans, sheets **TRAN 1 through TRAN 6 in Volume 2 of 2, Chapter XI**). Alternate 5C, proposes not building the CCT and, instead, implementing premium bus service on proposed HOV lanes.

Alternate 5C – Premium Bus on HOV Lanes

Highway - The highway component of Alternate 5C is the same as described in Alternate 5A/B, with the exception of the locations for direct access ramps and the general-purpose, HOV and auxiliary lane additions description between MD 121 and I-70.

Direct Access Ramps - In addition to the direct access ramps at the proposed Watkins Mill Road interchange and the proposed Newcut Road interchanges, direct access ramps are being considered at the I-370, MD 118, and MD 85 (Shockley Drive) interchanges.

The direct access ramps proposed at MD 85 would be located at the proposed Shockley Drive overpass, designated as a local roadway as per the Draft Frederick County Master Plan and part of a separate planning study. Direct access ramps would be located in the median of the freeway to provide access to the interchange directly from the HOV lane. With the exception of the ramps at I-370 and MD 85 (Shockley Drive), the direct access ramps being considered would

provide on and off access from both directions of the highway. The direct access ramps at I-370 would only provide access to/from the north. The direct access ramps at MD 85 (Shockley Drive) would only provide access to/from the south. The ramps would provide access via one lane to the center of the interchange bridge except for I-370 where the ramps would provide access directly to the HOV lanes on I-370. The ramps would only be in operation during the peak period in the peak direction (i.e. to/from I-270 southbound during the AM peak period and to/from I-270 northbound during the PM peak period). Barricades and variable message signs would indicate when the ramps are in operation. These direct access ramps would service high occupancy vehicles and buses to access the Shady Grove Metro Station (via I-370), Metropolitan Grove MARC Station (via Watkins Mill Road), Germantown Transit Center (via MD 118), COMSAT (via Newcut Road), and the MARC Monocacy Station (via MD 85).

General-Purpose, HOV and Auxiliary Lane Additions - In Alternate 5C, the HOV lanes described between MD 121 and I-70 in Alternate 5A/B would be terminated at the proposed direct access ramps at the proposed Shockley Drive overpass approximately 0.5 mile south of MD 85. Between MD 121 and I-70, the Alternate 5C highway component is as follows:

- **MD 121 to MD 85 - Between MD 121 and MD 85**, an HOV lane would be added to the inside and one general-purpose lane would be added to the outside in both the northbound and southbound directions. The HOV lanes would terminate at the proposed direct access ramps at the Shockley Drive overpass approximately 0.5 mile south of MD 85. The Shockley Drive overpass is part of a separate planning study, and is designated as a local roadway in the Frederick County Draft Master Plan.
- **MD 85 to I-70** - Between MD 85 and I-70, one additional general-purpose lane and one auxiliary lane between the interchange acceleration/deceleration ramps would be added to the outside in the southbound direction.

Transit - Premium Bus is proposed on the existing and proposed HOV lanes on I-270. This service would include slip-ramps for exclusive bus/HOV access from the HOV lanes to the proposed intermodal stations located at the major activity centers in Shady Grove, Gaithersburg, Germantown, Clarksburg, and Frederick. Express bus service would be provided along the I-270 HOV lanes in addition to an extended feeder bus system. Premium bus service offers limited stop service and non-stop service between origins and destinations, running along the existing highway corridor and not a separate transitway alignment.

d. Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities for Alternates 5A and 5B are the same as described in Alternates 3A and 3B. It is assumed that Alternate 5C, premium bus service on HOV lanes, will be operated by a contractor and will not require transitway yard/shop facilities.

e. Costs

Table II-5 indicates the costs for Alternate 5A Enhanced Master Plan HOV/General-Purpose/LRT Alternate, Alternate 5B Enhanced Master Plan HOV/General-Purpose/BRT Alternate, and Alternate 5C Enhanced Master Plan HOV/General-Purpose/Premium Bus Alternate:

TABLE II-5
ALTERNATES 5A/B/C CAPITAL COSTS ($ MILLIONS OF 2001 DOLLARS)

Cost Component	Alternate 5A	Alternate 5B	Alternate 5C
Highway Capital Costs ($ in millions)			
Project Planning	$9	$9	$9
Preliminary Engineering	$255	$255	$271
Right-of-Way	$139	$139	$139
Construction	$1,695	$1,695	$1,804
Subtotal Highway	$2,098	$2,098	$2,223
Transit Capital Costs ($ in millions)			
Subtotal Transit	$857	$792	$296
Total Cost of Alternate	$2,955	$2,890	$2,519

Note: *Based on the Maryland Department of Transportation's 2003 to 2008 Consolidated Transportation Program cost estimate.*

The transit costs identified in Alternate 5C ($296 Million) refer to the capital costs associated with the purchase of additional buses to operate the Premium Bus Alternate.

The estimated annual transit operations and maintenance costs (2001 dollars) for Alternates 5A/B/C are as follows:

- Alternate 5A (LRT) $25 Million
- Alternate 5B (BRT) $64 Million
- Alternate 5C (Premium Bus) $32 Million

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The alternates considered for the I-270/US 15 Multi-Modal Corridor Study, as presented in Chapter II, will have direct, indirect and cumulative effects on the natural and socioeconomic environments of the Metropolitan Washington Region, Frederick and Montgomery counties, and the I-270/US 15 Corridor. This chapter presents the existing environmental conditions and the environmental consequences of the alternates. Possible mitigation measures to lessen adverse impacts have been investigated and are presented as appropriate. Environmental consequences are generally described by alternate, however, some topics are presented for the Light Rail Transit (LRT) alternates, Alternates 3A, 4A and 5A, as a group where the results are not substantially different among the LRT alternates. Likewise, results for the Bus Rapid Transit (BRT) alternates, Alternates 3B, 4B and 5B, are often presented as a group.

A. LAND USE

1. Existing and Future Land Use

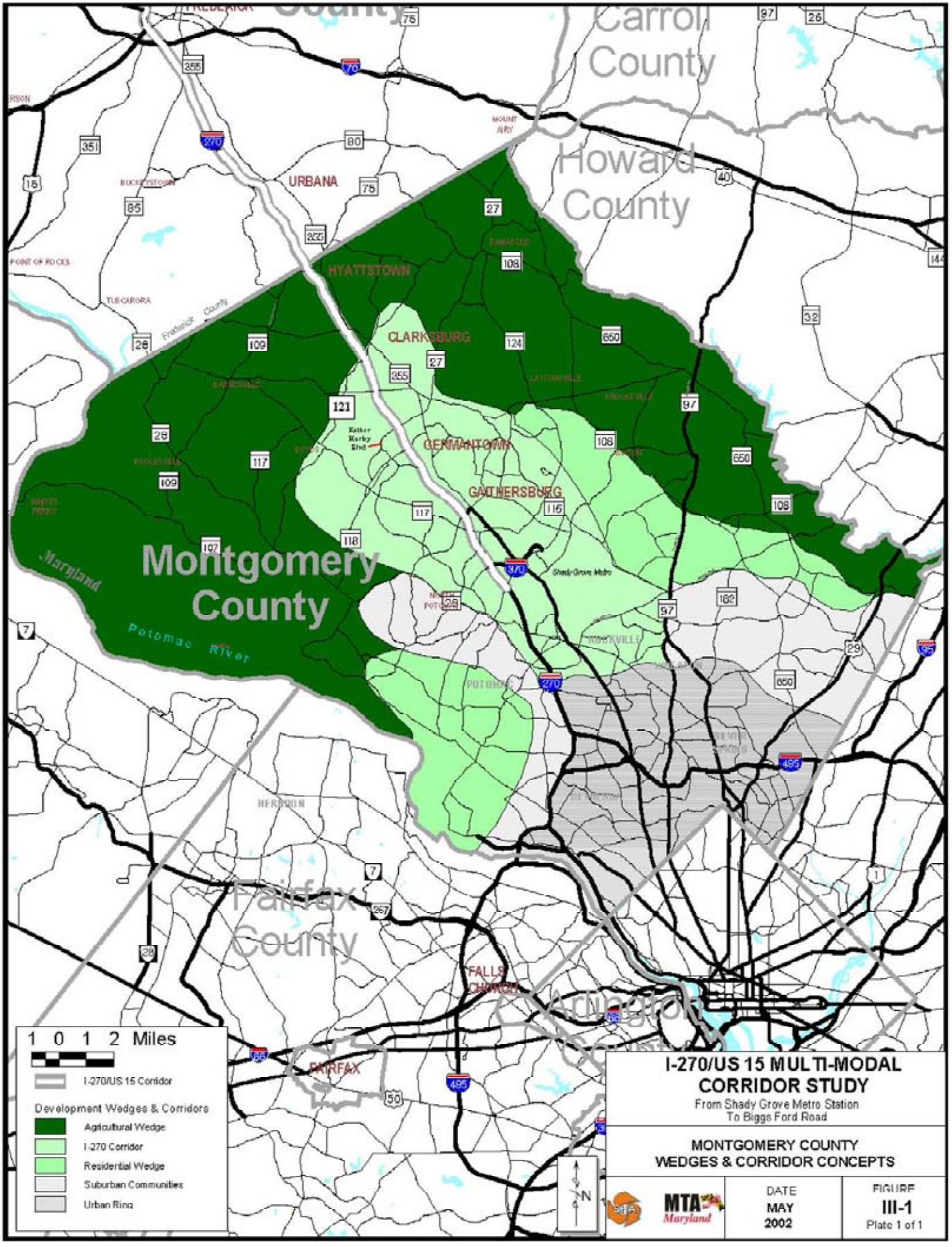
a. Existing Land Use

Montgomery County

The 1964 *General Plan*, "…On Wedges and Corridors" has guided the land use pattern and the transportation system in Montgomery County. The Wedges and Corridors concept divided Montgomery County into four geographic components: The Urban Ring, the I-270 Corridor, the Suburban Communities, and the Wedge (low-density agricultural and large-lot residential). The 1964 *General Plan* recognized the District of Columbia as the center of geographic, economic and cultural activities in the region and described radial "Corridors" leading from it to channel growth into development corridors and preserve wedges of open space, farmland, and low density residential uses (**Figure III-1**). Since the 1964 Plan, Montgomery County has published a 1969 *General Plan Update* and a 1993 *General Plan Refinement* that encourage the concentration of development in key areas including transit stations in the I-270 Corridor.

The I-270 Corridor in Montgomery County consists of a series of Corridor Cities, including Rockville, Clarksburg, Gaithersburg, and Germantown that are linked with one another and with Washington, DC by highway and transit. The 1964 Plan envisioned these Corridor Cities to be relatively dense, compact centers where new growth would be contained with the least impact on natural and fiscal resources. The I-270 Corridor is the County's major radial transportation route served by a variety of transportation options surrounded by commercial/industrial development and high-density residential development along I-270 and MD 355.

In addition to the Corridor Cities along I-270, Montgomery County contains the "Agricultural Wedge" north of Clarksburg to the Frederick County border. The Agricultural Wedge comprises farmland, parks, wildlife habitats and limited rural centers that serve the shopping and service needs of area residents.


Carroll County
Howard County
Montgomery County
Fairfax County
Arlington
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
POTOMAC
FALLS CHURCH
FAIRFAX
HERNDON
Shady Grove Metro
Potomac River
Maryland
1 0 1 2 Miles
I-270/US 15 Corridor
Development Wedges & Corridors
Agricultural Wedge
I-270 Corridor
Residential Wedge
Suburban Communities
Urban Ring
N
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
MONTGOMERY COUNTY
WEDGES & CORRIDOR CONCEPTS
MTA Maryland
DATE
MAY
2002
FIGURE
III-1
Plate 1 of 1

Frederick County

Frederick County has historically developed in a traditional town/village pattern of mixed uses (residential, commercial, and industrial) clustered around crossroads and surrounded by low-density rural areas. Prior to 1960, new development occurred within the boundaries of the town/village or along the County's rural roads. However, during the 1960s and subsequent years, sprawling low-density development patterns began to influence the County's character. In 1988, the agricultural/woodland/ undeveloped land use categories comprised approximately 83% of the County's total land area. Since 1990, the character of Frederick County has continued to slowly shift toward more developed land uses. In 1998, the agricultural/woodland/undeveloped land use categories comprised approximately 80% of the County's land area. Further, the amount of land used for residential development had increased by almost 19% from 36,825 acres in 1988 to a total of 43,723 acres in 1998.

Agriculture is the major land use in Frederick County. The *Frederick County Comprehensive Plan* (October 1998) estimates 64.3% of total land area in Frederick County includes tillable cropland and vacant rural undeveloped areas. Woodlands are the next largest category of land use (15.4%). Residential (10.3%), parkland/open space, (5.3%), institutional/public (2.5%) and commercial/industrial (2.2%) comprise the remaining land area for the County.

The *Frederick County Comprehensive Plan* (October 1998) endorses and expands upon the "Community Concept", a land use principle introduced in the 1972 Frederick County Comprehensive Plan and carried forward in both the 1984 and 1990 Comprehensive Plans. The Community Concept identifies a hierarchy of communities where growth will be centered, so that public facilities can be located in an efficient manner. **Figure III-2** identifies the locations of Municipal Growth Areas (MGA) and Unincorporated Growth Areas (UGA) that guide land use patterns in Frederick County.

Farmland

Farmland comprises approximately one-third of the land in Montgomery County and produces corn, wheat, hay, soybean, and barley crops, as well as livestock activities. Frederick County farms generally produce corn, wheat, hay, soybean, barley, and oats. Dairy farming is the predominant farming activity in both counties.

Table III-1 lists the existing farms/agricultural areas in the I-270/US 15 Corridor.

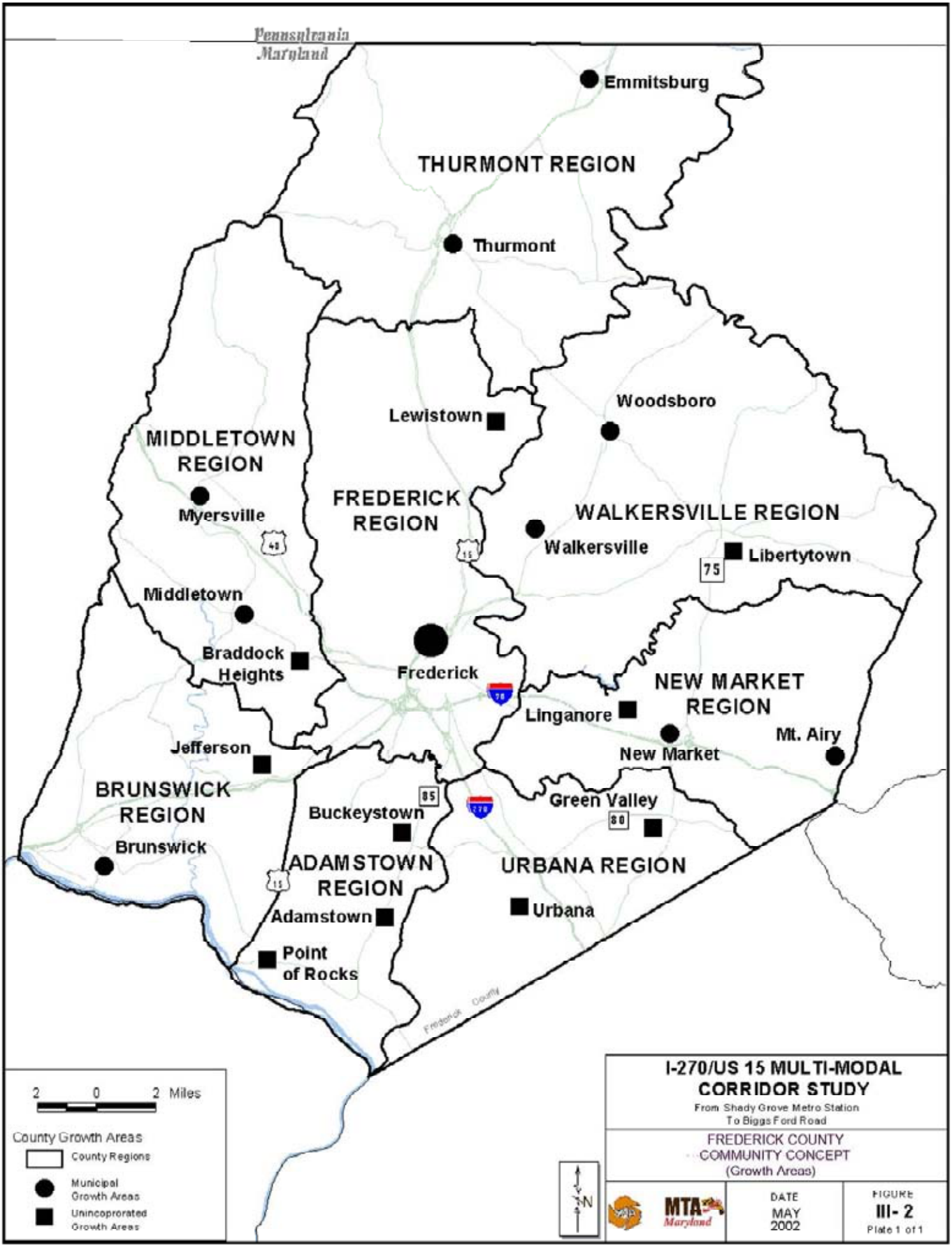

Pennsylvania
Maryland
Emmitsburg
THURMONT REGION
Thurmont
Lewistown
Woodsboro
MIDDLETOWN REGION
Myersville
FREDERICK REGION
WALKERSVILLE REGION
Walkersville
Libertytown
75
Middletown
Braddock Heights
Frederick
NEW MARKET REGION
Linganore
New Market
Mt. Airy
Jefferson
BRUNSWICK REGION
Buckeystown
85
Green Valley
80
Brunswick
ADAMSTOWN REGION
URBANA REGION
Urbana
Adamstown
Point of Rocks
Frederick County
2 0 2 Miles
County Growth Areas
County Regions
Municipal Growth Areas
Unincoprorated Growth Areas
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
FREDERICK COUNTY
COMMUNITY CONCEPT
(Growth Areas)
N
MTA Maryland
DATE
MAY
2002
FIGURE
III- 2
Plate 1 of 1

TABLE III-1
FARMS/AGRICULTURAL AREAS IN THE I-270/US 15 CORRIDOR

Location		Total Acreage
Montgomery County		
1	West of I-270 and East of Peach Tree Road	27.46
2	West of I-270 and East of Peach Tree Road	41.21
3	East of I-270 and West of MD 355	47.42
4	West of I-270 and Southwest of Peach Tree Road	297.4
5	East of I-270 and West of MD 355	2.12
6	East of I-270 and West of MD 355	4.00
7	East of MD 355	7.59
8	West of I-270, East of Shiloh Church Road, South of Comus Road	6.70
9	West of Shiloh Church Road and South of Comus Road	3.00
10	West of I-270, East of Shiloh Church Road, South of Comus Road	31.44
11	West of Shiloh Church Road and South of Comus Road	5.57
12	East of Shiloh Church Road, South of Comus Road	45.00
13	East of Shiloh Church Road, South of Comus Road	0.85
14	East of Shiloh Church Road, South of Comus Road	14.18
15	West of Shiloh Church Road, South of Comus Road	78.71
16	West of Shiloh Church Road, South of Comus Road	56.27
17	West of I-270 and South of Comus Road	124.32
18	Northeast of I-270 and West of MD 355	101.64
19	West of I-270 and South of Comus Road	39.42
20	West of I-270 and North of Clarksburg Road	64.35
21	East of Gateway Center Drive and West of Frederick Road	41.18
22	West of Shiloh Church Road, South of Comus Road	1.190
23	West of Shiloh Church Road, South of Comus Road	0.38
24	West of Shiloh Church Road, South of Comus Road	4.770
25	West of MD 121	67.73
26	West of MD 121	44.00
27	West of I-270 and Southeast of MD 121	5.31
28	West of I-270 and South of MD 121	131.26
29	East of I-270 and South of West Old Baltimore Road	208.51
30	Northeast of Frederick Road and Southwest of Timber Creek Lane	10.00
31	Northeast of Frederick Road and Southwest of Timber Creek Lane	2.00
32	Northeast of Frederick Road	7.55
33	South of Fields Road and East of Sam Eig Highway	8.66
34	South of Fields Road and West of Omega Drive	21.77
35	South of Fields Road and East/Northeast of Shadybrook Drive	40.65
36	South of Fields Road and East/Northeast of Shadybrook Drive	33.36
37	South of Fields Road and East/Northeast of Shadybrook Drive	4.19
38	South of Fields Road and East/Northeast of Shadybrook Drive	6.11
39	South of Fields Road and East/Northeast of Shadybrook Drive	7.07
40	South of Fields Road and East of Sam Eig Highway	75.8
41	East of Muddy Branch Road and North of Darnestown Road	107.32

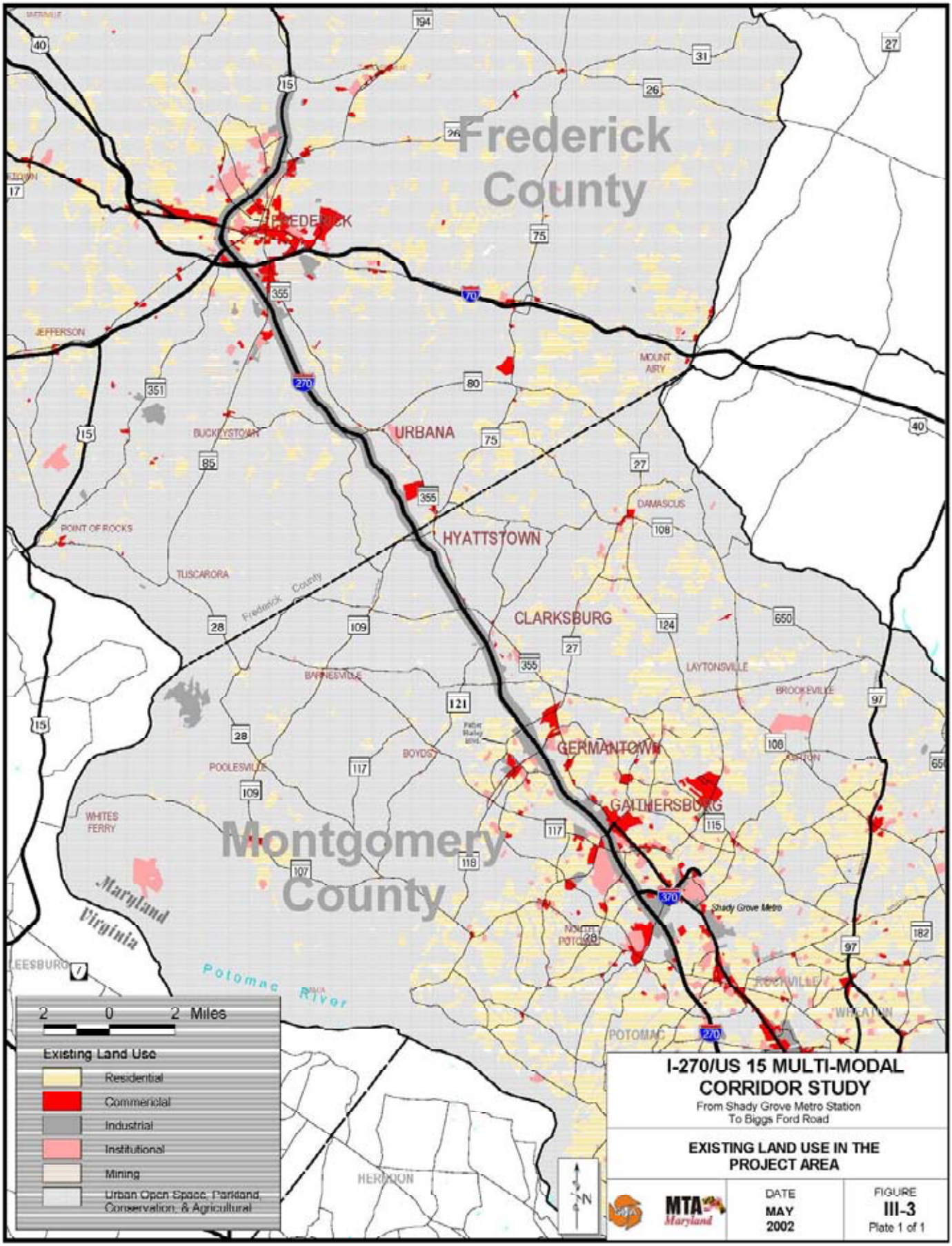
TABLE III-1 (CONTINUED)
FARMS/AGRICULTURAL AREAS IN THE I-270/US 15 CORRIDOR

Location		Total Acreage
Frederick County		
1	West of US 15 and South of Sundays Lane	161.31
2	East side of Willow Brook Road at US 15	186.00
3	SE portion of Biggs Ford Road and US 15	107.57
4	East of US 15 and South of Biggs Ford Road	138.14
5	East of I-270 and North of Baker Valley Road	217.44
6	East of I-270 and North of Baker Valley Road	23.22
7	West of I-270 and North of Baker Valley Road	28.00
8	East of I-270 and West of Araby Church Road	96.22
9	East of I-270 and West of Araby Church Road	56.61
10	Southwest of I-270 and North of Fingerboard Road	21.00
11	Northeast of I-270 and Northwest of Park Mills Road	24.19
12	South of I-270 and North of Park Mills Road	171.04
13	Northeast of I-270 and Southwest of Urbana Pike	97.83
14	Northeast of I-270 and Southwest of Urbana Pike	139.72
15	Southwest of I-270 and Southeast of Thurston Road	142.94
16	Southwest of I-270 and Southeast of Thurston Road	199.97
17	Southwest of I-270 and Northeast of Dixon Road	29.86
18	East of I-270 and West of Dr. Perry Road	13.00
19	Southwest of I-270 Southeast of Dr. Perry Road	20.25

Project Area

Figure III-3 provides a general illustration of existing land use in the project area. By far, the largest amount of land (almost 74%) in the project area consists of open space/parkland/agricultural land uses. Large tracts of parkland are located along I-270 and include the Urbana Lake Fish Management Area, Little Bennett Regional Park, Seneca Creek State Park, Black Hill Regional Park, and Monocacy National Battlefield. Further discussion of these resources appears in the parklands section (**Section III.B.5**) and the Section 4(f) Evaluation (**Chapter VI**). Some recreational areas include the PB Dye Golf Course (private) located west of I-270 on Doctor Perry Road, Worthington Manor (private) Golf Course located west of I-270 on MD 80, and the Montgomery County Fairgrounds located east of I-270 south of MD 124.

The southern portion of the project area, generally south of MD 121, mainly consists of mixed use residential (single-family homes, townhomes, and condominiums), commercial, parkland, and office/industrial development along both sides of I-270. The residential and commercial uses are concentrated in the more densely populated areas of Rockville, Gaithersburg, Germantown, and the City of Frederick. Residential and some commercial land uses exist in Clarksburg and Urbana. Institutional/governmental land uses are scattered throughout the project area and include schools, churches, fire and police companies, and Fort Detrick. North of MD 121, existing land use is generally agricultural/forest land until the City of Frederick. Land uses in the vicinity of Frederick contain a mixture of residential and commercial, with some agricultural and industrial designations north of the Frederick City limits. Parks and woodlands


Frederick County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
WHEATON
POTOMAC
DAMASCUS
MOUNT AIRY
LAYTONSVILLE
BROOKEVILLE
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
POINT OF ROCKS
TUSCARORA
JEFFERSON
BUCKEYSTOWN
HERNDON
Shady Grove Metro
Maryland
Virginia
Potomac River
2 0 2 Miles
Existing Land Use
Residential
Commercial
Industrial
Institutional
Mining
Urban Open Space, Parkland, Conservation, & Agricultural
N
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station To Biggs Ford Road
EXISTING LAND USE IN THE PROJECT AREA
MTA Maryland
DATE MAY 2002
FIGURE III-3 Plate 1 of 1

also exist throughout the Corridor. Agricultural/conservation areas appear along I-270 north of Clarksburg as well as land along the Monocacy River floodplain and its tributaries and existing neighborhood parks in Frederick County.

Many shopping centers, restaurants and other retail uses comprise the commercial land uses in the project area. The commercial areas are located in the more densely populated portions of the project area such as Rockville, Gaithersburg, Germantown, and the City of Frederick. Major shopping areas include:

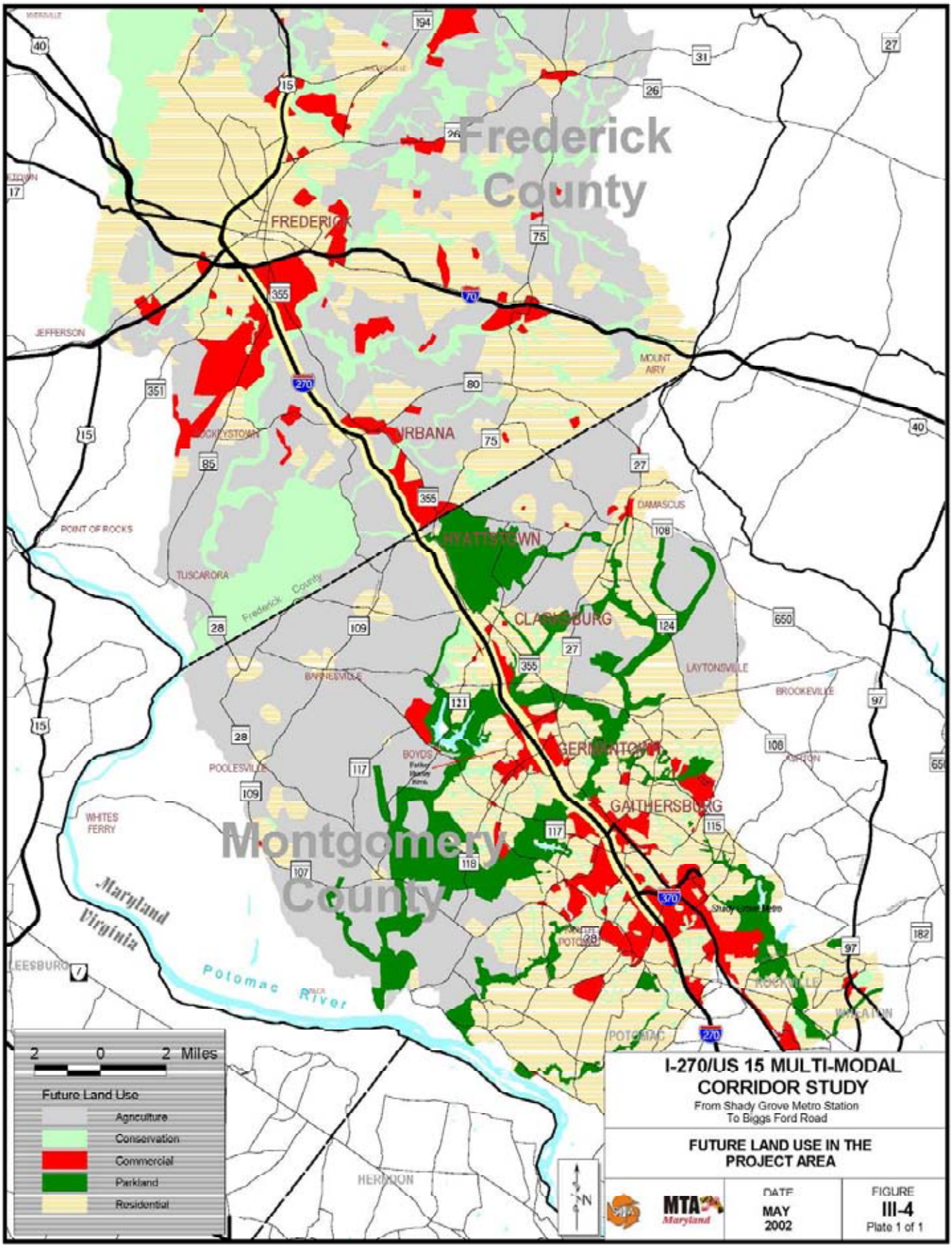
- Festival at Muddy Branch -- west of I-270 south of Muddy Branch Road
- Quince Orchard Plaza -- MD 117 and MD 124
- Diamond Square -- MD 117 and MD 124
- Gaithersburg Square -- MD 355 south of MD 124
- Middlebrook Village Center -- east of I-270 north of Middlebrook Road
- Urbana Shopping Center --MD 355 at MD 80
- Francis Scott Key Mall -- east of I-270 at MD 85
- Frederick Crossing Shopping Center -- east of I-270 south of I-70
- Evergreen Square Shopping Center -- east of I-270 south of I-70
- Festival at Frederick -- east of US 15 south of Jefferson Street
- Prospect Plaza --east of US 15 north of Jefferson Street
- Frederick County Square Shopping Center -- west of US 15 north of US 40
- Frederick Shopping Center -- west of US 15 north of 7th Street
- Rose Hill Plaza -- west of US 15 at Opossumtown Pike

Office/industrial/research land uses are organized among dozens of office and industrial parks. The largest of these is the Montgomery County Research and Development (R&D) Village located west of Rockville and I-270 and contains the Shady Grove Life Sciences Center, a biotechnology research and development park. Moving northwest along I-270, major office/industrial/research businesses located in Gaithersburg include IBM, Life Technologies, MedImmune, National Institute of Standards and Technology, and Pioneer Technologies. The major businesses located in Germantown include: the US Department of Energy, Fairchild, Hughes Network Systems, Mobil Telesystems, Orbital Sciences, and Telecommunication Techniques. Clarksburg is home to the 154-acre campus of COMSAT Corporations and the Gateway I-270 business park. The majority of Frederick City's business parks are clustered along the I-270/MD 85 interchange. Some of the business parks in this area include the I-270 Technology Park, the Urbana Office/Research Center, and the Frederick Industrial Center.

b. Future Land Use

Figure III-4 illustrates the location and character of future development in the I-270/US 15 Corridor. The master plans for each planning area or municipality contain specific recommendations for future land use:

The *Gaithersburg Vicinity Master Plan*, approved and adopted in January 1985 with amendments to the Plan adopted in May 1988 and July 1990, contains recommendations for the southern portion of the I-270/US 15 Corridor. Much of the land in the Gaithersburg Vicinity


Frederick County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
POTOMAC
DAMASCUS
MOUNT AIRY
JEFFERSON
POINT OF ROCKS
TUSCARORA
BARNESVILLE
POOLESVILLE
BOYDS
WHITES FERRY
LAYTONSVILLE
BROOKEVILLE
ASHTON
LEESBURG
HERNDON
Maryland
Virginia
Potomac River
2 0 2 Miles
Future Land Use
Agriculture
Conservation
Commercial
Parkland
Residential
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
FUTURE LAND USE IN THE PROJECT AREA
MTA Maryland
DATE
MAY 2002
FIGURE
III-4
Plate 1 of 1

Planning Area is developed but land use recommendations for the Shady Grove area, which has a large amount of vacant land, are contained in a separate study. The *Shady Grove Master Plan*, approved and adopted in July 1990, provides land use recommendations for the vacant properties in the Shady Grove area divided into two groups: the Metro Area and the research and development (R&D) Village. The Plan recommends high-density office and residential uses for the Metro Area, located between the Shady Grove Metro Station and MD 355. The Plan recommends high-density residential uses (3,200 dwelling units), 50-100,000 square feet of retail/commercial and 3.0-3.4 million square feet of employment uses for the King Farm. Properties west of I-270 form the R&D Village where highest intensity development occurs on those properties closest to I-270 and the proposed transitway. Less intense R&D uses are proposed for those vacant properties located in the vicinity of the Life Sciences Center (Shady Grove Road and Key West Avenue).

Most of the undeveloped portions of the Germantown Planning Area are grouped into three broad categories in the *Germantown Master Plan* (July 1989) – Town Center, Employment Corridor and Villages. The majority of the I-270/US 15 Corridor is situated in the Employment Corridor from Middlebrook Road north to Clarksburg with a small portion of the Gunners Lake Village situated along I-270 near Waring Station Road and the Town Center designation at the intersection of Crystal Road Drive and MD 118. Generally, the Plan recommends that the Employment Corridor contain a mix of employment and multi-family residential uses.

The *Clarksburg Master Plan* (June 1994) identifies eight geographic areas within which a mix of future land uses exists. In the project area, the Brink Road Transition Area creates a transition from Germantown to Clarksburg with low intensity, light industrial employment uses near I-270. The Cabin Branch Neighborhood, north of Newcut Road (Extended), is the only portion on the west side of I-270 that is proposed of substantial residential development; however, future light industrial uses are recommended adjacent to I-270. The Ten Mile Creek Area, also on the west side of I-270 between Clarksburg Road and Comus Road, primarily contains environmentally sensitive features such as woodlands, streams and steep slopes; however, future light industrial and rural residential uses are recommended adjacent to I-270. On the east side of I-270, the Transit Corridor District assumes a maximum build-out potential of 5 million square feet of employment uses adjacent to I-270 and continues the existing residential uses along MD 355. The Town Center District, east of I-270 between Clarksburg Road and Comus Road, encourages mixed-use development, especially R&D and residential uses. Finally, the plan recommends primarily rural residential and agricultural reserve land uses for the Hyattstown Special Study Area, north of Comus Road.

The *Urbana Region Plan*, adopted October 1993, identifies primarily agricultural and conservation uses on the west side of I-270; however, the east side of I-270 contains more varied future land uses. Specifically, the plan identifies "rural community" land uses east of I-270 near the County line and office/research and limited industrial uses north of the County line to the Urbana Town Center, south of Fingerboard Road. North of Fingerboard Road, the plan identifies more agricultural land uses with a pocket of rural residential uses.

The City of Frederick is already developed with mixed-use residential, retail/office, industrial, institutional and open space uses in relatively close proximity. The *City of Frederick Comprehensive Plan*, adopted August 1995, encourages existing land uses and new construction, where appropriate.

In addition to the general recommendations for future land use presented in the area master plans, **Table III-2**, **Table III-3** and **Table III-4** identify major planned development projects in the immediate vicinity of the proposed I-270/US 15 Corridor improvements. Locations of these planned development projects are shown on the engineering plans in **Volume 2 of 2, Chapter XI**.

Compliance with Smart Growth Initiatives

In 1992, the State of Maryland adopted the Economic Growth, Resource Protection and Planning Act that established a series of "Visions" for Maryland's future. Under the Act, the visions must be implemented within the context of a local comprehensive plan. Some Visions contained within the Act that are relevant to the I-270/US 15 Multi-Modal Corridor Study include:

- Concentrate development in suitable areas
- Protect sensitive areas
- Conserve resources
- Encourage economic growth

The intent of the Smart Growth Area Act (October 1997) is to direct state funding for growth-related projects to areas designated by local jurisdictions as Priority Funding Areas (PFAs). PFAs consist of existing communities and other locally designated areas as determined by local jurisdictions in accordance with "smart growth" guidelines. The Act seeks to guide development to existing towns, neighborhoods, and business areas by directing State infrastructure improvements to those places. **Table III-5** and **Figure III-5** indicate PFAs in the I-270/US 15 Corridor.

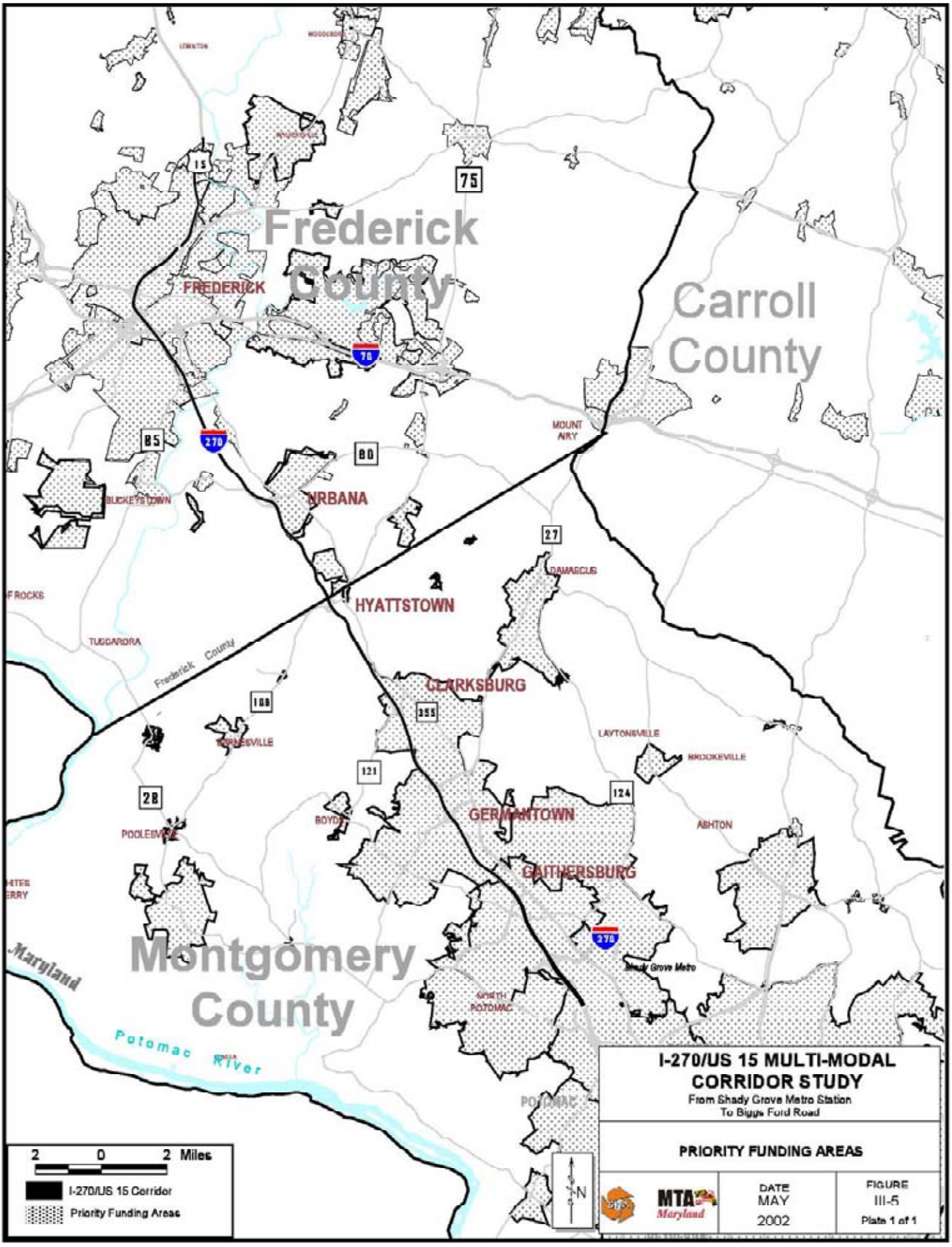

Frederick County
Carroll County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
MOUNT AIRY
DAMASCUS
BUCKEYSTOWN
TUSCARORA
POOLESVILLE
BOYDS
LAYTONSVILLE
BROOKEVILLE
ASHTON
Shady Grove Metro
NORTH POTOMAC
POTOMAC
Maryland
Potomac River
Frederick County
2 0 2 Miles
I-270/US 15 Corridor
Priority Funding Areas
N
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
PRIORITY FUNDING AREAS
MTA Maryland
DATE
MAY
2002
FIGURE
III-5
Plate 1 of 1

TABLE III-2
MONTGOMERY COUNTY MAJOR FUTURE DEVELOPMENT IN THE PROJECT AREA

Location	Plan No.*	Project Name	Type of Zoning	Size	Proposed Use	Status
Shady Grove	TRAN 2	DANAC	I-3	25 acres	669,400 square feet.	Approved
	TRAN 2, 3	Decoverly Hall (NASDAQ)	R&D	10 acres	Approximately 130,000 square feet remaining to be built	Approved; 1 of 2 buildings built
Germantown	HWY 4	N. Germantown Office Park	C-T	6 acres	125,000 square feet office and restaurant	Approved
	TRAN 5	Qiagen	I-1 and O-M	18.5 acres	392,000 square feet office, manufacturing	Approved
	HWY 3, 4 TRAN 5, 6	Orbital Fairchild redevelopment site	I-3	25 acres	Redevelopment mixed use potential	Redevelopment; no approvals required
	HWY 4 TRAN 6	Milestone Business Park (ACTERNA)	I-3	99 acres	874,750 square feet office, manufacturing	Approved
	HWY 3 TRAN 5	Seneca Meadows	I-3; R-MX2; TDR	156.5 acres		Under construction
	HWY 5	Martens Property	R-MX2; TC-5	67 acres	Potential for 500 housing units, commercial, retail	No approvals
	HWY 4	Far North Village	TS	110.2 acres	1,300,000 square feet	Approved
	TRAN 5	Germantown Town Center	TC-1, TC-2, TS	44.7 acres	555 housing units, 160,300 square feet retail, hotel, theaters	Approved; partially built
Clarksburg	HWY 5 TRAN 6	COMSAT/ Lockheed Martin	I-3; R-MX	154.3 acres	Potential for 4 million square feet office	Registered loophole property (may expire)
	HWY 5	Clarksburg Triangle (Stage III)	R-MX-1, TDR, I-3	22.86 acres	Limited sewer availability	No status; No submissions
	HWY 6	Clarksburg Detention Center	I-3 Rural	300 acres	Detention Center	Approved; under construction

Source: *Excerpted from Land Use Expert Panel Briefing Book. M-NCPPC Community-Based Planning Division, January 23, 2001.*

Notes: *******Locations of planned development projects are shown on the engineering plans in* ***Volume 2 of 2, Chapter XI****.*
R&D = Low Density Research and Development; MXPD = Mixed Use Planned Development; TC = Town Center; TS = Town Sector; R-MX = Residential Mixed Use; O-M = Office Building-Moderate Intensity; C-T = commercial Transition; P-D = Planned Development; R-200 = Residential single-family; I-3 = Industrial Park.

TABLE III-3
FREDERICK COUNTY MAJOR FUTURE DEVELOPMENT IN THE PROJECT AREA

Site	Plan Number*	Location
Montecito Business Center	HWY 7	East side of I-270, west side of MD 355, north of MD 109
Urbana Office/Research Center	HWY 8	East side of I-270, south side of relocated MD 80 in Urbana
Omega Center	HWY 10	East side of MD 85 at Executive Way
Center at Monocacy	HWY 10, 11	East side of MD 85, south of I-270/MD 85 interchange
Westview Corporate Campus	HWY 11	West side of MD 85, east side New Design Road at Crestwood Boulevard
270 Technology Park	HWY 11	West side of MD 355, East side I-270, south of FSK Mall
Ballenger Creek Center	HWY 11	South side of I-70, east side Ballenger Creek Pike
Frederick Industrial Center	HWY 11	East side of I-270, west side MD 85 at Grove Road
Centerpark	HWY 11,12	Junction I-70, I-270, US 340/US 15
Frederick Research Park	HWY 13, 14	West side of US 15 at Thomas Johnson Drive
Governor's Choice Industrial Park	HWY 14	West side of US 15, north side Hayward Road
North Amber Business Park	HWY 14	West side US 15 at Thomas Johnson Drive
Wormans Mill Industrial Park	HWY 14	North side of MD 355 at MD 26

Note: ****Locations of planned development projects are shown on the engineering plans in **Volume 2 of 2, Chapter XI

Source: *Excerpted from Land Use Expert Panel Briefing Book. Frederick County Planning Department, January 2000.*

TABLE III-4
FREDERICK CITY MAJOR FUTURE DEVELOPMENT IN THE PROJECT AREA

Site	Plan Number*	Location
Prospect View	HWY 12	East side of Himes Avenue, west side of US 15
Fairfield	HWY 13	West side of Mercer Place
Tuscarora Knolls	HWY 14	East of Harmony Grove, north of MD 26
Willowbrook	HWY 14	East side of Opossumtown Pike
Worman's Mill Pond	HWY 14	North side of MD 26, east of MD 355

Note: ****Locations of planned development projects are shown on the engineering plans in **Volume 2 of 2, Chapter XI

Source: *Excerpted from Land Use Expert Panel Briefing Book. City of Frederick Planning Department, January 2000.*

TABLE III-5
PRIORITY FUNDING AREAS (PFAS) IN THE I-270/US 15 CORRIDOR

PFA/Status	County	Location Relative To Project
Rockville Pre-defined Municipality	Montgomery	Within project area; at I-270/I-370 interchange
Gaithersburg Pre-defined Municipality	Montgomery	Within project area; at I-270/MD 124 interchange
Germantown County Certified Area	Montgomery	Within project area; at I-270/MD 118 interchange
Clarksburg County Certified Area	Montgomery	Within project area; at I-270/MD 121 interchange
Urbana County Certified Area	Frederick	Within project area; at I-270/MD 80 interchange
Frederick Pre-defined Municipality	Frederick	Within project area
Walkersville Pre-defined Municipality	Frederick	3 miles east of project area limit at US 15/MD 26 interchange.
Thurmont Pre-defined Municipality	Frederick	10 miles north of northern project area limit at US 15/ Biggs Ford Road intersection Along US 15, 9 miles south of Pennsylvania state line

Livable Communities Initiative

In 1994, the Federal Transit Administration (FTA) undertook a program called the Livable Communities Initiative. This program promotes transit as a way to strengthen the link between transportation and communities. It encourages planning in and around transit facilities to improve a community's access to major economic and community activities without reliance on single occupant vehicles. Planning for livable communities includes a vital community outreach component to ensure that such planning meets the goals and objectives of community residents and businesses. A community-oriented, user-friendly and well-designed development would include readily available customer information; a safe environment; easy access to pedestrian, bike and transit facilities; nearby customer services; and an architectural design that reflects the community in which it is located.

The first priority of transit-friendly/transit-oriented development is to establish density gradients that place dense development near transit stops and lines. This type of development is also "pedestrian friendly." Successful transit-oriented development contains a mix of complementary and related uses that can be easily accessed by foot. Montgomery County master plans recommend a mix of land uses including major community facilities, retail and office integrated with the proposed Metrorail stations. This type of high density, mixed-use development is a key component of livable community/transit supportive development.

The *Shady Grove Master Plan* (1990) contains land use recommendations for several vacant properties on which the transitway station areas could be located. The Plan recommends a pedestrian and transit-friendly environment with community focal points, interrelated streets, and a variety of housing types that is consistent with the objectives for FTA's Livable Communities. The Plan also indicates that the land use plan for these vacant properties assumes a "strong

public/private commitment to implementing the transitway and, if such a commitment does not become a reality, then the land use recommendations will have to be re-examined". Specific examples of community-sensitive, pedestrian-oriented development occurring along the transitway alignment, as shown in on the engineering plan sheets in **Volume 2 of 2, Chapter XI**, include:

- **King Farm** (sheet **TRAN 2 in Volume 2 of 2, Chapter XI**) – Mixed-use under development; Potential 3,200 residential dwelling units (multi-family, attached and detached); 50,000 – 100,000 square feet retail/commercial; and 3.4 million square feet employment uses. All the employment and retail uses, and higher density residential development should be oriented to the transitway.
- **England/Crown Farm** (sheet **TRAN 2 in Volume 2 of 2, Chapter XI**) – Potential 2,000 residential dwelling units (multi-family, attached and detached); and 50,000 square feet of retail/commercial. Higher density residential development and small-scale retail uses would be located near transit stops.
- **DANAC** (sheet **TRAN 3 in Volume 2 of 2, Chapter XI**) – Potential light industrial office uses.
- **Belward (Banks) Farm** (sheet **TRAN 3 in Volume 2 of 2, Chapter XI**) – Potential research and development uses containing 50 (Johns Hopkins) University-related residences and recreational uses. Higher density uses and building should be clustered along Key West Avenue and near the proposed transit station.

The *Shady Grove Master Plan* (1990) supports mixed-use development around transit stations to provide a variety of activities for transit patrons, and which is sensitive to the proposed amenities in the immediate vicinity of the transit stations.

c. Impacts

Alternate 1 (No-Build Alternate)

Alternate 1, No-Build Alternate, is not consistent with the future land use and zoning recommendations contained within local master plans as it would not address projected traffic congestion and safety hazards along I-270 and US 15 that will occur with the planned growth in the Corridor.

The pattern of growth presently seen in the I-270/US 15 Corridor is largely a reflection of the regional economy and local market conditions. The No-Build Alternate will not change the basic patterns of land use but could be detrimental to the long-term growth and economic health of the I-270/US 15 Corridor. The No-Build Alternate will not impact farms.

Alternate 2 (TSM/TDM Alternate)

Alternate 2, TSM/TDM Alternate, will include enhancements of existing services or conversions of lanes from one use to another. These improvements, while improving the efficiency of existing roadways, is expected to have little effect on existing land use patterns and densities or future development trends. However, the addition of park and ride lots in Frederick County at the intersections of US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road will result in changes from agricultural to developed land uses. The TSM/TDM Alternate is expected to have a slight effect on parking area development plans due to the additional planned development associated within the interchange vicinities.

Alternates 3A/B, 4A/B and 5A/B/C

County plans for future land use and development densities, in part, are supported by increased traffic capacity. Alternates 3A/B, 4A/B and 5A/B/C, consisting of various transitway and highway components, will provide a greater level of access for the existing and planned developments in the I-270/US 15 Corridor. However, the overall pattern of existing and planned land uses in the Corridor will not be substantially altered by any of the proposed alternates.

The build alternates are consistent with local master plans that have incorporated proposals for the extension of transit service between the Shady Grove Metro Station and COMSAT. In general, existing zoning and development patterns and plans, such as for King Farm, have already responded to the potential for a transit facility through the project area and will support the densities appropriate for transit station area development. Also, according to master plan documents for Montgomery and Frederick counties, many areas that are presently in agricultural use are planned for development. Some of these agricultural areas, such as King Farm and Crown Farm, are already being converted to residential, commercial and office/employment uses.

Existing and future residential developments near the proposed transit stations will be able to advertise the LRT or BRT as an added amenity. This could improve retention of existing residents and help attract new residents.

<u>Highway Alignment</u>

The highway alignments generally involve the addition of travel lanes immediately on the outside or within the median of the existing highway. The I-270/US 15 highway corridor is already fully access-controlled and interchanges with state routes already exist.

Land use around the proposed four interchanges is predominantly agricultural but construction at some locations, in particular the US 15/Trading Lane interchange (Frederick County), where development plans indicate a proposed North Gate Plaza shopping center (refer to plan sheet **HWY 14** in **Volume 2 of 2, Chapter XI**), exhibit the beginning stages of transition to commercial uses. The proposed interchanges would support the already-planned development of the agricultural land surrounding the proposed interchange locations. Access to the proposed North Gate Plaza would be on Trading Lane (Extended) and the highway alignment is not expected to impact access into the development.

Table III-6 indicates impacts on existing agricultural land from the highway alignment. Although a majority of the agricultural land within the project area in Montgomery County is zoned for future residential or office development under the various master plans, their existing land use designations remain agricultural. Therefore, in Montgomery County, the highway alignment will impact approximately 26 acres of farmland under Alternates 3A/B and 4A/B and approximately 29 acres under Alternates 5A/B/C. In Frederick County, the highway alignment will impact 70 acres of farmland under Alternates 3A/B and 4A/B and approximately 77 acres under Alternates 5A/B/C.

Access impacts to existing neighborhoods, community facilities and businesses from the proposed highway alignments are limited due to the nature of existing I-270 as a fully access-controlled interstate highway. Negative impacts to business access are generally counted as displacements in the business displacement section of this document (refer to **Section III.B.1.e**). However, the highway component of Alternate 5C will impact the parking lot and traffic flow at the US Department of Health and Human Services building located east of I-270, north of I-370. The US 15/Biggs Ford Road interchange will precipitate a change of access for the Birely-Roelkey (historic) farmstead located south of Biggs Ford Road and for the commercial businesses located north of Biggs Ford Road.

SHA and MTA will coordinate with Montgomery County as well as individual property owners and businesses during later stages of this project to discuss access changes and potential replacement parking.

TABLE III-6
FARMLAND IMPACTS (HIGHWAY AND TRANSITWAY ALIGNMENTS)

Property	Location	Total Acreage	Farmland Impacts (Acres)	
			Alternates 3A/B and 4A/B	Alternates 5A/B/C
Highway Alignment				
Montgomery County				
	East of I-270 and West of MD 355	47.42	1.40	2.18
	West of I-270 and Southwest of Peach Tree Road	297.4	5.60	7.37
	East of I-270 and West of MD 355	2.12	0.70	0.70
	East of I-270 and West of MD 355	4.00	1.80	1.80
	Northeast of I-270 and West of MD 355	101.64	7.80	8.10
	West of I-270 and South of Comus Road	39.42	1.10	1.40
	West of I-270 and North of Clarksburg Road	64.35	0.70	0.70
	East of I-270 and South of West Old Baltimore Road	208.51	7.15	7.15
Frederick County				
15-2	West of US 15 and South of Sundays Lane	161.31	18.24	18.24
15-1	East side of Willow Brook Road at US 15	186.00	6.43	6.43
15-4	Southeast portion of Biggs Ford Road at US 15	107.57	21.09	21.09
14-32	East of US 15 and South of Biggs Ford Road	138.14	0.17	0.17
10-15	East of I-270 and North of Baker Valley Road	217.44	1.65	2.32
10-4	East of I-270 and North of Baker Valley Road	23.22	0.25	0.37
9-33	West of I-270 and North of Baker Valley Road	28.00	1.20	1.67
9-15	East of I-270 and West of Araby Church Road	96.22	0.24	0.73
9-31	East of I-270 and West of Araby Church Road	56.61	0.86	1.37
9-19	Southwest of I-270 and North of Fingerboard Road	21.00	1.08	1.62
9-36	Northeast of I-270 and Northwest of Park Mills Road	24.19	0.39	0.74
9-25	South of I-270 and North of Park Mills Road	171.04	0.09	0.36
9-24	Northeast of I-270 and Southwest of Urbana Pike	97.83	0.59	1.31
8-7	Northeast of I-270 and Southwest of Urbana Pike	139.72	5.33	6.03
8-6	Southwest of I-270 and Southeast of Thurston Road	142.94	0.87	1.61
8-5	Southwest of I-270 and Southeast of Thurston Road	199.97	0.50	0.93
8-11	Southwest of I-270 and Northeast of Dixon Road	29.86	0.51	0.83
7-11	East of I-270 and West of Dr. Perry Road	13.00	9.96	10.00
7-10	Southwest of I-270 Southeast of Dr. Perry Road	20.25	0.60	0.96
Total Highway Alignment Montgomery County		**764.86**	**26.25**	**29.40**
Total Highway Alignment Frederick County		**1,874.31**	**70.05**	**76.78**
Total Highway Alignment I-270/US 15 Corridor		**2,639.17**	**96.30**	**106.18**
Transitway Alignment				
Montgomery County				
	South of Fields Road and West of Omega Drive	21.77	2.9	2.9
	South of Fields Road and East/Northeast of Shadybrook Drive	33.36	7.9	7.9
	South of Fields Road and East of Sam Eig Highway	75.80	9.9	9.9
	East of I-270 and South of West Old Baltimore Road	208.51	15.6	15.6
Total Transitway Alignment		**339.44**	**36.30**	**36.30**

Transitway Alignment

The transitway alignment generally follows existing roadways and is expected to strengthen future land use patterns by improving access to activity and employment centers and supporting the development plans now underway.

There are several developments planned or currently under construction along the transitway alignment. For instance, there are office buildings under construction in the vicinity of the DANAC Station and new development associated with the Johns Hopkins Belward Campus at the Decoverly Station. However, the current transitway alignment conflicts with proposed plans for several future developments in five locations. Particular coordination between the project team and area developers is ongoing to modify design plans in relation to these properties:

- Shady Grove Metro Station connection with the transitway alignment.
- A stormwater management facility, associated with the new residential development at High Gables Avenue and Great Seneca Highway, is located in the area proposed for the School Drive Station.
- Current development plans for the MedImmune property show proposed office and research/development uses, in the location or vicinity of the proposed Quince Orchard Park/Sioux Lane Station.
- The vicinity of the proposed Germantown Center Station already contains a newly constructed restaurant and other commercial uses in the area proposed for the transit alignment.
- The vicinity of COMSAT has existing development that will require further coordination regarding its location in relation to the transitway alignment.

Although a majority of the agricultural land within the project area in Montgomery County is zoned for future residential or office development under the various master plans, their existing land use designations remain agricultural. Therefore, in Montgomery County, the transitway alignment will impact 36 acres of farmland under Alternates 3A/B, 4A/B and 5A/B/C. The transitway alignment will not impact Frederick County farmlands. **Table III-6** indicates impacts on existing agricultural land from the transitway alignment.

The transitway alignment will impact access to government buildings and businesses in the following locations (refer to plan sheets **TRAN 4** and **TRAN 5** in **Volume 2 of 2, Chapter XI**):

- Businesses and NIST entrances along MD 124
- In the vicinity of the proposed Middlebrook Station
- The US Department of Energy building, parking lot and access road
- In the vicinity of the Germantown Station
- Parking lots and access roads to businesses in the I-270 Corporate Center

The project team will continue to coordinate with surrounding municipalities concerning land use policies. SHA and MTA will also continue discussions with area property owners and

businesses adjacent to the alignment to coordinate future development plans and prevent or minimize disruptions to parking, access or operations. The coordination efforts among these groups are important as the planned transitway alignment, stations and yard/shop facilities may have impacts on other planned projects.

Other Facilities

Transit Stations

Eighteen transit stations are proposed along the transitway alignment (see **Figure II-1** in **Chapter II**). All station areas are proposed within the 2025 timeframe and are developed or under development except the Crown Farm, First Field, Middlebrook and Manekin stations. The Washingtonian Station is presently farmland, but is planned for mixed-use (office/research and residential) development according to the master plan for the area. The Manekin Station is presently a vacant field and is planned for future office development.

Future development trends within the project area are well established. Major residential and/or commercial development is projected to occur within approximately ½-mile radius from station sites (refer to the engineering plans in **Volume 2 of 2, Chapter XI**). The proposed transitway alignment will bring a large number of transit users into the Shady Grove Metro Station area and, accordingly, will concentrate transit-oriented development around parking and station sites where the potential already exists. For instance, the King Farm Stations (East Gaither and West Gaither) have the potential to serve as a transit hub, incorporating a number of transportation and other enhancements in and around the station area while serving as a catalyst for commercial and retail development, as well as encouraging community cohesion and expanding service.

Currently, residential and commercial development is proposed or has been completed near the following station sites: East Gaither and West Gaither stations (mixed-use development under construction), DANAC Station (office complex under construction), Decoverly Station (research and development/office complex under construction), School Drive Station (recently constructed residential complex), Quince Orchard Park/Sioux Lane Station (proposed research and development/office uses), and Germantown Center Station (commercial uses under construction). The proposed transitway alignment would support new and proposed development surrounding these transit stations.

Transitway Yard/Shop Facilities

As discussed in **Chapter II**, several of the proposed transitway yard/shop facilities were eliminated from further consideration due to substantial environmental and operational issues. The following discusses the impacts of the sites retained for further study:

Shady Grove

Site 1 – Vicinity of Indianola Drive and CSX/Metro Railroad Tracks. This site has been retained for detailed study and with new track construction, will offer direct track connection between the proposed transitway yard/shop facility and existing revenue service trips. The impacts to this area consist of property acquisition of a vacant lot, Beltway Cable Service (storage and

infrastructure), Paramount Construction, a car storage lot and a car dealership; however, this area is slated for redevelopment by the county.

Site 3 – Vicinity Shady Grove Road and Crabbs Branch Way (behind existing buildings). This site has been retained for detailed study for the following reasons: (1) presently, the site has few structures; (2) the site appears to have adequate space for access into and out of the proposed yard/shop facility; and (3) a smart growth development plan for this site was developed through a design charrette with the community, conducted by M-NCPPC. Using this site would reduce the number of available parking spaces for the County DPW&T maintenance facility, M-NCPPC Maintenance Department facility, and County school bus parking facilities.

Site 5 – Intersection of Frederick Road and King Farm Boulevard. This site has been retained for detailed study and is located south of existing CSX/Metro tracks. The selection of this site would eliminate existing and proposed parking and preclude future transit-related, high-density development for the area.

Metropolitan Grove Area Sites

Site 2A – North of CSX Railroad Tracks and Game Preserve Road. Site 2A has been retained for further study as it is located adjacent to the existing CSX tracks (near the proposed transit alignment) and incurs minimal impacts to the transmission lines/towers. The selection of this site would displace several existing residences as well as a proposed residential development located to the south.

Site 4 – Under PEPCO Transmission Lines, East of Game Preserve Road. This site is has been retained for detailed study and is located in a wooded, less visible location. However, using this site would reduce the amount of wooded area.

Site 5 – Adjacent to PEPCO Transmission Lines, South of the CSX Railroad Tracks. Site 5 has been retained for detailed study and is situated adjacent to Site 4. Both of these proposed facilities are located in a wooded area with less visibility than previous locations. Impacts would include residential displacements and a reduction in wooded area.

COMSAT Area Sites

Site 2 – Gateway Center Drive and Shawnee Lane. This site has been retained for detailed study and appears to be vacant of existing structures although the selection of this site would impact a wooded area.

Site 4 – Northeast Side of Shawnee Lane. This site has been retained for detailed study although the selection of this site would impact building structures, parking and some wooded areas.

<u>Park and Ride Lots</u>

Like the transit-related development potential at stations, areas near proposed park and ride lots would also likely experience development opportunities brought on by new transportation accessibility. The development around park and ride lots have been accounted for in the master plan. Two of the three proposed park and ride lots are located in vacant areas where suitable

land exists for development and are located where development potential is strong. The *City of Frederick Comprehensive Plan* (August 1995) indicates that the US 15/MD 26 area is proposed for "Limited Industrial/Trades" land uses and the US 15/Trading Lane area is proposed for "General Commercial" land uses (bordered by a Conservation area extending to the Frederick City line). Any future developments would be bolstered by increased transportation access and most likely joined by other local commercial/service establishments, which would develop to meet the new market demand around the park and ride lots.

The third park and ride location, US 15/Biggs Ford Road, is proposed to remain Agricultural/Rural land uses and the addition of a park and ride location will precipitate land use changes from agricultural to transportation uses. The Agricultural/Rural designation includes areas of active farmland, pasture land, cropland as well as the rural environs associated with active agricultural activities. Though the *Frederick County Comprehensive Plan* (October 1998) does not identify this area as an Agricultural Preservation District, subject to special protection measures, the Plan does emphasize the importance of protecting the county's agricultural lands, to the extent feasible. In this regard, the proposed park and ride location at US 15/Biggs Ford Road runs counter to Frederick County's future land use plan and does not support the county's attempt to reduce the loss of its agricultural resources.

B. SOCIAL ENVIRONMENT

1. Population and Housing

Table III-7 presents population and household data for the region, Montgomery County and Frederick County that are discussed in the following sections.

a. Metropolitan Washington Region

The Metropolitan Washington Region grew by approximately 13% during the period from 1990 to 2000, from approximately 3.9 million to 4.4 million people. Population in Washington, DC declined during this period, while each of the remaining jurisdictions in the region experienced population increases. Regional population is forecast to increase by 32% between 2000 and 2025, reaching 5.9 million in 2025.

The Maryland Department of Planning (MDP) indicates that the number of households in the suburban Washington Region (Frederick, Montgomery and Prince George's counties) increased by 13% as well between 1990 and 2000, with average household size in the region declining slightly from 2.71 to 2.66 persons per household. No information is available for 2025 household size, however, a continued decline in average household size is anticipated.

TABLE III-7
POPULATION AND HOUSEHOLD CHARACTERISTICS
(IN ROUNDED MILLIONS)

	1990	2000	2010	2020	2025	% Change 1990-2025
Metropolitan Washington Region						
Population	3.9	4.4	5.1	5.7	5.9	50%
Number of Households	1.5	1.7	1.9	2.2	2.3	56%
Average Household Size*	2.71	2.66	2.60	2.57	N/A	--
Montgomery County						
Population	.76	.86	.95	1.0	1.02	35%
Number of Households	.28	.32	.36	.39	.40	43%
Average Household Size*	2.65	2.67	2.61	2.50	2.50**	--
Frederick County						
Population	.14	.20	.24	.28	.30	100%
Number of Households	.053	.07	.09	.11	.12	126%
Average Household Size*	2.65	2.68	2.63	2.50	N/A	--

Notes: *N/A = Not Available*
** Maryland Department of Planning (as of June 1999)*
Sources: *Metropolitan Washington Council of Governments (MWCOG) Cooperative Round 6.2 Cooperative Forecasting (adopted April 2000).*

b. Montgomery County

Montgomery County population grew by approximately 13% during the period from 1990 to 2000, from approximately 757,000 to 855,000 people. County population is forecast to increase by almost 19% between 2000 and 2025, surpassing one million persons in 2025. The number of households is expected to increase by 25% between 2000 and 2025. County household size is expected to decline slowly between 1990 through 2025.

The majority (37%) of individuals in 2000 were age 20-44 years and approximately 10.3% are 65 years or older. Data from the Maryland Department of Planning (MDP) indicate that the number of individuals age 65 years or older is expected to increase by 71,250 persons, or 76%, by 2020.

Montgomery County issued 2,854 housing construction permits during 1999, compared with 2,378 in 2000 (a decline of 16.7%). The greatest increase in construction permits occurred between 1997 and 1998 (54.8%). In 1997, the County contained 311,135 housing units of which 52% were detached single-family units, 17% townhouses, almost 21% apartments, and 10% condominiums. The median price for all single-family housing (both detached units and townhouses) increased 20.6% ($170,000 to $205,000) between 1990 and 1999 (Montgomery County, *Inventory of Affordable Housing*, 2000). Multi-family condominiums are frequently the least expensive housing choice in the County with a 1999 median price of $97,500 for existing units.

c. Frederick County

Frederick County population grew by approximately 30% during the period between 1990 and 2000, from approximately 150,000 to 195,000 people. County population is forecast to increase by 50% between 2000 and 2025, surpassing 300,000 persons in 2025. The number of households is expected to increase by 71% between 2000 and 2025. Frederick County is expected to experience steadily decreasing household size from 2.65 to 2.50 between 1990 through 2020.

The majority (38%) of individuals in 2000 were age 20-44 years and approximately 9.5% were 65 years or older. Data from the Maryland Department of Planning indicates that the number of individuals age 65 years or older is expected to increase by 22,290 persons, or 122%, between the years 2000 and 2020.

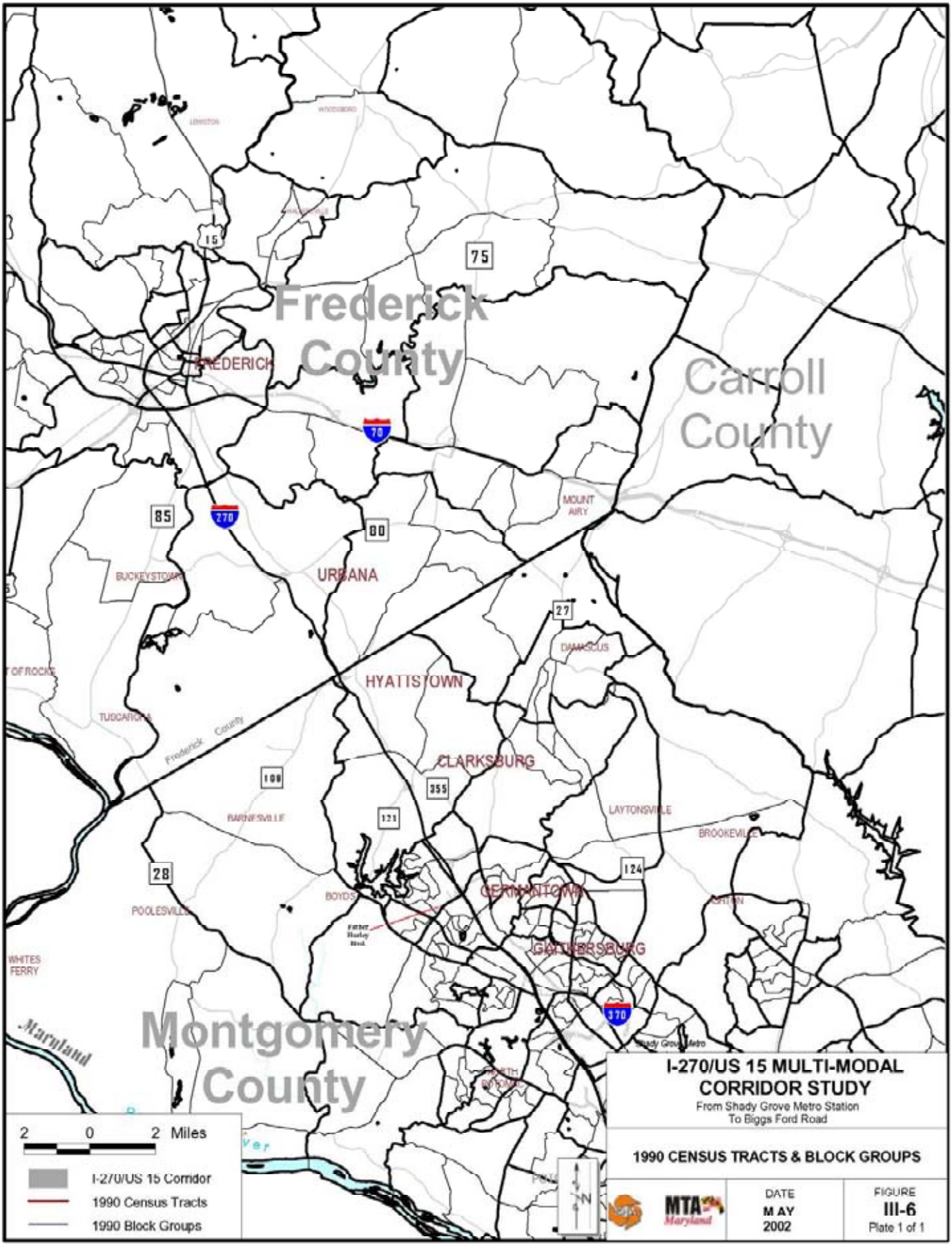
Frederick County had more than 74,300 housing units with 2,644 new homes authorized for construction during 1999. The 1990s exhibited an average of 55% detached single-family units while townhouses, apartments, and other multi-family housing have increased to 45% of the housing stock. The *Frederick County Comprehensive Plan* (1998) lists the average cost of a home in Frederick County in 1995 was $139,505.

d. Project Area

Baseline demographic information was obtained from the 1990 US census. The demographic analysis used census data that is presented for census tracts and block groups that represent geographic areas. Census tracts are sub-areas of counties and block groups are sub-areas of census tracts. **Figure III-6** illustrates the 1990 census tracts and block groups that encompass the I-270/US 15 Corridor.

In 1990, the project area contained 7.3% of persons 65 years and older. Numerically, the elderly population is largest in census tract 7007.07.9 (1,684 persons), located in the vicinity of MD 124 in Gaithersburg, and is the same census tract with the largest disabled and low-income populations. Census tracts 7506.3 and 7508.5, located on the east side of I-270 in the City of Frederick, had two of the highest proportions of elderly populations at 44.7% and 36.6%, respectively. **Table III-8** and **Figure III-7** illustrate the 1990 census tracts (shaded) with higher percentages of elderly residents than within the project area (7.3%).

Right-of-way will be required in census block group 7007.07.9 (containing the largest number of elderly persons). Right-of way will be required and two residences displaced in census block group 7506.3 (containing the highest proportion of elderly populations). There would be minor noise and visual impacts. Similar right-of-way, noise and visual impacts would occur at block group 7508.5 (containing the second highest proportion of elderly populations). Noise walls are being considered to mitigate the anticipated noise and visual impacts.


Frederick County
Carroll County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GAITHERSBURG
GERMANTOWN
MOUNT AIRY
DAMASCUS
LAYTONSVILLE
BROOKEVILLE
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
BUCKEYSTOWN
TUSCARORA
Maryland
Frederick County
2 0 2 Miles
I-270/US 15 Corridor
1990 Census Tracts
1990 Block Groups
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
1990 CENSUS TRACTS & BLOCK GROUPS
MTA Maryland
DATE
MAY
2002
FIGURE
III-6
Plate 1 of 1

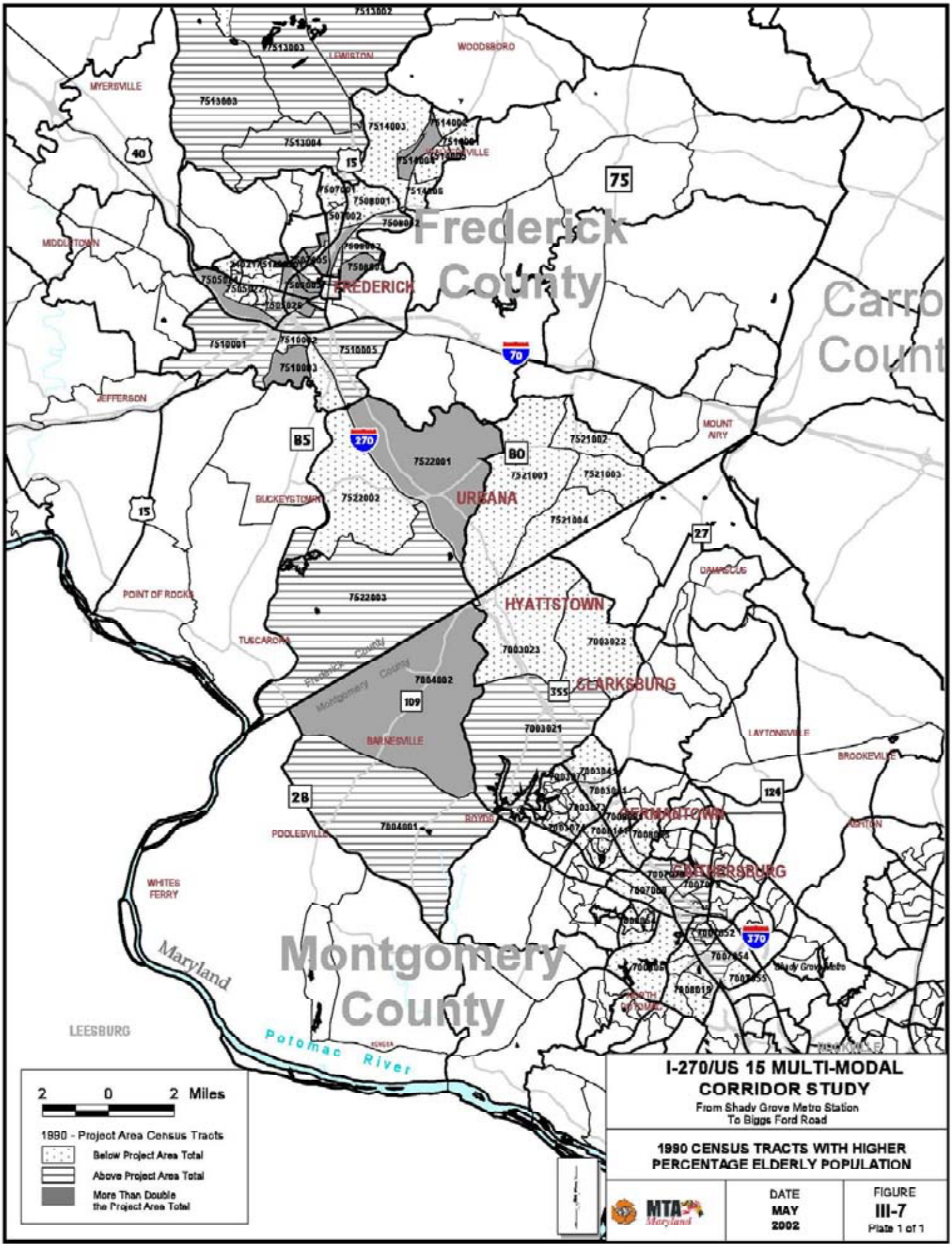

Frederick County
Montgomery County
Maryland
Potomac River
FREDERICK
URBANA
HYATTSTOWN
GERMANTOWN
GAITHERSBURG
CLARKSBURG
MIDDLETOWN
MYERSVILLE
WOODSBORO
LEWISTON
JEFFERSON
BUCKEYSTOWN
POINT OF ROCKS
TUSCARORA
BARNESVILLE
POOLESVILLE
WHITES FERRY
LEESBURG
MOUNT AIRY
DAMASCUS
LAYTONSVILLE
BROOKEVILLE
ASHTON
BOYDS
2 0 2 Miles
1990 - Project Area Census Tracts
Below Project Area Total
Above Project Area Total
More Than Double the Project Area Total
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station To Biggs Ford Road
1990 CENSUS TRACTS WITH HIGHER PERCENTAGE ELDERLY POPULATION
MTA Maryland
DATE MAY 2002
FIGURE III-7
Plate 1 of 1

TABLE III-8
1990 ELDERLY POPULATION

Montgomery County				
Census Tract	**Block Group**	**Population**	**Elderly**	**Percent Elderly**
700302	1	1,091	119	10.9%
700302	2	1,022	54	5.3%
700302	3	922	66	7.2%
700304	1	465	29	6.2%
700307	1	3,134	60	1.9%
700307	2	1,720	40	2.3%
700307	3	2,414	37	1.5%
700307	4	3,260	70	2.1%
7004	1	848	78	9.2%
*7004	2	1,186	187	15.8%
700705	1	1,212	88	7.3%
700705	2	1,339	40	3.0%
700705	3	2,894	44	1.5%
700705	4	773	56	7.2%
700705	5	0	0	0.0%
700706	9	2,835	86	3.0%
700707	1	3,333	301	9.0%
700707	9	11,601	1,684	14.5%
700801	9	8,860	382	4.3%
700805	1	1,493	90	6.0%
700805	2	817	14	1.7%
700805	3	1,088	19	1.7%
700805	4	1,136	51	4.5%
700805	5	2,537	77	3.0%
700806	1	2,550	71	2.8%
700808	1	757	34	4.5%
700808	2	2,933	87	3.0%
700808	3	1,699	41	2.4%
700814	1	1,841	47	2.6%
700814	2	856	0	0.0%
700814	3	1,378	19	1.4%
700814	4	988	22	2.2%
700814	5	1,411	37	2.6%
700814	6	2,501	10	0.4%
700814	7	1,101	22	2.0%
700814	8	975	9	0.9%
Block Groups		**74,970**	**4,071**	**5.4%**
Montgomery County		**757,027**	**77,491**	**10.3%**

TABLE III-8 (CONTINUED)
1990 ELDERLY POPULATION

Frederick County				
Census Tract	**Block Group**	**Population**	**Elderly**	**Percent Elderly**
7501	1	1,001	101	10.1%
7501	2	857	100	11.7%
*7504	1	1,149	350	30.5%
*7504	2	913	135	14.8%
7504	3	1,933	165	8.5%
750501	1	1,050	15	1.4%
750501	2	980	48	4.9%
750501	3	577	43	7.5%
750501	4	1,506	11	0.7%
750501	5	927	0	0.0%
750501	6	1,080	33	3.1%
*750501	7	916	202	22.1%
*750502	1	270	56	20.7%
750502	2	802	0	0.0%
750502	3	1,342	25	1.9%
750502	4	1,842	46	2.5%
750502	5	1,342	27	2.0%
750502	6	339	27	8.0%
7506	1	1,291	169	13.1%
*7506	2	801	201	25.1%
*7506	3	781	349	44.7%
7507	1	1,303	91	7.0%
7507	2	1,753	56	3.2%
*7507	3	1,842	350	19.0%
7507	4	904	39	4.3%
*7507	5	1,065	267	25.1%
7508	1	1,239	8	0.6%
7508	2	1,489	170	11.4%
*7508	3	738	131	17.8%
7508	4	868	105	12.1%
*7508	5	656	240	36.6%
*7508	6	1,418	331	23.3%
7510	1	1,632	135	8.3%
7510	2	1,502	17	1.1%
*7510	3	1,672	435	26.0%
7510	4	849	9	1.1%
7510	5	802	108	13.5%
7513	1	104	0	0.0%
7513	2	1,326	146	11.0%
7513	3	3,004	255	8.5%
7513	4	1,263	164	13.0%

TABLE III-8 (CONTINUED)
1990 ELDERLY POPULATION

Frederick County				
Census Tract	**Block Group**	**Population**	**Elderly**	**Percent Elderly**
7514	1	1,616	97	6.0%
7514	2	1,669	35	2.1%
7514	3	594	27	4.5%
*7514	4	1,206	230	19.1%
7514	5	1,161	31	2.7%
7514	6	1,300	17	1.3%
7521	1	1,347	47	3.5%
7521	2	1,089	25	2.3%
7521	3	1,566	68	4.3%
7521	4	2,292	73	3.2%
*7522	1	1,174	177	15.1%
7522	2	1,209	27	2.2%
7522	3	662	86	13.0%
Block Groups		**64,013**	**6,100**	**9.5%**
Frederick County		**150,208**	**14,209**	**9.5%**
Project Area Total		**138,983**	**10,171**	**7.3%**

***Source**: 1990 Census*
***Notes:** "Elderly" populations are defined as persons age 65 years or older.*
Shaded rows exceed the percentage of elderly population for the project area.
** Denotes a percentage of elderly population more than double the percentage in the project area.*

The 1990 Census indicated that 4,496 disabled persons were residing within the project area representing 3.2% of the total population. Frederick County was home to just over half of these (2,262) and Montgomery County was home to the remaining 2,234. These persons accounted for 3.5% and 3.0% of the counties' populations, respectively. The largest number of disabled persons was found in census tract 7007.07.9 (506) in the vicinity of MD 124 in Gaithersburg. However, this tract also had the largest total population. Census tract 7508.5 in the City of Frederick and census tract 7007.05.1 in Gaithersburg had the highest percentages of disabled persons with 16.8% and 10.1%, respectively. **Table III-9** and **Figure III-8** present 1990 census tracts (shaded) with higher percentages of disabled residents than within the project area (3.2%).

No impacts are expected to disabled populations in census block group 7007.07.9 (containing the largest number of disabled persons). Some right-of-way impacts would occur in block group 7508.5 (containing the highest percentage of disabled persons); however, these impacts would not affect the use of the properties. Noise and visual impacts would also occur at block group 7508.5 as well as 7007.05.1. Noise barriers are proposed to mitigate these impacts.

The Environmental Justice discussion in **Section III.B.2** provides information on minority and low-income populations in the project area.

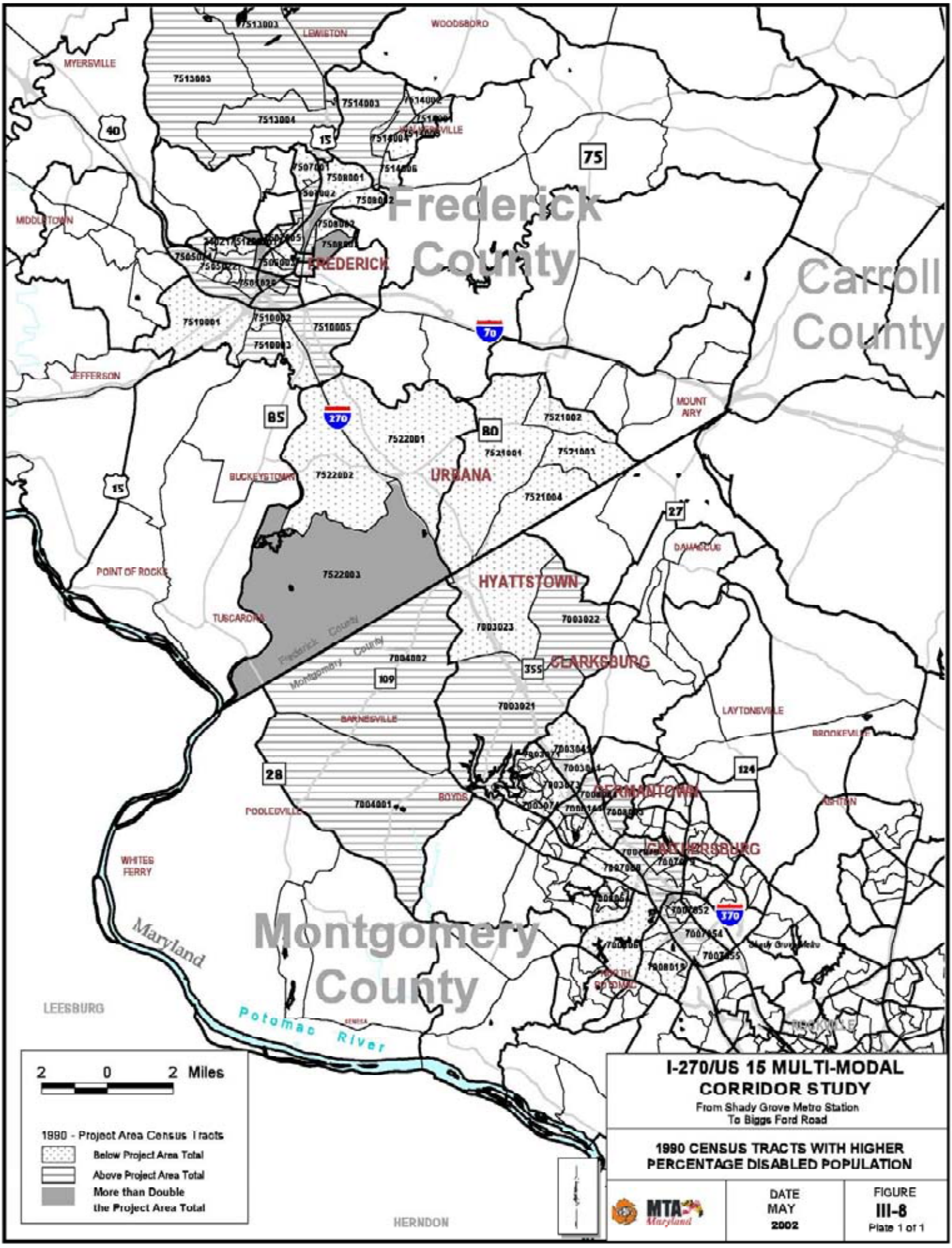

Frederick County
Carroll County
Montgomery County
Maryland
Potomac River
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
MYERSVILLE
LEWISTON
WOODSBORO
MIDDLETOWN
JEFFERSON
BUCKEYSTOWN
POINT OF ROCKS
TUSCARORA
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
LEESBURG
DAMASCUS
MOUNT AIRY
LAYTONSVILLE
BROOKEVILLE
ASHTON
NORTH BETHESDA
ROCKVILLE
HERNDON
2 0 2 Miles
1990 - Project Area Census Tracts
Below Project Area Total
Above Project Area Total
More than Double the Project Area Total
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station To Biggs Ford Road
1990 CENSUS TRACTS WITH HIGHER PERCENTAGE DISABLED POPULATION
MTA Maryland
DATE MAY 2002
FIGURE III-8
Plate 1 of 1

TABLE III-9
1990 DISABLED POPULATION

Montgomery County				
Census Tract	**Block Group**	**Population**	**Disabled**	**Percent Disabled**
700302	1	1,091	39	3.6%
700302	2	1,022	54	5.3%
700302	3	922	4	0.4%
700304	1	465	4	0.9%
700307	1	3,134	4	0.1%
700307	2	1,720	30	1.7%
700307	3	2,414	49	2.0%
700307	4	3,260	33	1.0%
7004	1	848	39	4.6%
7004	2	1,186	59	5.0%
*700705	1	1,212	122	10.1%
700705	2	1,339	17	1.3%
700705	3	2,894	167	5.8%
700705	4	773	35	4.5%
700705	5	0	0	0.0%
700706	9	2,835	27	1.0%
700707	1	3,333	138	4.1%
700707	9	11,601	506	4.4%
700801	9	8,860	257	2.9%
700805	1	1,493	69	4.6%
700805	2	817	22	2.7%
700805	3	1,088	8	0.7%
700805	4	1,136	54	4.8%
700805	5	2,537	47	1.9%
700806	1	2,550	73	2.9%
700808	1	757	39	5.2%
700808	2	2,933	61	2.1%
700808	3	1,699	58	3.4%
700814	1	1,841	86	4.7%
700814	2	856	9	1.1%
700814	3	1,378	10	0.7%
700814	4	988	11	1.1%
700814	5	1,411	24	1.7%
700814	6	2,501	20	0.8%
700814	7	1,101	19	1.7%
700814	8	975	40	4.1%
Block Groups		**74,970**	**2,234**	**3.0%**
Montgomery County		**757,027**	**25,217**	**3.3%**

TABLE III-9 (CONTINUED)
1990 DISABLED POPULATION

Frederick County				
Census Tract	**Block Group**	**Population**	**Disabled**	**Percent Disabled**
7501	1	1,001	51	5.1%
7501	2	857	31	3.6%
*7504	1	1,149	73	6.4%
7504	2	913	48	5.3%
7504	3	1,933	64	3.3%
750501	1	1,050	63	6.0%
750501	2	980	17	1.7%
750501	3	577	31	5.4%
750501	4	1,506	44	2.9%
750501	5	927	0	0.0%
750501	6	1,080	53	4.9%
*750501	7	916	62	6.8%
750502	1	270	13	4.8%
750502	2	802	26	3.2%
750502	3	1,342	10	0.7%
750502	4	1,842	39	2.1%
750502	5	1,342	11	0.8%
750502	6	339	12	3.5%
7506	1	1,291	19	1.5%
7506	2	801	26	3.2%
7507	1	1,303	35	2.7%
7507	2	1,753	82	4.7%
7507	3	1,842	95	5.2%
7507	4	904	15	1.7%
7507	5	1,065	55	5.2%
7508	1	1,239	16	1.3%
7508	2	1,489	0	0.0%
*7508	3	738	60	8.1%
7508	4	868	35	4.0%
*7508	5	656	110	16.8%
7508	6	1,418	59	4.2%
7510	1	1,632	19	1.2%
7510	2	1,502	42	2.8%
7510	3	1,672	97	5.8%
7510	4	849	25	2.9%
7510	5	802	46	5.7%
7513	1	104	0	0.0%
7513	2	1,326	58	4.4%
7513	3	3,004	120	4.0%
7513	4	1,263	57	4.5%

TABLE III-9 (CONTINUED)
1990 DISABLED POPULATION

Frederick County				
Census Tract	**Block Group**	**Population**	**Disabled**	**Percent Disabled**
7514	1	1,616	58	3.6%
7514	2	1,669	21	1.3%
7514	3	594	26	4.4%
7514	4	1,206	70	5.8%
7514	5	1,161	13	1.1%
7514	6	1,300	41	3.2%
7521	1	1,347	31	2.3%
7521	2	1,089	33	3.0%
7521	3	1,566	26	1.7%
7521	4	2,292	44	1.9%
7522	1	1,174	37	3.2%
7522	2	1,209	27	2.2%
*7522	3	662	54	8.2%
Block Groups		**64,013**	**2,262**	**3.5%**
Frederick County		**150,208**	**5,575**	**3.7%**
Project Area Total		**138,983**	**4,496**	**3.2%**

Source: *1990 Census*
Notes: *Disabled populations are defined as persons with self-care and mobility limitations.*
Shaded rows exceed the percentage of disabled population for the project area.
** Denotes a percentage of disabled populations more than double the percentage in the project area.*

e. Impacts and Mitigation Measures

Residential Displacements

Alternate 1 (No-Build Alternate)

The No-Build Alternate will not require any residential displacements.

Alternate 2 (The TSM/TDM Alternate)

The TSM/TDM Alternate will not require any residential displacements.

Alternates 3A/B, 4A/B and 5A/B/C

An analysis of the potential residential displacements that would result from each build alternate was based on preliminary right-of-way estimates. Residences that are located within the proposed right-of-way area required to construct the build alternates are counted as probable displacements. Also, residences that would be impacted in the following ways from the proposed construction are counted as displacements: access is denied, or the right-of-way required from the property is substantial that practical use of the property/structure would no longer be possible.

If a build alternate is selected, the number of actual displacements may vary slightly from those presented as a result of refinements in both the design and right-of-way requirements during the detailed engineering phase of this project. For the purposes of determining the proposed displacements, the following criteria/assumptions were used:

- **Proposed Right-of-Way**
  Preliminary impacts were based on the proposed right-of-way line that runs though properties/structures along the corridor. The proposed right-of-way was based on both a 10-foot and a 25-foot buffer beyond the proposed cut/fill line or retaining wall

- **Minimum/Maximum Structure Displacement**
  In assessing structural impacts/displacements, the following assumptions were made for townhomes or multiple unit structures along I-270 and US 15:
  - Minimum Structure Displacement: only those units directly impacted by the proposed right-of-way line would be displaced (i.e., if the proposed right-of-way line impacts three units of a ten unit townhouse, this would result in three residential displacements). Detailed field constructability reviews were not performed to assess the feasibility of preserving units in these structures. This methodology was developed for the purposes of impacts estimates.
  - Maximum Structure Displacement: all units in a townhouse would be displaced if the townhouse were impacted by the proposed right-of way line (i.e., if the proposed right-of-way line impacts three units of a ten unit townhouse, this would result in ten residential displacements).

- **Proposed Retaining Walls**
  Retaining walls were proposed along the corridor in order to reduce structure impacts. The approximate lengths and costs are included in the impacts discussion below. For cost estimating purposes, the following unit costs were used:

  Retaining Wall Construction

Less than 8 feet:	$400/square yard
8 feet to 12 feet:	$450/square yard
Greater than 12 feet:	$600/square yard

  Contingency: 35%

  Administrative/Overhead (Percentage of Neat Construction Costs)

Construction:	15.3%
Preliminary Eng.:	7.0%

Table III-10 summarizes the highway and transitway residential displacements by alternate. The locations of displacements required for each alternate are identified on the engineering plans in **Volume 2 of 2, Chapter XI**.

TABLE III-10
SUMMARY OF RESIDENTIAL DISPLACEMENTS

Location	Plan Number*	Alternates	Displacements without Retaining Wall[1]	Displacements with Retaining Wall[1]
Highway Residential Displacements				
I-270 Southbound North of I-370 Brighton West Townhouses	HWY 1	3A/B, 4A/B, 5A/B/C	61-81 residences	50-81 residences
I-270 Northbound North of I-370 (with I-370 direct access ramps)	HWY 1	5C	87-144 residences	68-120 residences
I-270 Northbound South of MD 117	HWY 1, 2	5C	32-117 residences	0 residences
I-270 Southbound South of Great Seneca Creek/ Game Preserve Rd.	HWY 2	3A/B, 4A/B, 5A/B/C	1 residence[2]	0 residences [2]
I-270 Northbound South of Middlebrook Road interchange along Staleybridge Road	HWY 3	3A/B, 4A/B, 5A/B/C	26-35 residences	9-13 residences
I-270 Northbound South of Comus Road	HWY 6	3A/B, 4A/B	1 residence	0 residences
I-270 Northbound South of Comus Road	HWY 6	5A/B/C	1-2 residences	0 residences
I-270 Southbound South of Comus Road	HWY 6	3A/B, 4A/B, 5A/B/C	1 residence	0 residences
I-270 Southbound North of MD 80 interchange Fingerboard Road Residence	HWY 9	3A/B, 4A/B, 5A/B/C	0-1 residence	0 residences
US 15 Northbound South of Rosemont Ave. Mercer Place Residences	HWY 13	3A/B, 4A/B, 5A/B/C	0-2 residences	0-2 residences
US 15 Southbound North of Rosemont Avenue along Biggs Avenue	HWY 13	3A/B, 4A/B, 5A/B/C	1 residence	0 residences
Total Highway Residential Displacements	*N/A*	*3A/B, 4A/B*	*91-123 residences*	*59-96 residences*
Total Highway Residential Displacements		*5A/B*	*91-124 residences*	*59-96 residences*
Total Highway Residential Displacements		*5C*	*210-385 residences*	*127-216 residences*

TABLE III-10 (CONTINUED)
SUMMARY OF RESIDENTIAL DISPLACEMENTS

Location	Plan No.*	Alternates	Displacements without Retaining Wall[1]	Displacements with Retaining Wall[1]
Transitway Residential Displacements				
MD 124 Eastbound Between Great Seneca Highway and MD 117	TRAN 3	3A/B, 4A/B, 5A/B	1 residence	
I-270 Southbound South of Great Seneca Creek/ Game Preserve Road	TRAN 4	3A/B, 4A/B, 5A/B	1 residence[2]	
I-270 Southbound South of Middlebrook Road	TRAN 5	3A/B, 4A/B, 5A/B	3 residences	
Total Transitway Residential Displacements	*N/A*	*3A/B, 4A/B, 5A/B*	*5 residences*[2]	
Total Highway and Transitway Residential Displacements	*N/A*	*3A/B, 4A/B*	*95-127 residences*	*64-101 residences*
		5A/B	*95-128 residences*	*64-101 residences*
		5C	*210-385 residences*	*127-216 residences*

Notes:
1. *Preliminary impacts are based on both a 10-foot and a 25-foot buffer beyond the proposed cut/fill line or the proposed retaining wall, as well as an assessment of minimum/maximum structure displacements for townhouse units.*
2. *This residence along Game Preserve Road will be impacted by the proposed highway widening without a retaining wall and would be avoided if a retaining wall were constructed; however, the transitway alignment will impact this residence under all scenarios.*

Refer to plan sheets in **Volume 2 of 2, Chapter XI.*

Highway

Implementation of Alternates 3A/B and 4A/B would require the displacement of between 59 and 123 residences/townhouse units along the I-270/US 15 Corridor, depending upon the construction of retaining walls. The displacements occur in the following locations:

- *I-270 Southbound, North of I-370 (Brighton West Community)* **(HWY 1)** -- Sixty-one (61) to eighty-one (81) townhouse units would be displaced in this area. Construction of an approximately 2,300-foot retaining wall would reduce the residential impacts in this area from a maximum of 81 to a minimum of 50. This retaining wall could be used to reduce business impacts at the Festival at Muddy Branch shopping center, and would have a total cost of $4,308,115 for all alternates.
- *I-270 Southbound, South of Great Seneca Creek/Game Preserve Road* **(HWY 2)** -- One (1) single family residence would be displaced. Construction of an approximately 500-foot retaining wall would avoid displacing this residence, and would have a total cost of $1,294,100 for all alternates. This retaining wall could also be extended further north to reduce impacts to Seneca Creek State Park at a total cost of $5,746,559 for all alternates.

- *I-270 Northbound, South of Middlebrook Road (Fox Chapel Community)* **(HWY 3)** -- Twenty-six (26) to thirty-five (35) single family residences would be displaced in this area. Construction of approximately 3,000 feet of retaining walls would reduce the residential impacts in this area from 35 to a minimum of none (9). This retaining wall would have a total cost of $8,616,231 for all alternates.
- *I-270 Northbound, South of Comus Road* **(HWY 6)** -- One single family residence would be displaced. Construction of an approximately 200 foot retaining wall would avoid displacing this residence, and would have a total cost of $288,688 for alternates 3A/B and 4A/B.
- *I-270 Southbound, South of Comus Road* **(HWY 6)** -- One single family residence would be displaced. Construction of an approximately 200 foot retaining wall would avoid displacing this residence, and would have a total cost of $288,688 for all alternates.
- *I-270 Southbound, North of MD 80 Interchange along Fingerboard Road* **(HWY 9)** -- One (1) single family residence may be displaced in this area. Construction of an approximately 400 foot retaining wall would avoid displacing this residence, and would have a total cost of $333,102 for all alternates.
- *US 15 Northbound, South of Rosemont Avenue – Mercer Place Residents* **(HWY 13)** -- Up to two (2) single family residences may be displaced in this area. Construction of an approximately 1,000-foot retaining wall would potentially avoid displacing these residences, and would have a total cost of $444,136 for all alternates.
- *US 15 Southbound, North of Rosemont Avenue – Along Biggs Avenue* **(HWY 13)** -- One (1) single family residence would be displaced in this area. Construction of an approximately 500 foot retaining wall would avoid displacing this residence, and would have a total cost of $458,015 for all alternates.

Construction of retaining walls in various locations along the Corridor would reduce the overall highway residential impacts from between 91 and 123 residences/townhouse units to between 59 and 96 residences/townhouse units. The residence along Game Preserve Road on the southbound side of I-270, south of Great Seneca Creek would be preserved by constructing a retaining wall; however, the residence would still be displaced if the proposed transitway were constructed (also described in the transitway impacts section below).

Alternates 5A/B would include the same impacts described in Alternates 3A/B and 4A/B and would increase those impacts by one, to a maximum of 124 residences/townhouse units. The additional residential displacement is located along the northbound side of I-270, south of Comus Road (refer to plan sheet **HWY 6 in Chapter XI, Volume 2 of 2**). Construction of an approximately 300-foot retaining wall would avoid displacing this residence, and would have a total cost of $433,032.

Alternate 5C would impact between 210 and 385 residences/townhouse units, compared with the 91 to 124 residences/townhouse units described in Alternates 5A/B. These additional residential displacements are due to the proposed I-370 direct access ramps, and are located in the following areas:

- *I-270 Northbound, North of I-370 interchange* **(HWY 1)** -- Eighty-seven (87) to 144 townhouse units would be displaced in this area. Construction of an approximately 1,200-foot retaining wall would reduce the residential impacts in this area from 144 to 68, and would have a total cost of $3,739,067.

- *I-270 Northbound, South of MD 117* **(HWY 2B)** -- Thirty-two (32) to 117 townhouse units would be displaced in this area. Construction of an approximately 1,500 foot retaining wall could avoid displacing all of these units, and would have a total cost of $2,498,263.

Overall, retaining wall construction would avoid displacing up to 258 residences/townhouse units in Alternate 5C, resulting in 127 residential displacements.

Transitway

The transitway alignment between the Shady Grove Metro Station and COMSAT under Alternates 3A/B, 4A/B and 5A/B would displace five residences in the following locations:

- One single family residence along MD 124 eastbound between Great Seneca Highway and MD 117 (sheet **TRAN 3** in **Volume 2 of 2, Chapter XI**);
- One single family residence along Game Preserve Road on the southbound side of I-270, south of Great Seneca Creek (sheet **TRAN 4** in **Volume 2 of 2, Chapter XI**);
- Three single family residences on the southbound side of I-270, south of Middlebrook Road (sheet **TRAN 5** in **Volume 2 of 2, Chapter XI**).

Alternate 5C would not result in any transitway related residential displacements as the transitway alignment is not included in this alternate.

Affected property owners will receive relocation assistance in accordance with federal and/or state requirements depending on the funding source. The Federal Uniform Relocation Assistance and Land Acquisition Policies of 1970, as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, requires that the project shall not proceed into any phase that will cause the relocation of any persons or proceed with any construction project, until it has furnished assurances that all displaced persons will be satisfactorily relocated to comparable decent, safe and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced person. Payments for the cost of moving are also provided. The Federal Uniform Relocation Assistance and Land Acquisition Policies would be executed in a timely and humane fashion. Sufficient housing exists on the open market for relocation housing and can be completed with minimal effects to the economic well being of those directly affected by the project.

In the event comparable replacement housing is not available for displaced persons or available replacement housing is beyond their financial means, additional amounts will be provided through "housing as a last resort" to assure that comparable replacement housing will be available for displaced persons. Based on detailed information, it is anticipated that "housing as a last resort" would be utilized to accomplish the rehousing requirements for the build alternates

under consideration. **Volume 2 of 2, Appendix D** contains a "Summary of the Relocation Assistance Program of the State of Maryland" for further reference.

Title VI Statement

It is the policy of the SHA and MTA to ensure compliance with the provisions of Title VI of the Civil Rights Act of 1964, and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, sex, national origin, age, religion, physical or mental handicap or sexual orientation in all SHA and MTA programs and projects funded in whole or in part by the Federal Highway Administration and Federal Transit Administration. The SHA and MTA will not discriminate in highway or transit planning, design, construction, the acquisition of right-of-way, or the provision of relocation advisory assistance. This policy has been incorporated into all levels of the transportation planning process in order that proper consideration may be given to the social, economic and environmental effects of all transportation projects. Alleged discriminatory actions should be addressed to the Office of Equal Opportunity of the SHA and MTA at the following addresses for investigation:

Office of Equal Opportunity
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21201

Office of Equal Opportunity
Maryland Transit Administration
6 St. Paul Street
Baltimore, Maryland 21202

Business Displacements

Alternate 1 (No-Build Alternate)

The No-Build Alternate will not require business displacements.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate will not require business displacements.

Alternates 3A/B, 4A/B and 5A/B/C

An analysis of the probable business displacements that would result from each of the build alternates has been made based on preliminary right-of-way estimates. Businesses that are located within the proposed right-of-way area that would be required to construct the build alternates, or businesses that are denied access as a result of the proposed construction, are counted as probable displacements.

If a build alternate is selected, the number of actual displacements may vary slightly from that presented herein as a result of refinements in both the design and right-of-way requirements during the detailed engineering phase of this project. For the purposes of determining the proposed displacements, the same criteria/assumptions were used as for the residential displacements.

Table III-11 summarizes the highway and transitway business displacements by alternate.

TABLE III-11
SUMMARY OF BUSINESS DISPLACEMENTS

Location	Plan Number*	Alternates	Displacements without Retaining Wall[1]	Displacements with Retaining Wall[1]
Highway Business Displacements				
I-270 southbound, north of I-370 (Festival at Muddy Branch Shopping Center)	HWY 1	3A/B, 4A/B, 5A/B/C	2 businesses	0-2 businesses
I-270 southbound, north of I-370 with I-370 direct access ramps (Festival at Muddy Branch Shopping Center)	HWY 1	5C	1 business	1 business
I-270 southbound, north of MD 117	HWY 2	3A/B, 4A/B, 5A/B/C	1 business	0
I-270 northbound, north of Comus Road	HWY 6	5A/B/C	0-1 business	0
I-270 southbound at proposed MD 75 interchange	HWY 7	3A/B, 4A/B, 5A/B/C	1 business	1 business
I-270 southbound, south of MD 85	HWY 11	3A/B, 4A/B, 5A/B/C	1 business	0
I-270 southbound, south of MD 85	HWY 11	5C	0-1 business	0
I-270 northbound, northeast quadrant of MD 85 interchange	HWY 11	3A/B, 4A/B, 5A/B/C	N/A [2]	0 [2]
I-270 northbound, north of MD 85 interchange	HWY 11	3A/B, 4A/B, 5A/B/C	N/A [3]	0 [3]
I-270 northbound, south of I-70 interchange	HWY 11	3A/B, 4A/B, 5A/B/C	N/A [3]	0 [3]
US 15 southbound, north of MD 26 interchange along Thomas Johnson Dr.	HWY 14	3A/B, 4A/B, 5A/B/C	2-3 businesses	0
Total Highway Business Displacements	*N/A*	*3A/B, 4A/B*	*7-8 businesses*	*1-3 businesses*
		5A/B	*7-9 businesses*	*1-3 businesses*
		5C	*8-11 businesses*	*2-4 businesses*
Transitway Business Displacements				
MD 124 eastbound between Great Seneca Highway and MD 117	TRAN 4	3A/B, 4A/B, 5A/B	1 business	
North of MD 118 in Germantown Transit Center	TRAN 5	3A/B, 4A/B, 5A/B	2 businesses	
Total Transitway Displacements	*N/A*	*3A/B, 4A/B, 5A/B*	*3 businesses*	
Total Highway and Transitway Business Displacements	*N/A*	*3A/B, 4A/B*	*10-11 businesses*	*4-6 businesses*
		5A/B	*10-12 businesses*	*4-6 businesses*
		5C	*8-11 businesses*	*2-4 businesses*

Note:

[1] Preliminary impact ranges are based on a 10-foot and a 25-foot buffer beyond the proposed cut/fill line or the proposed retaining wall, as well as an assessment of minimum/maximum structure displacements for townhouses units.

[2] SHA has committed to the construction of a proposed retaining wall, a reduced shoulder width (4 feet), or other measures to avoid impacts to the structure at I-270 northbound station 1272.

[3] SHA has committed to the construction of proposed retaining walls or other measures to avoid impacts to the structures at I-270 northbound stations 1280 and 1301.

Refer to plan sheets in **Volume 2 of 2, Chapter XI.*

Highway Alignment

The highway components under Alternates 3A/B, 4A/B would displace up to a total of 8 businesses in the following locations. Construction of retaining walls would reduce the number of potential business displacements from 8 to one (1) businesses.

- Two businesses are on the southbound side of I-270, north of I-370 in the Festival at Muddy Branch Shopping Center (sheet **HWY 1 in Volume 2 of 2, Chapter XI**). Construction of an approximately 300-foot retaining wall may avoid displacing both businesses, at a cost of $578,598 for all alternates.
- One business in on the southbound side of I-270, north of MD 117 (sheet **HWY 2 in Volume 2 of 2, Chapter XI**). Construction of an approximately 1,200-foot retaining wall could avoid displacing this business, at a cost of $2,478,277 for all alternates.
- One business is on the southbound side of I-270, at the proposed MD 75 interchange (sheet **HWY 7 in Volume 2 of 2, Chapter XI**). Construction of a retaining wall would not avoid displacing this business.
- One business is on the southbound side of I-270, south of MD 85 (sheet **HWY 11 in Volume 2 of 2, Chapter XI**). Construction of an approximately 1,700-foot retaining wall could avoid displacing this business, at a cost of $2,661,483 for all alternates.
- One business is on the northbound side of I-270, in the northeast quadrant of the MD 85 interchange (sheet **HWY 11** in **Volume 2 of 2, Chapter XI**). SHA has committed to the construction of an approximately 1,000-foot retaining wall, at a cost of $666,203, a reduced shoulder width (4 feet), or other measures to avoid impacts to this structure and has included these items in the preliminary of the design of the proposed roadway improvements.
- One business is on the northbound side of I-270, in the north of the MD 85 interchange (sheet **HWY 11** in **Volume 2 of 2, Chapter XI**). SHA has committed to the construction of an approximately 600-foot retaining wall (at a cost of $266,481) or other measures to avoid impacts to this structure.
- One business is a commercial structure on the northbound side of I-270, south of the I-70 interchange (sheet **HWY 11** in **Volume 2 of 2, Chapter XI**). SHA has committed to the construction of an approximately 600-foot retaining wall (at a cost of $266,481) or other measures to avoid impacts to this structure.
- Two to three businesses are located on the southbound side of US 15, north of the MD 26 interchange, along Thomas Johnson Drive (sheet **HWY 14** in **Volume 2 of 2, Chapter XI**). Construction of an approximately 1,000-foot retaining wall would avoid displacing these businesses, at a cost of $675,456.

Alternates 5A/B would increase the highway impacts described above by a total of one additional business (for a total of up to nine (9) displacements), which would be displaced on the northbound side of I-270, north of Comus Road. Construction of an approximately 700-foot retaining wall would avoid displacing this business, at a cost of $433,032.

Alternate 5C would increase the highway impacts described in Alternates 5A/B up to a total of two additional businesses, which would be displaced in the following locations:

- One business is on the southbound side of I-270, north of I-370 in the Festival at Muddy Branch Shopping Center (sheet HWY 1 in Volume 2 of 2, Chapter XI). Construction of an approximately 1,400-foot retaining wall could avoid displacing both businesses, at a cost of $5,215,223 for all alternates.
- One business is on the southbound side of I-270, south of MD 85 (sheet **HWY 11 in Volume 2 of 2, Chapter XI**). Construction of an approximately 1,700-foot retaining wall could avoid displacing this business, at a cost of $2,661,483 for all alternates.

Transitway

The transitway alignment between the Shady Grove Metro Station and COMSAT under Alternates 3A/B, 4A/B and 5A/B would displace:

- One business along MD 124 eastbound between Great Seneca Highway and MD 117 (sheet **TRAN 4** in **Volume 2 of 2, Chapter XI**),
- Two businesses in the vicinity of the proposed Germantown Center Station, north of MD 118 (sheet **TRAN 5** in **Volume 2 of 2, Chapter XI**). This area contains two newly constructed restaurants and other commercial uses in the area proposed for the transit alignment and may require relocations.

Alternate 5C would not result in any transit related business displacements since the transitway alignment is not included in this alternate.

The I-270/US 15 Corridor highway and transit improvements have been planned to minimize property acquisitions and relocations. Though the highway and transit alignments travel along existing streets and undeveloped parcels for much of their length, there are areas along I-270, particularly between I-370 and Muddy Branch Road that contain large numbers of displacements. Construction of a retaining wall in certain locations could reduce the number of displacements. The project team will continue to coordinate with municipalities during the planning phase of this project as property acquisitions are subject to change as the project plans are refined.

Affected property owners will receive relocation assistance in accordance with federal and/or state requirements depending on the funding source. The Federal Uniform Relocation Assistance and Land Acquisition Policies of 1970, as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, would be executed in a timely and humane fashion. The owner of a displaced business is entitled to receive payment for actual reasonable expenses incurred in moving the business, or personal property; for actual direct losses of tangible personal property; and for actual reasonable expenses incurred in the search for a replacement site. A displaced small business owner may be eligible for re-establishment expenses. **Appendix D** contains a "Summary of the Relocation Assistance Program of the State of Maryland" for further reference.

2. Environmental Justice

a. Existing Conditions

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (EJ)*, signed on February 11, 1994, reaffirms the principles of Title VI. The Executive Order requires that each Federal agency identify, and address, any disproportionately high and adverse impact on minority and/or low income populations resulting from alternates under consideration and to provide opportunity for participation in the public involvement process.

Methodology

Baseline demographic information was obtained from the 1990 US census to identify the locations of minority and low-income populations. The census tract and block group data were compared to project area totals to identify concentrations of minority and low-income populations. Year 2000 census data are gradually becoming available; however, the Census Bureau has not yet released detailed race and ethnic categories or income characteristics.

The project team prepared a base map of community facility locations and overlaid the base map with a map of census tracts that exhibited higher than project area averages for minority and low-income populations. The project team then sent correspondence and a newsletter explaining the project to those entities located within census tracts that exhibited higher than project area averages for minority and low-income populations and offering the opportunity to meet and discuss the I-270/US 15 project with the project team. Despite outreach efforts, no responses were received from these organizations.

Public involvement has been integrated throughout this project planning study. Among the purposes of the public involvement process is the outreach to minority or low-income populations to provide information and to generate input on the project. Public information meetings held for this project were advertised in:

- The Baltimore Sun
- The Washington Post
- The Montgomery Gazette
- The Montgomery Journal
- The Afro-American (Washington, DC)
- El Montgomery
- The Asian Fortune
- The Washington Jewish Week
- The Frederick News Post
- The Frederick Gazette.

Notices were also distributed to a mailing list that included all property owners and residents within and slightly beyond the project area. This includes churches, elected officials, community associations, and businesses.

Minority Populations

According to the 1990 census, residents in the I-270/US 15 Corridor are predominantly Caucasian (83.5%). **Table III-12** and **Figure III-9** illustrate those 1990 census tracts (shaded) with higher percentages of minority residents than within the project area (16.5%).

Several project team members, familiar with the project area, mentioned that the following areas might be predominately minority and recommended further research: the Derwood community (located south of the Shady Grove Metro Station, west of Crabbs Branch Way), Montgomery Village (located east of MD 355 at Montgomery Village Avenue), and the vicinity of Fingerboard Road (located west of I-270 at MD 80). One community, The Colony at Germantown, located near Germantown Avenue and Middlebrook Road, was noted during a field trip in the area. Another community, Stratford Mews, located south of Diamond Avenue in Gaithersburg, was noted from correspondence received from the community association (refer to **Chapter VII**: Comments and Coordination).

Census data confirmed that Montgomery Village had a 25% minority population in 1990; however, the westernmost boundary of Montgomery Village is beyond the project area. Census data also verified that the following neighborhoods contained higher percentages of minority residents than within the project area (16.5%) in 1990: Derwood 32%, The Colony at Germantown 24%, and Stratford Mews 39.8%. The census data did not support the Fingerboard Road area as a minority community.

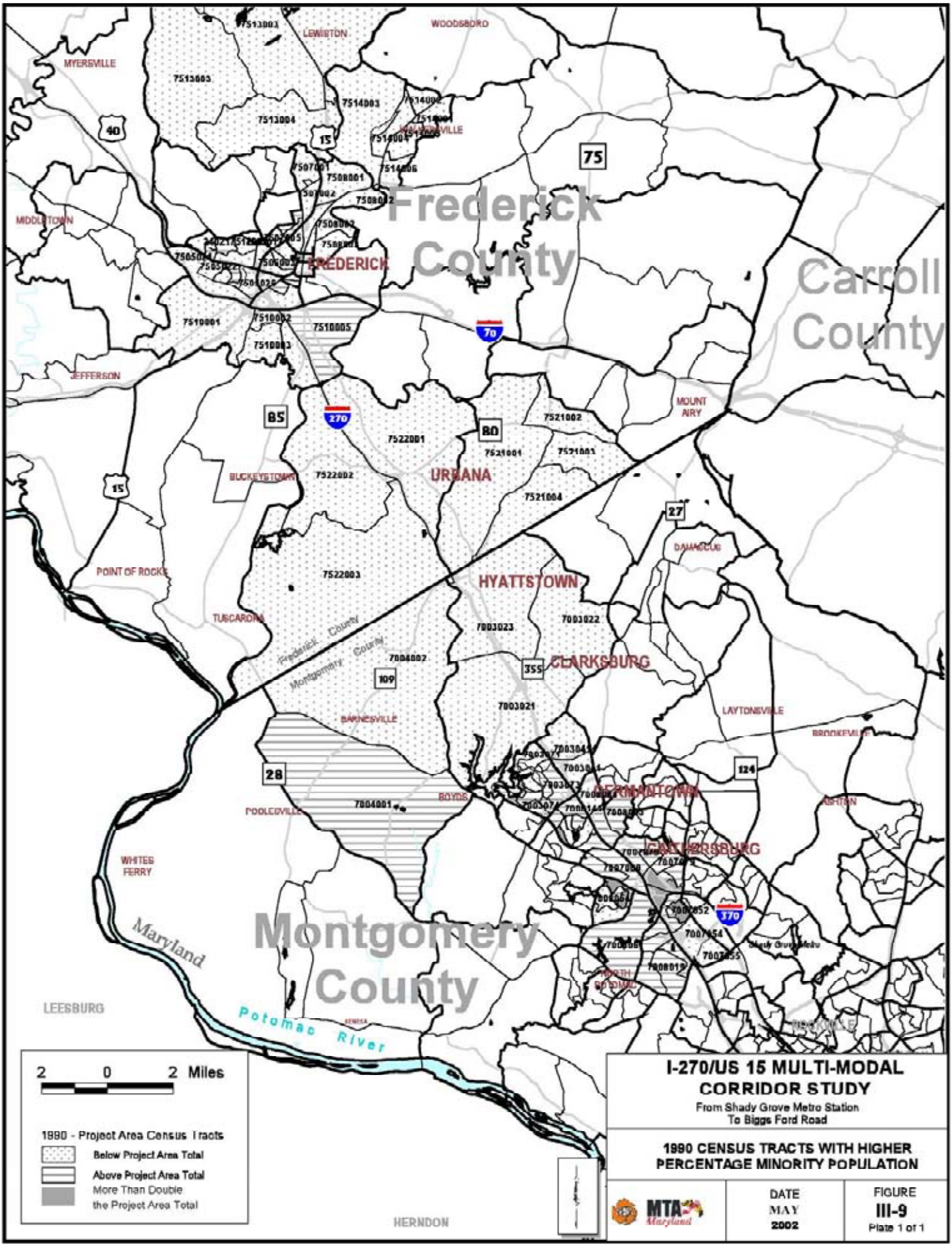

Frederick County
Carroll County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
MYERSVILLE
MIDDLETOWN
JEFFERSON
BUCKEYSTOWN
POINT OF ROCKS
TUSCARORA
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
LEESBURG
DAMASCUS
MOUNT AIRY
LAYTONSVILLE
BROOKEVILLE
ASHTON
NORTH BETHESDA
HERNDON
Maryland
Potomac River
2 0 2 Miles
1990 - Project Area Census Tracts
Below Project Area Total
Above Project Area Total
More Than Double the Project Area Total
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station To Biggs Ford Road
1990 CENSUS TRACTS WITH HIGHER PERCENTAGE MINORITY POPULATION
MTA Maryland
DATE MAY 2002
FIGURE III-9
Plate 1 of 1

TABLE III-12
1990 MINORITY POPULATION

Montgomery County									
Census Tract	**Block Group**	**Population**	**White**	**Black**	**American Indians**	**Asian Pacific**	**Other**	**Total Minority**	**Percent Minority**
700302	1	1,091	1,032	40	0	19	0	59	5.4%
700302	2	1,022	919	76	7	20	0	103	10.1%
700302	3	922	887	35	0	0	0	35	3.8%
700304	1	465	465	0	0	0	0	0	0.0%
700307	1	3,134	2,740	122	0	260	12	394	12.6%
700307	2	1,720	1,577	89	11	37	6	143	8.3%
700307	3	2,414	1,947	302	6	115	44	467	19.3%
700307	4	3,260	2,718	350	5	118	69	542	16.6%
7004	1	848	601	227	0	20	0	247	29.1%
7004	2	1,186	1,137	49	0	0	0	49	4.1%
700705	1	1,212	863	95	0	186	68	349	28.8%
*700705	2	1,339	864	235	0	93	147	475	35.5%
700705	3	2,894	1,974	465	0	372	83	920	31.8%
700705	4	773	755	9	9	0	0	18	2.3%
700705	5	0	0	0	0	0	0	0	0.0%
700706	9	2,835	2,202	377	0	194	62	633	22.3%
*700707	1	3,333	2,008	679	11	373	262	1,325	39.8%
700707	9	11,601	8,650	1,390	62	890	609	2,951	25.4%
700801	9	8,860	6,118	1,429	96	837	380	2,742	30.9%
*700805	1	1,493	925	267	0	156	145	568	38.0%
700805	2	817	593	202	15	7	0	224	27.4%
*700805	3	1,088	695	173	18	187	15	393	36.1%
700805	4	1,136	1,042	0	0	94	0	94	8.3%
700805	5	2,537	2,156	154	0	227	0	381	15.0%
700806	1	2,550	1,786	190	50	499	25	764	30.0%
700808	1	757	690	40	0	27	0	67	8.9%
700808	2	2,933	2,118	542	23	142	108	815	27.8%
700808	3	1,699	1,399	228	15	35	22	300	17.7%
700814	1	1,841	1,407	284	0	123	27	434	23.6%
700814	2	856	699	79	0	78	0	157	18.3%
700814	3	1,378	1,257	103	0	0	18	121	8.8%
700814	4	988	839	54	22	73	0	149	15.1%
700814	5	1,411	1,084	249	0	64	14	327	23.2%
700814	6	2,501	2,104	97	0	211	89	397	15.9%
700814	7	1,101	870	155	0	62	14	231	21.0%
*700814	8	975	548	366	0	44	17	427	43.8%
Block Groups		**74,970**	**57,669**	**9,152**	**350**	**5,563**	**2,236**	**17,301**	**23.1%**
Montgomery County		**757,027**	**580,635**	**92,267**	**1,841**	**61,981**	**20,303**	**176,392**	**23.3%**

TABLE III-12 (CONTINUED)
1990 MINORITY POPULATION

Frederick County									
Census Tract	**Block Group**	**Population**	**White**	**Black**	**American Indians**	**Asian Pacific**	**Other**	**Total Minority**	**Percent Minority**
*7501	1	1,001	629	372	0	0	0	372	37.2%
7501	2	857	767	90	0	0	0	90	10.5%
7504	1	1,149	1,127	22	0	0	0	22	1.9%
7504	2	913	756	157	0	0	0	157	17.2%
7504	3	1,933	1,617	297	6	13	0	316	16.3%
750501	1	1,050	930	78	0	42	0	120	11.4%
750501	2	980	739	185	0	56	0	241	24.6%
750501	3	577	433	91	9	44	0	144	25.0%
750501	4	1,506	1,191	279	7	29	0	315	20.9%
750501	5	927	830	68	0	29	0	97	10.5%
750501	6	1,080	962	84	0	34	0	118	10.9%
750501	7	916	788	106	0	22	0	128	14.0%
750502	1	270	270	0	0	0	0	0	0.0%
750502	2	802	716	62	0	24	0	86	10.7%
750502	3	1,342	1,198	115	0	19	10	144	10.7%
750502	4	1,842	1,467	256	0	119	0	375	20.4%
750502	5	1,342	1,292	41	0	0	9	50	3.7%
750502	6	339	339	0	0	0	0	0	0.0%
7506	1	1,291	1,158	91	0	36	6	133	10.3%
7506	2	801	794	7	0	0	0	7	0.9%
7506	3	781	759	22	0	0	0	22	2.8%
7507	1	1,303	1,271	0	15	17	0	32	2.5%
7507	2	1,753	1,701	45	7	0	0	52	3.0%
7507	3	1,842	1,512	263	18	26	23	330	17.9%
7507	4	904	628	233	0	43	0	276	30.5%
7507	5	1,065	1,004	0	0	50	11	61	5.7%
7508	1	1,239	1,175	30	0	34	0	64	5.2%
7508	2	1,489	1,372	117	0	0	0	117	7.9%
7508	3	738	694	26	0	0	18	44	6.0%
7508	4	868	855	13	0	0	0	13	1.5%
7508	5	656	639	17	0	0	0	17	2.6%
7508	6	1,418	1,288	116	6	8	0	130	9.2%
7510	1	1,632	1,556	46	9	21	0	76	4.7%
7510	2	1,502	1,347	106	6	19	24	155	10.3%
7510	3	1,672	1,583	83	0	6	0	89	5.3%
7510	4	849	747	84	9	0	9	102	12.0%
7510	5	802	582	214	6	0	0	220	27.4%
7513	1	104	104	0	0	0	0	0	0.0%
7513	2	1,326	1,308	0	0	18	0	18	1.4%
7513	3	3,004	2,999	5	0	0	0	5	0.2%
7513	4	1,263	1,181	0	15	67	0	82	6.5%

TABLE III-12 (CONTINUED)
1990 MINORITY POPULATION

Frederick County									
Census Tract	**Block Group**	**Population**	**White**	**Black**	**American Indians**	**Asian Pacific**	**Other**	**Total Minority**	**Percent Minority**
7514	1	1,616	1,569	47	0	0	0	47	2.9%
7514	2	1,669	1,626	43	0	0	0	43	2.6%
7514	3	594	594	0	0	0	0	0	0.0%
7514	4	1,206	1,177	0	0	0	29	29	2.4%
7514	5	1,161	1,064	97	0	0	0	97	8.4%
7514	6	1,300	1,249	51	0	0	0	51	3.9%
7521	1	1,347	1,306	35	0	6	0	41	3.0%
7521	2	1,089	1,076	7	0	6	0	13	1.2%
7521	3	1,566	1,566	0	0	0	0	0	0.0%
7521	4	2,292	2,235	0	7	50	0	57	2.5%
7522	1	1,174	1,018	156	0	0	0	156	13.3%
7522	2	1,209	1,038	158	0	13	0	171	14.1%
7522	3	662	620	42	0	0	0	42	6.3%
Block Groups	**--**	**64,013**	**58,446**	**4,457**	**120**	**851**	**139**	**5,567**	**8.7%**
Frederick County	**--**	**150,208**	**139,909**	**8,010**	**284**	**1,510**	**495**	**10,299**	**6.9%**
Project Area Total	**--**	**138,983**	**116,115**	**13,609**	**470**	**6,414**	**2,375**	**22,868**	**16.5%**

Source: *1990 Census*
Shaded rows exceed the percentage of minority population for the project area.
** Denotes a percentage of minority population more than double the percentage in the project area.*

Low-Income Populations

The 1990 median household income level for the I-270/US 15 Corridor was $45,603 for Montgomery County census tracts in the project area and $42,745 for the Frederick County portion of the project area. This compares with a 1990 median household income of $54,089 for Montgomery County as a whole and $41,382 for Frederick County.

Low-income persons are defined as persons living in households whose annual income is equal to or less than the poverty threshold determined by the US Department of Health and Human Services. Census block group data (1990) was used to identify concentrations of low-income persons by highlighting block groups with low-income populations that were greater than the overall low-income population of the total project area.

Numerically, low-income populations in the I-270/US 15 Corridor were largest in census block group 7007.07.9 (599 persons) located in the vicinity of MD 124 in Montgomery County. However, block groups 7501.1 and 7508.5, located east of I-270 in the vicinity of Motter Avenue and 7th Street in the City of Frederick and block group 7507.3, located west of I-270 in the vicinity of Opossumtown Pike, had the highest proportions of low-income populations in the I-270/US Corridor at 21.7% and 20.7%, 18.9% respectively.

Census figures indicate that the previously identified minority populations in the communities of Derwood and The Colony at Germantown do not exceed the percentage of low-income residents

for the project area. However, the Stratford Mews community exhibited more than double the project area total low-income population in 1990 (11.4% compared with the project area total of 3.8%).

Table III-13 and **Figure III-10** illustrate those 1990 census tracts (shaded) with higher percentages of low-income residents than within the project area (3.8%).

TABLE III-13
1990 LOW-INCOME POPULATION

Montgomery County				
Tract	**Block Group**	**Population**	**Low-Income**	**% Low-Income**
700302	1	1,091	33	3.0%
700302	2	1,022	5	0.5%
700302	3	922	37	4.0%
700304	1	465	0	0.0%
700307	1	3,134	57	1.8%
700307	2	1,720	21	1.2%
700307	3	2,414	34	1.4%
700307	4	3,260	64	2.0%
7004	1	848	10	1.2%
7004	2	1,186	81	6.8%
700705	1	1,212	70	5.8%
700705	2	1,339	88	6.6%
700705	3	2,894	36	1.2%
700705	4	773	0	0.0%
700705	5	0	0	0.0%
700706	9	2,835	65	2.3%
*700707	1	3,333	380	11.4%
700707	9	11,601	599	5.2%
700801	9	8,860	243	2.7%
700805	1	1,493	55	3.7%
700805	2	817	55	6.7%
700805	3	1,088	28	2.6%
700805	4	1,136	18	1.6%
700805	5	2,537	28	1.1%
700806	1	2,550	22	0.9%
*700808	1	757	65	8.6%
700808	2	2,933	99	3.4%
700808	3	1,699	46	2.7%
*700814	1	1,841	143	7.8%
700814	2	856	25	2.9%
700814	3	1,378	8	0.6%
700814	4	988	12	1.2%
700814	5	1,411	0	0.0%
700814	6	2,501	7	0.3%
700814	7	1,101	34	3.1%
700814	8	975	16	1.6%
Block Groups		**74,970**	**2,484**	**3.3%**
Montgomery County		**757,027**	**31,651**	**4.2%**

TABLE III-13 (CONTINUED)
1990 LOW-INCOME POPULATION

Frederick County				
Tract	**Block Group**	**Population**	**Low-Income**	**% Low-Income**
*7501	1	1,001	217	21.7%
*7501	2	857	90	10.5%
7504	1	1,149	82	7.1%
7504	2	913	45	4.9%
7504	3	1,933	80	4.1%
750501	1	1,050	0	0.0%
750501	2	980	70	7.1%
750501	3	577	42	7.3%
750501	4	1,506	49	3.3%
750501	5	927	26	2.8%
750501	6	1,080	42	3.9%
750501	7	916	22	2.4%
750502	1	270	13	4.8%
750502	2	802	0	0.0%
750502	3	1,342	0	0.0%
750502	4	1,842	89	4.8%
750502	5	1,342	25	1.9%
750502	6	339	7	2.1%
7506	1	1,291	58	4.5%
*7506	2	801	73	9.1%
7506	3	781	52	6.7%
7507	1	1,303	8	0.6%
7507	2	1,753	31	1.8%
*7507	3	1,842	348	18.9%
*7507	4	904	73	8.1%
7507	5	1,065	53	5.0%
7508	1	1,239	20	1.6%
7508	2	1,489	0	0.0%
7508	3	738	45	6.1%
*7508	4	868	71	8.2%
*7508	5	656	136	20.7%
*7508	6	1,418	142	10.0%
7510	1	1,632	51	3.1%
7510	2	1,502	23	1.5%
7510	3	1,672	109	6.5%
7510	4	849	37	4.4%
7510	5	802	35	4.4%

TABLE III-13 (CONTINUED)
1990 LOW-INCOME POPULATION

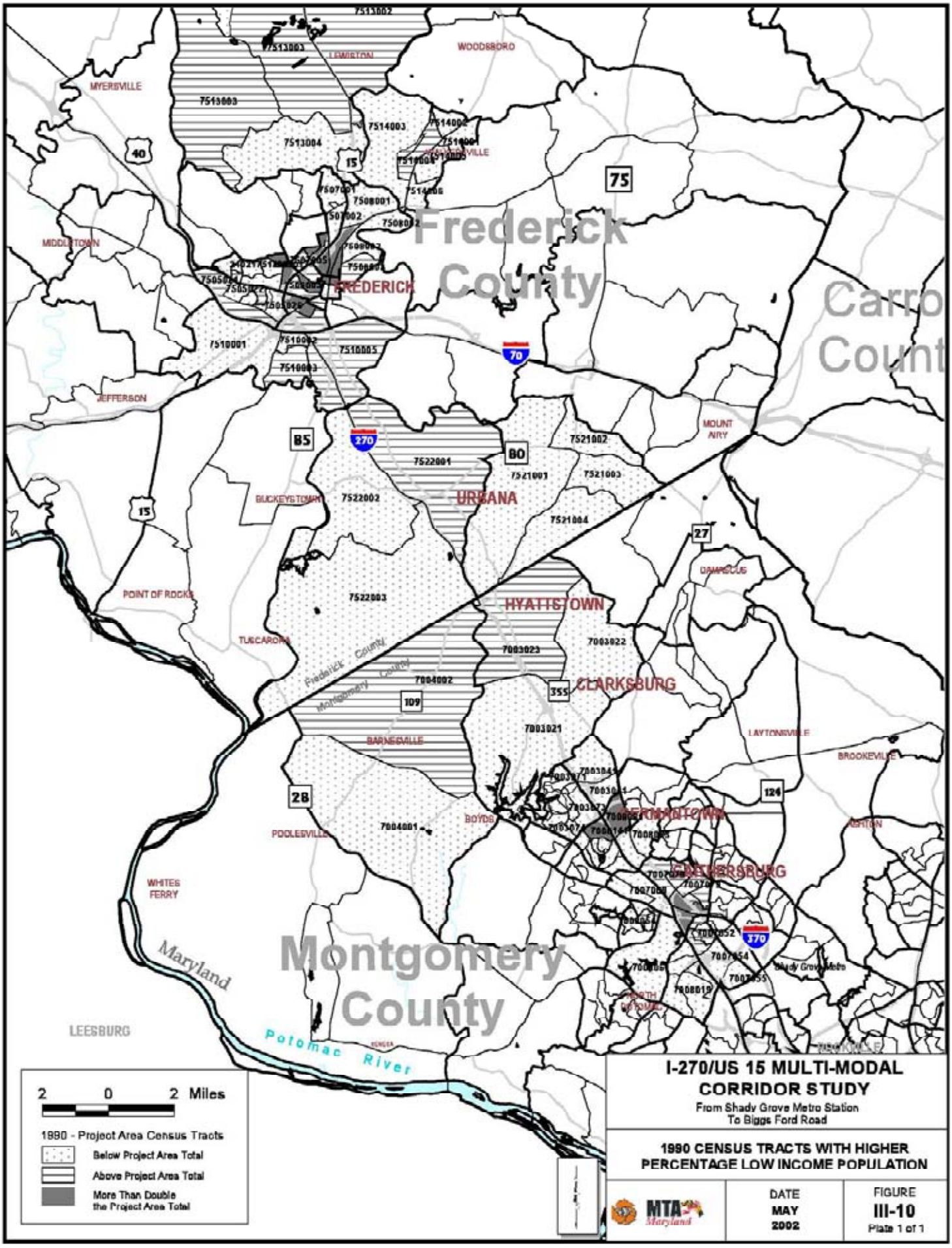
Frederick County (Continued)				
Tract	**Block Group**	**Population**	**Low-Income**	**% Low-Income**
7513	1	104	0	0.0%
7513	2	1,326	88	6.6%
7513	3	3,004	125	4.2%
7513	4	1,263	40	3.2%
7514	1	1,616	30	1.9%
7514	2	1,669	0	0.0%
7514	3	594	19	3.2%
7514	4	1,206	68	5.6%
7514	5	1,161	16	1.4%
7514	6	1,300	26	2.0%
7521	1	1,347	26	1.9%
7521	2	1,089	10	0.9%
7521	3	1,566	0	0.0%
7521	4	2,292	17	0.7%
7522	1	1,174	47	4.0%
7522	2	1,209	29	2.4%
7522	3	662	11	1.7%
Block Groups		**64,013**	**2,816**	**4.4%**
Frederick County		**150,208**	**7,055**	**4.7%**
Project Area Total		**138,983**	**5,300**	**3.8%**

Source: *1990 Census*
Notes: *"Low-Income" persons are defined as persons living in households whose annual income is at or below the US Department of Health and Human Services poverty threshold.*
Shaded rows exceed the percentage of low-income population for the project area.
** Denotes a percentage of low-income population more than double the percentage in the project area.*
Average median household income of project area census block groups is $43,888.

b. Impacts

Executive Order 12898 of February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires federal agencies to identify and address, as appropriate, "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." To comply with the order, the project team considered potential effects on low-income and minority populations in the project area and determined whether the effects were disproportionately high in relation to the rest of the project area.

Three communities, Derwood, The Colony at Germantown, and Stratford Mews were identified through local community planners and field reconnaissance and confirmed (using census data) as having substantial minority and/or low-income populations. Of these, the Stratford Mews community will have no impact from the build alternates. The Derwood community may


Frederick County
Montgomery County
Carro
Count
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
MIDDLETOWN
MYERSVILLE
WOODSBORO
LEWISTON
JEFFERSON
MOUNT AIRY
BUCKEYSTOWN
POINT OF ROCKS
TUSCARORA
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
LEESBURG
DAMASCUS
LAYTONSVILLE
BROOKEVILLE
ASHTON
Maryland
Potomac River
2 0 2 Miles
1990 - Project Area Census Tracts
Below Project Area Total
Above Project Area Total
More Than Double the Project Area Total
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station To Biggs Ford Road
1990 CENSUS TRACTS WITH HIGHER PERCENTAGE LOW INCOME POPULATION
MTA Maryland
DATE MAY 2002
FIGURE III-10
Plate 1 of 1

experience noise impacts if yard/shop facility site 1 is selected and the transitway alignment will have a visual impact and require property acquisition (though no residential displacements) from The Colony at Germantown as the alignment travels between Middlebrook Road and Germantown Road. The extent of the potential impacts at Derwood and The Colony at Germantown would not be considered a "disproportionately high and adverse impact" under the Environmental Justice guidelines. Mitigation measures will be considered that can reduce noise and visual effects to residential properties.

Census tract and block group data identified additional areas that exceeded project area totals and indicated concentrations of minority and low-income populations. However, census data only highlights general locations of environmental justice communities. Despite outreach efforts, no responses were received from those community facilities located within census tracts that exhibited higher than project area averages for minority and low-income populations. Therefore, the following analysis considers potential impacts in general locations of environmental justice communities with respect to the transportation alternates under consideration. The project team will continue to confirm and refine the locations of minority and low-income populations during subsequent stages of the project as well as develop potential mitigation measures, in consultation with the affected communities, to reduce the impacts of the transportation improvements.

No-Build and TSM/TDM Alternates

The No-Build Alternate will not impact minority or low-income populations. Under the TSM/TDM Alternate, the increased frequency of buses, operating over existing routes, will generate slight changes in noise levels throughout the project area. These changes are not expected to cause disproportionately high impacts to minority or low-income populations.

Alternates 3A/B, 4A/B, and 5A/B/C

Highway Alignment

The highway alignment under Alternates 3A/B, 4A/B, and 5A/B/C would displace between 50-81 residences (depending on the use of a retaining wall) in census tract 700801.9 (Brighton West). Alternate 5C would also displace between 68-120 residences (with a retaining wall) and 87-144 residences (with no retaining wall) in census tract 700705.3 (Deer Park Place). Both of these census tracts exhibit concentrations of minority (rather than low-income) populations. In addition, all build alternates would displace between 9-13 residences (with a retaining wall) and 26-35 residences (with no retaining wall) in minority census tract 700808.2 (Fox Chapel/Middlebrook Hill). The minority and low-income census tract 700707.1 (London Derry) would be impacted by Alternate 5C only (displacing 32-117 residences). The use of a retaining wall would completely avoid displacing these residences. Compared with the low number of displacements expected in other areas along the highway alignment, it appears that these communities would experience a greater magnitude of adverse impact that can be considered "disproportionately high".

The highway alignment would require five acres of right-of-way from the New Covenant Fellowship Church in census tract 700814.7 (minority) and 2.3 acres of open space from the Garden of Remembrance/Gan Zikaron Memorial Park, located in census tract 7003.02.3 (low-

income). The highway alignment also impacts right-of-way and recreational facilities at Urbana Elementary School in the low-income census tract 7522.1 (refer to **Chapter VI**: Section 4(f) Evaluation for more information on this facility).

Every census tract adjacent to I-270/US 15, north of the Monacacy River to approximately MD 26 in Frederick County, as well as census tract 7522.1 located east of I-270 and south of the Monacacy River, exhibits higher than project area totals for low-income populations. The highway improvements along I-270 will primarily require right-of-way acquisition in these census tracts. The highway alignment (without a retaining wall) will also displace up to three residences and two businesses in these census tracts. Further, the highway alignment will require property acquisition in census tract 7508.5 (located east of I-270 near Motter Avenue in Frederick City) and census tract 7507.3 (located west of I-270 near Opossumtown Pike). These Frederick County census tracts exhibited two of the highest proportions of low-income populations in the I-270/US 15 Corridor. Census tract 7508.5 would experience noise and visual impacts; however, noise and visual barriers are recommended to reduce the potential impacts. Census tract 7507.3 is located along the southbound side of US 15 and the highway alignment would require property acquisition from residential and commercial properties but would not result in any displacements. The extent of the proposed impacts at these census tracts would not be considered a "disproportionately high and adverse impact" under the Environmental Justice guidelines. Community facilities that are located in census tracts with identified minority or low-income populations, from which right-of-way is required in Frederick County, consists of parklands that are discussed separately in **Chapter VI**: Section 4(f) Evaluation.

Transitway Alignment

Montgomery County census tracts, especially those located between Shady Grove Road and Father Hurley Boulevard, exhibit higher proportions of minority communities than the total project area. Though the transitway alignment travels through many of these census tracts, the alignment is primarily located on land that is largely vacant and undeveloped, and therefore would result in few residential and business displacements (refer to **Section III.B.1.e**). The following proposed impacts at these census tracts would not be considered a "disproportionately high and adverse impact" under the Environmental Justice guidelines.

In the vicinity of Montgomery Village, an area with a substantial minority population, the transitway alignment is on the west side of I-270 and no impacts are expected on this community.

The Shady Grove Metro Station already exists east of the Derwood community, a community that has a high percentage of minority population. The transitway alignment would connect with the Shady Grove Metro Station and would continue to travel northwest of Redland Road and northwest of the Derwood community. Based on the yard/shop facilities that were retained for detailed study near the Shady Grove Metro Station, no residential or access impacts to the Derwood or surrounding communities are expected. However, site 1 of the proposed yard/shop facilities, situated adjacent to the existing Metro station and tracks, is expected to require property acquisition from an empty lot and displacement of the Beltway Cable Service (storage and infrastructure), Paramount Construction, a car storage lot and a car dealership. Impacts on traffic flow are not expected in this area.

As a part of the noise analysis, a test site was located at 101 Redland Road in Rockville, which is located between potential yard/shop sites 1 and 5. The results of the test indicated that increased noise levels would be present in this area as the area is primarily residential (refer to **Section III.K.5.b**). It is recommended that noise producing yard activities be limited to daytime hours. However, some of the yard noise such as wheel squeal and switch frog noise are known to generate high levels of pure tone and impulse noise with distinguishable audible characteristics. Mitigation methods are available to reduce noise from wheel squeal and from switch frogs and these measures include wheel and rail lubrication, and spring frogs or moveable point frogs. Mitigation measures also should be implemented to avoid nuisance from nighttime outdoor yard activities. If site 1 for the transitway yard/shop facility is selected, further analysis of potential noise impacts would be conducted in the vicinity of the Derwood community.

The transitway alignment would require five acres of right-of-way from the New Covenant Fellowship Church in census tract 700814.7 (minority). The transitway alignment will have a visual impact and require property acquisition (though no residential displacements are expected) from The Colony at Germantown as the alignment travels between Middlebrook Road and Germantown Road. Measures such as sensitive design of the transitway facilities, including station areas, to blend into the existing visual environment will lessen visual effects to residential properties. Adjacent communities, including The Colony at Germantown, will be included in the design process and a functional and aesthetic station area design will be pursued. This could include clearing no more vegetation than necessary and landscaping and planting to screen adjacent land uses, as appropriate. Dense landscaping, including evergreen trees, could be planted to serve as a visual screen throughout the year. The selection of trees, that are compatible with existing vegetation, would be made in consultation with the community.

With the addition of a new transportation facility, security and safety practices become important during construction activities as well as operations of the facility. Safety issues include pedestrian and vehicular access to station areas and along the transitway alignment, itself. Safeguards incorporated during the design, construction and operations of the transitway will reduce the potential for conflicts between pedestrians, motor and transit vehicles.

The residents of these communities can expect to benefit from the project. With the transitway, area residents will have improved access throughout the Corridor and the surrounding area can expect a modest reduction in traffic on local roads with the provision of more public transportation to the area. Further, the residents of The Colony at Germantown will have a choice of two stations in the vicinity to access the transitway alignment: Middlebrook Station and Germantown Center Station.

A benefit of this project is the support of economic development and improved access throughout the Corridor while remaining community friendly. This improved accessibility will improve the economic development benefits will be evenly distributed to surrounding communities.

c. Conclusion

The Brighton West, Deer Park Place, London Derry, and Fox Chapel/Middlebrook Hill communities are located in census tracts that exhibit higher proportions of minority and/or low-

income populations than the total project area. These communities may experience disproportionately high or adverse impacts due to a substantial number of displacements under the highway component of the build alternates. However, the proposed direct access ramps at the I-370 interchange have been identified as a non-preferred alternate due to the number of residential displacements associated with these ramps (see Non-Preferred Alternates discussion in **Section S.I**, Issues to be Resolved and **Section III.V.E**, Trade-Off Analysis). The project team will continue to confirm and refine the locations of minority and low-income populations during subsequent stages of the project. Efforts to inform these populations and involve them in the project planning process will continue. Should a build alternate be selected that impacts these populations, then the project team will develop potential mitigation measures in consultation with the affected communities.

Other communities within census tracts exhibiting higher proportions of minority and/or low-income populations than the project area will not incur "disproportionately high or adverse impacts" as a result of the proposed transportation improvements. Right-of-way, noise, and visual impacts for these census tracts are comparable to other locations throughout the project area. Where possible, providing noise barriers can mitigate potential noise impacts and visual impacts can be mitigated using the measures described above.

3. Neighborhoods and Communities

a. Existing Conditions

The I-270/US 15 Corridor is currently experiencing a substantial amount of residential development. Though single-family neighborhoods exist, the new development generally consists of townhouse and condominium units. **Table III-14** lists the neighborhoods and subdivisions in the immediate vicinity of the proposed improvements. The locations of these neighborhoods are shown on the engineering plans in **Volume 2 of 2, Chapter XI**.

b. Impacts and Mitigation Measures

Alternate 1 (No-Build Alternate)

The No-Build Alternate will not impact neighborhoods and communities.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate will not impact neighborhood and communities. The increased frequency of buses under the TSM/TDM Alternate will cause negligible impacts on neighborhood/community facilities during operations, since the buses will operate over existing routes. Construction of the six park and ride lots under the TSM, Busway and HOV alternates will cause some short-term localized impacts, primarily at adjacent intersections.

Alternates 3A/B, 4A/B and 5A/B/C

Alternates 3A/B, 4A/B and 5A/B/C will result in greater transportation mobility for residents. Enhanced mobility means that residents will have greater range of choice and access to employment centers, public service providers and facilities, including health care, and recreational facilities.

Community impacts have been minimized by the use of existing transportation corridors for the build alternates. The build alternates will have some visual effects since they are at-grade for the majority of

their length. To varying degrees, the functional impact of the build alternates on community character will be most pronounced at and around the station sites.

Background traffic levels will gradually decrease as the build alternates reduce congestion and commuter traffic. However, stations and their adjacent parking facilities can be expected to generate some localized increases in automobile and bus traffic during rush hours, with the most noticeable effects occurring in areas where there is already substantial vehicle activity.

TABLE III-14
NEIGHBORHOODS AND SUBDIVISIONS IN THE PROJECT AREA

Name	Engineering Plans, Sheet*	Location/Description
Montgomery County		
Derwood	TRAN 1	Bounded generally by Redland Road, Crabbs Branch Way, Gude Drive and MD 355 contains single-family homes on quarter acre lots or less.
Worbeck Manor	TRAN 1	This neighborhood, located off of Crabbs Branch Way, contains single-family and townhouse units.
King Farm	TRAN 2	Bounded by I-270, MD 355, Shady Grove Road, and Gude Drive, contains existing residential units, built in 1997, as well as those still under construction. It is a mixed-use development of townhouses and condominiums with planned commercial and office development
Decoverly Adventure	TRAN 3	Located at Decoverly Drive and Great Seneca Highway, this community consists of brick, two-story townhouses, approximately five years old
Warther	TRAN 3	This is a community of townhouses located off of Muddy Branch Road.
Shady Grove Village	TRAN 3	This is a community of townhouses located off of Muddy Branch Road.
Court of Watch Hill	TRAN 3	This is a community of townhouses located off of Muddy Branch Road.
Timberbrook	TRAN 3	This is a community of townhouses located off of Muddy Branch Road.
Mission Hills	TRAN 3	This is a neighborhood of single-family residences.
Washingtonian Woods	TRAN 3	Located at Great Seneca Highway and Muddy Branch Avenue, this community contains three subdivisions of two-story condominiums approximately five years old and a large, established single-family neighborhood.
Amberfield	TRAN 3	Located at Great Seneca Highway, this community contains townhouses approximately 10 years old.
Lakelands Ridge	TRAN 3	Located at Great Seneca Highway at High Gables Drive, this is a developing community, still under construction, that will have condominiums and single-family homes.
Lakelands	TRAN 3	Located off of Great Seneca Highway, this neighborhood is still under development with large, single-family residences.
Quince Orchard Park	TRAN 3	This community consists of units that are existing and under construction (Phase I) and Phase II planned residential units in a currently open area.
Diamond Farms	TRAN 4	This community of townhouses is located off of MD 124.
Orchard Place	TRAN 4	This community of townhouses is located off of Firstfield Road.

TABLE III-14 (CONTINUED)
NEIGHBORHOODS AND SUBDIVISIONS IN THE PROJECT AREA

Name	Engineering Plans, Sheet*	Location/Description
Quince Orchard Cluster	TRAN 4	This community is located off of Quince Orchard Boulevard
Gunners View	TRAN 5	This community, located south of Middlebrook Road, contains single-family residences.
Middlebrook Commons	TRAN 5	This community of townhouses is located south of Middlebrook Road.
Brighton Hill	HWY 1	This neighborhood of single-family residences is located east of I-270 at Sam Eig Hwy.
Deer Park Place	HWY 1	This neighborhood of townhomes is located on the east side of I-270 between Sam Eig Highway and Muddy Branch Road.
Brighton East	HWY 1	This neighborhood, located on the east side of Deer Park Road, contains single-family residences.
Foxwood	HWY 1	This neighborhood, located on the east side of Deer Park Road, contains single-family residences.
Brighton Highlands	HWY 1	This neighborhood, located on the east side of Deer Park Road, contains single-family residences.
Brighton West	HWY 1	This community of townhouses and condominiums, approximately 15 years old, is located on the west side of I-270 between Sam Eig Highway and Muddy Branch Road.
London Derry	HWY 2	This neighborhood of apartments and townhomes is located east of I-270 between Muddy Branch Road and Diamond Avenue.
Stratford Mews	HWY 2	This community of townhomes is located south of Diamond Avenue between I-270 and Davis Avenue.
Orchard Pond	HWY 2 TRAN 4	This apartment complex is located in Metropolitan Grove.
Fox Chapel	HWY 3 TRAN 5	This community of single-family, detached houses is located east of I-270 and south of Middlebrook Road.
Meadowbrook Estates	HWY 4	This community, located at MD 118 and Observation Drive, contains single-family residences on half-acre lots.
Milestone	HWY 4 TRAN 2	This new community of single-family, townhouses and apartment complexes is located east of I-270 and north of Father Hurley Boulevard.
Brookfield	HWY 4 TRAN 2	This new community of single-family, townhouses and apartment complexes is located east of I-270 and north of Father Hurley Boulevard.
The Vistas	HWY 4 TRAN 2	This new community of single-family, townhouses and apartment complexes is located east of I-270 and north of Father Hurley Boulevard.
Churchill Town Sector	HWY 4 TRAN 2	This community, located west of I-270 and north of Father Hurley Boulevard, contains primarily townhouses.
Miles Corner	HWY 6	This community, south of Comus Road, contains large lot, single-family residences.
Frederick County		
Shel-Mar Heights	HWY 7	This community, located off of Fire Tower Road, contains large lot, single-family residences.
Urbana Overlook	HWY 9	This community, located off of MD 80, contains large lot single family residences off of MD 80
Stone Barn Station	HWY 9	This community, located Park Mills Road, contains large lot single family residences

TABLE III-14 (CONTINUED)
NEIGHBORHOODS AND SUBDIVISIONS IN THE PROJECT AREA

Name	Engineering Plans, Sheet*	Location/Description
Foxcroft I & II	HWY 11	These communities, centered on Crestwood Boulevard, contain single family and townhouse units.
Mountain Village	HWY 11	This new community, adjacent to Foxcroft, contains single family and townhouse units.
Field Pointe	HWY 11	This community contains single family and townhouse units.
Fairfield Suites	HWY 11	This community contains single-family, 2-story, colonial style homes approximately five years old
Carrollton	HWY 12	This community, located south of Jefferson Street, contains single family and multi-family units.
Wyngate	HWY 12	This community, located east of US 15 and north of Jefferson Street, contains single-family residences.
Brigadoon	HWY 12	This community, located east of US 15 and north of Jefferson Street, contains single-family residences.
Westbrook	HWY 12	This community, located east of US 15 and north of Jefferson Street, contains single-family residences.
Prospect View	HWY 12	This community, located west of US 15 and north of Jefferson Street, contains multi-family units.
Frederick Heights	HWY 12	This community, located west of US 15 and north of Jefferson Street, contains single-family residences.
Linden Hills	HWY 12	This community, located west of US 15 and north of Jefferson Street, contains single-family residences.
Waterford	HWY 13	This townhouse community is approximately 10 years old
Rosedale	HWY 13	This community contains predominately 1-story, brick, single-family houses approximately 30 years old
Amber Meadows	HWY 14	This community, located west of Thomas Johnson Drive, contains single family and townhouse units.
Worman's Mill	HWY 14	This community, at Worman's Mill Road and US 15, contains single-family residences.
Willow Brook	HWY 14	This community, located at Willow Road and US 15, contains large lot single-family residences.

* *Locations of neighborhoods are shown on the engineering plans in* ***Volume 2 of 2, Chapter XI****.*

Highway Alignment

The highway alignment will result in substantial residential displacement along I-270 and loss of some open space for residences especially those immediately adjacent to the roadway. However, the highway alignment follows I-270 and avoids traversing neighborhoods. Since the displacements occur on the edges of the affected communities, the highway alignment is not expected to cause the separation of residents from other residents or community facilities, nor produce any adverse changes in social interaction or community cohesion, with the exception of one residence, located on Sundays Lane in Frederick that would be separated from neighboring houses due to a new ramp configuration. Please refer to the Property Displacements and Acquisitions section for further detail on residential displacements.

Traffic patterns for area residents will be slightly changed by the introduction of C-D lanes and HOV lanes; however, the facility will generally remain the same limited access facility to which residents are accustomed. While there will be an initial adjustment to this slight change in traffic pattern, the long-term benefits of improved traffic flow outweigh the short-term impacts.

The proposed highway improvements begin at Sam Eig Highway where there are residential areas backing onto I-270 on either side. The Brighton West community has two-story townhouse and condominium properties that have large wooded setbacks from the highway. The residential area is not visible from the highway nor is the highway visible from the residential area. However, there may be some views of the highway for the remaining residences during the fall and winter months when the deciduous trees lose their leaves. I-270 does not provide direct access to these neighborhoods; therefore, the highway alignment will not affect access into the community. The highway widening on the west side of I-270 under Alternates 3A/B, 4A/B and 5A/B/C will displace approximately 79 residences in this community; however, these residential units are on the outer edges of the community and will not affect community cohesion. The construction of a retaining wall would not reduce the number of displacements in this location.

The Fox Chapel neighborhood extends from Staleybridge Road to Middlebrook Road. The northbound C-D lanes will displace approximately 33 single family residences located on the outer edge of the community (mainly flag lots) in Fox Chapel and will be visible to the remaining residences. Construction of a retaining wall could avoid displacing 20 of these residences, resulting in a total of 13 residential displacements in this location. I-270 does not provide direct access to this neighborhood; therefore, the highway alignment will not affect access into the community

The southbound C-D lanes will require (undeveloped) property acquisition from residences in the Crawford Farm neighborhood; however, the existing berm behind the residences adjacent to I-270 will shield the potential visual and noise effects of the additional lane. I-270 does not provide direct access to this neighborhood; therefore, the highway alignment will not affect access into the community.

The Brooklawn Apartments, Fairfield Suites, Waterford Townhouses, Crystal Park Apartments, and Summit Windsor Apartments will have a view of the highway components under Alternates 3A/B, 4A/B and 5A/B/C; however, these residences already have a view of the existing I-270 facility. In addition, some of the property in the backyards of the Pinewood Drive neighborhood will be acquired for right-of-way.

Alternates 3A/B, 4A/B and 5A/B/C will place extra transportation lanes along I-270 that will be very close to the residences and have visual impacts in the Foxcroft community located south of New Design Road.

The extension of MD 75 on the east side of I-270 will provide a new visual element for the existing residences since MD 75 Extended would be constructed through current farmland. The other three new interchanges (US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road) are proposed on vacant land. The US 15/Biggs Ford Road interchange will precipitate a change of access for the Birely-Roelkey (historic) farmstead located south of Biggs Ford Road and for the commercial businesses located north of Biggs Ford Road.

Alternate 5C

Alternate 5C has the following impacts in addition to those noted above. Alternate 5C, due to its wider right-of-way to accommodate an extra HOV and general-purpose lane in each direction along I-270, will require property acquisition at the rear of residences on MD 80.

The proposed northbound C-D road and slip ramp on the east side of I-270 under Alternate 5C will displace approximately 149 residences in the Deer Park Place/Brighton East community located east of I-270 and north of I-370. Construction of a retaining wall could avoid displacing 53 of these residences, resulting in a total of 96 residential displacements in this location. The remaining residences will continue to have visual and audio effects from the existing facility.

Transitway Alignment

The transitway alignment generally follows existing roadways and avoids traversing between neighborhoods and will not cause the separation of residents from other residents or community facilities, nor produce any adverse changes in social interaction or disrupt community cohesion. Many of the newer residential developments have wide set backs from the roadways, so often the transitway will require property acquisition rather than a displacement of residential buildings. This property acquisition will result in the loss of some open space within the required right-of-way.

The East Gaither and West Gaither stations will be integrated within the existing and developing King Farm residential community. The Decoverly Adventure neighborhood will have new visual elements associated with proposed transit stations opposite the neighborhood: the DANAC Station will be situated on undeveloped land and the Decoverly Station will be placed within an existing wooded area. The transitway alignment will be visible to adjacent residential neighborhoods such as Washingtonian Woods, Amberfield, Lakelands Ridge, Diamond Farms, and other vicinity neighborhoods and subdivisions.

The addition of a LRT or BRT will slightly impede existing pedestrian mobility around the transitway alignment; however, bike paths will be provided adjacent to the transitway to enhance non-motorist safety. Further, the provision of new bike paths may encourage more frequent use of this form of transportation.

Community Cohesion

In the areas of the project outside the above-noted communities, all build alternates travel primarily through rural, agricultural land and would not disrupt communities or neighborhoods because none are present. All build alternates would cause some disruption to individual residences because of displacements and changes to local travel patterns.

No divisions of neighborhoods would occur; however, one residence, located at the end of Sundays Lane in Frederick would be separated from neighboring houses due to the new ramp proposed under Alternates 3A/B, 4A/B and 5A/B/C. This residence will have both the mainline US 15 and the new ramp surrounding it. The new ramp would present a barrier to social

interaction in this particular location. However, none of the alternates would change the existing social arrangement or character of other portions of the project area.

Since I-270 is an existing transportation facility, proposed improvements would not disrupt community cohesion or impact access to community facilities and services. However, as noted above, the highway improvements will displace a substantial number of residences due to the outside widening of the existing facility. The outside widening of I-270, especially in the areas north of I-370, south of I-70, and between Rosemont Avenue and Opossumtown Pike will encroach upon residential property located immediately adjacent to I-270 and, in particular, will require substantial residential displacement in the Brighton West neighborhood located north of I-370.

The construction phase of each of the build alternates will produce a temporary barrier to pedestrian and vehicular movements. This construction phase will require a system of barricades and signage to prevent accidents that could occur on a construction site. However, these effects are short-term and not expected to have a lasting effect on the viability of area neighborhoods, community services and facilities. Short-term impacts can be mitigated through the application of standard construction techniques such as implementing a traffic maintenance program and confining construction equipment and activities, as much as possible, to minimize noise, dust and other intrusions on nearby residential and commercial properties. A public information program will provide notification of construction activities and schedules. In addition, the State Highway Administration and the Maryland Transit Administration will hold discussions with neighborhood Homeowner's Associations and individual affected residents to address issues related to safety, noise and visual effects of the project.

A portion of the alignment in Metropolitan Grove is located along existing CSX railroad right-of-way and does not cross existing streets or affect residential or commercial properties. Confinement of work activities to the existing railroad right-of-way is in itself an effective measure for minimizing impacts to residential and commercial properties.

A public information and notification program will advise area residents of traffic detours. Temporary paths to facilitate pedestrian movements to and through the area, detour/guide signs, and temporary traffic signals are among the tools available to help maintain travel patterns.

4. Community Facilities and Services

a. <u>Existing Conditions</u>

The I-270/US 15 Corridor contains a wide variety of community facilities and services including 28 schools and six libraries, supplemented by bookmobile services provided by both Frederick and Montgomery County public libraries.

The Maryland State Police Barracks B, the Gaithersburg and Germantown Police Departments, Germantown Fire Company 29 and Gaithersburg Fire Department serve the Corridor in Montgomery County. There is also a waste management facility in Shady Grove. In Frederick County, the Frederick City Police Department, Urbana Volunteer Fire and Rescue Company, United Fire Company 31, Independent Hose Company, and Junior Fire Company serve the Corridor. Another fire/rescue station is planned within five years near the proposed interchange

of US 15/Trading Lane, which will reduce response times on the north side of Frederick City. Frederick County companies are members of the Frederick County Fire and Rescue Association that provides backup and support for one another, when needed. Montgomery County fire companies also provide support and backup for one another and Montgomery County has a mutual aid agreement with Frederick County.

The C. Burr Artz Library on East Patrick Street in the City of Frederick is the largest public library in Frederick County. The Gaithersburg Regional Library, located in Montgomery Village, is Montgomery County's largest public library.

The Shady Grove Life Sciences Center contains a variety of public and private healthcare facilities such as Shady Grove Adventist Hospital, physician's offices, and mental health services. Frederick Memorial Hospital is the primary hospital in Frederick County.

Table III-15 lists community facilities and services in the immediate vicinity of the proposed improvements. The locations of these are shown on the engineering plans in the **Volume 2 of 2, Chapter XI**.

b. Impacts and Mitigation Measures

The No-Build Alternate will not directly affect community facilities and services. However, the No-Build Alternate does not address the need for additional capacity and will exacerbate traffic congestion and safety hazards along I-270 that will occur with the planned growth in the Corridor.

The TSM/TDM Alternate, while improving the efficiency of existing roadways, is not expected to have a direct impact on existing community facilities and services.

All of the build alternates would, to varying degrees, improve overall access and mobility in the project area.

Schools

Alternate 1 (No-Build Alternate)

The No-Build Alternate could adversely affect existing schools or school bus safety due to the increase in travel time thereby producing greater traffic volumes and exacerbating congestion in the I-270/US 15 Corridor. An increasingly congested and dangerous transportation facility, especially during the peak hours, may have a negative impact on school bus safety.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate, while improving the efficiency of existing roadways, is not expected to have a direct impact on schools.

TABLE III-15
COMMUNITY FACILITIES AND SERVICES IN THE PROJECT AREA

Facility	Engineering Plans, Sheet*
Educational Facilities	
Summit Hall Elementary	HWY 1
Fox Chapel Elementary	HWY 3
Montgomery College Germantown Campus	HWY 3
Roberto Clemente Middle School	HWY 3
Urbana Elementary	HWY 8
Heather Ridge	HWY 13
Governor Thomas Johnson High	HWY 13
Hood College	HWY 13
North Frederick Elementary	HWY 13
Fields Road Elementary School	TRAN 3
Browns Station Elementary School	TRAN 4
Waters Landing Elementary	TRAN 5
Religious Facilities	
Derwood Bible	TRAN 1
Victory Christian Church	TRAN 4
Saint Lacy's Cemetery	HWY 2
St. Jude AME Church	HWY 3
New Covenant Fellowship Church	HWY 3
Salvation Army Church	HWY 3
Garden of Remembrance/Gan Zikaron Memorial Park	HWY 6
Oasis Christian Center	HWY 6
Christian Cemetery	HWY 7
St. Ignatius of Loyola Church	HWY 8
Old Urbana Church Ruins	HWY 8
Mount Olivet Cemetery	HWY 11
Frederick Memorial Park Cemetery	HWY 12
Church of Jesus Christ of Latter Day Saints	HWY 12
Trinity United Methodist Church	HWY 12
St. Peter and Paul Greek Orthodox	HWY 13
Post Offices	
Gaithersburg – Diamond Farm Branch	TRAN 4
Clarksburg	TRAN 6
Frederick	HWY 13
Health Care/Senior Care Facilities	
Shady Grove Adventist Adult Day Care and Nursing Center	TRAN 2
US Department of Health and Human Services	HWY 1

TABLE III-15 (CONTINUED)
COMMUNITY FACILITIES AND SERVICES IN THE PROJECT AREA

Facility	Engineering Plans, Sheet*
Beverly Healthcare of Frederick	HWY 12
Sunrise Assisted Living	HWY 12
College View	HWY 13
Johns Hopkins Medical Services/Gambrose Healthcare	HWY 14
Taney Village	HWY 14
Homewood at Crumland Farms	HWY 14
Libraries	
Montgomery College Library	HWY 3
Police/Fire	
Police and Fire Department Training Academy	TRAN 3
Germantown Police Department	HWY 3
Germantown Fire Company 29	HWY 3
Montgomery County Correctional Facility	HWY 6
Urbana Fire & Rescue	HWY 8
Maryland State Police Barracks B	HWY 12

* *Locations of community facilities are shown on the engineering plans in* ***Volume 2 of 2, Chapter XI***

Alternates 3A/B, 4A/B and 5A/B/C

Highway Alignment

The proposed northbound C-D lanes between Middlebrook Road and MD 118 will require 1.8 acres of (vacant) property acquisition from the publicly-owned Montgomery College Germantown Campus (refer to engineering plans, sheet **HWY 3 in Volume 2 of 2, Chapter XI**). Access to the college is provided on MD 118; therefore, the highway alignment is not expected to directly impact access to the school or place additional traffic in front of the school.

The highway alignment will require 2.4 acres of property acquisition from the Urbana (public) Elementary School and will displace a portion of the existing intramural field that contains a ball field and have a visual effect (refer to engineering plans, sheet **HWY 8** in **Volume 2 of 2, Chapter XI**). The facilities at Urbana Elementary including the ball field, soccer field, tennis/basketball courts and a playground are located to the rear of the school and available for use by the public. Access to the school is provided on MD 355; therefore, the highway alignment is not expected to directly impact access to the school or place additional traffic in front of the school. The Section 4(f) Evaluation in **Chapter VI** contains further discussion of impacts to Urbana Elementary School.

The Frederick County Department of Planning mentions one proposed school, tentatively named the South Frederick Area Elementary School, located on the north side of Foxcroft Drive, west of New Design Road. The school's site plan has been approved to serve a capacity of 709

students. Anticipated completion is fall 2004. Further planning and coordination with Frederick County will be necessary to determine the potential effect of the highway alignment in this area.

Transitway Alignment

The transitway alignment is not expected to impact existing public schools.

The *Shady Grove Master Plan* (1990) mentions two proposed school sites for the King Farm and one school site west of Decoverly Drive on the Crown Farm property. The transitway alignment would provide access to these facilities and complement the surrounding land uses.

Libraries and Post Offices

Alternate 1 (No-Build Alternate)

The No-Build Alternate will have no effect on these facilities.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate, while improving the efficiency of existing roadways, is not expected to have a direct impact on these facilities.

Alternates 3A/B, 4A/B and 5A/B/C

The build alternates, while improving the efficiency of existing roadways, are not expected to have a direct impact on these facilities.

Fire, Police, and Health Care Services

Alternate 1 (No-Build Alternate)

The No-Build Alternate will adversely affect existing fire, police, and health care services and facilities because the increase in travel will produce greater traffic volumes and exacerbate congestion on I-270 and US 15. Emergency response times will lengthen and access to area services and facilities will become increasingly congested and dangerous, especially during the peak hours.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate, while improving the efficiency of existing roadways, is not expected to have a direct impact on fire, police, and health care services and facilities.

Alternates 3A/B, 4A/B and 5A/B/C

Highway Alignment

The proposed highway improvements will provide additional access points for residents and emergency vehicles through the introduction of new interchanges and service roads. The additional capacity is expected to result in the reduction of travel time and traffic delays. The

additional through-lanes will enable emergency vehicles to travel to and from the scene of an emergency more quickly and safely. The highway alignment is not expected to impact access to or the expansion or location of fire, police and health care services and facilities.

Public safety departments were contacted regarding potential impacts to emergency response times and accident rates. The Montgomery County Department of Police, in a letter dated May 2, 2000, suggested that vehicular safety and emergency response times could be improved by eliminating the current HOV restrictions along I-270 and improving the southbound access ramps along I-270 at Middlebrook Road, Montgomery Village Avenue, and I-370 (refer to **Chapter VII**, Comments and Coordination). The I-270/US 15 Corridor project does include new interchanges and access roads at this location.

The Public Safety Division of the Frederick County Department of Fire/Rescue Services, in a letter dated May 4, 2000, suggested that new interchanges at US 15/Trading Lane, US 15/Biggs Ford Road, and I-270/MD 75 Extended will substantially improve response times and safety for emergency personnel (refer to **Chapter VII**, Comments and Coordination). Furthermore, the Public Safety Division also recommends that the existing interchanges on US 15 from Jefferson Street to MD 26 should be improved for safety. The I-270/US 15 Corridor project includes new interchanges and access roads at US 15/Trading Lane, US 15/Biggs Ford Road and US 15/Jefferson Street that will improve safety. None of the alternates is expected to adversely affect the expansion or location of fire and police services.

In addition, Alternate 5C will impact the parking lot and traffic flow at the US Department of Health and Human Services building located east of I-270, north of I-370. The Department of Health and Human Services facility is located off Industrial Drive in the northeast quadrant of the I-270/I-370 interchange. The proposed I-370 direct access ramps, which are proposed in Alternate 5C, would impact approximately 94 of the facility's 172± parking spaces, and would modify the overall traffic circulation around the facility (refer to plan sheet **HWY 1B, in Volume 2 of 2, Chapter XI**). If retaining walls were constructed along the proposed improvements, this would reduce the number of parking spaces impacted to approximately 18 parking spaces, and would likely maintain the existing traffic circulation within the facility. The proposed direct access ramps at the I-370 interchange have been identified as a non-preferred alternate due to the number of residential displacements associated with these ramps (see Non-Preferred Alternates discussion in **Section S.I**, Issues to be Resolved and **Section V.E**, Trade-Off Analysis).

Transitway Alignment

The transitway alignment will not affect the provision of police and fire services because the alignment will be on an exclusive right-of-way with limited at-grade crossings. The transitway alignment passes approximately 1,000 feet to the south of the Germantown police and fire services located on Crystal Rock/Century Boulevard. The transitway alignment is not expected to impact the operations of this facility or access to this facility.

Religious Facilities

Alternate 1 (No-Build Alternate)

The No-Build Alternate will not directly affect religious facilities.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate, while improving the efficiency of existing roadways, is not expected to have a direct impact on religious facilities.

Alternates 3A/B, 4A/B and 5A/B/C

All of the build alternates will require approximately five acres of (vacant) private property acquisition from the New Covenant Fellowship Church (refer to the engineering plans, sheet **HWY 3** and **TRAN 5** in **Volume 2 of 2, Chapter XI**). The new southbound C-D lane and the new transitway will have a visual effect on the New Covenant Fellowship Church by placing these transportation improvements closer to the church. However, the rear of the church already has a direct view of the existing highway facility and the visual effect of the new facilities is not expected to substantially differ from the existing view. Since access to the church is provided on Waring Station Road, the build alternates are not expected to affect access to or provide additional traffic in front of New Covenant Fellowship Church.

The highway alignment will also require up to 2.3 acres of property (open space) from the Garden of Remembrance/Gan Zikaron Memorial Park.

The highway components of the build alternates will be visible to several area churches: St. Ignatius Catholic Church and Oasis Christian Center in Montgomery County and the Church of Jesus Christ Latter Day Saints, Trinity United Methodist Church, and the Church of the Brethren in Frederick. However, these churches already have a view of existing I-270 or US 15 and the view of the widened facility will not be substantially different. The build alternates will not affect access to or require property acquisition from these facilities.

Mitigation Measures

Mitigation measures that could lessen visual effects to sensitive residential and recreational properties include clearing no more vegetation than necessary; landscaping and planting to screen adjacent land uses; and landscaped enclosures, as appropriate.

Effects from construction activities will be temporary and will not be substantive corridor-wide. Construction will be restricted to the designated station sites, construction staging areas, and alignment sections. Construction-phase effects to neighborhoods will occur as residents, employers and employees experience a variety of temporary disruptions caused by traffic lane diversions, possible loss of parking, and the presence of construction equipment and materials, noise, vibration and airborne dust.

Deliveries of material and equipment and activities that generate dust and noise can be controlled to minimize disruptions of surrounding areas. Various other measures that could further reduce the possibility of short-term effects (experienced during the construction phase) associated with these activities include:

- Restricting disruptive construction activities to daytime off-peak hours.
- Confining heavy construction/vehicle (earth movers, graders, etc.) operations to the location of the alignment to minimize noise or other intrusions on adjacent streets.
- Controls on demolition activities.

Maintenance of traffic plans on I-270, US 15, and vicinity state and local roads, will be further developed during the final design phase and refined prior to implementation during construction. Public information and notification programs will advise area residents and businesses of traffic detours. Temporary paths to facilitate pedestrian movements to and through the area, detour/guide signs, and temporary traffic signals are among the tools available to help maintain travel patterns. Similar educational awareness programs will be implemented to familiarize area residents, school officials, and students with transit operations and safety plans.

5. Parks and Recreational Facilities

a. Existing Conditions

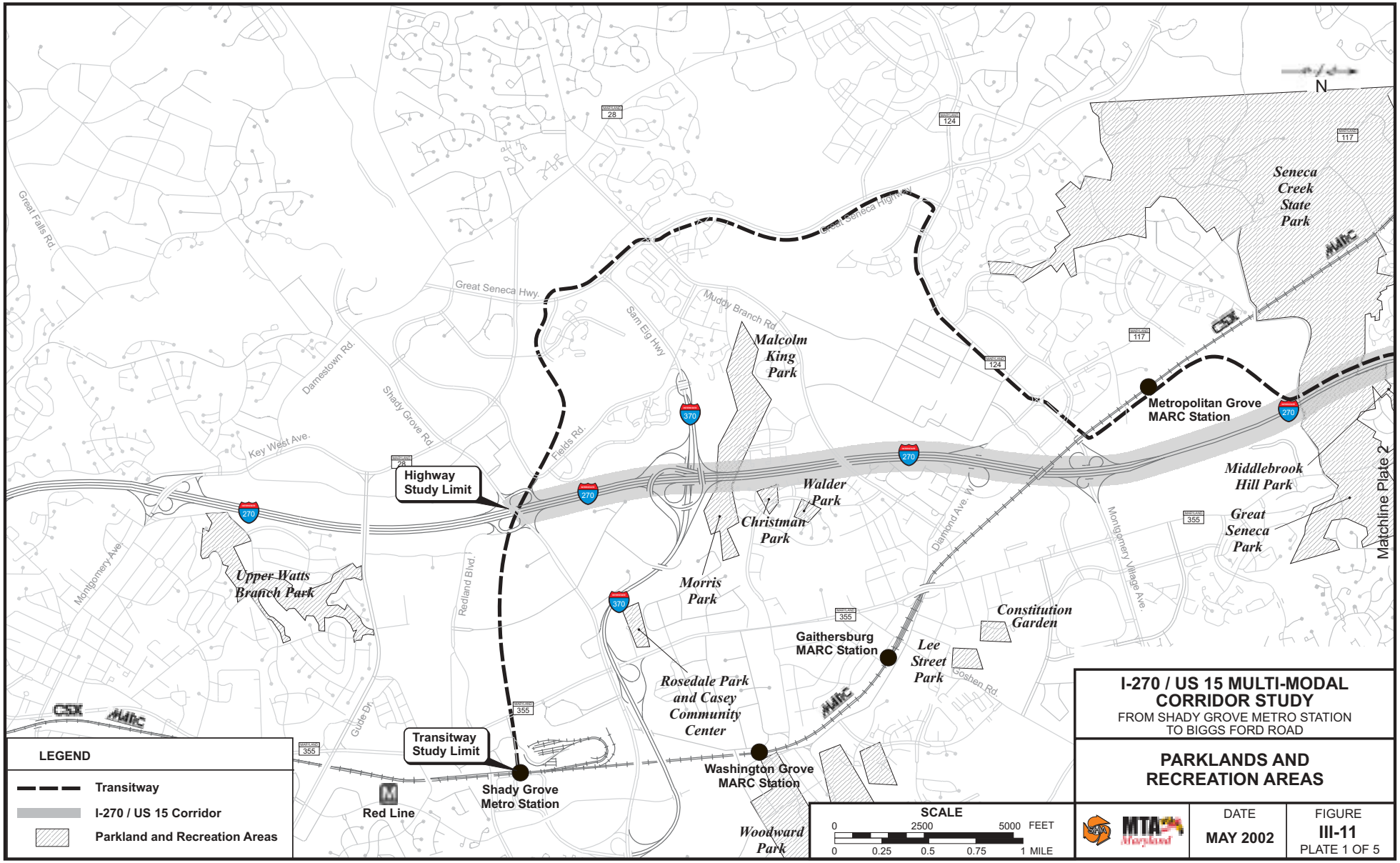
Parks

Twenty park and recreational facilities, offering a diverse range of activities, are located in the project area **(Figure III-11)**. **Table III-16** indicates the parks and recreational facilities within the immediate vicinity of the proposed improvements. The locations of these are shown on the engineering plans in **Volume 2 of 2, Chapter XI**. Some of the parks are undeveloped while others contain baseball, football and soccer fields, playgrounds, tennis and basketball courts, hiking trails, picnic tables, pavilions and ponds. Maintenance and ownership of these parks vary among the National Park Service (NPS), Maryland Department of Natural Resources (DNR), M-NCPPC and county and local municipalities.

The four largest parks in the immediate vicinity of the proposed improvements are:

1. **Seneca Creek State Park** (sheet **HWY 3,** in **Volume 2 of 2, Chapter XI**) - largest park along the I-270/US 15 Corridor, is a 6,290-acre stream valley park located 1.5 miles west of Gaithersburg. This Maryland Department of Natural Resources (DNR)-owned facility offers biking, skiing, boating, camping, fishing, canoeing, hiking, hunting, picnic tables, playgrounds, horseback riding, shooting range, shelter, 90-acre lake and historical artifacts such as old mills, stone quarries and an old schoolhouse.

2. **Little Bennett Regional Park** (sheet **HWY 6,** in **Volume 2 of 2, Chapter XI**) – located in northern Montgomery County near the Clarksburg/Hyattstown areas. Little Bennett is 3,648 acres of primarily undeveloped land; however, a few amenities exist in the area: picnic areas, camping areas and an 18-hole golf course. This facility is owned by M-NCPPC.



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

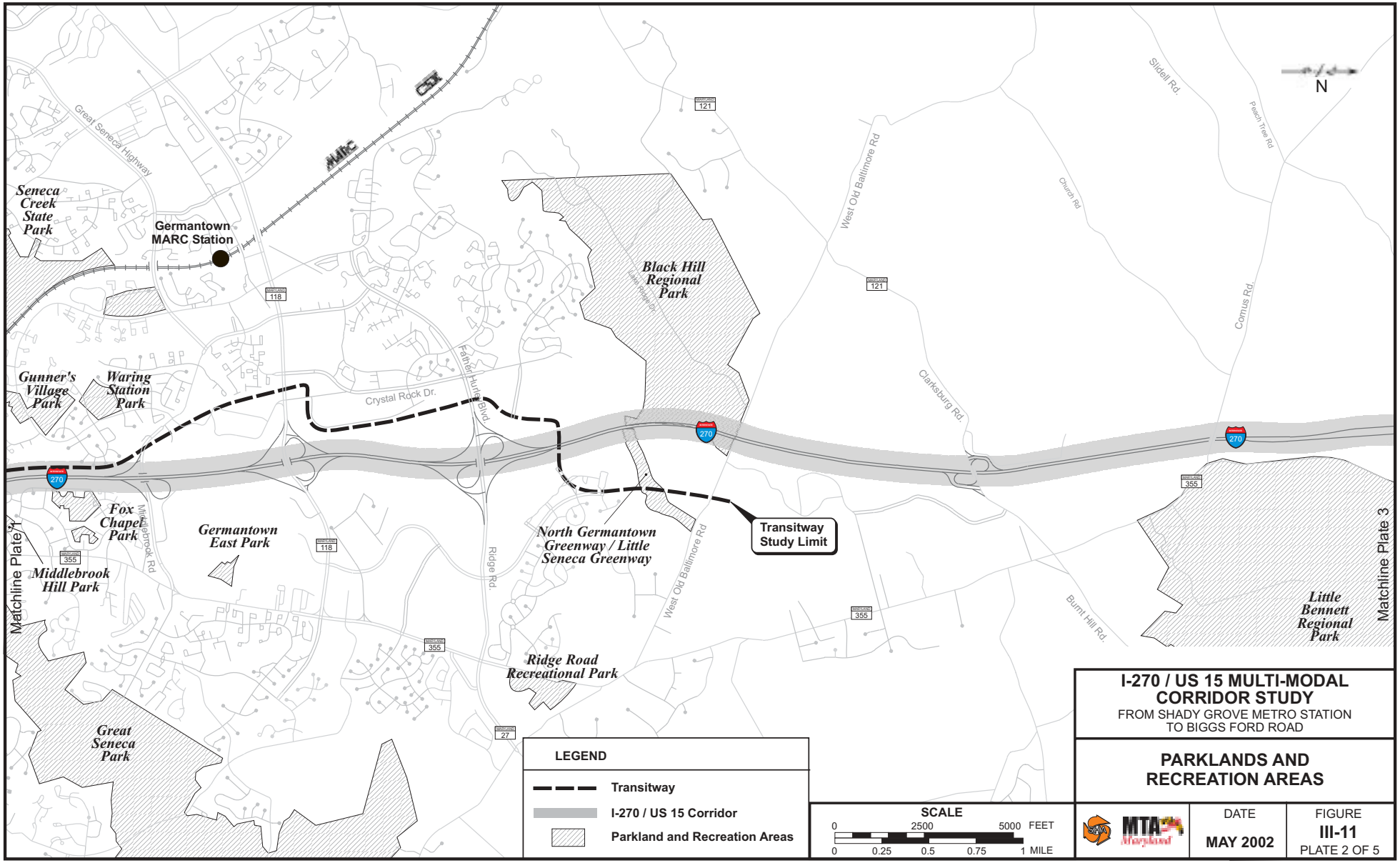
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

PARKLANDS AND RECREATION AREAS

DATE: MAY 2002

FIGURE: III-11

PLATE 1 OF 5

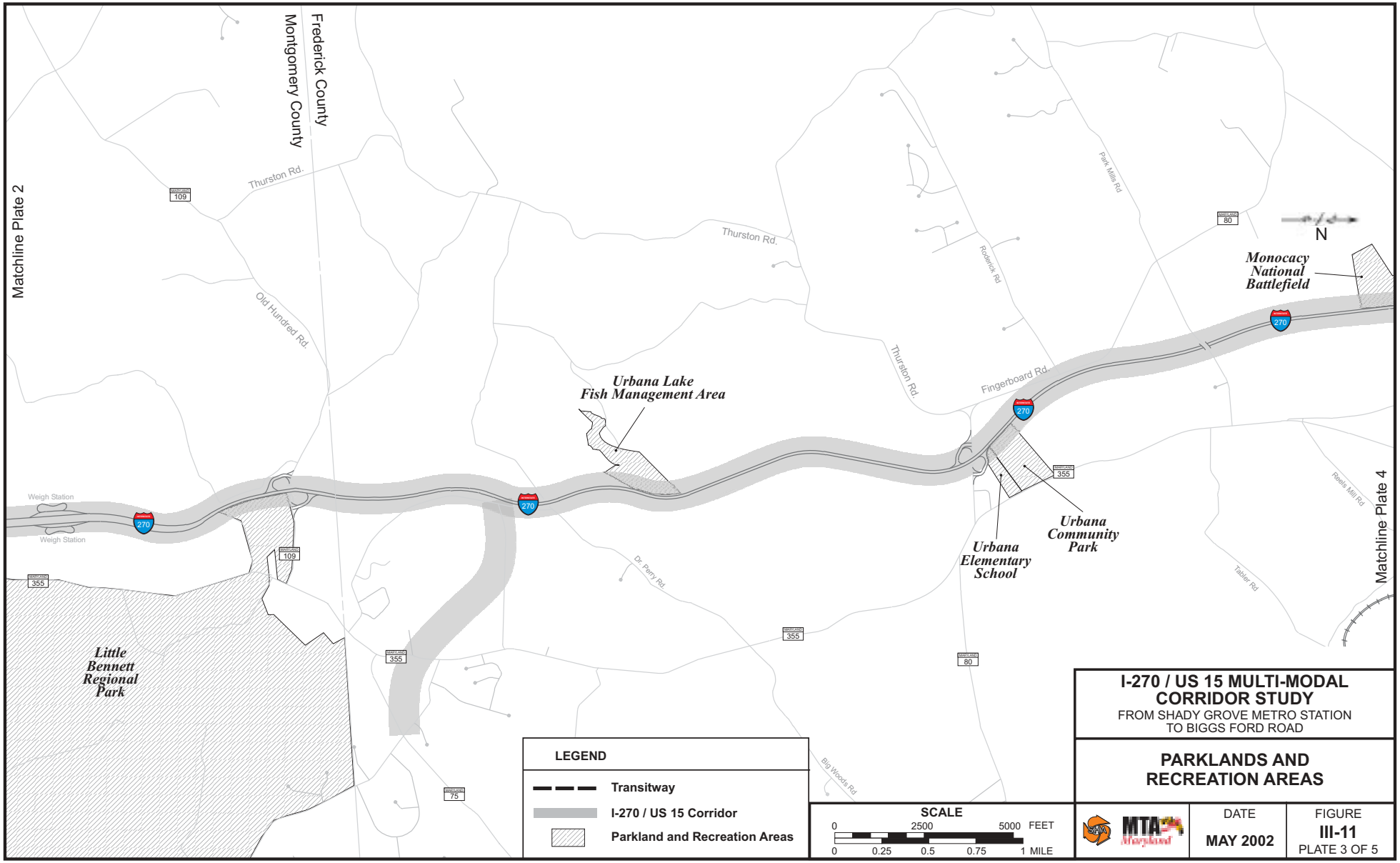


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

PARKLANDS AND RECREATION AREAS

DATE	FIGURE
MAY 2002	III-11
	PLATE 2 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

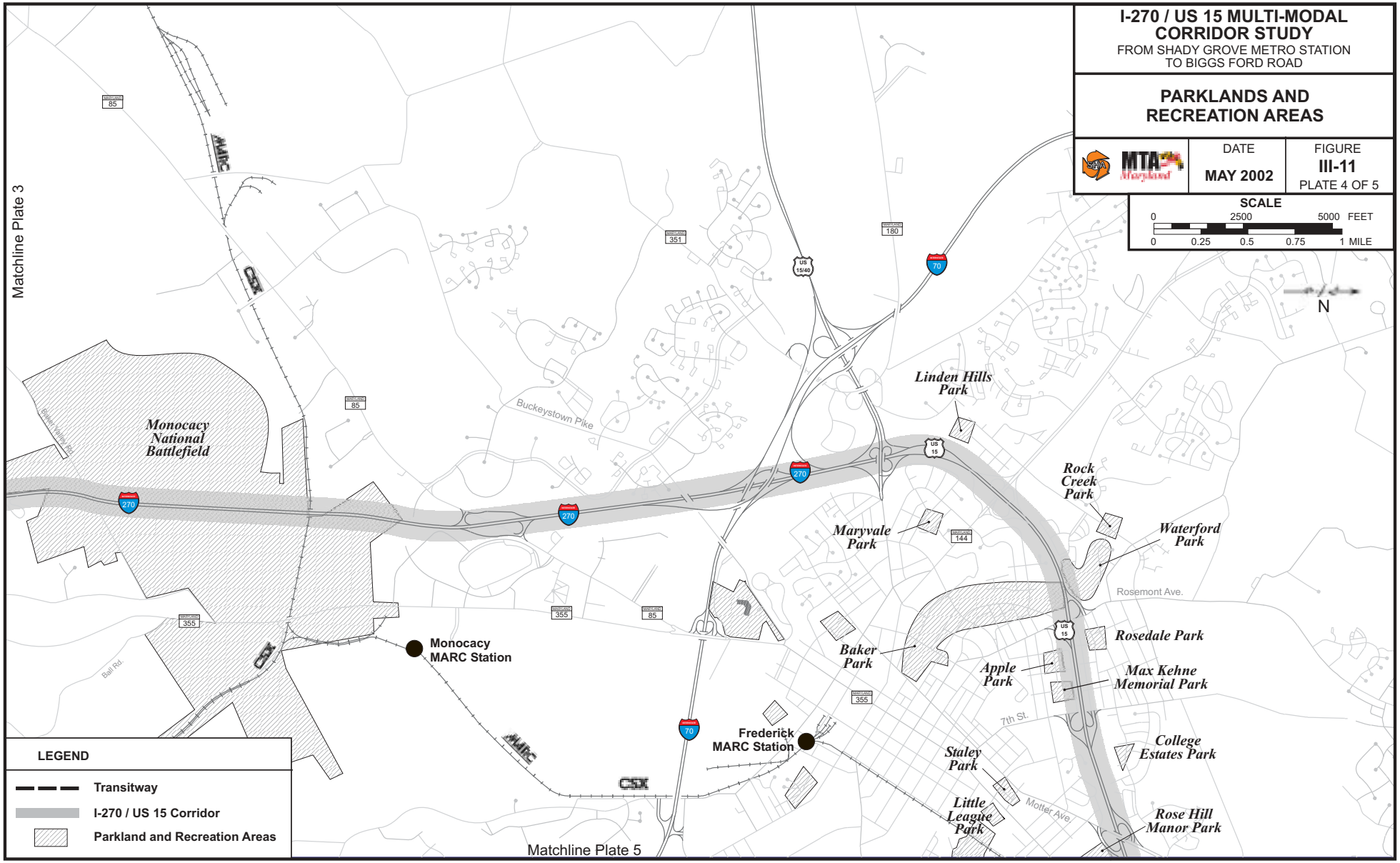
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

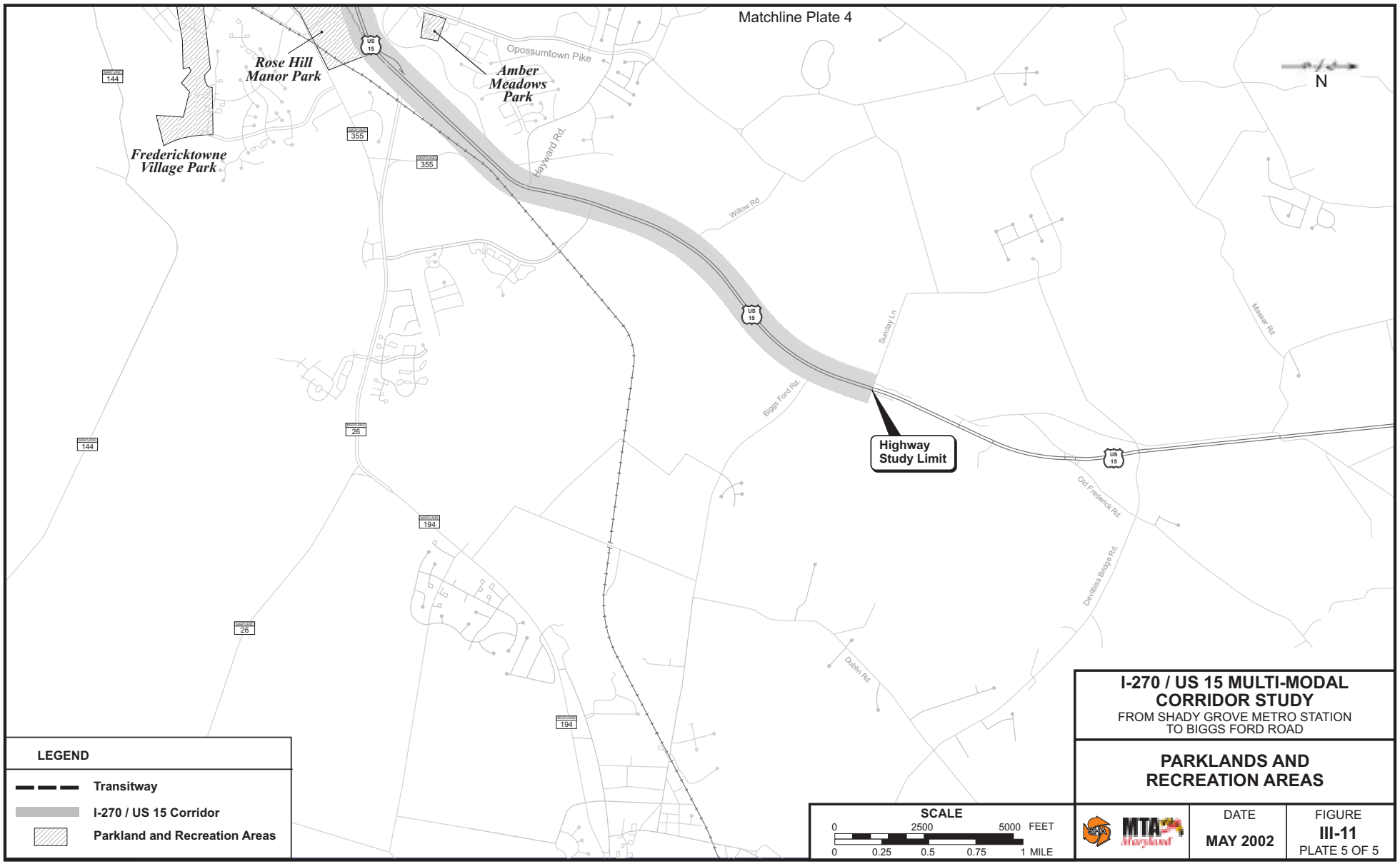
PARKLANDS AND RECREATION AREAS

DATE: MAY 2002

FIGURE III-11

PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PARKLANDS AND RECREATION AREAS
DATE
MAY 2002
FIGURE
III-11
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Monocacy National Battlefield
Monocacy MARC Station
Frederick MARC Station
Linden Hills Park
Rock Creek Park
Waterford Park
Maryvale Park
Rosemont Ave.
Rosedale Park
Baker Park
Apple Park
Max Kehne Memorial Park
7th St.
College Estates Park
Staley Park
Little League Park
Motter Ave.
Rose Hill Manor Park
Buckeystown Pike
Bush Creek Rd.
Bell Rd.
LEGEND
Transitway
I-270 / US 15 Corridor
Parkland and Recreation Areas


Matchline Plate 4
Rose Hill Manor Park
Amber Meadows Park
Fredericktowne Village Park
Opossumtown Pike
Hayward Rd.
Willow Rd
Sunday Ln
Biggs Ford Rd.
Highway Study Limit
Old Frederick Rd.
Devilbiss Bridge Rd.
Dublin Rd.
Masser Rd.
N
US 15
MARYLAND 144
MARYLAND 355
MARYLAND 26
MARYLAND 194
LEGEND
Transitway
I-270 / US 15 Corridor
Parkland and Recreation Areas
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PARKLANDS AND RECREATION AREAS
DATE
MAY 2002
FIGURE
III-11
PLATE 5 OF 5

3. **Black Hill Regional Park** (sheets **HWY 4** and **HWY 5,** in **Volume 2 of 2, Chapter XI**) – located west of I-270 and south of Old Baltimore Road in Montgomery County contains 1,855 acres and provides a wide variety of amenities such as fishing, boating, hiking, nature canter and equestrian trails. This facility is owned by M-NCPPC.

4. **Monocacy National Battlefield** (sheets **HWY 9, 10, and 11 in Volume 2 of 2, Chapter XI**) – located on both sides of I-270 south of MD 85 in Frederick County contains 1,647 acres in an historic setting. The July 9, 1864 engagement of Union and Confederate forces bought the time necessary for the Union army to successfully fortify Washington, DC against Confederate capture. A Visitor's Center and hiking trails are available at this facility and additional trails are planned. This facility is owned by NPS.

As new residential and commercial development continues throughout the I-270/US 15 Corridor, community planners have requested that recreation areas be incorporated into their plans. By encouraging developers to construct these facilities, the counties can increase the number of facilities available to its residents.

A number of bikeways and trails exist or are planned in the I-270/US 15 Corridor. Bikeways and trails provide a travel alternate to the automobile and compliment the recreational aspects of park resources. Please refer to **Section II.C** for further information on bikeway and trail resources and their relationship to the build alternates.

TABLE III-16
PARKS AND RECREATIONAL FACILITIES IN THE PROJECT AREA

Name of Park	Engineering Plans, Sheet*	Amenities	Size (Acres)	Jurisdiction
Christman Park	HWY 1	Picnic tables, ponds	4.3	City of Gaithersburg
**Morris Park (formerly Summit Hall Park)	HWY 1	Baseball and soccer fields, playground, tennis courts, pavilion, picnic tables	37.2	City of Gaithersburg
**Malcolm King Park	HWY 1	Basketball and tennis courts, playground, picnic tables and hiking trail	72.9	City of Gaithersburg
Walder Park	HWY 2	Basketball court, playground, hiking trail, pavilion	2.3	City of Gaithersburg
Great Seneca Park	HWY 2, 3	Hiking tails	1,649	Montgomery County
Fox Chapel Park	HWY 3	School, playground, softball field, tennis court, picnic area and shelter	16	M-NCPPC
**Middlebrook Hill Park	HWY 3	Undeveloped	11.5	M-NCPPC
**Seneca Creek State Park	HWY 3	Biking, hiking and riding trails, boating, skiing, fishing, canoeing, hunting and playground	6,290	MD DNR
**North Germantown Greenway	HWY 4	Under construction. Proposed athletic field, playground, picnic area, basketball court, trail	197	M-NCPPC
**Black Hill Regional Park	HWY 4, 5	Playground, picnic areas, lake	1,855	M-NCPPC
**Little Bennett Regional Park	HWY 6	Camping, picnic area	3,648	M-NCPPC
**Urbana Lake Fish Management	HWY 8	Undeveloped	70	MD DNR
**Urbana Elementary School	HWY 9	Ball field, soccer field, tennis/basketball courts and a playground	21	Frederick County
**Urbana Community Park	HWY 9	Pavilions, picnic tables, baseball, soccer fields, playground, tennis courts	20	Frederick County
**Monocacy National Battlefield	HWY 9, 10, 11	Hiking trails and Visitor Center, additional trails planned in the future	1,647	National Park Service
**Rose Hill Manor Historic Park and Frederick County Museum	HWY 13	Children's Museum	43	Frederick County
Rosedale Park	HWY 13	Pavilion restrooms, playground equipment, basketball court	2.9	Frederick City
Max Kehne Memorial Park	HWY 13	Softball and football fields	10	Frederick City
Apple Avenue Park	HWY 13	Undeveloped	1.87	Frederick City
Waterford Park	HWY 13	Undeveloped	18.2	Frederick City
**Baker Park	HWY 13	Lake, swimming pool, playground, tennis courts, softball and football fields	44	Frederick City

Notes: ***** *Locations of parks are shown on the engineering plans in* ***Volume 2 of 2, Chapter XI***
Refer to* ***Chapter VI*, Section 4(f) Evaluation, that contains information on impacts to parkland and recreational facilities, including a discussion of efforts to avoid, minimize and mitigate adverse impacts.*

b. Impacts and Mitigation Measures

Alternate 1 (No-Build Alternate)

The No-Build Alternate will not directly impact parks and recreational facilities.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate, while improving the efficiency of existing roadways, is not expected to have a direct impact on parks and recreational facilities.

Alternates 3A/B, 4A/B and 5A/B/C

The build alternates will require right-of-way from publicly-owned public parks located in the immediate project area. Please refer to **Chapter VI**, the Section 4(f) Evaluation, for more detailed analysis of impacts to parks and recreational facilities including a discussion of efforts to avoid, minimize and mitigate adverse impacts. The build alternates will have impacts on the following parks based on the original design using 2:1 slope limits:

Morris Park

Morris Park contains 37.2 acres and is owned by the City of Gaithersburg. Morris Park will be impacted along its southern and western boundary with I-270 by Alternate 5C only, as a result of northbound I-270 highway improvements. Under this alternate, the addition of C/D lanes, and an HOV direct access ramp require that 100 linear feet to 200 linear feet be acquired for additional right-of-way. The proposed improvements require that 0.99 acre of the park's 37.2 acres will be impacted. The transitway components of the build alternates would not impact Morris Park.

Malcolm King Park

Malcolm King Park contains 72.9 acres and is owned by the City of Gaithersburg. Under Alternates 3A/B, 4A/B and 5A/B/C, I-270 southbound would be widened to include the addition of C/D lanes on the southbound side from Father Hurley Boulevard to I-370. For Alternates 3A/B, 4A/B and 5A/B the proposed C/D lanes pass adjacent to the south side of Malcolm King Park and the widening requires the acquisition 0.49 acre for additional right-of-way from the 72.9-acre park. The impact occurs over a length of approximately 300 linear feet. The proposed alignment will shift the embankment 100 feet towards and into the park, impacting the edge of the forested area.

In addition, Alternate 5C provides direct access ramps from the proposed I-270 HOV lanes to I-370. Construction of these direct access ramps would require further widening of I-270 causing a slightly greater impact to Malcolm King Park. The additional 0.09-acre of land required would result in a total of 0.58 acre required from Malcolm King Park. The transitway component of the build alternates would not impact Malcolm King Park.

Seneca Creek State Park

Seneca Creek State Park is owned by DNR and contains 6,290 acres. I-270 bisects Seneca Creek State Park where the highway crosses Seneca Creek. Under proposed Alternates 3A/B, 4A/B and 5A/B/C, I-270 will be widened to include the addition of C/D lanes on both the northbound and the southbound sides from the proposed Watkins Mill Road to Middlebrook Road. In order to undertake this project, approximately 60 feet to 105 feet of additional right-of-way are required for the highway improvements. The additional right of way from the park will occur over a length of approximately 1,600 feet on the northbound side and 2,000 feet on the southbound side. The widening requires that 8.49 acres of the park's 6,290 acres be acquired, causing impacts to vegetation, including forested floodplains and upland forest.

The proposed transitway lies parallel to I-270 on the southbound side. The combined transitway and highway improvements would require an additional 115 to 210 feet outside of the existing right-of-way, thus increasing the above-described impacts. The length the transitway would affect the park is approximately 2025 linear feet. The transitway will impact an additional 2.00 acres over the highway improvement impacts, for a total of 10.49 acres.

Middlebrook Hill Park

Middlebrook Hill Park is owned by M-NCPPC and contains 11.5 acres. Under Alternates 3A/B, 4A/B and 5A/B/C, I-270 would be widened to include the addition of C/D lanes on both the northbound and the southbound sides from the proposed Watkins Mill Road to Middlebrook Road. In order to widen the highway, 1.90 acres needs to be acquired for the additional right-of-way required for construction of this project. This impact occurs with the highway widening of the northbound roadway over a length of approximately 1,000 linear feet. The transitway components of the build alternates would not impact Middlebrook Hill Park.

Black Hill Regional Park

Black Hill Regional Park contains 1,855 acres and is owned by M-NCPPC. Alternates 3A/B, 4A/B and 5A/B/C include the widening of I-270 in the vicinity of Black Hill Regional Park between Father Hurley Boulevard and MD 121. The northbound HOV lane would be converted to a general-purpose lane; a new HOV lane would be added to the inside in both the northbound and southbound directions; and an additional general-purpose lane would be added through outside widening in both the northbound and southbound directions. This widening requires the acquisition of 7.64 acres for additional right-of-way from the 1,855-acre park. This impact occurs over a length of approximately 1,100 linear feet (northbound side) to 3,400 linear feet (southbound side). The transitway components of the build alternates would not impact Black Hill Regional Park.

Little Bennett Regional Park

Little Bennett Regional Park is owned by the M-NCPPC and contains 3,648 acres. Alternates 3A/B, 4A/B and 5A/B/C include the widening of I-270 in this area from two lanes to three lanes in each direction. In order to construct the two lanes, the grass median would be filled, to accompany the new lane and inside shoulder, and the outside shoulder would have to be widened as well. Construction of the outside lane requires the acquisition of additional right-of-way,

impacting 0.01 to 0.02 acre of the park's 3,648 acres. The transitway components of the build alternates would not impact Little Bennett Regional Park.

Urbana Lake Fish Management Area

Urbana Lake Fish Management Area contains 70 acres and is owned by DNR. Under Alternates 3A/B, 4A/B and 5A/B/C, I-270 would be widened between Hyattstown and Urbana. Alternates 3A/B and 4A/B expand the highway from two lanes to three lanes (including the HOV lane) in each direction. Alternates 5A/B/C expand the highway from two lanes to four lanes (including an HOV lane) in each direction. In order to hold a consistent 30-foot median throughout the corridor where a barrier is present, the additional lane(s) can only partially be added to the inside with the remainder added to the outside. Any construction on the outside requires the acquisition of additional right-of-way. Impacts to the park will occur due to widening the southbound roadway over a length of approximately 1,000 linear feet. Of the park's 70 acres, 0.41 acre in Alternates 3A/B and 4A/B and 0.85 acre in Alternates 5A/B/C will be impacted. The transitway components of the build alternates would not impact the Urbana Lake Fish Management Area.

Urbana Community Park

Urbana Community Park is owned by Frederick County and contains 20 acres. I-270 would be widened in each direction between Urbana and Frederick. Alternates 3A/B and 4A/B expand the highway from two lanes to three lanes (including the HOV lane) in each direction, while Alternates 5A/B/C expand the highway from two lanes to four lanes (including HOV lane) in each direction. Any construction on the outside requires the acquisition of additional right-of-way. Of the park's 20 acres, 0.15 acre would be impacted in Alternates 3A/B and 4A/B and 0.33 acre would be impacted in Alternates 5A/B/5C. The length of park impact is approximately 500 linear feet from widening the northbound roadway. The transitway components of the build alternates would not impact the Urbana Community Park.

Monocacy National Battlefield

The existing I-270 roadway bisects Monocacy National Battlefield, a 1,647-acre park owned by the NPS, whose key features include a major Civil War battlefield and a visitor center. Under Alternates 3A/B and 4A/B, I-270 would be widened from two lanes to three lanes (including the HOV lane) in each direction. Alternates 5A/B/C expand I-270 from two lanes to four lanes (including the HOV lane) in each direction. These improvements would require the acquisition of 11.74 acres for Alternates 3A/B and 4A/B. Alternates 5A/B would require 17.69 acres and Alternate 5C would require 22.52 acres from the park. This impact occurs over a length of approximately 9,700 linear feet to 12,100 linear feet (northbound side) and from 9,500 linear feet to 10,200 linear feet (southbound side). The transitway components would not impact Monocacy National Battlefield.

Baker Park

Baker Park contains 44 acres and is owned by the City of Frederick. Alternates 3A/B, 4A/B and 5A/B/C would widen US 15 from two lanes to four lanes in each direction. One of the two lanes will be added to the grass median on the inside of the roadway, and the other will be on the outside shoulder. In order to widen the highway, 1.27 acres needs to be acquired for the

additional right-of-way required for construction of this project. The length of impacted parkland will occur from widening the northbound roadway for approximately 700 linear feet along the park. The transitway components would not impact Baker Park.

Rose Hill Manor Historic Park

Rose Hill Manor Historic Park is owned by Frederick County and contains 43 acres. Alternates 3A/B, 4A/B and 5A/B/C include the widening of US 15 from two lanes to four lanes in each direction. In order to construct the two lanes, one would be added to the inside of the roadway, and the other would be on the outside. Construction of the outside lane requires the acquisition of additional right-of-way, impacting 0.88 acre of the park's 43 acres. The length of impacted parkland will occur from widening the northbound roadway for approximately 1,200 linear feet to 1,600 linear feet along the park. The transitway components would not impact Rose Hill Manor Historic Park.

Urbana Elementary School

The highway alignment will require 2.4 acres of property acquisition from the Urbana (public) Elementary School and will displace a portion of the existing intramural field that contains a ball field and have a visual effect (refer to engineering plans, sheet **HWY 8** in **Volume 2 of 2, Chapter XI**). The facilities at Urbana Elementary including the ball field, soccer field, tennis/basketball courts and a playground are located to the rear of the school and available for use by the public. Access to the school is provided on MD 355; therefore, the highway alignment is not expected to directly impact access to the school or place additional traffic in front of the school. The Section 4(f) Evaluation in **Chapter VI** contains further discussion of impacts to Urbana Elementary School.

North Germantown Greenway

The North Germantown Greenway is a proposed park under construction for the M-NCPPC. The 197-acre facility is located east of I-270 between Father Hurley Boulevard and West Old Baltimore. The greenway is located along Little Seneca Creek and will be accessible via Observation Drive Extended. The greenway will accommodate recreational facilities such as an athletic field, playground, picnic area, basketball court and a trail. Proposed nearby residential communities will be afforded the opportunity to access the greenway and its facilities once they are also constructed.

C. ECONOMIC ENVIRONMENT

1. Existing Conditions

a. Countywide Employment Characteristics

The project team compared 1999 Employment and Wage data for Frederick County, Montgomery County, Washington, DC, the State of Maryland, and the entire United States. Data for this analysis was provided primarily from Covered Employment and Wages (ES-202) program, compiled by the US Bureau of Labor Statistics. Included are all workers covered by

the Unemployment Insurance (UI) Law of Maryland and the Unemployment Compensation for Federal Employees (UCFE) program.

Frederick County accounts for a relatively small portion of Maryland's economy. Businesses in the County provide only 3.1% of the state's employment and 2.6% of its aggregate payroll. Montgomery County's contribution to the state's economy, in comparison, is much larger, accounting for 18.2% of the state's employment and 21.8% of its aggregate payroll.

Leading Industries

Table III-17 and **Table III-18** show 1999 average annual employment and total wages for Frederick County, Montgomery County, the State of Maryland, and the entire United States. In terms of employment, Frederick County's largest industries are Services, Retail Trade, Government and Construction. Together, these four industries account for nearly half of the County's employees and slightly over half of the County's aggregate payroll. Montgomery County's economy is dominated by three industries: Services, Government and Retail. These three industries account for over three-quarters of the County's employment. With respect to wages, Services and Government produce nearly 63% of the County's payroll. Retail, while accounting for 16.6% of employment, produces only 8.7% of the County's wages. Services are, by far, the greatest of Montgomery County's industries. Accounting for nearly 41% of the County's employees and payroll, the Service industry's employment is twice as large as that of the next closest industry, Government, and nearly double its payroll.

Because of its proximity to Washington, DC, Montgomery County has a substantially larger number of workers in Federal Government. Frederick County has only 3.9% of its workforce employed in Federal Government, while Maryland, as a whole, has a slightly higher rate of 5.4%. In comparison to the entire US, which averages only 2.2% of the workforce employed by the Federal Government, Montgomery County has a rate of 9.2%, over *four times* the national average. This is offset somewhat by Montgomery County's very low percentage (0.3%) of State Government employment.

TABLE III-17
1999 ANNUAL AVERAGE EMPLOYMENT

Industry	Frederick County		Montgomery County		Washington, D.C.*		Maryland		U.S.	
	Annual Average Employment	Percent of Employment In Industry	Annual Average Employment	Percent of Employment In Industry	Annual Average Employment	Percent of Employment In Industry	Annual Average Employment	Percent of Employment In Industry	Annual Average Employment	Percent of Employment In Industry
Government	11,218	15.4%	76,630	18.0%	165,582	26.9%	425,860	18.1%	19,427,941	15.3%
Construction	7,616	10.4%	23,568	5.5%	9,225	1.5%	149,808	6.4%	6,337,318	5.0%
Manufacturing	7,042	9.6%	18,706	4.4%	17,576	2.9%	176,862	7.5%	18,538,380	14.6%
Transportation, Communication and Utilities (Excluding RR)	1,846	2.5%	12,793	3.0%	28,332	4.6%	108,446	4.6%	6,578,109	5.2%
Wholesale	3,329	4.6%	13,323	3.1%	5,718	0.9%	112,958	4.8%	6,903,031	5.4%
Retail	15,537	21.3%	70,783	16.6%	42,708	6.9%	435,939	18.6%	22,812,660	18.0%
Finance, Insurance and Real Estate	5,822	8.0%	30,673	7.2%	33,103	5.4%	139,642	5.9%	7,399,505	5.8%
Services	19,177	26.3%	174,732	40.9%	289,558	47.1%	766,113	32.6%	36,374,009	28.6%
Other	1,447	2.0%	5,636	1.3%	7,989	1.3%	32,010	1.4%	2,668,830	2.1%
Total	73,034	100.0%	426,844	100.0%	615,174	97.5%	2,347,638	100.0%	127,039,783	100.0%

Source: *Covered Employment & Wages (ES-202 Program), MD Department of Labor, Licensing & Regulation and the U.S. Bureau of Labor Statistics (8/9/01)*
Note: **Washington, D.C. employment does not total 100% due to information withheld for confidentiality purposes*

TABLE III-18
1999 ANNUAL AVERAGE WAGES

Industry	Frederick County		Montgomery County		Washington, D.C.*		Maryland		U.S.	
	Total Wages (In Thousands)	Percent of Wages In Industry	Total Wages (In Thousands)	Percent of Wages In Industry	Total Wages (In Thousands)	Percent of Wages In Industry	Total Wages (In Thousands)	Percent of Wages In Industry	Total Wages (In Thousands)	Percent of Wages In Industry
Government	$381,994	18.0%	$3,675,991	20.9%	$9,617,445	30.7%	$16,588,086	20.5%	$657,238,194	15.5%
Construction	$231,930	10.9%	$971,197	5.5%	$355,300	1.1%	$5,467,182	6.8%	$220,526,776	5.2%
Manufacturing	$276,610	13.0%	$1,163,426	6.6%	$1,093,602	3.5%	$7,634,370	9.4%	$777,096,422	18.4%
Transportation, Communication and Utilities (Excluding RR)	$59,676	2.8%	$654,670	3.7%	$1,739,478	5.6%	$4,487,685	5.5%	$274,496,723	6.5%
Wholesale	$118,575	5.6%	$790,745	4.5%	$372,293	1.2%	$5,234,669	6.5%	$304,729,327	7.2%
Retail	$254,468	12.0%	$1,491,803	8.5%	$801,111	2.6%	$8,044,486	9.9%	$401,322,594	9.5%
Finance, Insurance and Real Estate	$211,650	9.9%	$1,540,921	8.7%	$2,367,333	7.6%	$6,653,896	8.2%	$376,372,473	8.9%
Services	$556,903	26.2%	$7,177,881	40.7%	$13,831,289	44.2%	$25,942,988	32.0%	$1,145,436,976	27.1%
Other	$36,018	1.7%	$159,315	0.9%	$449,594	1.4%	$924,046	1.1%	$74,885,690	1.8%
Total	$2,127,826	100.0%	$17,625,949	100.0%	$31,311,983	97.8%	$80,977,408	100.0%	$4,232,105,175	100.0%

Source: *Covered Employment & Wages (ES-202 Program), Maryland Department of Labor, Licensing & Regulation and the U.S. Bureau of Labor Statistics (8/9/01)*
Note: ** Washington, D.C. wages do not total 100% due to information withheld for confidentiality purposes.*

Average Weekly Wages per Worker

According to estimates prepared by the MDP, the 1999 median household incomes for both Frederick and Montgomery Counties remain substantially higher on average than Maryland as a whole -- $61,400 for Frederick County and $68,500 for Montgomery County as compared to $53,300 for the state.[1] Weekly wages per employee also vary widely. **Figure III-12** shows 1999 average weekly wage per worker by industry.

Across all industries, Montgomery County's 1999 average weekly wage was 19.8% higher than the state average and 23.9% higher than the national average. Frederick County, however, averaged 15.5% below the state average and 12.6% below the national average. At $794 per worker per week, Montgomery County workers averaged nearly 42% more wages per week than workers in Frederick County, who averaged only $560 per week. Montgomery County wage averages exceed state averages in every industry, while exceeding national averages in all industries except FIRE (Finance, Insurance, Real Estate) and Other. In contrast, Frederick County average weekly wages per employee are below state averages in every industry and below national averages in all industries except Government.

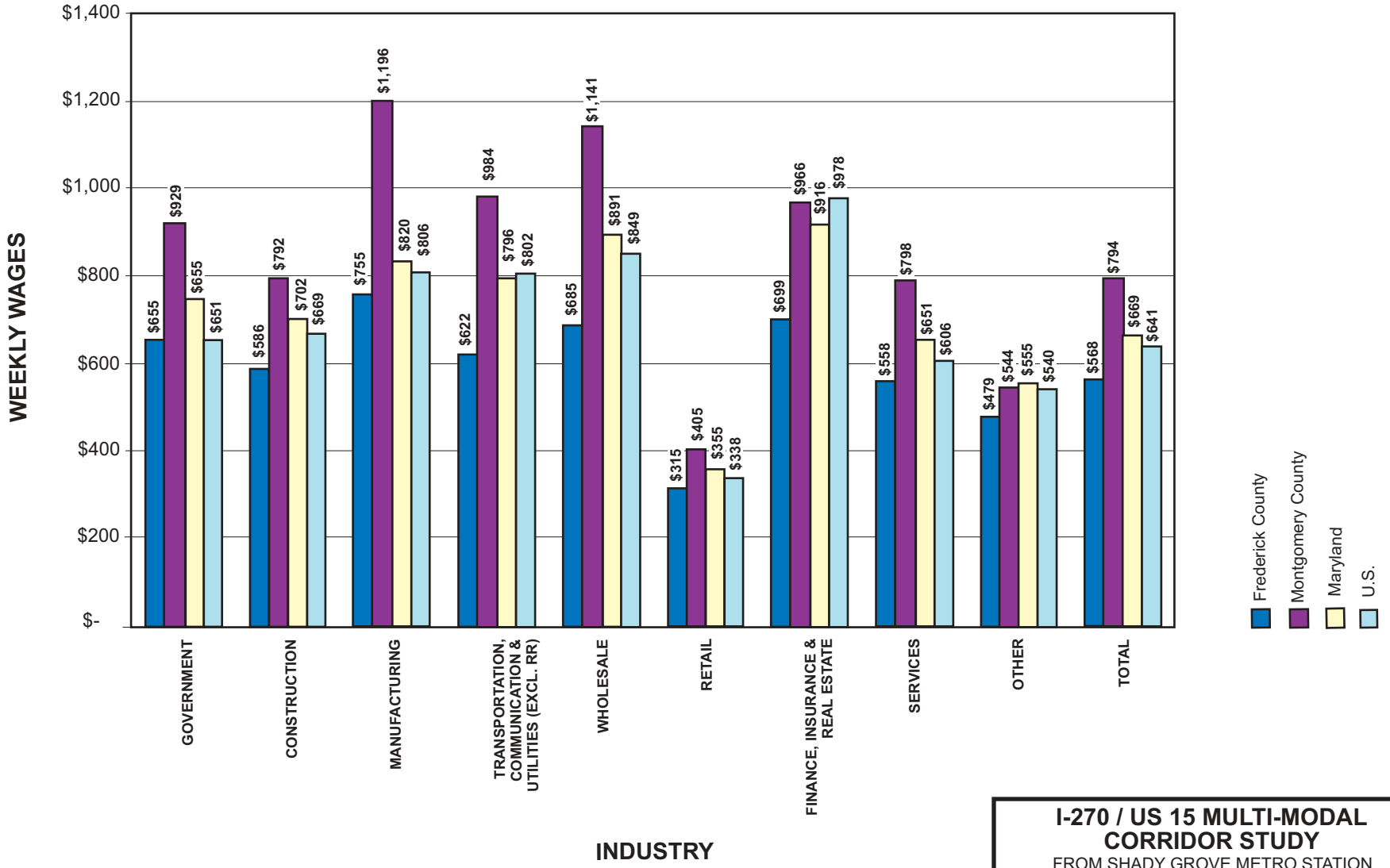
Industry Specialization

To examine the project area's industry specialization, the team calculated Location Quotients (LQ) by industry for the state and each county. An LQ observes what percent of an area's economy is within each major industry group and divides that percentage by the same figure for the larger region. Figures larger than 1.00 indicate industrial specialization. For example, as compared to the nation, the State of Maryland's employment LQ for Construction is 1.28 (6.4% of the state's employment, as compared to only 5.0% of the nation's employment), indicating considerable specialization in Construction employment with respect to the national economy.

In comparison to the United States, Maryland's economy shows specialization in Government, Construction and Services. Maryland's specialization in Government is due primarily to its proximity to Washington, DC as the LQ for Federal Government employment is 2.47 and wage is 2.73. On Maryland's other Government levels, state employment and wages are slightly higher, and local employment and wages are slight lower than for the nation as a whole. In contrast, Maryland's economy also shows a substantially lower than average presence of both Manufacturing and Other industries.

In the Maryland context, Frederick County specializes in the Construction and FIRE industries. However, Frederick County's FIRE wages are relatively low, reflecting the prevalence of lower-than-average wages in Frederick County. Frederick County also shows relatively low concentration in State Government and the TCU (Transportation, Communication, and Utilities) industry, with employment LQs of 0.15 and 0.55, respectively, when compared to Maryland as a whole. **Table III-19** indicates the LQ for 1999 average annual employment and wages.

1 Maryland State data Center Website, 8/21/01



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

1999 AVERAGE WEEKLY WAGE PER WORKER BY INDUSTRY

	DATE	FIGURE
SHA MTA Maryland	MAY 2002	III-12

TABLE III-19
INDUSTRY SPECIALIZATION: LOCATION QUOTIENTS (LQ)
FOR 1999 AVERAGE ANNUAL EMPLOYMENT AND WAGES

Industry	Maryland		Frederick County				Montgomery County			
	with respect to US		with respect to MD		with respect to U.S.		with respect to MD		with respect to U.S.	
	Employment	Wages	Employment	Wages	Employment	Wages	Employment	Wages	Employment	Wages
Government	1.19	1.32	0.85	0.88	1.00	1.16	0.99	1.02	1.17	1.34
Federal Government	*2.47*	*2.73*	*0.72*	*0.75*	*1.78*	*2.06*	*1.69*	*1.65*	*4.18*	*4.49*
State Government	*1.15*	*1.13*	*0.15*	*0.15*	*0.17*	*0.17*	*0.06*	*0.04*	*0.07*	*0.05*
Local Government	*0.91*	*0.94*	*1.23*	*1.33*	*1.12*	*1.25*	*0.97*	*0.89*	*0.88*	*0.84*
Construction	1.28	1.30	1.63	1.61	2.09	2.09	0.87	0.82	1.11	1.06
Manufacturing	0.52	0.51	1.28	1.38	0.66	0.71	0.58	0.70	0.30	0.36
Transportation, Communication and Utilities	0.89	0.85	0.55	0.51	0.49	0.43	0.65	0.67	0.58	0.57
Wholesale	0.89	0.90	0.95	0.86	0.84	0.77	0.65	0.69	0.57	0.62
Retail	1.03	1.05	1.15	1.20	1.18	1.26	0.89	0.85	0.92	0.89
Finance, Insurance and Real Estate	1.02	0.92	1.34	1.21	1.37	1.12	1.21	1.06	1.23	0.98
Services	1.14	1.18	0.80	0.82	0.92	0.97	1.25	1.27	1.43	1.50
Other	0.65	0.64	1.45	1.48	0.94	0.96	0.97	0.79	0.63	0.51

With respect to Maryland, Montgomery County shows economic concentration in the Services and FIRE industries. However, the County's greatest specialization is in Federal employment. When compared in the national perspective, Montgomery's specialization in Federal employment becomes even more pronounced, with wage and employment LQs well above 4.0. As a neighboring jurisdiction to Washington, DC, Montgomery County is home to many of Federal Government agencies, such as the National Institutes of Health. Offsetting this, Montgomery County shows low specialization in the Manufacturing, TCU, and Wholesale industries. Finally, similar to Frederick County, Montgomery County also has much lower-than-average State government employment.

Employment Growth by Sectors

Table III-20 shows employment growth, by industry, in Frederick County, Montgomery County, and the State of Maryland, both in terms of net change in employment and annualized growth rate. Over the period of 1996-2000, while Frederick County's employment growth rate outpaced both Montgomery County and the state of Maryland as a whole, its net impact to employment was only one-quarter that of Montgomery County. Frederick County's annual growth rate was 4.7%, compared to 3.6% for Montgomery County, and 2.5% for Maryland. Frederick experienced its greatest growth rates in the Other, Federal Government, Construction, and Services industries, while it experienced little growth in the TCU, Wholesale, and FIRE industries. Montgomery County experienced its greatest growth in the Other, Construction, TCU, and Services. However, the county experienced net losses in both Federal and State government employees, and showed little growth in Wholesale industries. Though both counties had their greatest growth in Other industries, this sector represents the smallest percentage of employment and wages in each economy, so the growth rates, while very high, made only minor contributions to the overall net job growth for the counties.

TABLE III-20
AVERAGE ANNUAL EMPLOYMENT GROWTH: 1996 - 2000

	Frederick County		Montgomery County		Maryland	
	Change in Employment	**Growth Rate**	**Change in Employment**	**Growth Rate**	**Change in Employment**	**Growth Rate**
Total Employment	13,026	4.7%	59,123	3.6%	229,058	2.5%
Government Sector	1,911	4.5%	1,164	0.4%	23,056	1.4%
Federal Government	*703*	*6.8%*	*-1,814*	*-1.1%*	*-942*	*-0.2%*
State Government	*101*	*5.5%*	*-322*	*-6.2%*	*3,058*	*0.8%*
Local Government	*1,107*	*3.7%*	*3,300*	*2.4%*	*20,940*	*2.7%*
Contract Construction	1,821	6.7%	5,091	5.5%	25,514	4.5%
Manufacturing	1,051	3.8%	3,214	4.4%	5,873	0.8%
Transportation, Communication and Utilities.	100	1.4%	2,584	5.5%	9,279	2.2%
Wholesale Trade	386	2.9%	433	0.8%	6,294	1.4%
Retail Trade	2,588	4.4%	6,085	2.2%	19,716	1.1%
Finance, Insurance and Real Statute	651	3.2%	3,418	2.9%	9,411	1.8%
Services	4,029	5.6%	33,921	5.2%	115,896	4.0%
Other	489	8.5%	3,213	15.4%	14,019	12.5%

Source: *Covered Employment and Wages (ES-202 Program), Maryland Department of Labor, Licensing & Regulation and the U.S. Bureau of Labor Statistics (8/9/01*

b. Project Area Employment Characteristics

Major Commercial and Industrial Facilities

Development in the I-270/US 15 Corridor tends to be organized around dozens of office and industrial parks. The largest, and most well known, of these parks is the Montgomery County Research and Development Village.

Montgomery County Research and Development Village

Located west of Rockville and I-270, the Montgomery County's Research and Development Village (R&D Village) is a 1,200-acre site developed to support high tech industries and institutions. Estimates indicate employment of nearly 13,000 in the R&D Village in 2000. At the core of the R&D Village is the Shady Grove Life Sciences Center, a biotechnology research and development park. To help incubate its biotech industry, Montgomery County dedicated nearly 300 acres along the I-270/US 15 Corridor for Shady Grove. The center, which employed nearly 3,500 in 2000, is home to The Institute for Genomic Research (TIGR), the University of Maryland, The Johns Hopkins University, Otsuka America Pharmaceutical, Inc., Microbiological Associates and several health care delivery centers. The National Institute of Health (NIH), Human Genome Sciences and Large Scale Biology have leased part of the newly constructed

150,000 square-foot Key West Research Center, with an additional 80,000 square-foot facility being planned.[1]

Centers of Employment

The I-270/US 15 Corridor is home to numerous employment centers, with most residing in Montgomery County. In Montgomery County, there are five major centers. Heading northwest along I-270 from the I-495 Capital Beltway, these centers are: North Bethesda, Rockville, Gaithersburg, Germantown, and Clarksburg. In contrast, the only major employment center in Frederick County is the City of Frederick, located on the northwest terminus of the I-270/US 15 Corridor. In general, development remains concentrated primarily toward the southeastern end of the Corridor, and thins out toward the northwest. Below are brief descriptions of each of the identified centers:

North Bethesda

Of the major employment centers, North Bethesda is the closest to the District of Columbia. Situated just northeast of the interchange of I-270 and I-495, North Bethesda contains over 10.5 million square feet of low- and mid-rise office and industrial space. Employment estimates by the Montgomery County Department of Park and Planning show 2000 employment in North Bethesda area at 91,625. Major employers include the Defense Mapping Agency, Lockheed Martin, Naval Surface Warfare Center, Marriott Corporation, Marriott International, COMSAT, I-NET, Loral Federal Systems, NationsBank, Philips Publishing International, and Sybase. [2]

Rockville

Located approximately four miles northwest along the I-270/US 15 Corridor from the Capital Beltway, Rockville lies just southeast of I-270's intersection with I-370. Rockville contains over 13.6 million square feet of office and industrial space in low-rise, mid-rise, and high-rise buildings, along with over 1.8 million square feet of retail space. Estimates for 2000 show Rockville City employment at 63,100. Rockville is home to Aspen Systems, CTA, Computer Data Systems, Computer Sciences Corporation, the Food and Drug Administration (FDA), Hewlett-Packard, Human Genome Sciences, BAE Systems, Celera Genomics, TPN Register, and Artesia Technologies. [3]

Gaithersburg

Moving northwest along I-270, the next major employment center is Gaithersburg, which is the largest incorporated city on Montgomery County and the third largest city in the state. Lying approximately four miles northwest of Rockville, Gaithersburg City, currently employs approximately 51,300. Including the surrounding Gaithersburg vicinity employment increases nearly 92,000. Gaithersburg has over 8.6 million square feet of office and industrial space in low-rise and mid-rise buildings, and is home to Bechtel Power, Genetic Therapy, Halliburton

1 http://www.co.mo.md.us/ded/shady.randdvillage.html

2 http://www.co.mo.md.us/ded/nbethesda.html

3 http://www.co.mo.md.us/ded/rockville.html

Nus, IBM, Life Technologies, MedImmune, National Institute of Standards and Technology, National Geographic Society, Oncor, and Pioneer Technologies.[4]

Germantown

Located upcounty, just northwest of Gaithersburg, is Germantown. Germantown has over 1.2 million square feet of office space, eleven new and growing business parks, and over 500 acres of land currently identified for industrial uses. Year 2000 estimates of the Germantown area show employment at 20,835. Businesses currently located in Germantown include: Cellmark Diagnostics, the US Department of Energy, Fairchild, Hughes Network Systems, Mobil Telesystems, Montgomery College, Orbital Sciences, and Telecommunication Techniques.[5]

Clarksburg

While much smaller in employment than the other centers, Clarksburg is expected to experience substantially higher growth rates than the other major centers over the next several decades, as development continues to migrate further northwest along I-270. In 2000, Clarksburg's employment was only 1,810, but that number is expected to grow to 2,915 by 2005. Current long-range plans have Clarksburg building out to accommodate over 10,000 dwelling units and enough commercial/industrial space for 20,000 employees. Presently, Clarksburg is home to the 154-acre campus of COMSAT Corporations and the Gateway I-270 business park.[6]

Frederick

In Frederick County, the only major employment center within the project area is the City of Frederick, located at the northwest terminus of the I-270/US 15 Corridor. According to the City of Frederick, the city currently employs approximately 27,500.[7] However, as Montgomery County has grown, development has continued to push into the southeastern portion of Frederick County. The majority of the area's business parks are clustered on the south side of the City along I-270 and near its intersection with MD 85. Some of the business parks located within the I-270/US 15 Corridor include the 270 Technology Park, the Urbana Office/Research Center, and the Frederick Industrial Center. Some of the major employers in the City of Frederick include: Fort Detrick, the Frederick Memorial Hospital, Mid-Atlantic Management Services, and FCNB Bank.[8]

High-Tech Industries

The I-270/US 15 Corridor has become the favored location for many high-tech sectors. These sectors, as defined by the State of Maryland include: Biotechnology and Biomedical, Information Technology and Services, High Technology Machinery and Instruments, Defense and Aerospace, Energy and Chemicals, and High Tech Research**. Table III-21** shows high-tech employment and growth rates between 1998 and 1999 for the state of Maryland and several

4 http://www.co.mo.md.us/ded/gaithersburg.html

5 http://www.co.mo.md.us/ded/germantown.html

6 http://www.co.mo.md.us/ded/clarksburg.html

7 phone conversation with Tim Davis, City of Frederick Planning Department, 9/12/01

8 Frederick County Economic and Community Development Commission

select counties. Montgomery County has the highest concentration, maintaining 32.4% of the state's high-tech employment, while Frederick has a more modest 3.3% share. Montgomery County also led the state in net high-tech employment growth in 1999 adding 2,770 high-tech jobs; nearly quadruple that of second place, Howard County.

TABLE III-21
HIGH-TECH EMPLOYMENT GROWTH

	1998	1999	Number	Rate	Percent of MD High-tech
Maryland	146,609	154,204	7,595	5.2%	100.0%
Leading Net Growth					
Montgomery	47,189	49,959	**2,770**	5.9%	32.4%
Howard	14,104	14,814	710	5.0%	9.6%
Anne Arundel	15,272	15,865	593	3.9%	10.3%
Leading Growth Rates					
Charles	517	646	129	25.0%	0.4%
Harford	1,888	2,068	180	9.5%	1.3%
Frederick	4,635	5,067	432	**9.3%**	3.3%

Source: *Maryland Department of Labor, Licensing & Regulation (8/9/01)*

Frederick County, while containing a small portion of the state's high-tech jobs, experienced the third highest employment growth rate of all Maryland counties from 1998 to 1999. Charles County, with only a tiny fraction of the state's high-tech employment, led the state's high-tech job growth rate with 25.0%. Harford County was second with growth of 9.5%, while Frederick County was third with a high-tech employment growth rate of 9.3%.

Biotechnology in the I-270/US 15 Corridor

According to Ernst & Young, Maryland has the nation's third largest concentration of biotech companies, behind only California and Massachusetts. Of Maryland's biotech companies, over 61% are concentrated in Montgomery County, with many additional biotechnology related and support companies and institutions present as well. Montgomery County has nineteen diverse federal research laboratories that encompass all biotechnical areas. According to the County's Department of Economic Development, Montgomery County employs about 24,000 biotechnology workers in the public sector, with the private sector employing an additional 6,000. One major contributing factor to the continued growth of biotech in Montgomery County is that Maryland currently tops the list of states in receiving National Institutes of Health research and development contracts.[9]

Frederick County's Office of Economic Development (OED) has been exploring the opportunity of developing an advanced technology park in southern Frederick County. This park would be created to serve the growing demand of information technology companies. The OED has also

9 http://www.co.mo.md.us/ded/biotechfacts.html

been active in developing the Mt. St. Mary's Bio Park. Some of the biotech industries located in Frederick County include the US Army Medical Research Institute of Infectious Diseases (one of the lead medical research laboratory for the US Biological Defense Research Program), the National Cancer Institute, SAIC, MedImmune, Life Technologies, BioWhittaker, Cell Trends, Inc., Capricorn Pharma, Inc., Bio-Tech Imaging, Biological Mimetics, and the Southern Research Institute (SRI). [10]

2. Impacts

Transportation and the economy are closely linked. A number of economic activities such as the delivery of business goods and services, employment, and shopping for goods and services are all greatly impacted by efficiencies in transportation. All businesses require some level of transportation access to labor, materials and/or customers. Also, travel times affect accessibility to jobs and/or shopping opportunities, as well as market opportunities for existing and new businesses and businesses' costs of transporting raw materials and retail products. An important relationship therefore exists between the level of economic productivity and the quality of transportation services and facilities in a region.

The transportation alternates that are under consideration for the I-270/US 15 Corridor in Maryland will undoubtedly affect future economic and development patterns. The purpose of this section is to evaluate the nature and extent of these impacts on the economy of the local project area and the broader region. The analysis considers the following types of economic impacts and estimates how the various project alternates compare relative to each other.

- Business related impacts
- Worker related impacts
- Consumer related impacts
- Fiscal related impacts

Accessibility

For transportation projects, economic impacts are closely tied to travel time impacts. After all, the most common motivation for a transportation investment is an improvement in travel times. Travel time improvements in turn affect economic development via their effects on accessibility – whether workers' accessibility to employment, consumers' accessibility to more attractive shopping opportunities or businesses' accessibility to labor markets and consumers' spending potential. As the number of opportunities rises, or as the ease of accessing them improves, accessibility also improves.

The impact assessment therefore measures accessibility as a key indicator of probable economic development impacts. The assessment uses accessibility models to assess workers' access to jobs, consumers' access to shopping opportunities, businesses' access to labor markets, and businesses' access to consumer markets. For businesses, the analysis applies a special type of model that accounts for competition.

10 http://www.discoverfrederickmd.com/business/highlight/biotech.cfm

When used to compare among alternatives, the measure shows the geographic pattern of economic development impacts. Locations with improved market accessibility can expect greater levels of economic activity as a result of the alternative, while locations with worsened market accessibility can expect lower levels of economic activity. Also, a pattern that favors existing areas indicates that the alternative reinforces current development patterns and increases the potential for higher intensity development, while the opposite pattern indicates that the alternative increases pressure to develop virgin lands and presents greater potential for augmenting "sprawl".

Alternate 1 (No-Build Alternate)

All alternates are compared to the No-Build Alternate with regard to economic impacts. Thus, by definition, the No-Build Alternate has no economic development impacts.

As compared to the present, however, the 2025 No-Build scenario shows dramatic increases in economic activity within the region and the project area. By virtue of the fact that the region will grow in terms of population and employment by so much between now and 2025, economic activity also will expand considerably. Between 1990 and 2025, the region will add 2.1 million residents (a 48% increase) and 1.5 million jobs (a 54% increase). Of these totals, Montgomery and Frederick counties will account for a 421,000 gain in population (a 47% increase) and a 314,000 increase in jobs (a 60% increase). Frederick County, in particular, is expected to double in population while its employment triples. The sizeable growth that is expected, both regionally and in the project area, will expand economic activity by roughly the same proportions. To the extent that worker productivity improves over time, the region's and project area's average personal income will expand even faster.

In comparison, the build alternates will create relatively very small impacts, dwarfed in scale by the region's and project area's natural economic growth over time. All of the build alternates' impacts must be considered in this context. Overall, the project area and the I-270/US15 Corridor will become much more economically active between now and 2025. The transportation alternates will simply affect how much more economically active the area will become. Some alternates will contribute more to promoting economic development, while others will contribute less.

Alternate 2 (TSM/TDM Alternate)

The TSM/TDM Alternate involves relatively modest capital improvements and would not entail substantial economic development impacts – either positive or negative as compared to the No-Build. We can assume that the public investment, while substantial, would occur almost entirely from state and local funds, such that little or no infusion of dollars from outside the region would occur. Also, the TSM/TDM Alternate would not substantially improve travel times and therefore would have minimal related economic impacts.

As a result of the modest improvement in the transportation system and the limited infusion of dollars from outside the region, the TSM/TDM Alternate would produce negligible economic development impacts as compared to the No-Build Alternate. Overall, the TSM/TDM Alternate's impacts can be assumed to be very near neutral.

Alternates 3A/B, 4A/B, 5A/B/C

The following sections examine each build alternate's economic development impacts in terms of the four interests identified earlier: consumers, businesses, workers and municipalities' fiscal budgets. The "build alternates" are defined as all alternates other than the No-Build and TSM/TDM alternates. Since most economic development impacts are in fact transfers between interests or locations, an impact for one interest or location often appears as the opposite impact for another. For example, an increase in tax revenues can be viewed as a positive impact for fiscal budgets but a negative impact for those who are paying the extra taxes. Nevertheless, examining impacts in terms of the four interest groups serves as a useful tool for understanding the economic development impacts of the proposed alternates.

In many cases, quantitative results are presented based on accessibility analyses that rely on travel demand modeling results. Since the travel demand model was run for five of the seven build scenarios, the quantitative results reflect only the same, respective alternates. The reader will note that several of the tables display results for only for these five build scenarios. However, we can infer from these results how the other two alternates perform.

The potential effects on each interest category – consumers, businesses, workers, and fiscal budgets – are discussed below.

Consumer Impacts

To the extent that travel times shorten or that traveling becomes easier and less expensive, consumers' accessibility to services, recreational activities and shopping opportunities improves. As a result, consumers can experience economic benefits in the forms of greater availability of attractive opportunities and lower prices from competing businesses. Generally, as accessibility improves, so does consumer surplus.

The accessibility results show that all of the alternates under consideration would improve consumers' accessibility region-wide, and especially within the Corridor. **Figure III-13** shows an example of the regional improvements, in this case for Alternate 3B. Naturally, accessibility improvements are concentrated intensely along the CCT and I-270 alignments. The alternates all would markedly affect regional accessibility patterns, strengthening the I-270/US 15 Corridor's "ridge" of medium personal accessibility extending from Washington, DC.

The map shows the same general pattern of improvements that would occur within all of the alternates. However, some very important differences distinguish them. **Table III-22** and **Table III-23** summarize some of these differences within the areas affected the most: Montgomery and Frederick counties. The tables highlight the very dramatic improvements that the alternates would make, as well as some differences between them.

Overall, Frederick County consumers stand to gain the most, since their locations are currently more isolated from the rest of the region. Though the actual magnitudes of accessibility improvements are about the same for developed areas of the two counties, in percentage terms, Frederick County consumers' gain between 12% and 62% improvement, depending on the alternate, compared to 3% to 17% for Montgomery County's consumers.

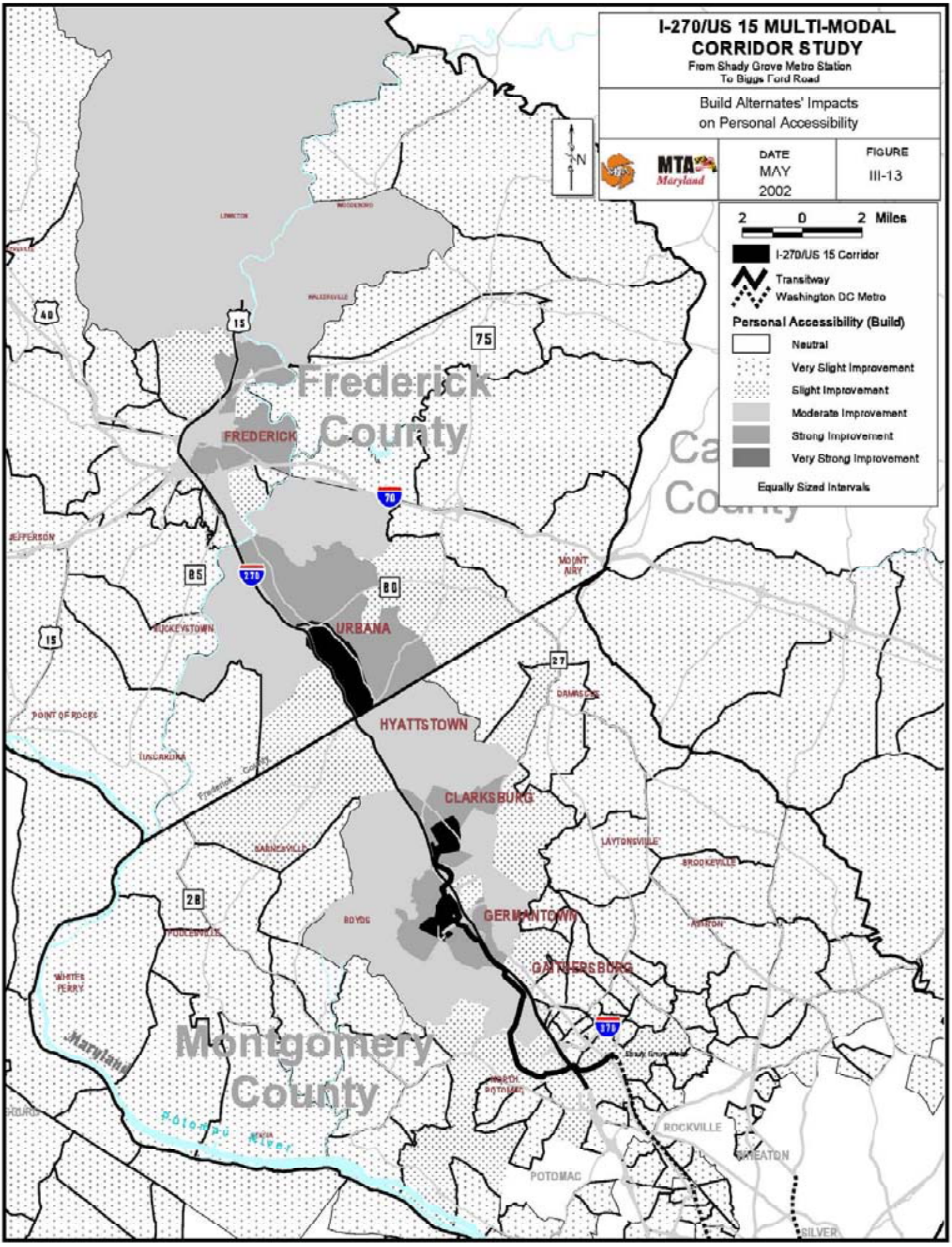

I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
Build Alternates' Impacts on Personal Accessibility
MTA Maryland
DATE
MAY 2002
FIGURE
III-13
N
2 0 2 Miles
I-270/US 15 Corridor
Transitway
Washington DC Metro
Personal Accessibility (Build)
Neutral
Very Slight Improvement
Slight Improvement
Moderate Improvement
Strong Improvement
Very Strong Improvement
Equally Sized Intervals
Frederick County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
WHEATON
POTOMAC
SILVER
MOUNT AIRY
LAYTONSVILLE
BROOKEVILLE
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
POINT OF ROCKS
LUCKETSTOWN
JEFFERSON
DAMASCUS
ASHTON
Potomac River
Maryland
70
270
340
15
75
85
80
27
28
370

TABLE III-22
IMPROVEMENT IN PERSONAL ACCESSIBILITY
COMPARED TO NO-BUILD ALTERNATE: MONTGOMERY COUNTY

Persons With Access To:	Alternate 3A	Alternate 3B	Alternate 5A	Alternate 5B	Alternate 5C
LOV	+ 2.5%	+ 6.9%	+ 2.3%	+ 8.2%	+ 6.5%
HOV3	+ 9.4%	+ 10.0%	+ 5.4%	+ 9.0%	+ 8.2%
Transit	+ 13.2%	+ 48.9%	+ 12.3%	+ 46.1%	+ 22.6%
Overall	+ 2.8%	+ 17.4%	+ 2.5%	+ 8.4%	+ 6.7%

TABLE III-23
IMPROVEMENT IN PERSONAL ACCESSIBILITY
COMPARED TO NO-BUILD ALTERNATE: FREDERICK COUNTY

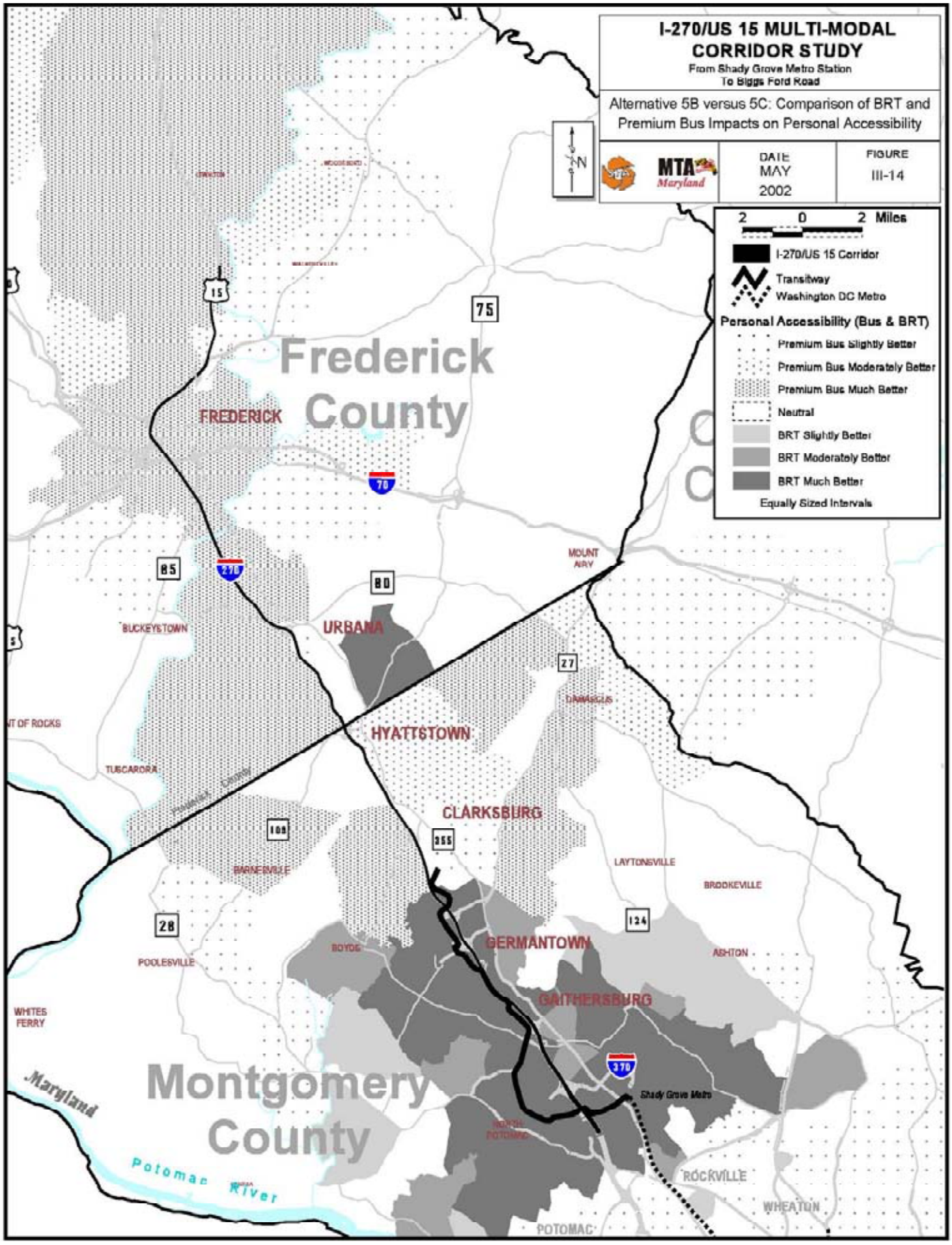
Persons With Access To:	Alternate 3A	Alternate 3B	Alternate 5A	Alternate 5B	Alternate 5C
LOV	+ 11.2%	+ 42.2%	+ 16.7%	+ 44.7%	+ 60.7%
HOV3	+ 27.6%	+ 45.6%	+ 29.0%	+ 52.5%	+ 65.5%
Transit	– 8.9%	+601.7%	– 9.7%	+594.6%	+700.2%
Overall	+ 12.3%	+ 43.1 %	+ 17.4%	+ 45.7%	+ 61.6%

The tables show that the BRT alternates improve accessibility more than the LRT alternates, both for transit-dependent travelers and for those with access to the LOV and HOV3 modes. Compared to the BRT alternates, the Premium Bus alternate does slightly more for Frederick County consumers but slightly less for Montgomery County consumers.

Notably, the additional general-purpose lane between MD 121 and I-70 has relatively little effect and even produces some negative effects. Montgomery County consumers actually fare better off without the additional lane. Apparently, the additional lane attracts enough extra traffic to I-270 to congest Montgomery County's east-west arterials to lengthen overall travel times. In Frederick County, the same negative effect is not apparent; however the additional general-purpose lane makes only a marginally positive difference.

Mapped comparisons of the alternates' effects (not shown) reveal that the transit modes show greater geographic variation among them than the highway options. Overall, in terms of personal accessibility, the BRT alternates are found to be superior to LRT in nearly all study area locations. The BRT alternates have much greater positive effects than the LRT alternates because rapid bus services branch off of the CCT alignment to provide one-seat rides between residential neighborhoods and the study corridor. In contrast, the LRT options force transfers at the LRT stations.

Of particular interest, then, is the comparison of Premium Bus and BRT alternates; whether BRT or Premium Bus provides greater benefits depends on location. Regionally, the two options provide about the same level of aggregate improvement in consumers' accessibility, but the geographic patterns of their improvements differ. **Figure III-14** reveals an important distinction between areas north and south of COMSAT Station. The BRT alternate performs much better


I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
Alternative 5B versus 5C: Comparison of BRT and Premium Bus Impacts on Personal Accessibility
MTA Maryland
DATE MAY 2002
FIGURE III-14
2 0 2 Miles
I-270/US 15 Corridor
Transitway
Washington DC Metro
Personal Accessibility (Bus & BRT)
Premium Bus Slightly Better
Premium Bus Moderately Better
Premium Bus Much Better
Neutral
BRT Slightly Better
BRT Moderately Better
BRT Much Better
Equally Sized Intervals
Frederick County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
WHEATON
POTOMAC
MOUNT AIRY
BUCKEYSTOWN
TUSCARORA
BARNESVILLE
POOLESVILLE
WHITES FERRY
BOYDS
LAYTONSVILLE
BROOKEVILLE
ASHTON
Shady Grove Metro
Maryland
Potomac River
15
75
70
85
80
27
109
355
28
124
370

south of the station, where its services are more concentrated and where it provides all-stop service along the Corridor Cities Transitway. Meanwhile, the Premium Bus option performs much better north of COMSAT Station, and especially in Frederick County, since the alternate provides express bus service directly between these areas and Shady Grove Metrorail Station, without delaying along the Corridor Cities Transitway. The same pattern is apparent south of the study area, where D.C. and southern Montgomery County consumers experience slightly greater benefits from the Premium Bus alternate than the BRT alternate – the only exception being consumers who live very close to Red Line Metrorail stations.

In terms of out-of-pocket costs, the BRT alternates (3B, 4B, 5B) would save consumers the most, judging by the mode shift toward transit and the reduction in vehicle-miles-traveled. In contrast, the other alternates would have the potential to increase consumers' travel expenses, since they increase auto vehicle-miles traveled. Overall the BRT alternates would perform best, and the Premium Bus alternate (5C) would perform slightly better than the LRT alternates.

Finally, the alternates all have some potential to increase taxes. The potential can be viewed as being roughly proportional to the size of the un-funded portion of the alternates' estimated annual costs. **Table III-24** displays a preliminary estimate of these costs, assuming broadly that capital costs can be annualized by uniformly applying a factor of 0.83 to the total capital costs. In reality, annualized costs would vary somewhat depending on the life cycles of the alternates' particular components, but in lieu of such detailed information, this broad approach is suitable for the needs of this assessment.

TABLE III-24
POTENTIAL TO INCREASE TAXES:
(ANNUAL RESIDUAL FUNDING REQUIREMENT)*

	Alternate						
	3A	**3B**	**4A**	**4B**	**5A**	**5B**	**5C**
Estimated Costs							
Total Capital	$2,662	$2,597	$2,662	$2,597	$2,955	$2,890	$2,519
Annualized Capital	$221	$216	$221	$216	$245	$240	$209
Annual New O&M	$25	$64	$25	$64	$25	$64	$32
Annual Total	$246	$280	$246	$280	$270	$304	$241
Funding Availability							
Total Capital	$955	$900	$955	$900	$955	$900	$404
Annualized Capital	$79	$75	$79	$75	$79	$75	$34
Annual New Fares	$10	$26	$10	$26	$10	$26	$21
Annual Total	$89	$101	$89	$101	$89	$101	$55
Residual Funding Requirement (Potential to Increase Taxes)	$157	$179	$157	$179	$181	$203	$186

Note: ** All costs are expressed in millions of 2001 dollars.*

The table shows that all of the alternates have considerable potential to increase taxes. Alternate 5B, which is the most costly alternate, has the greatest potential to increase taxes. Premium Bus (Alternate 5C), which happens to be the *least* expensive alternate, has the second greatest potential to increase taxes because the alternate also qualifies for a much smaller amount of Federal funding. Therefore, State and local authorities may experience relatively greater pressure to increase taxes as a means for paying for Alternates 5B or 5C. Alternate 5A would have the third highest potential for increased taxes, followed closely by Alternates 3B/4B. Finally, 3A/4A have the lowest potential to increase taxes, because their costs are much lower.

Overall, consumers will benefit considerably under all alternates (see **Table III-30**). However, their benefit will be smallest in the LRT alternates, and greatest in the BRT and Premium Bus alternates. Consumers living in central Montgomery County will benefit most from the BRT alternates while consumers living in other areas will benefit most from the Premium Bus alternates. The additional general-purpose lane between MD 121 and I-270 seems to have little effect on consumer benefits. Overall, in terms of consumer benefits, the alternates are ranked from most to least positive: 3B/4B/5B, 5C, 3A/4A/5A.

Business Impacts

Transportation investments can affect businesses in many ways. Improved travel times effectively bring consumers, workers and other supply chain members "closer" to local businesses. The cost of doing business may drop, and businesses may be able to compete more effectively across a larger geographic market of potential consumers and workers. For many businesses, the economic impact can be particularly important in terms of access to transit-dependent, unskilled labor, whose low wages can allow businesses to reduce their costs, improve their service quality and/or improve productivity. Meanwhile, transportation improvements, particularly for the auto modes, also can help businesses reach larger markets of consumers with high spending potential. In addition, businesses' transportation costs drop as highway speeds increase, and the improved reliability of just-in-time delivery can reduce businesses' inventory costs.

On the other hand, an expanded consumer market also can work against some businesses by introducing new competition from establishments in more distant locations, or by increasing competition from businesses in nearby locations whose accessibility to consumers improves by a greater amount. Then again, one business's loss is another's gain. The intra-regional transfer of business activity is an important measure.

Finally, transportation investments can impact businesses via disruption caused by construction. Though construction is a relatively short-term phenomenon, its effects on access can be severe enough or its duration can be long enough to force some businesses to lose revenues, endure higher costs, or close altogether. The net effects of local construction impacts are normally neutral in the sense that consumers spend more elsewhere if a particular business becomes less accessible. On the other hand, the net effects of regional construction impacts, such as the consistent closing of several interstate highway lanes, can be indisputably negative.

Recall that because of the competitive nature of businesses, a gain for some businesses (or locations) must imply an equal and opposite loss for other businesses (or locations). The

accessibility results show that the alternates transfer retail and wholesale development potential: (1) into the project Corridor's commercial, developed areas, and away from its undeveloped rural areas; and (2) into the Corridor and away from other parts of the region, particularly northern Virginia. The intra-Corridor effect is much stronger than the intra-regional effect.

Table III-25 and Table III-26 compare the regional effects of the alternates. In all cases, the alternates transfer a considerable portion of the transit-dependent consumer market toward Montgomery and Frederick counties. As a result of any alternate, the Corridor will be able to compete more effectively for the spending potential of transit-dependent persons, and Corridor businesses will more easily fill low-wage (and some high-wage) positions as businesses' accessibility to transit-dependent labor markets improves remarkably. **Figure III-15** shows the impact of just the transit portion of business accessibility, to demonstrate this phenomenon. The map again shows Alternate 3B but applies generally to all of the alternates. The map highlights that Washington, DC's highly transit-dependent population will be able to shop and work more easily in Montgomery County as a result of the alternates, thereby diverting some revenues and labor away from competing businesses in other DC suburbs. As a result of Montgomery County's gain, some businesses to the east and west of Washington, DC will experience the negative effect.

The effect may be quite important to businesses' ability to fill low-wage positions in the study area. In 2025, 48.4% of D.C. households will be transit dependent, whereas the same figure for Montgomery and Frederick Counties will be just 1.1% and 1.5% respectively.[11] Providing improved transit access between D.C. and the study area therefore will broaden businesses' accessibility to transit-dependent workers.

However, businesses could expect to gain only modestly in terms of revenues from transit-dependent households. Overall, the transit-dependent consumer market contributes relatively little to businesses' overall revenues, because (1) relatively few households will be transit dependent in 2025, (2) the transit-dependent consumer market will remain relatively far, despite the improvements, and (3) car-less households tend to have less spending potential. When taking all modes into account – transit, LOV and HOV3 – the alternates will transfer only a marginal amount of retail and wholesale development potential away from other parts of the region – less than a 1% gain in all cases.

[11] In 1990, the same figures were 36.4% in D.C., 7.0% in Montgomery County, and 5.3% in Frederick County. Overall, a shift I in transit dependency is projected to occur from the suburbs toward D.C.

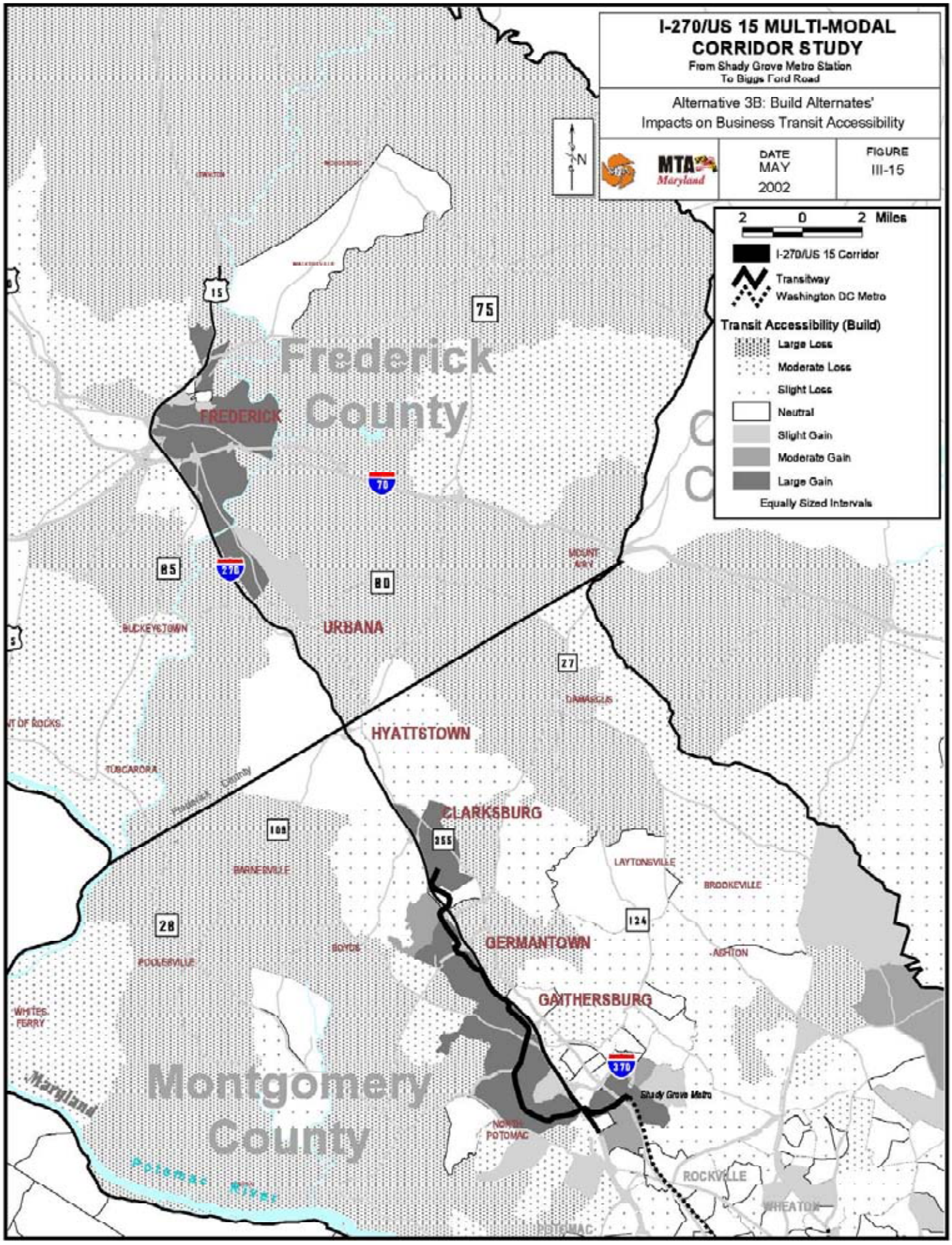

I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
Alternative 3B: Build Alternates' Impacts on Business Transit Accessibility
MTA Maryland
DATE MAY 2002
FIGURE III-15
N
2 0 2 Miles
I-270/US 15 Corridor
Transitway
Washington DC Metro
Transit Accessibility (Build)
Large Loss
Moderate Loss
Slight Loss
Neutral
Slight Gain
Moderate Gain
Large Gain
Equally Sized Intervals
Frederick County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
WHEATON
BUCKEYSTOWN
TUSCARORA
BARNESVILLE
BOYDS
POOLESVILLE
WHITES FERRY
LAYTONSVILLE
BROOKEVILLE
ASHTON
MOUNT AIRY
DAMASCUS
NORTH POTOMAC
POTOMAC
Shady Grove Metro
Maryland
Potomac River
15
75
70
85
80
270
27
109
355
28
124
370

TABLE III-25
RETAIL & WHOLESALE TRADE: CHANGE IN COMPETITIVE ACCESSIBILITY: MONTGOMERY COUNTY*
(ACCESSIBILITY TO CONSUMERS' SPENDING POTENTIAL, BY MODE)

Accessibility to Consumers With Access To:	Alternate 3A	Alternate 3B	Alternate 5A	Alternate 5B	Alternate 5C
LOV	+ 0.1%	+ 1.1%	+ 0.1%	+ 1.4%	+ 1.6%
HOV3	+ 1.5%	– 0.8%	+ 1.3%	+ 1.0%	+ 2.2%
Transit	+ 12.3%	+ 62.2%	+ 12.3%	+ 62.2%	+ 40.5%
Overall	+ 0.1%	+ 1.0%	+ 0.1%	+ 1.0%	+ 1.6%

Note: ****Overall, the gains and losses in the two counties balance out, such that the two counties experience a net gain of under 1% in all alternates.*

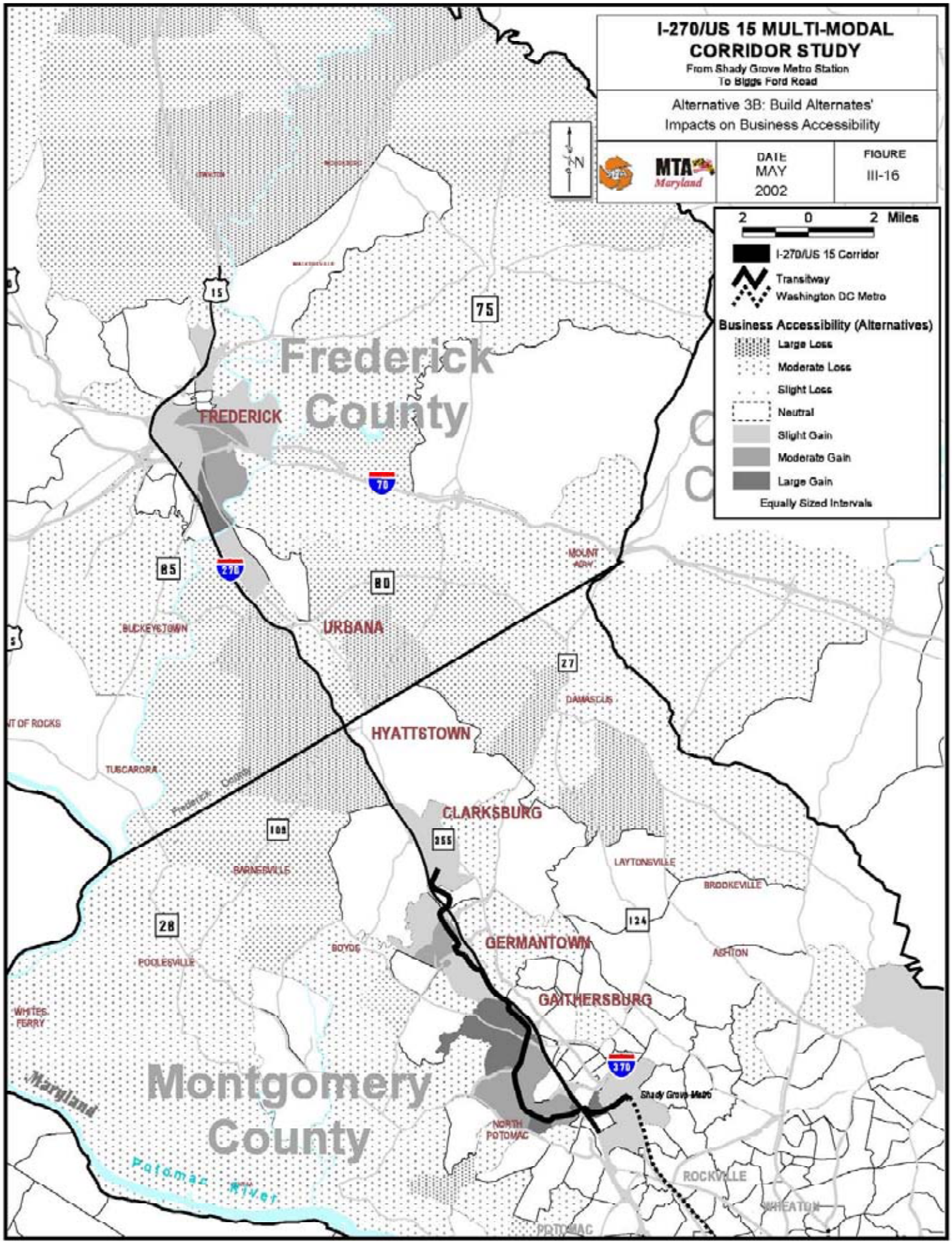
TABLE III-26
RETAIL & WHOLESALE TRADE: CHANGE IN COMPETITIVE ACCESSIBILITY: FREDERICK COUNTY*
(ACCESSIBILITY TO CONSUMERS' SPENDING POTENTIAL, BY MODE)

Accessibility to Consumers With Access To:	Alternate 3A	Alternate 3B	Alternate 5A	Alternate 5B	Alternate 5C
LOV	– 0.3%	– 7.7%	– 0.1%	– 6.4%	– 12.3%
HOV3	+ 3.0%	– 10.5%	+ 1.5%	– 7.3%	– 11.1%
Transit	– 21.6%	+726.9%	– 23.3%	+721.6%	+377.2%
Overall	– 0.2%	– 7.4%	– 0.1%	– 6.9%	– 12.0%

Note: ****Overall, the gains and losses in the two counties balance out, such that the two counties experience a net gain of under 1% in all alternates.*

The accessibility results show that all of the BRT and LRT alternates under consideration would reinforce existing patterns of business accessibility within the Corridor, effectively strengthening developed commercial areas and weakening sparsely developed ones. **Figure III-16** shows an example of the change in business accessibility within the project Corridor, in this case as a result of Alternate 3B. Note how businesses in Frederick and in areas immediately adjacent to the CCT alignment are projected to benefit greatly, while business development in other areas is projected to decelerate as a result of the alternate. Because Frederick County is comprised of a much larger portion of undeveloped areas, the County as a whole seems to experience a negative effect in terms of business accessibility, while Montgomery County benefits. Economic development potential effectively shifts from rural to developed areas and therefore from Frederick County toward Montgomery County. This pattern results from the combined effect of the transit and highway improvements.

Consumers' much improved ease of traveling is promoting greater competition among businesses within the Corridor, which in turn is reinforcing the locations that already work best for retail and wholesale trade business. Businesses in relatively undeveloped areas suddenly must compete more directly with the much larger numbers and sizes of businesses in developed areas. They find that their local consumer base, which once was more locally "captive", now can


I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station
To Biggs Ford Road
Alternative 3B: Build Alternates' Impacts on Business Accessibility
MTA Maryland
DATE MAY 2002
FIGURE III-16
N
2 0 2 Miles
I-270/US 15 Corridor
Transitway
Washington DC Metro
Business Accessibility (Alternatives)
Large Loss
Moderate Loss
Slight Loss
Neutral
Slight Gain
Moderate Gain
Large Gain
Equally Sized Intervals
Frederick County
Montgomery County
FREDERICK
URBANA
HYATTSTOWN
CLARKSBURG
GERMANTOWN
GAITHERSBURG
ROCKVILLE
WHEATON
POTOMAC
NORTH POTOMAC
ASHTON
BROOKEVILLE
LAYTONSVILLE
DAMASCUS
BARNESVILLE
BOYDS
POOLESVILLE
TUSCARORA
BUCKEYSTOWN
WHITES FERRY
MOUNT AIRY
Shady Grove Metro
Potomac River
Maryland
15
75
70
270
85
80
27
109
355
124
28
370

travel more easily to farther locations where a large mass of competing businesses – some with lower prices or better products – eagerly seek to accommodate the additional demand.

Meanwhile, businesses in developed areas experience accessibility improvements, particularly to relatively nearby, populated, high-income neighborhoods. Businesses in developed areas do not suffer so much from the added competition of establishments in rural areas because the rural establishments are so small in both number and size. The transportation improvements promote regional agglomeration of retail and wholesale trade development.

This is the general trend among all the BRT and LRT alternates. However, some substantive differences distinguish them. Because the BRT alternates improve consumers' accessibility more than the LRT alternates, they also exhibit a stronger pattern of reinforcing areas of 2025 No-Build commercial development. The LRT alternates show relatively weaker concentration effects. (The reader should keep in mind that these are regional results. On a more local station-area scale, the LRT alternates might attract more compact development than the BRT alternates.)

In comparison, while the BRT and LRT options would focus benefits along the CCT alignment and in developed portions of Frederick County, the Premium Bus option would support businesses more toward the southern portion of the project area. The Premium Bus option's service patterns connect consumers directly to the Shady Grove Station area, with many bus trips bypassing the CCT alignment. As a result, the Premium Bus's benefits are geographically distributed to the north and south, rather than toward the Corridor's core.

Next, in terms of businesses' supply chain productivity, the general-purpose lane improvements would have greater effect than the HOV lane or transit improvements, since trucks can only use general-purpose lanes. Because I-270 will flow more smoothly in all of the alternates, businesses' supply chains are likely to become more reliable. Alternates 4A/4B would be more beneficial for supply chains than Alternates 3A/3B, since between MD 121 and I-270 they would add a general-purpose lane that could be used by trucks, instead of an HOV lane. Alternates 5A/5B/5C would perform marginally better than Alternates 4A/4B because they add an additional HOV lane that would divert some trips away from the general-purpose lanes and marginally reduce congestion for trucks.

Finally, during construction, all options would negatively affect transportation efficiency more substantially than they would impede access to any particular properties, since the construction will occur on controlled, limited-access transportation facilities. As a result, the disruption caused by construction is expected to depend largely on construction techniques and timing, which are not defined as part of the DEIS process. Overall, however, we can predict that the Premium Bus option would entail less construction disruption than the other alternates, because it would not include major construction of new transit infrastructure that would cross several highway facilities and pass through commercial areas. All of the other alternates would entail about the same level of disruption caused by construction.

Overall, we can assess that businesses' accessibility to labor markets and consumers will improve considerably under all alternates (see **Table III-30**). All options will shift a marginal amount of retail and wholesale trade activity from other parts of the region to the project Corridor. More notably, all options will cause dramatic shifts in retail and wholesale trade

competitiveness within Montgomery and Frederick counties, focusing business competitiveness from rural areas to 2025 baseline developed areas along I-270. The BRT options would promote this effect more strongly than the LRT alternates. Meanwhile, as compared to the BRT and LRT options, the Premium Bus alternate would more strongly improve the competitiveness of businesses in the Shady Grove area, and do less for businesses in developed areas to the north. The two highway options are too similar to effect any noticeable difference. Supply chain productivity would improve under all alternates, but most under Alternates 4A/4B. All alternates have the potential to cause considerable disruption to the transportation system. However, because of the nature of the improvements, the disruption caused by construction can be mitigated to a large extent with smart construction techniques and timing. The Premium Bus option overall presents the least potential for disruption. Overall, in terms of business impacts, the alternates are ranked from most to least positive: 4B, 5B, 5C, 3B, 4A, 5A, 3A.

Worker Impacts

Transportation investments affect workers in three primary ways: increasing the number of available jobs, expanding the geographic scope of accessibility employment, and potentially affecting wage rates.

The effects of personal and business accessibility patterns as described earlier in the consumer and business impact sections, also can be applied to estimate how the various alternates would impact workers. In the cases in which personal accessibility is improved, workers benefit from reduced travel times and improved connections since they can access a wider geographic area for jobs in the same amount of travel time. This opens additional employment opportunities. In addition, improved accessibility translates into shorter commute times for workers traveling to their jobs – which can improve overall worker productivity and create opportunities to undertake other additional activities. The business accessibility analysis shows geographic areas where business would most likely be attracted under the various options. Clearly where businesses choose to locate will also impact workers and their respective employment opportunities.

As discussed earlier, the BRT and LRT options appear to focus personal accessibility more strongly along the Corridor Cities Transitway, as compared to the Premium Bus alternate which tends to improve accessibility more broadly to the north and south, in Frederick County and Washington, D.C. Thus, persons who live in Frederick County and Washington, D.C. could expect to benefit slightly more from the Premium Bus alternate, while people who live in Montgomery County could expect to benefit more from the BRT alternate (greatest benefit) or LRT alternate (second greatest benefit).

These differences affect all households' accessibility but have a magnified importance for low-income and transit-dependent workers, who depend more on transit to provide basic, regional accessibility to employment. Since the region's largest concentration of 2025 transit-dependent households resides in Washington, D.C. (48% of Year 2025 households, and about 20 times as many as reside in Montgomery and Frederick Counties combined), we can surmise that the Premium Bus alternate would provide slightly greater benefits to low-income and transit-dependent workers than would the BRT and LRT alternates. The Premium Bus alternate's accessibility improvements would be modest overall and therefore the relative advantage of this option for low-income workers also would be modest.

Large infrastructure projects also directly or indirectly generate employment for the region. Direct employment includes jobs for designing and building the project and managing its construction, as well as jobs to operate its services and maintain its vehicles and facilities. Indirect employment includes jobs that are generated as a result of new money that is spent in the local economy by those directly employed by the project's construction, operation and maintenance. As the new money flows through the economy, changing hands multiple times, it effectively supports many additional jobs. Estimating indirect employment impacts involves substantially more uncertainty, but the general "rule of thumb" is that indirect employment impacts are roughly twice the size of direct employment impacts.

The project team estimates the direct employment impacts by assuming broadly that:

- roughly 35% of the construction and implementation services will be obtained within the project area.
- about 70% of the operating and maintenance expenditures will be spent on labor and items provided by local residents and businesses.
- the average wage in 2001 dollars is $30,000.

Finally, the project team makes a distinction between the total employment that the project would support and the smaller sub-set that could be termed as "new" employment – defined as employment that would not occur locally without the project. The amount of "new" employment is directly related to the net amount of funding that would originate from sources outside the project area – which the project team broadly estimates to be 0% for O&M expenses and between 52% and 61% for capital expenses, depending on the alternate. Results are shown in **Table III-27**.

TABLE III-27
GROSS EMPLOYMENT DIRECTLY GENERATED BY EACH ALTERNATE

	Alternate						
	3A	**3B**	**4A**	**4B**	**5A**	**5B**	**5C**
Person-Years of Employment							
Construction	31,057	30,298	31,057	30,298	34,457	33,717	29,388
Annual O&M	667	1,707	667	1,707	667	1,707	853
Average Annual Employment*	**3,244**	**4,221**	**3,244**	**4,221**	**3,528**	**4,505**	**3,293**
Person-Years of New Employment							
Construction	19,019	17,956	19,019	17,956	20,628	19,556	15,144
Annual O&M	0	0	0	0	0	0	0
Average Annual New Employment *	**1,579**	**1,490**	**1,579**	**1,490**	**1,712**	**1,623**	**1,257**

* *"Average Annual Employment" puts short-term construction jobs and long-term operating jobs on the same scale by annualizing the construction jobs over the life of the project and adding the result to the annual O&M jobs. The measure effectively gauges the average annual employment that each alternate supports.*

Applying these assumptions, the study team estimates that during construction, the alternates will support between 29,000 and 39,500 person-years of employment. Once construction is complete, the alternates will support between 670 and 1,700 full-time equivalents to operate and maintain the transit system over the long term.

Of these amounts, the study team estimates that new employment (i.e., employment that would not have been generated locally without the transportation investment) would amount to between 15,100 and 20,600 new person-years of employment related to construction. These jobs result directly from the Federal government participation in transportation improvements. However, the alternates will generate no new long-term employment related to operating and maintenance.

Why do we not count the O&M jobs as new employment? The O&M jobs are "created" as a result of locally generated user fees (fares) and state and local subsidies, both of which are economic transfers within the regional economy. Passengers pay fares in lieu of other transportation costs that otherwise would be spent locally, so fares cannot be counted as a new infusion of dollars into the regional economy. Similarly, state and local operating subsidies are paid for with new or diverted taxes. Thus, in the long-term, the subsidies remove about as many jobs from the economy as they add. Without the new transit operating subsidy, either the government would spend the subsidies on other expenses and thereby support jobs elsewhere in the regional economy, or if the subsidies were generated through new taxes, then consumers would have spent those taxes. In either case, the jobs cannot be considered "new".

The best way to compare new employment among alternates is using the bottom line of "average annual employment", which puts short-term construction jobs and long-term operating jobs on the same scale. On average, annually, the alternates would support between 3,300 and 4,500 full-time equivalents, but only between 1,300 and 1,600new full-time equivalents. The indirect employment effects would be, above and beyond, about twice as large as the figures above – bringing the total employment effects to between 3,000 and 4,500 new full-time equivalents on an average annual basis.

Overall, workers' accessibility to employment opportunities will improve considerably under all alternates (see **Table III-30**). Among them, the LRT alternates seem to have the least potential for improving job accessibility, while the BRT and Premium Bus alternates offer workers the greatest accessibility improvements. Workers living in Montgomery County will benefit more from the BRT alternates while workers living in Frederick County and Washington, D.C. will benefit more from the Premium Bus alternate. Low-income and transit-dependent workers, who reside in greater concentrations in D.C., are likely to benefit slightly more from the Premium Bus alternate, though the difference is small. The additional general-purpose lane between MD-121 and I-270 seems to have little effect on personal accessibility. With regard to employment levels, the LRT options provide stronger positive impacts by generating more new jobs, followed by the BRT alternates and distantly by the Premium Bus option.

Overall, the accessibility improvements seem to have a greater magnitude of effect than the employment level improvements. In terms of worker benefits, the alternates are ranked from most to least positive: 5B, 3B/4B, 5A, 3A/4A, 5C.

Fiscal Impacts

The most relevant fiscal impacts include infrastructure costs, property tax revenues, sales tax revenues and gas tax revenues. Changes in business sales, personal income as well as new development or land use patterns can have effects on all of these categories. Fiscal impacts in most cases represent a transfer to or from other interested parties, including workers, businesses and consumers. They also can entail a transfer of benefits to or from other governments.

Local fiscal impacts can occur as a result of new regional development or redistributed development within the region. They also can occur as a result of redistributed local development, if the redistribution effectively changes overall property tax revenues, either by guiding development to areas of lower or higher taxes, or by affecting land values.

Public infrastructure costs are affected by the type of development patterns that arise as a result of transportation improvement projects. Personal as well as business accessibility patterns tend to affect development and both are substantially impacted by the various build alternates, albeit to different intensities and in different geographic areas. As discussed in previous sections, personal accessibility tends to improve from the no-build business accessibility, which accounts not only for travel time improvements but also for competing businesses and locations of consumers, the patterns also show strong improvement from the no-build. The main difference for business accessibility is that it tends to focus in areas where businesses already exist.

BRT and LRT components show the highest levels of business accessibility improvements from the no-build and would be expected to focus business-related development along the transit corridor. This type of compact development can be associated with a somewhat lower infrastructure cost. When development is located further apart, it not only implies that people and goods have to travel further; it also requires additional public investment in other roads as well as maintenance facilities and services. If infrastructure costs are directly connected to nature of development, we could predict that Alternates 3B, 4B and 5B will perform similarly and slightly better than their LRT counterparts. The Premium Bus Alternate (Alternate 5C), which would operate on existing roadways, not on a fixed/separate alignment, shows less concentration and is expected to open development more uniformly and spread it north of the transit alignment – in some cases toward rural areas. The Premium Bus therefore has less potential to concentrate new development and greater potential to encourage development to spread out. Thus, Premium bus could result in a relatively more dispersed, sprawled pattern of development, which typically is associated with higher infrastructure costs for local governments.

Fiscal impacts, as a result of changes in development patterns can also result from shifts in the nature of the local tax base. One short-term impact to the local government tax base could be as a result of property takings or property displacements necessary for the highway or transit improvements to happen. These types of fiscal-related impacts are often seen as negligible since displaced properties are likely to re-locate to other properties in the region, or housing and commercial markets respond in-step by expanding to the extent that property is taken. Property displacements are therefore more accurately associated with a transfer of tax revenues within or between various local municipality or county organizations.

The total amount of tax related to each property has been determined from the total assessed value of the property multiplied by the state, county and municipal property tax rates listed in **Table III-28**.

TABLE III-28
STATE, COUNTY AND MUNICIPAL TAX RATES APPLIED TO IMPACTED PROPERTY

Authority Level	Jurisdiction Name	Property Tax Rate on $100 of assessed value
State	Maryland	0.084
County	Montgomery	0.741
	Frederick	1.000
Municipality	Rockville	0.322
	Gaithersburg	0.212
	Frederick	0.628
	Walkersville	0.176

Table III-29 contains estimates of the potential tax revenues that could be impacted in the short-term. Since at this point it is impossible to assess the exact effects partial takes will have on tax revenues, the project team has taken a conservative approach, and calculated potential revenue impacts on all properties listed as being impacted – whether they turn out to be partial or full takings. The total property tax base impacted is the sum of the State, county, and, in some cases, municipal tax rates. The tax rates are expressed as a dollar amount per $100 of assessed property value. Generally properties that are owned and used by religious, charitable, or educational organizations or owned by the Federal, State, or local governments are exempt from property tax and have not been included in the total tax calculations summarized in the table.

TABLE III-29
SUMMARY OF SHORT-TERM IMPACTS ON TAX BASE DUE TO PROPERTY TAKINGS

	Highway Impact On Tax Revenue ($)	Transit Impact On Tax Revenue ($)	Total Tax Revenue ($)
Maryland	$483,364	$282,074	765,438
Montgomery County	$2,073,486	$2,488,297	$4,561,793
Montgomery Municipalities	$268,763	$539,246	$808,009
Frederick County	$2,956,112	$-	$2,956,112
Frederick Municipality	$1,302,728	$-	$1,302,728
Total	**$7,084,453**	**$3,309,617**	**$10,394,070**

Note: *Figures shown are rough estimates of maximum tax base impacts. At this time partial property takes cannot be translated accurately into likely tax impacts. Partial takes are treated as full takes in all cases. Amounts are in 2001 dollars.*

The highway component, which includes road widening due to the addition of either an HOV lane or a general-purpose lanes along the I-270/US 15 Corridor, tends to impact approximately $4 million additional tax revenue dollars than the transit component. This is obviously because the highway improvement covers a much greater distance than the transit component. Alternates 3A, 3B, 4A, 4B, 5A and 5B will all have comparable impacts on the tax base of the region, since they all have transit and highway components that will affect property displacement along their alignment in a similar fashion. The only major distinction can be made for the Premium Bus Alternate 5C, which has a transit component of express bus on HOV lanes. This does not affect a separate transit sub-Corridor and the short-term impacts due to property tax changes is considerably reduced, approximately $3 million less than for the other alternates. For the majority of the build alternates, the tax revenues that may be affected as a result of property takings is a little more than $10 million.

Property tax revenues also could change as a result of increased or decreased property values. Assessing the potential for property value changes is highly speculative and cannot be measured nor predicted with accuracy. However, one can draw some general conclusions from experience elsewhere.

Generally, residential and commercial land values tend to increase markedly near new transit stations. Recent experience in US cities with new light rail systems indicates that both existing and new development can experience substantial value increases. The increases result both from much improved accessibility and especially from large public investment in local urban design.

However, where residential properties front a new alignment – no matter whether highway or rail – they can suffer loss of value due to adverse visual and noise impacts. The visual impact assessment for the I-270/US 15 Corridor project indicates that some negative visual impacts would need to be mitigated. However, after mitigation, no substantially negative visual impacts on residential land uses are expected to exist, neither along the new alignments nor at their major facilities.

The best available information at this time indicates that the project area generally can expect land values to rise near new transit stations, without any negative impacts, so long as sensitive urban design and visual impact mitigation measures are undertaken. These positive impacts are expected to be the same for all of the BRT and LRT alternates, though substantially smaller for the Premium Bus alternate, which does not provide the same density of station-area accessibility nor opportunity for appealing urban design. Overall, fiscal budgets generally stand to benefit from land value increases, though to what extent cannot be estimated.

Gas tax is another fiscal impact that may be affected by transportation improvements. When speeds improve as a result of a transportation investment, people tend to travel farther and their cars consume more gas. On the other hand, diverting drivers to transit tends to reduce vehicle-miles-traveled and reduce gasoline consumption. The amount of vehicle miles traveled (VMT) for the LRT and Premium Bus alternates increases from the No-Build and probably would increase revenue from gas tax sources. The BRT alternates, in contrast, exhibit slight reductions in VMT.

Fiscal impacts are summarized in **Table III-30**. All of the alternatives would have roughly the same *overall* effect on tax revenues, though their individual effects on particular types of revenues would vary. Alternates 3B, 4B and 5B would have slightly more positive fiscal effects than Alternatives 3A, 4A, and 5A. Alternate 5C would have the least positive effects, since it would have minimal potential to increase property taxes on existing development, or to spur new development that would pay taxes.

Conclusion

Table III-30 summarizes the project team's evaluation of the alternates, on mostly qualitative scales, and ranks the alternates within each category and overall.

The build alternates will create relatively small impacts, dwarfed in scale by the region's and project area's natural economic growth over time, though significant in their own right nonetheless. All of the build alternates' impacts must be considered in this context. Overall, the project area and the I-270 Corridor will become much more economically active between now and 2025. The transportation alternates will simply affect how much more economically active the area will become. Some alternates will contribute more to promoting economic development, while others will contribute less. The various highway options show little difference in terms of their positive economic development impacts. The differences in impacts between the alternates have to do mainly with their transit components.

The BRT alternates have greater potential to promote economic development within the corridor, increasing the region's employment by roughly 4,500 to 4,900 jobs and offering the greatest improvements in terms of job accessibility (both for households with and without cars) businesses' labor market accessibility, and reduced out-of-pocket costs of traveling. The LRT alternates would convey more modest improvements in economic development. Although they would create slightly more new jobs than the BRT alternates – roughly 4,700 to 5,100 – their positive effects on consumers, businesses and car-less workers would be less significant. This difference occurs because many employment centers in the suburban study area are well beyond the proposed stations and would require a transfer to access in the LRT alternatives but could be accessed without a transfer in the BRT alternatives. Only minor geographic differences distinguish the BRT and LRT alternates' effects within the region.

On the other hand, the Premium Bus alternate shows more positive economic impacts in Frederick County and less positive impacts in Montgomery County than do the other alternates. This rule applies for all interest groups: consumers, businesses, workers and the fiscal interests of governments. This difference is due to the Premium Bus's faster service between portions of Frederick County and the Washington Metro and less direct service to portions of Montgomery County.

Overall, the alternates are ranked as follows in terms of their likely positive economic development impacts.

1. Alternates 4B and 5B (tie)
3. Alternate 3B
4. Alternate 5C
5. Alternates 4A and 5A (tie)
7. Alternate 3A

All things considered, the BRT alternates would produce the most positive economic development impacts, followed by the Premium Bus alternate, and finally by the LRT alternates. Within these groups, the alternates that include an LOV lane between I-70 and MD 141 (either with or without an additional HOV lane) tend to perform slightly better.

TABLE III-30
COMPARISON OF THE BUILD ALTERNATES AND THEIR RELATIVE IMPACTS FOR THE DIFFERENT ECONOMIC IMPACT CATEGORIES

Measure	Unit	Alternate 3A	Alternate 3B	Alternate 4A	Alternate 4B	Alternate 5A	Alternate 5B	Alternate 5C
Consumer Impacts								
Personal Accessibility: Montgomery County	% Change in Personal Accessibility	+2.8%	+17.4%	n.a.	n.a.	+2.5%	+8.4%	+6.7%
Personal Accessibility: Frederick County		+12.3%	+43.1%	n.a.	n.a.	+17.4%	+45.7%	+61.6%
Personal Accessibility: All Consumers		+3.8%	+13.6%	n.a.	n.a.	+4.1%	+12.4%	+12.6%
Personal Accessibility: Car-less Consumers		+12.5%	+63.0%	n.a.	n.a.	+11.7%	+60.1%	+40.6%
Increased Competition Among Businesses	Qualitative	+	+ + +	+	+ + +	+ + +	+ + +	+
Reduced Out-of-Pocket Cost of Traveling	Qualitative	–	+ +	–	+ +	–	+ +	+
Potential to Increase Taxes (higher number indicates higher potential for increased taxes)	Annual Un-funded Portion of Project	$157 million	$179 million	$157 million	$179 million	$181 million	$203 million	$186 million
Overall Consumer Impact	Relative Rank (1=best)	5 (tie)	1 (tie)	5 (tie)	1 (tie)	6	3	4
Business Impacts								
Access to Consumer Markets	Qualitative	+	+ +	+	+ +	+	+ +	+
Access to Labor Markets: All Workers	Qualitative	+	+ + +	+	+ + +	+	+ + +	+ + +
Access to Labor Markets: Car-less Workers	Qualitative	+ +	+ + +	+ +	+ + +	+ +	+ + +	+ + +
Business Disruption Caused by Construction	Qualitative	– –	– –	– –	– –	– –	– –	–
Supply Chain Productivity	Qualitative	+	+	+ +	+ +	+ +	+ +	+ +
Businesses' Competitiveness: Montgomery County	% Change in Sales Revenues	+ 0.1%	+ 1.0%	n.a.	n.a.	+ 0.1%	+ 1.0%	+ 1.6%
Businesses' Competitiveness: Frederick County		– 0.2%	– 7.4%	n.a.	n.a.	– 0.1%	– 6.9%	–12.0%
Businesses' Competitiveness: Project Area		+ 0.06%	+ 0.10%	n.a.	n.a.	+ 0.07%	+ 0.10%	+ 0.05%
Overall Business Impact	Relative Rank (1=best)	7	4	6	2	5	1 (tie)	3

TABLE III-30 (CONTINUED)
COMPARISON OF THE BUILD ALTERNATES AND THEIR RELATIVE IMPACTS
FOR THE DIFFERENT ECONOMIC IMPACT CATEGORIES

Measure	Unit	Alternate 3A	Alternate 3B	Alternate 4A	Alternate 4B	Alternate 5A	Alternate 5B	Alternate 5C
Worker Impacts								
Employment Accessibility: All Workers	Qualitative	+	+ +	+	+ +	+	+ +	+ +
Employment Accessibility: Car-less Workers	Qualitative	+ +	+ + +	+ +	+ + +	+ +	+ + +	+ + +
Supported Employment (Annualized: Direct + Indirect)	Person-Years of Employment	9,732	12,663	9,732	12,663	10,584	13,515	9,879
New Employment (Annualized: Direct + Indirect)		4,737	4,470	4,737	4,470	5,136	4,869	3,771
Overall Worker Impact	Relative Rank (1=best)	6 (tie)	2 (tie)	6 (tie)	2 (tie)	5	1	4
Fiscal Impacts								
Reduction in Infrastructure Costs, Due to Altered Development Patterns	Qualitative	+	+ +	+	+ +	+	+ +	–
Property Tax Revenues: Property Takings (Net)	Qualitative	No change	No change	No change	No change	No change	No change	No change
Property Tax Revenues: New Development	Qualitative	+	++	+	++	+	++	+
Property Tax Revenues: Property Values	Qualitative	+	+	+	+	+	+	No change
Change in Sales Tax Revenues	Qualitative	+	+	+	+	+	+	+
Change in Gas Tax Revenues	Qualitative	+	No change	+	No change	+	No change	+
Overall Fiscal Impact	Relative Rank (1=best)	4 (tie)	1 (tie)	4 (tie)	1 (tie)	4 (tie)	1 (tie)	7
Total Impacts								
Overall Impacts	**Relative Rank (1=best)**	**7**	**3**	**5 (tie)**	**1 (tie)**	**5 (tie)**	**1 (tie)**	**4**

+ + + = *Very Positive*
+ + = *Positive*
+ = *Slightly Positive*
No change = *Negligible Change*
– = *Slightly Negative*
– – = *Negative*
– – – = *Very Negative*

D. HISTORIC AND ARCHAEOLOGICAL RESOURCES

1. Statutory Requirements and Methodology

The National Historic Preservation Act (NHPA) of 1966, as amended, the National Environmental Policy Act (NEPA) of 1969, and other applicable federal, state, and local legislation govern the identification, analysis, and treatment of cultural (historic) resources. The lead federal agencies (in this case FHWA and FTA) are required to take into account, during the planning process, the effect of their proposed project on historic properties which are listed on, or eligible for, the National Register of Historic Places (NRHP) prior to the issuance of a permit or license, or before the approval of any funds. On the Federal level, the NRHP was established by NHPA to record resources significant in our understanding of American history and culture. Historic properties are defined as districts, sites, buildings, structures, and objects significant in American history. In keeping with the NHPA language and its implementing regulations, 36 CFR 800, the term "historic property" only refers to resources listed on or eligible for the National Register. For purposes of this discussion, archaeological resources (sites) refer to cemeteries, prehistoric, historic, and underwater archaeological sites, whereas historic resources refer to building, structures, districts, or objects that meet the 50-year age consideration.

All historic resources identified during cultural resource studies for the I-270/US 15 Corridor were evaluated and submitted to the State Historic Preservation Officer (SHPO) for their opinion on NRHP eligibility determinations. These properties were evaluated using the criteria of the NRHP. These criteria state that "the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and; that are associated with events that have made significant contribution to the broad patterns of our history (Criterion A): or that are associated with the lives of persons significant in our past (Criterion B): or that embody the distinctive characteristics of a type, period, or method of construction that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); or that have yielded, or may be likely to yield, information important in prehistory or history" (Criterion D) (*Criteria for Evaluation, NRHP*). In the project area, several resources meet the NRHP criteria as described below.

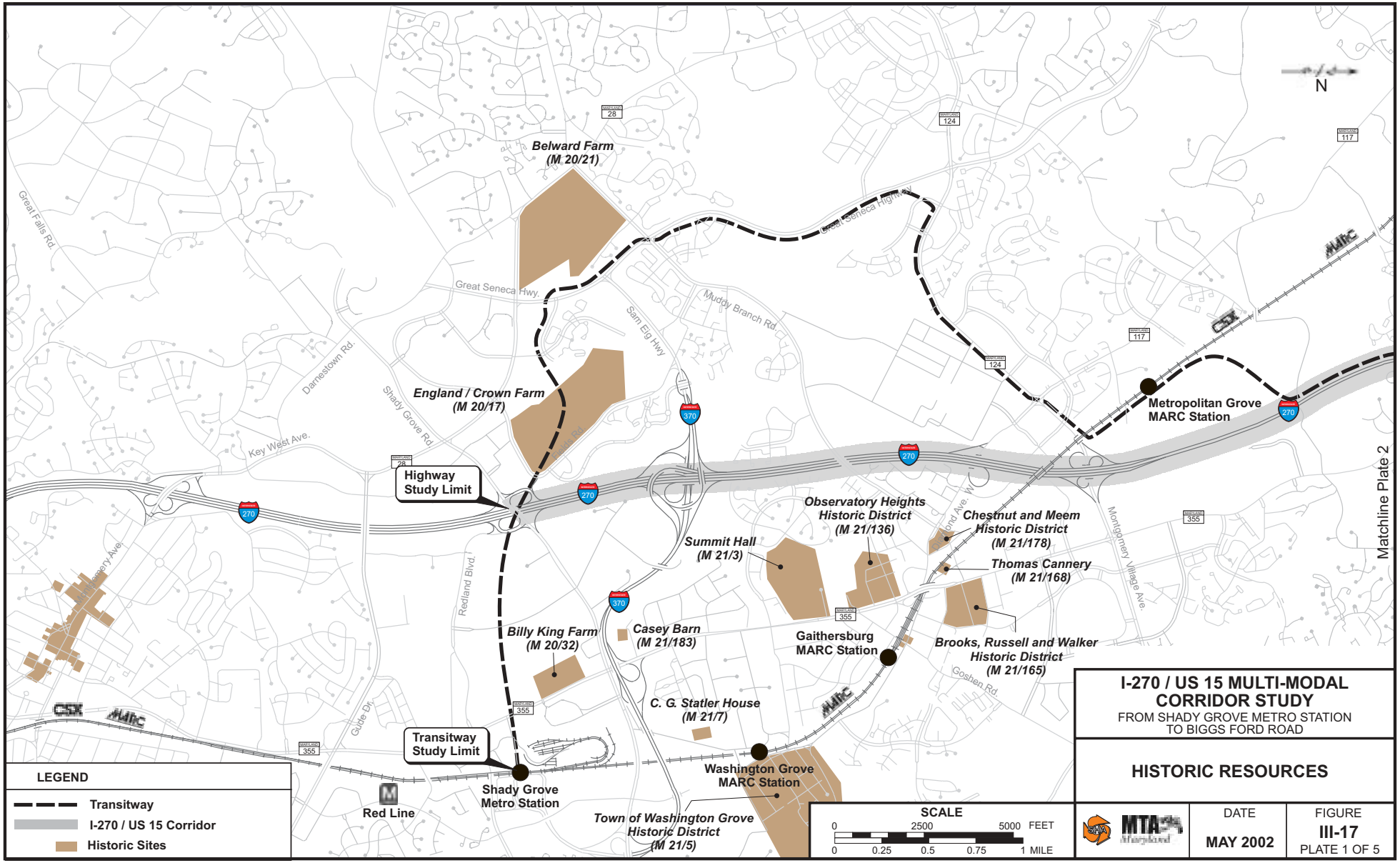
a. Comments and Coordination

Historic structures and archaeological resource identification and evaluation studies have been completed through coordination with the Maryland Historical Trust (MHT) and are included in **Chapter VII**, Comments and Coordination.

2. Historic and Archaeological Resources

a. Existing Historic and Archaeological Resources

Figure III-17 indicates the locations of 30 historic sites that meet the National Register of Historic Places (NRHP) criteria and occur within the area of potential effects (APE). The SHPO has concurred that these historic sites are on or eligible for inclusion on the NRHP.



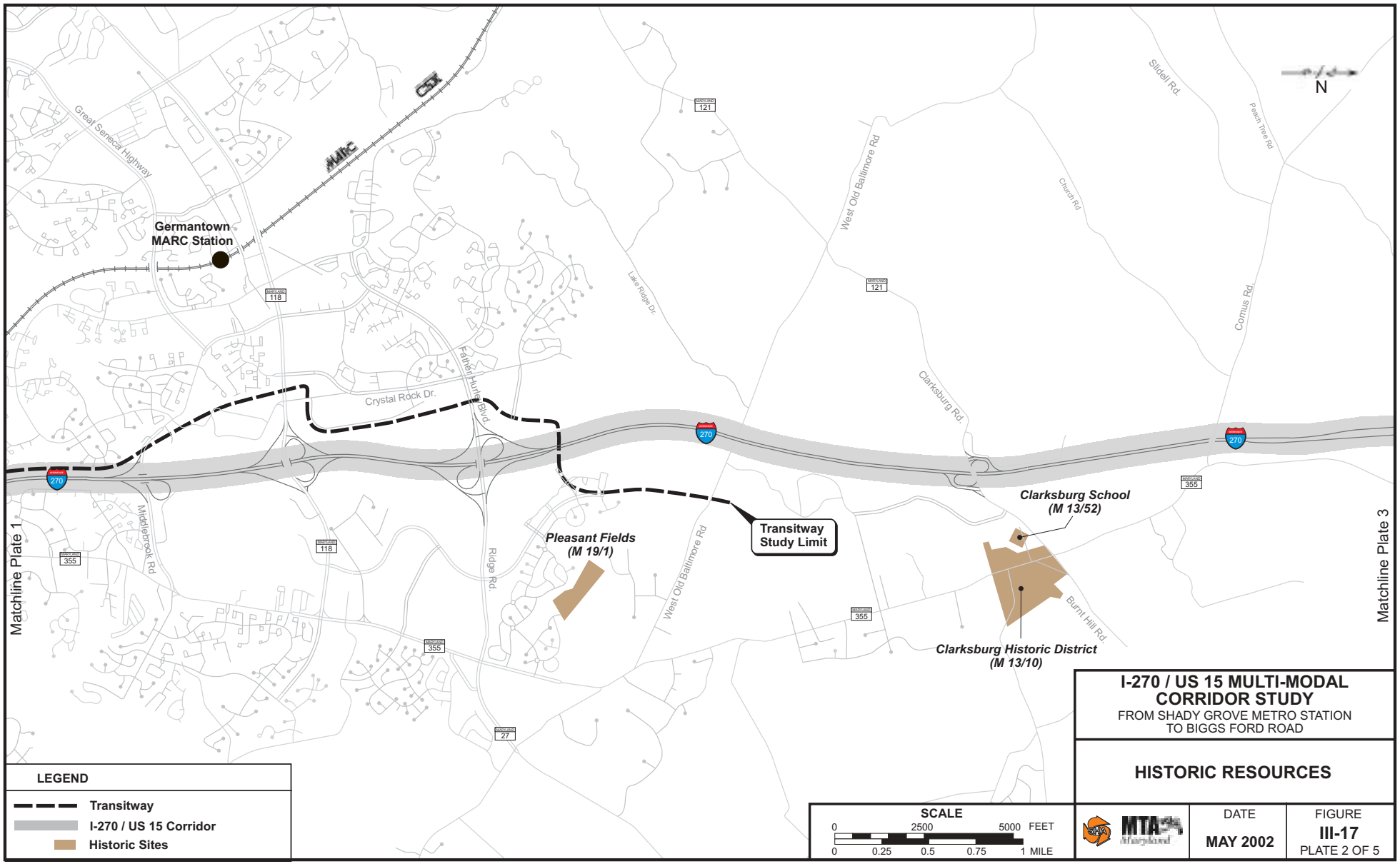
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

HISTORIC RESOURCES

DATE
MAY 2002

FIGURE
III-17
PLATE 1 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

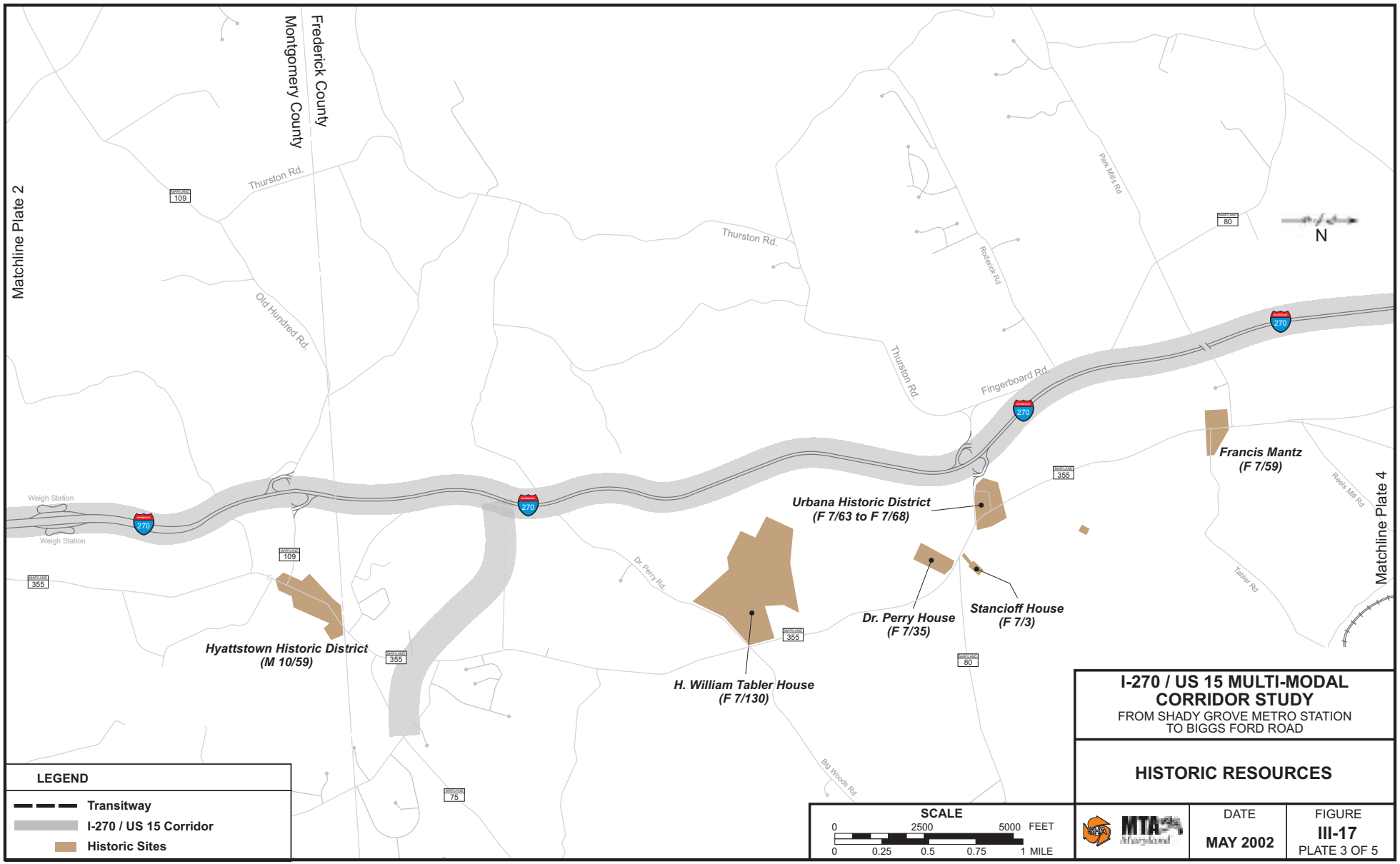
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

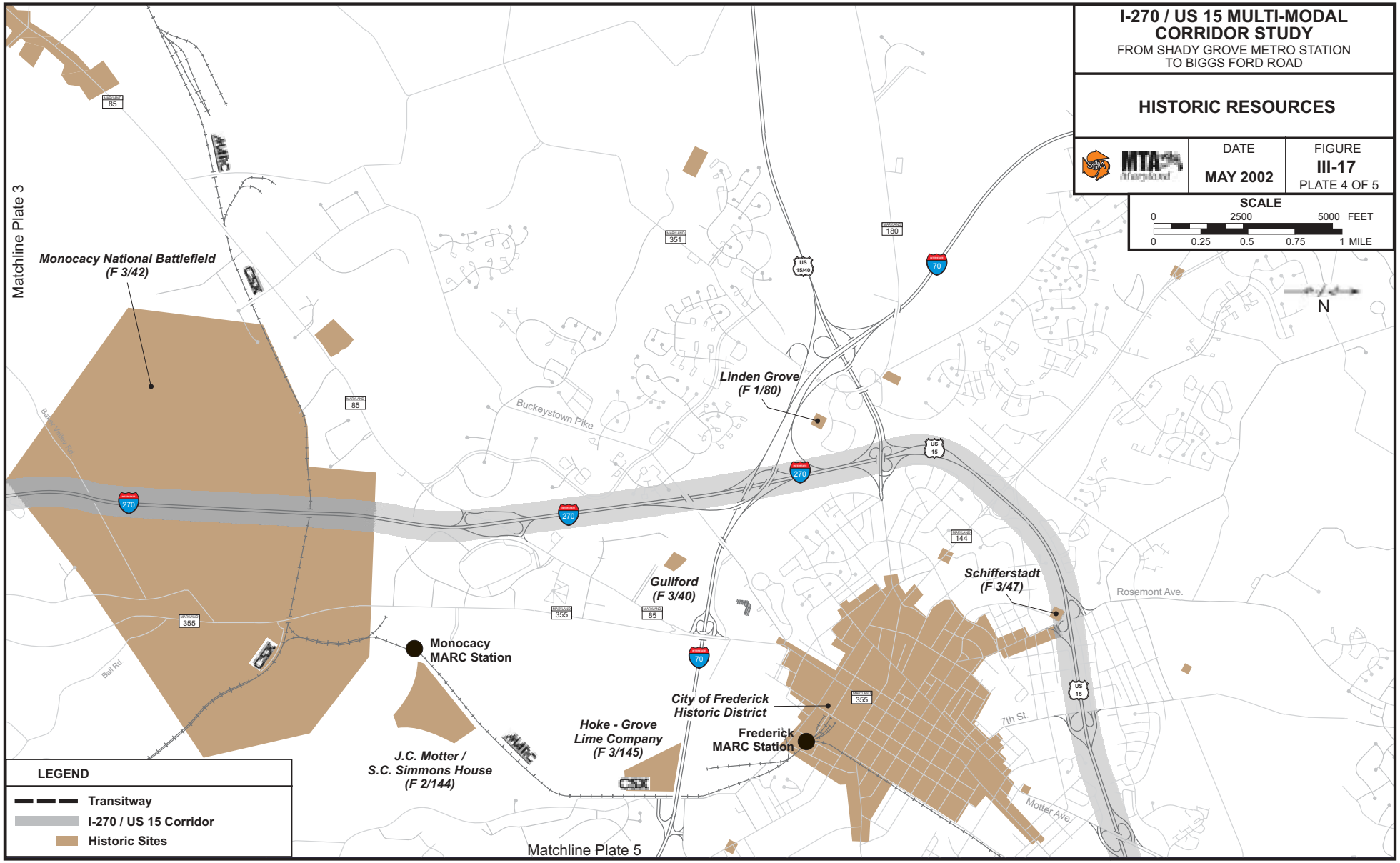
HISTORIC RESOURCES

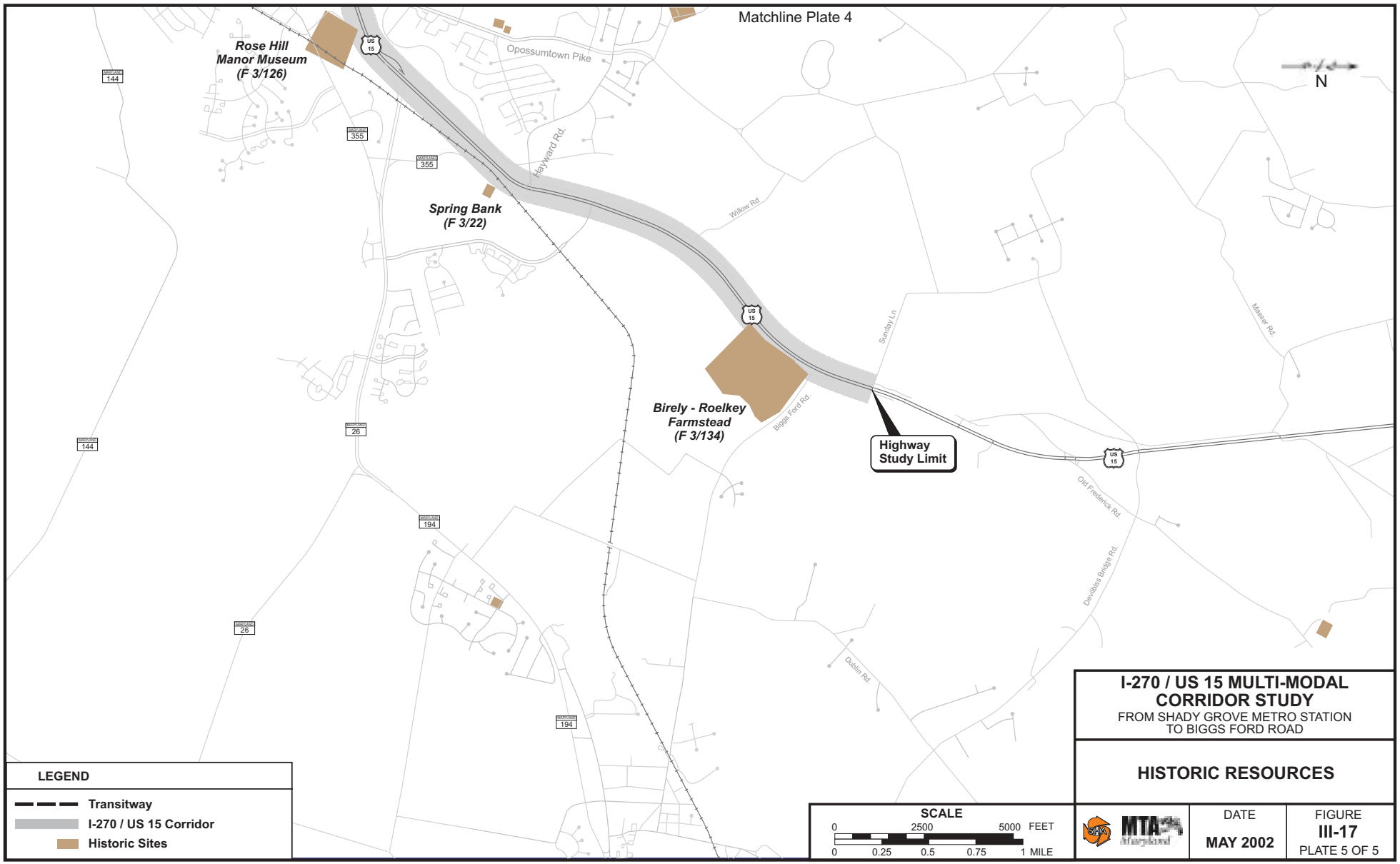
MTA Maryland

DATE
MAY 2002

FIGURE
III-17
PLATE 2 OF 5


Matchline Plate 2
Frederick County
Montgomery County
Thurston Rd.
Old Hundred Rd.
Thurston Rd.
Park Mills Rd
Roderick Rd
Thurston Rd.
Fingerboard Rd.
N
Francis Mantz
(F 7/59)
Reels Mill Rd
Matchline Plate 4
Weigh Station
Weigh Station
Urbana Historic District
(F 7/63 to F 7/68)
Dr. Perry Rd.
Dr. Perry House
(F 7/35)
Stancioff House
(F 7/3)
Tabler Rd
Hyattstown Historic District
(M 10/59)
H. William Tabler House
(F 7/130)
Big Woods Rd
LEGEND
Transitway
I-270 / US 15 Corridor
Historic Sites
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
HISTORIC RESOURCES
DATE
MAY 2002
FIGURE
III-17
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
HISTORIC RESOURCES
DATE
MAY 2002
FIGURE
III-17
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Monocacy National Battlefield (F 3/42)
Linden Grove (F 1/80)
Guilford (F 3/40)
Schifferstadt (F 3/47)
Monocacy MARC Station
City of Frederick Historic District
Hoke - Grove Lime Company (F 3/145)
Frederick MARC Station
J.C. Motter / S.C. Simmons House (F 2/144)
Buckeystown Pike
Rosemont Ave.
7th St.
Motter Ave.
Bell Rd.
LEGEND
Transitway
I-270 / US 15 Corridor
Historic Sites



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

HISTORIC RESOURCES

DATE
MAY 2002

FIGURE
III-17
PLATE 5 OF 5

Structures

M13/52, Clarksburg School: The Clarksburg School, located contiguous to the Clarksburg Historic District, is listed on the NRHP under Criterion A for its place in the development of education in Montgomery County. It was built in 1909, and is one of the most intact early schoolhouses remaining in the country.

M19/1, Pleasant Fields: Pleasant Fields, located in the vicinity of Germantown, is eligible for inclusion on the NRHP, in that it is illustrative of the long history of farming in Montgomery County; thus it meets the requirements of Criterion A. In addition, it would meet the requirements of Criterion B in that it was associated with the Waters Family, locally prominent within the society of Germantown in the nineteenth century.

M20/17, England/Crown Farm: The England/Crown Farm, is located within the Gaithersburg City limits, is eligible for listing in the NRHP under Criterion C for its association with the agrarian history of Montgomery County. The dwelling is part of a well-preserved early to mid twentieth century farm complex, originating with the England family in the late nineteenth century. In addition, it exhibits architectural significance because of its detailing, and the presence of a log dwelling, possibly originating as a tenant house during the ownership by the Hunter family predating the England family ownership. The Crown farm has been identified as a rare link to the agrarian past of the Gaithersburg area, which is increasingly being converted to other uses.

M20/21, Belward Farm: The Belward Farm, located on the north side of MD 28 west of Key West Avenue in the vicinity of Gaithersburg, is eligible for the NRHP. It is significant under Criterion A for its strong association with the agrarian history of Montgomery County. The historic site is a remnant of a dairy farm, continuously operated by members of the same family who established it in the mid-nineteenth century. In addition, the farmhouse is an excellent example of an 1890's Victorian frame dwelling.

M20/32, Billy King Farm: The Billy King Farm, located on the west side of MD 355 (Old Frederick Road) within the Gaithersburg City limits, is eligible for listing on the NRHP under Criterion A as an important link to the agrarian past of Montgomery County. Although this once very large farm dates to the early 1920's when W. Lawson King purchased the land and established a dairy farm. It is now the location of a subdivision development except for the small portion that encompasses the house and some farm buildings.

Since the time this property was documented, considerable change has occurred. The acreage has been decimated by subdivision construction. A copy of the revised boundary of May 1998, which includes a few structures that remain on site is included.

M21/3, Summit Hall: In its 230-year history, Summit Hall, located within Gaithersburg and eligible for listing on the NRHP, has been associated with significant events in such diverse fields as pioneer settlement, Civil War history, experimental agronomy, astronomy, and the area's social and physical development. Architecturally, Summit Hall illustrates various vernacular stylistic elements from three ownership periods, combining hewn log construction, late Federal/Victorian additions and a ca. 1940 Classical Revival façade. The landscaped

grounds contribute to the significance of the site. Summit Hall qualifies under Criterion A for its association with broad patterns of American history and Criterion C for the excellence of its architectural style.

M21/7, C.G. Statler House: The C.G. Statler House, located in Gaithersburg, is eligible for listing on the NRHP under Criterion C for illustrating the transition from the picturesque massing and detailing characteristic of the Queen Anne architectural style to the simpler articulation of the Stick style. The Statler House illustrates this transitional expression, which is rare in domestic architecture in the area.

M21/168, Thomas Cannery: Thomas Cannery, located within the Gaithersburg City limits, is listed on the NRHP. The Cannery, started in 1917, is significant under Criterion A, as illustrative of an important commercial pattern in the history of Montgomery County as well as the state of Maryland. It was the first and largest vegetable cannery in the county, and its opening provided the primarily agriculturally based region with an important local market.

M21/183, Casey Barn: Casey Barn, located in Gaithersburg, is eligible for listing on the NRHP, under Criterion A for its association with the agrarian patterns of American history as reflected in its relationship to transportation modes which allowed ready access to markets, in this case its proximity to the Baltimore and Ohio Railroad. Dating from 1938, it is a modified Dutch gambrel barn type, built on the extensive farmlands of Eugene Casey, a prominent twentieth century figure in Montgomery County.

F1/80, Linden Grove: Linden Grove, located on the outskirts of Frederick, is listed on the NRHP. Linden Grove is significant under Criterion C for its architectural character as a well-preserved example of a second quarter nineteenth century brick dwelling of a prosperous Frederick County farmer. It is unusual in exhibiting a form and decorative treatment associated with urban settings transported and used in a rural setting on the outskirts of Frederick.

F2/144, J.C. Motter/S.C. Simmons House: This dwelling, located at 1929 Reichs Road, is eligible for listing on the NRHP under Criterions A and C. It is an excellent example of nineteenth century rural architecture reflecting the Georgian and Greek Revival styles. The property may be significant under Criterion B for its association with Judge John Columbus Motter, a member of a prominent Frederick County family.

F3/22, Spring Bank: Spring Bank, located north of Frederick, is listed on the NRHP. It is primarily significant for its architecture under Criterion C as a well-preserved example of a late nineteenth century dwelling combining Gothic and Italianite influences in a rural Frederick County setting. A number of large brick farmhouses displaying this interplay of conservative form and stylish ornament can be found in Frederick County and adjacent Carroll and Washington counties, but Spring Bank stands out because of its excellent state of preservation.

F3/40, Guilford: Guilford, listed on the NRHP, is located on the outskirts of Frederick. It is a handsome, early nineteenth century brick manor house presumably built by Worthington Johnson, a member of a prominent Frederick County family who owned the property until the 1850's. Guilford is architecturally significant under Criterion C as one of the finest big country houses in Frederick County.

F3/42, Monocacy National Battlefield (MNB): This National Historic Landmark retains much of the rural character of the mid-nineteenth century when it gained significance under Criterion A as the location of an important Civil War battle and as a rural historic landscape. The landscape is river valley of gently rolling uplands of moderate relief, which are delineated by prominent ridges that have influenced the alignment of the paths, trails and roads and the placement of structures. They have played a role in the layout and configuration of cultivated fields, meadows, pasture and patterns of use. The pastoral landscape of this portion of the Monocacy River valley, where roads, railroad and the river come together, was the site of the July 9, 1864 battle that saved Washington, D.C. from serious attack by the Confederate forces of General Jubal Early. The action was later commemorated with five Civil War monuments that memorialize the participants in the battle. The crossroads aspect of the area has been key in its development and its place in history.

The battlefield is a historic landscape that retains a very high degree of integrity. It encompasses land valued and utilized over time for farming and transportation, retaining many of the traditional landscape features. Historical, though short term, use by the military for troop encampments and one camp established during the Civil War also figures in the significance of the Monocacy farms. In addition, the architectural styles of the residential and functional structures in the study area exhibit the variety of cultural traditions associated with agriculture in western Maryland.

The circulation system of the battlefield property derived from the topographical configuration of the landscape and is primarily based on vehicular use. The roads, drives, lanes, fords, bridges and road traces reflect the historic agricultural landscape where circulation developed to accommodate planting, harvesting, care of livestock and the transportation of products to markets. Each property associated with it is marked by one or more clusters of vernacular buildings and structures. Individual structures throughout the battlefield site have remarkable integrity– main residences, mill, small houses, barns, sheds, springhouses, and silos – that comprise the architectural features in the park. Another important structural element is its system of fences, which define spatial organization. Although influenced by the topography and natural systems, the historic ownership patterns determined by land grant, patent and deed have also affected the layout of the farms and other properties on both sides of the river. It can be best understood as a collection of four individual sites, or component landscapes, that have developed through 200 years of subdivision and consolidation of ownership.

Some of the principal dwellings within the Monocacy National Battlefield are located on substantial rises, thus, in spite of the fact that I-270 truncates the battlefield and ridges plus hedgerows are interposed in the landscape, strong visual connections have been retained between the Best Farm, Baker Farm, Clifton, Araby Farm and the Lewis House.

> **Hermitage**, also called the **Best Farm**, has a cluster of buildings located on the southwest side and a portion of its fields on the northeast with fields, delineated by roads, lanes, the rail line and fences, marking the floodplain and fertile river bottomlands. The relationship of the fields to the whole property contributes greatly to this farm's remarkable integrity of spatial organization. There are five buildings that contribute to the significance of the resources—the house, secondary house, smokehouse, wagon shed and stone barn. It has Civil War associations in that both Confederate and Union

encampments occurred on the property in September 1862 and the Confederates and their artillery were located there in July, 1864. A non-historic barn on the site will be converted to the visitors center.

The Araby Community includes several distinctive resources where were historically associated with the ca. 1,000 acre tract surveyed for John McPherson in 1832. These include Araby Mill, the Araby Plantation, to which the Hill Farm was attached, and the Railside Properties that developed around the Frederick (Monocacy) Junction. Following the breakup of Araby in 1844 these parcels were established: Araby Farms, Gambrill Mill, and the Hill Farm. The Railside properties were subdivided from the Gambrill Mill Property.

Araby was a community located at the Monocacy Junction of the Baltimore & Ohio Railroad, and contains the **Araby Farm**, also known as the Thomas Farm. It has five buildings, which contribute to the significance of the site: main house, barn, wagon shed, stone tenant house, and smokehouse. It is related to the Civil War battle in that it was the headquarters/meeting site in 1864, as well as the location of the encampment of the Union army in June 1863, and 1862. It was the location of a fording and a ferry crossing of the Monocacy River as well in the eighteenth and nineteenth centuries. The historic spatial patterns and relationships among the landscape features and the buildings, grouped behind the large brick manor house and including a frame forebay barn, corncrib and wagon shed and various outbuildings, are intact.

Another component within the original Araby community is Araby Mill. It contains two significant buildings located on the east side of MD 355 and east of the Monocacy River: the1830 **Gambrill Mill** and **Edgewood**, an Empire-style dwelling of substantial proportions and retaining excellent integrity. The Gambrill Mill, currently used as the headquarters of the Monocacy National Battlefield, is significant for its Civil War associations, in that it was used as a hospital in 1864. The Araby community also contains the **McPherson Hill Farm**, also called the Lewis Farm, which has been divided into two portions by I-270, and located along the east side of Baker Valley Road opposite Araby Farm and north of I-270 at the eastern edge of the Monocacy Battlefield. It has four buildings that contribute to the significance of the property---the house, barn, wagon shed and springhouse. The **Railside Property** is primarily an archeological resource, as none of the buildings that composed the former bustling junction, including a distillery, warehouse, and several buildings, are extant. All that remain are some foundations and cellar depressions. The resources that contribute to the significance of the property are these features, plus trenches, roads and the sites of powder magazines, Lew Wallace's Headquarters and blockhouses.

The **Baker Farm** is composed of buildings arranged in a linear pattern, with the historic entry drive dividing the front fields of the farm and the fields, (pasture and cropped) further delineated by wire-and-post fences and farm lanes. The property boundaries and the internal spatial organization on this property are remarkably intact. The Baker Farm has a high degree of physical integrity, which reflects the history of the development of agriculture in Frederick County. The farm encompasses about 220 acres and is located on the west side of Baker Valley Road, immediately southwest of Araby. The two farms are

separated by I-270. The house, barns and outbuildings are arranged approximately on an axis and are set well back from Baker Valley Road against the rising slope of the east face of Brooks Hill. There are seven structures that contribute to the significance of the site: house, barn, block dairy barn, milk house, summer kitchen, silo and springhouse. It is associated with Civil War through the July 1864 troop movements that ranged throughout the property. There is an interpretative trail on the farm that is located immediately adjacent to the western right-of-way line of I-270.

Clifton, also know as the Worthington Farm, is located at the end of a long access lane, which parallels I-270 westward from Baker Valley Road, then turns to the southwest to reach the house. The original access was along the east side of the Monocacy River from MD 355 and connected to the Best Farm. The current access resulted from the construction of I-270 that truncated its real6tionship to MD 355 and the Best Farm. The Clifton is the location of a brick Georgian-inspired 1850 farmhouse, located on a rise broadly defined by the circular meander of the Monocacy River which wraps around the north and west sides. The dwelling has fine detailing strongly influenced by the Greek Revival and Italianate styles from the third quarter of the nineteenth century. The property retains a field system and circulation patterns of substantial integrity, and is associated with the Monocacy Battle primarily because of the use of a second dwelling site by occupying forces, plus the Clifton property also is the location of the site where the Ballenger Creek was formerly forded. In addition, a Monocacy River fording site was used during the battle, and military engagements occurred on the property on July 9, 1864.

F3/47, Schifferstadt: Schifferstadt, located in Frederick, holds an MHT easement, and is listed on the NRHP under Criterion C because it embodies the distinctive characteristics of German building traditions transported to Maryland. This large stone house is outstanding architecturally as an exceptionally well-preserved example of a vernacular building tradition, providing a palpable link to the traditions and patterns of early German settlement in this region.

F3/126, Rose Hill Manor: Rose Hill Manor Museum, located in Frederick, is listed on the NRHP. This large, imposing, porticoed country mansion built near the turn of the nineteenth century is significant architecturally under Criterion C for its late Georgian-Greek Revival transitional style. It is also historically important as the home of Maryland's first elected governor, Thomas Johnson. Thus it would meet the requirement of Criterion B for its association with an important person.

F3/134, Birely-Roelkey Farmstead: Birely-Roelkey Farmstead, eligible for listing on the NRHP, is located north of Frederick near the Pennsylvania state line. It was built about 1851 by John W. Birely, a prominent local businessman and cashier of the Farmers and Mechanics National Bank in the late nineteenth century. The property constitutes an important link to the agrarian tradition of Frederick County and thus qualifies for the Register under Criterion A for its association with the broad patterns of American history. Most of the contributing outbuildings date from the periods of the Birely and Roelkey ownerships. It is significant under Criterion C for these buildings, for the architectural style of the main dwelling and an increasingly rare type of agricultural outbuilding, the blacksmith shop.

F3/145, Hoke-Grove Lime Company: The Hoke-Grove Lime Company, located at the intersection of Reich's Ford Road with I-70, is eligible for inclusion on the NRHP. The Company is significant under Criterion A for its association with the establishment of the important lime processing and manufacturing industry in Maryland, and under Criterion B for its association with the Hoke, Grove and other notable nineteenth century families, who were civic leaders, agricultural innovators, and important businessmen in Frederick County.

F7/3, Stancioff House: The Stancioff House, located in Urbana, is listed on the NRHP for its documented role in the Civil War as a resting place for Union Troops in September 1862 on the march toward the Battle of the Monocacy. In addition to thus meeting the requirements of Criterion A for its association with the Civil War, it is significant for its use as a Female Seminary by Reverend Phillips after he had the building moved to its present site in 1849.

F7/35, Dr. Perry House: Dr. Perry House, eligible for listing on the NRHP, is located in Urbana. It is significant under Criterion C as a good example of the early twentieth century Colonial Revival style in its principal exterior elevation. Built for Dr. Perry shortly after his marriage, it retains the imposing appearance, with the original setting of an extensive lawn, of a county estate of the wealthy class of the period.

F7/59, Francis Mantz House: The Francis Mantz House, located north of Urbana in Frederick County and rented out throughout most is its history as part of a tenant farm, is eligible for listing on the NRHP under Criterion C. It is significant as an intact farm property, and for the several types of construction represented in the well-preserved buildings extant on the site dating from the first quarter of the nineteenth century through ca. 1930. The stone barn is the only one of its type documented in the Urbana area.

F7/130, H. William Tabler House: The H. William Tabler House, located south of Frederick, is eligible for listing on the NRHP under Criteria A and C. It is an excellent example of a once prosperous farmstead in the area around Urbana, which is well suited to farming. The Tabler House exemplifies the history of nineteenth century folk architecture in Maryland. In addition, the Tabler family was an old and respected family in the Urbana area.

Historic Districts

M10/59, Hyattstown Historic District: Hyattstown Historic District, located in the center of Hyattstown, is eligible for listing on the NRHP under Criterion C as it embodies the distinctive characteristics of a mostly nineteenth century rural village. Originally incorporated in 1798, it is one of the largest groupings of relatively unaltered nineteenth century buildings in the county and as such is singularly able to convey the sense of time and place of a rural Montgomery County village of that era.

M13/10, Clarksburg Historic District: Clarksburg Historic District, located in the center of Clarksburg, is eligible for listing on the NRHP under Criterion C as it embodies the distinctive characteristics of a mostly nineteenth century rural village. The district is a thirteen-building remnant of a large nineteenth century crossroads community that was a center of transport, trade and industry for northern Montgomery County before being bypassed by the railroad in the late

1870's. As a major stage stop for traffic from Frederick to Georgetown, the town supplied a number of inns, taverns, stores, machine shops, blacksmiths, and wheelwrights.

M21/5, Town of Washington Grove Historic District: Washington Grove is listed on the NRHP under Criterion A for its association with the broad patterns of American history and under Criterion C for the type of buildings that are carefully sited within a sylvan setting. Located south of Gaithersburg, it is an outstanding example of an intact, cohesive late nineteenth century village that originated as a summer camp meeting ground for the Methodist Church.

M21/136, Observatory Heights Historic District: Observatory Heights Historic District is eligible for listing on the NRHP as a significant collection of residential structures reflecting the full range of architectural styles from the late nineteenth through mid twentieth centuries which are clustered around the Gaithersburg Latitude Observatory, one of only two scientific installations of its kind remaining in the continental US.

M21/165, Brooks, Russell and Walker Historic District: The Brookes, Russell and Walker Historic District, located immediately adjacent to the commercial core of Gaithersburg, is eligible for listing on the NRHP. It is significant under Criterion C for its association with the broad patterns of development of communities from their original core due to the influence of improved transportation patterns. It is also significant as a collection of subdivisions reflecting the growth of Gaithersburg from a small village of the mid-nineteenth century to a booming agricultural supply center and railhead with the opening of the B&O Railroad metropolitan line in 1873.

M21/178, Chestnut and Meem Historic District: This small historic district is eligible for listing on the NRHP for its significance under Criterion A in demonstrating the broad pattern of land speculation and development. It is composed of mostly twentieth century frame cottages, bungalows, and ramblers, plus some late nineteenth century dwellings along Chestnut Street. Many of these one and one-half colonial cottages were built in the 1930's, following national trends in housing. The B&O Railroad opened in 1873 and Chestnut Street was dedicated in the same year to provide access to houses and commercial property. Martha Meem and her family built the large Victorian House at 104 Chestnut Street (M21/11) in 1879. The development boom followed with the opening of the Metropolitan Branch of the B&O Railroad, leaving Mrs. Meem and her family as principal profit-takers.

F3/39, Frederick Historic District: Frederick Historic District, located in the heart of Frederick City, is listed on the NRHP. It is significant as Maryland's second largest city in the nineteenth century whose prominence is reflected in the largely intact and unified streetscape lined buildings reflecting a great variety of architectural styles. Frederick's position near the National Road connecting Baltimore and Cumberland assured the town's economic significance as an important agricultural supply point. Frederick is significant under Criterion A as it thus illustrates the broad patterns of history as well as qualifying under Criterion C as it has retained its nineteenth century architectural character.

F7/63 to F7/68, Urbana Historic District: The Urbana Historic District, eligible for listing on the NRHP, is located in the heart of the rapidly expanding village of Urbana and is significant under Criterion C as a fairly intact nineteenth century village remaining on the original

Georgetown Pike (MD 355) connecting Washington, DC and Frederick. The first settlers in Urbana were farmers, and, as the population grew, the need for related industries grew with it. There were lime kilns, gristmills, flourmills, distilleries, iron mines, and brickyards.

Archaeological Resources

The project area was surveyed in 1999 for potential archaeological resources (see **Table III-31**). Several archaeological sites were discovered while other sites were identified within the area of potential effects. Most of these sites were prehistoric lithic scatters with debitage and a smaller quantity of tools. Due to the density of artifacts, as well as limited physical integrity and research potential, the following 10 prehistoric sites are ineligible for the NRHP: 18FR147, 18FR148, 18FR744, 18FR745, 18FR747, 18FR748, 18MO406, 18M0471, 18MO472, and 18MO473.

In addition to the prehistoric sites, two historic archaeological sites were identified: 18FR148A and 18FR746. While the MHT recommends further survey of a portion of site 18FR148A to evaluate its significance, only the larger insignificant remainder of the site lies within the APE. MHT concurs that 18FR746 is ineligible for the NRHP.

Phase I archaeological identification investigations were conducted for the mainline improvements for the project in 1999. The survey resulted in the identification of seven prehistoric archaeological sites (18FR744, 18FR745, 18FR747, 18FR748, 18MO471, 18MO472, 18MO473) and one historic archaeological site (18FR746). Previously identified prehistoric sites 18FR147, 18FR148, 18FR110, 18MO182, 18MO406, and historic sites 18FR30 and 18FR134 were reinvestigated. Additionally, a spatially discreet historic component of 18FR148 was newly identified and designated 18FR148A. None of the eight newly identified sites (18FR744, 18FR745, 18FR746, 18FR747, 18FR748, 18MO471, 18MO472, 18MO473) were considered significant by virtue of their low research potential and lack of integrity. Sufficient testing was conducted at reinvestigated sites 18FR147 and 18MO406 to confirm their low research potential and lack of integrity.

TABLE III-31
ARCHAEOLOGICAL SITES IN THE I-270/US 15 CORRIDOR

Site Number	Affiliation	NR Eligibility	Recommendation
18FR147	Middle and Late Archaic, Late Woodland	Not Eligible	No further investigation
18FR148	Middle and Late Archaic, Early Woodland	Not Eligible	No further investigation
18FR148A	Historic 19th Century	Potentially Eligible	Only investigate if impacted
18FR744	Generic Prehistoric with historical field scatter	Not Eligible	No further investigation
18FR745	Generic Prehistoric with historical field scatter	Not Eligible	No further investigation
18FR746	Historic 19th Century	Not Eligible	No further investigation
18FR747	Late Archaic	Not Eligible	No further investigation
18FR748	Generic Prehistoric with historical field scatter	Not Eligible	No further investigation
18MO406	Middle Woodland	Not Eligible	No further investigation
18MO471	Generic Prehistoric	Not Eligible	No further investigation
18MO472	Terminal Archaic	Not Eligible	No further investigation
18MO473	Generic Prehistoric	Not Eligible	No further investigation
18MO182	Late Archaic	Destroyed	No further investigation
18MO406	Generic Prehistoric	Not Eligible	No further investigation
18FR30	Historic 19th Century Civil War	NR Listed; National Historic Landmark	No further investigation

Regarding other previously reported sites that were re-investigated in 1999, no archaeological deposits associated with sites 18FR134 (Schifferstadt), 18FR30 (Monocacy Battlefield), or 18FR110 (Wiles II), were found to extend into the APE. Consequently, these sites will be avoided. Site 18MO182 was found to be destroyed. Deposits associated with the prehistoric component of 18FR148 were found to be concentrated on the surface with very low densities recovered from shovel test pits within the APE. The potentially significant historic component of the site (18FR148A) will be avoided by the undertaking.

The MHT concurred with these findings in a letter dated November 5, 1999 and agreed that no additional archaeological investigations were warranted for the project. The National Park Service has also commented on the results of the previous archaeological identification investigations conducted within the Monocacy National Battlefield (18FR30), and has concurred no additional work is required. These letters, including additional on-going coordination with the MHT, appear in **Chapter VII**, Comments and Coordination.

b. Impacts and Mitigation Measures

Historic Resources

Project effects on all cultural resources were assessed in accordance with Section 106 of the National Historic Preservation Act and the accompanying regulations of the Advisory Council on Historic Preservations (36 CFR 800.5), see **Table III-32**. The regulations provide that a project will have an effect on a resource when the "undertaking may alter characteristics of the property

that may disqualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered" (36 CFR 800.9(a)). The regulations further provide that an undertaking will have an adverse effect when "the effect on a historic property may diminish the integrity of the property's locations, design, setting, materials, workmanship, feeling, or associations (36 CFR 900.9(b)).

The focus of the assessment is to (1) determine whether an action has an effect, and subsequently (2) if that effect is adverse. Using the Criteria of Effects and Adverse Effect specified in 36 CFR Part 800.9, three basic findings can be made:

- No Effect: there is no effect, either harmful or beneficial, on the historic property.
- No Adverse Effect: there could be an effect, but the effect would not be harmful to those characteristics that qualify the property for inclusion in the NRHP.
- Adverse Effect: there could be an effect, and that effect could diminish the integrity of such characteristics.

The Criteria of Adverse Effect state "an undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Five conditions are specified in Part 800.9(b) that are considered adverse effects:

(1) Physical destruction, damage, or alteration f all or part of the property;
(2) Isolation or alternation of the property from the property's setting if that setting contributes to the property's qualifications for the National Register;
(3) Introduction of visual, audible or atmospheric elements that are out of character with the property or alter its setting;
(4) Neglect of the property resulting in determination or destruction, and
(5) Transfer, lease, or sale of the property.

Effects that otherwise would be adverse, may be considered to be "not adverse" if one or more of the following conditions are met:

(1) When the property is of value only for its potential contribution to archaeological, historical, or architectural research, and when such value can be substantially preserved through appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines;
(2) When the undertaking is limited to rehabilitation of buildings and structures in a manner that preserves the historical and architectural values, or
(3) When the undertaking is limited to the transfer, lease or sale of historic properties and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

The determination of effects on cultural resources was requested from the State Historic Preservation Officer (SHPO) in letters dates February 15, 2002 and March 14, 2002, see **Chapter VII**, Comments and Coordination.

TABLE III-32
HISTORIC EFFECTS

Resource	Type	Alternate 1		Alternate 2		Alternates 3A/B		Alternates 4A/B		Alternates 5A/B/C		Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	
Browningsville HD (M 10/13)	**HD**	**None**		**None**		**None**		**None**		**None**		**Possible impact from wetland creation. Will be further coordinated at a later date**
Hyattstown HD (M 10/59)	HD											Outside APE
Clarksburg HD (M 13/10)	HD											Outside APE
Observatory Heights HD (M 21/136)	HD											Outside APE
Washington Grove HD (M 21/5)	HD											Outside APE
Brookes, Russell, and Walker HD (M 21/165)	HD											Outside APE
Chestnut/Meem HD (M 21/178)	HD											Outside APE
Clarksburg School (M 13/52)	S											Outside APE
Pleasant Fields (M 19/1)	S											Outside APE
England Crown Farm (M 20/7)	**S**	**None**		**None**		**Adverse**	**Request 3/2002**	**Adverse**	**Request 3/2002**	**Adverse**	**Request3/ 2002**	

TABLE III-32 (CONTINUED)
HISTORIC EFFECTS

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	
Belward Farm (M 20/21) Boundary Revision	**S**	**None**		**None**		**None**	**“**	**None**	**“**	**None**	“	
Billy King Farm (M20/32)	S											Outside APE
Summit Hall (M 213)	S											Outside APE
C. G. Statler House (M 21/7)	S											Outside APE
Thomas Cannery (M 21/168)	S											Outside APE
Casey Barn (M21/178)	S											Outside APE
Frederick HD (F-3-39)	HD											Outside APE
Urbana HD (F-7-73)	HD											Outside APE
Monocacy Battlefield (F-3-42) 18FR30	**NHL** A	**None**		**None** **None**		**Adverse** **None**	**“**	**Adverse** **None**	**“**	**Adverse** **None**	“ **11/5/99**	No Impacts to Archeological Resources
Linden Grove (F-1-80)	S											Outside APE
Motter-Simmons Farm (F-2-144)	S											Outside APE
Spring Bank (F-3-22)	**S**					**Not Adverse**	**“**	**Not Adverse**	**“**	**Not Adverse**	“	

TABLE III-32 (CONTINUED)
HISTORIC EFFECTS

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	
Guilford (F-3-40)	S											Outside APE
Schifferstadt (F-3-47)	**S**					**Not Adverse**		**Not Adverse**		**Not Adverse**		**No Adverse Impact Conditioned on replanting the buffer and hedgerow**
Rose Hill Manor (F-3-42)	**S**					**Adverse**		**Adverse**		**Adverse**		
Birely-Roelkey Farm (F-3-134)	**S**					**Adverse**		**Adverse**		**Adverse**		
Hoke-Grove Limestone Property (F-3-145)	S											Outside APE
Stancioff House (F-7-3)	S											Outside APE
Dr. Perry House (F-7-35)	S											Outside APE
Francis Mantz House (F-7-59)	S											Outside APE
H. William Tabler House (F-7-130)	S											Outside APE
18FR350	A											**Impacts anticipated by Wetland Mitigation Site 28; Phase I/II recommended**

TABLE III-32 (CONTINUED)
HISTORIC EFFECTS

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	
18FR351	A											**Impacts anticipated by Wetland Mitigation Site 28; Phase I/II recommended**
18FR106	A											**Impacts anticipated by Wetland Mitigation Site 23; Phase I/II recommended**
18FR178	A											**Impacts anticipated by Wetland Mitigation Site 23; Phase I/II recommended**
18FR607	A											**Impacts anticipated by Wetland Mitigation Site 25; Phase I/II recommended**
18FR148A	A											**No impacts anticipated under any mainline alternative as planned; SHA will ensure avoidance through monitoring and oversight of design plans**
18FR110	**A**	**None**	**11/5/99**	**None**	**11/5/99**	**None**	**11/5/99**	**None**	**11/5/99**	**None**	**11/5/99**	Outside APE
Effect		**NPA**	**Request 2/2002**	**NPA**	**Request 2/2002**	**AE**	**Request 2/2002**	**AE**	**Request 2/2002**	**AE**	**Request 2/2002**	

Note: Resource Types: S (Structure), A (Archaeological Site), HD (Historic District), NHL (National Historic Landmark)
Impact: None, No Adverse, Adverse
Effect: NPA (No Properties Affected), NAE (No Adverse Effect), AE (Adverse Effect)
Bold rows indicate review action requested

Archaeological Resources

Based on review of current project plans for the mainline improvements, no new impacts to any of the previously identified and/or evaluated archaeological resources are anticipated. However, the undertaking has been modified since 1999 to incorporate alignment shifts and a northward expansion of the previously studied CCT alignment, transit stations, a transitway yard/shop facility, park and ride lots, and wetland mitigation sites associated with the project. While most of these new components of the undertaking are located within or immediately adjacent to the previously studied APE, some aspects including extension of the CCT alignment and potential wetland mitigation sites have expanded the original APE. Consequently, consultation was reinstituted with the SHPO regarding eligibility of historic standing structures and the need for additional archaeological investigations within the revised APE. SHA is completing further consultation with the SHPO regarding project effects to historic properties including resolution of adverse effects through development and implementation of a draft Memorandum of Agreement. Potential mitigation measures for cultural resources and commitment to undertake further necessary archeological investigation is included in the Memorandum of Agreement. Although no significant archeological deposits were identified within the project's APE, areas of 18FR30 not subject to survey should be avoided. Temporary fencing during all phases of construction is recommended to ensure protection of the significant archeological resources beyond the limits of this project's surveyed APE.

The potential for significant archaeological resources within the expanded APE was assessed by the project team through background research and field visits. Background research included review of previous planning and research studies, existing inventories of historic properties and previous survey information, and historic maps. Field visits were made to the project area on March 19, 2001, April 5, 2001, May 16, 2001, and May 17, 2001. The research was conducted in consideration of the magnitude and nature of the undertaking, degree of federal involvement, the nature and extent of potential effects on historic properties, and the likely nature and location of historic properties within the APE.

Thirteen locations were reviewed by the project team for potential transitway yard/shop facility and transit stations. Four locations where multiple alternates are considered for park and ride lots were also reviewed, as well as the linear corridors associated with a minor alignment shift for the CCT at Shady Grove Road, and the potential future extension of the CCT between COMSAT and approximately the Frederick County line. In addition, nine potential wetland mitigation sites were considered. All proposed transitway yard/shop facility and transit station areas are located within Montgomery County. Three of the four park and ride locations are situated within Frederick County; the remaining location is within Montgomery County. Seven Frederick County locations and two Montgomery County locations were examined for potential wetland mitigation sites.

The majority of transit stations, transitway yard/shop facilities, and park and ride lots are sited in areas adjacent to existing rail and roadway facilities and areas of high-density residential and/or commercial development. As a result, most of these locations have been subject to previous disturbance. In general, disturbance within the APE increases in intensity and extent as the southern project limits are approached, where intense semi-urban development proximal to

Rockville, Gaithersburg, and Germantown, has taken place. However, the APE north of Clarksburg remains rural and relatively undisturbed. All of the potential wetland mitigation site locations are removed from areas of major development; each remains relatively undisturbed.

As documented in **Table III-33, Table III-34 and Table III-35**, additional Phase I survey is recommended for the Metropolitan Grove location for a transitway yard/shop facility, the COMSAT Station and transitway yard/shop facility, park and ride lots 15-2, 14-41, 14-16, 15A/B/C-12 and 15A/B/C-13, and all of the potential wetland mitigation sites with the exceptions of Site NFLCTB21 and Site LISC9.

TABLE III-33
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED TRANSIT STATIONS AND YARD/SHOP FACILITIES

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential
Shady Grove Metro Station	Disturbed by prior metro rail construction	None within APE	Thomas (1979) Gardner (1976)	N/A	N/A	Low based on extensive disturbance. **No additional work recommended.**
Washingtonian Station	Undisturbed	None within APE	Fiedel et al. (2000:98) for CCT alignment Area 12 B	N/A	N/A	Previously surveyed with negative results. **No additional work recommended.**
Crown Farm Station	Disturbed by Hopkins University Development	None within APE	Included in Fiedel et al. (2000) for CCT alignment; Barse (1982) Epperson (1980)	N/A	N/A	Low potential based on prior disturbance as documented by Fiedel et al. 2000. **No additional work recommended.**
School Drive Station	Disturbed by Lakelands Residential Development	None within APE	Fiedel et al. (2000) for CCT alignment Barse (1982)	N/A	N/A	Low based on prior disturbance. **No additional work recommended.**
Quince Orchard Park/Sioux Lane Station	Undisturbed; copse of trees and fence lines indicate former house location postdating publication of 1909 Rockville MD quadrangle	None within APE	Fiedel et al. (2000) for CCT alignment. Areas within the right of way of Great Seneca Highway included in prior survey by Barse (1982) with negative results.	Interfluvial upland flat on the divide between Muddy Branch and Long Draught drainages	No structures indicated	Orientation of fence lines indicates vast majority of the farm lot was destroyed by Great Seneca Highway. Remaining areas have low prehistoric potential based on marginal setting. **No additional work recommended.**

TABLE III-33 (CONTINUED)
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED TRANSIT STATIONS AND YARD/SHOP FACILITIES

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential
Metropolitan Grove Station and Yard/Shop Facility	Undisturbed	18MO554 Not Eligible	Approximately 60% of APE was surveyed by Fiedel et al. (2000) (Phase IB for Watkins Mill Interchange)	Series of benches and hilltops overlooking a tributary of Great Seneca Creek	Historic rail crossing in the late 19th-early 20th century. Structures shown in vicinity in 1923	High potential based on favorable ecological setting and positive historic map research (Hopkins 1878; USGS 1909). **Phase I recommended in previously unsurveyed areas**.
Middlebrook Station	Disturbed by grading for commercial development	None within APE	Kavanagh (1981) Fiedel et al. (2000) for CCT alignment	N/A	N/A	Low potential based on prior disturbance. **No additional work recommended.**
Germantown Center Station	Disturbed by commercial construction	None within APE	Approximately 30% included in survey by Curry (1977) with negative results. Fiedel et al. (2000) for CCT alignment	N/A	N/A	Low potential based on prior negative survey coverage and disturbance. **No additional work recommended**.
Cloverleaf Station	Disturbed by construction of Orbital's extensive business complex	None within APE	Fiedel et al (2000) for CCT alignment	Location is now within the parking lot of Oribtal	N/A	Low potential based on prior disturbance. **No additional work recommended.**
Manekin Station	Disturbed by prior road construction	None within APE	Approximately 60% included in previous survey by Kavanagh (1981). Fiedel (2000) for CCT alignment	N/A	N/A	Low potential based on prior negative survey coverage and disturbance. **No additional work recommended**.

TABLE III-33 (CONTINUED)
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED TRANSIT STATIONS AND YARD/SHOP FACILITIES

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential
COMSAT Station and Yard/Shop Facility	Undisturbed	None within APE	Approximately 30% of the COMSAT Station was surveyed by Fiedel (2000) for mainline improvements and New Cut Road Interchange	Situated on gently rolling hills and terraces flanking Little Seneca Creek	Several structures indicated in project area vicinity in 1865, 1878, 1907	High potential based on favorable ecological setting and presence of historic map indicated structure locations. Previous survey coverage did not include approximately 70% of the current APE. **Phase I recommended for unsurveyed areas** within the APE of the COMSAT rail station and within the APE for the COMSAT transitway yard/shop facility.
Comus Road Yard/Shop Facility	Disturbed by industrial development	None within the APE	None	N/A	N/A	Low potential based upon prior disturbance. **No additional work recommended**.
Truck Weigh Station Yard/Shop Facility	Undisturbed	None within the APE	None	Situated on an upland flat and series of sloping benches overlooking Wildcat Branch	One structure indicated in 1909 within or immediately adjacent to the APE	High potential based on favorable ecological setting a positive historic map evidence. **Phase I recommended for APE**.
CCT Alignment Shift at Shady Grove Road	Disturbed by previous construction of I-270	None within the APE	Wesler et al. (1981) Kavanagh (1981) Eppeson (1980)	N/A	N/A	Low based on prior disturbance. **No additional work recommended.**

TABLE III-33 (CONTINUED)
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED TRANSIT STATIONS AND YARD/SHOP FACILITIES

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential
Extension of CCT Alignment north of COMSAT	Portions of the extension between the proposed COMSAT Station and Comus Road remain undisturbed.	Clarksburg Historic District (M:13-10) 18MO498 Eligibility Status Unknown	Portions of alignment previously surveyed by Barse (1982), Kavanagh (1981)	Situated on terraces and hilltops adjacent to headwater tributaries of Little Seneca Creek, Tenmile Creek, and Little Bennett Creek	Numerous structures indicated within APE near Clarksburg and adjacent to the historic alignment of MD 355 between 1865 and 1907	High potential for historic and prehistoric archaeological resources based upon favorable ecological setting and positive historic map evidence. **Phase I recommended.**
Lot 15-2 Biggs Ford Road Frederick County	Agricultural field adjacent to historic farmstead	None within APE	Not included in previous Phase I by Fiedel (2000) for mainline improvements	On former terrace of the Monocacy River, adjacent to low order tributary	APE is remotely proximal to farmstead indicated in 1858, 1873, 1909	Not likely that archaeological deposits associated with farmstead extend into APE; however, setting argues for high prehistoric archaeological potential. **Phase I recommended.**
Lots 14-41 and 14-16 Trading Lane Frederick County	Agricultural field adjacent to industrial development	None within APE	Approximately 25% of APE was surveyed (Area 4) by Fiedel (2000) for mainline improvements	On terrace overlooking a tributary of Tuscarora Creek	No structures indicated in 1858, 1873, 1909	Proximity of APE to Tuscarora Creek and adjacent tributary suggest high prehistoric archaeological potential. **Phase I recommended**.

TABLE III-34
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED PARK AND RIDE LOT LOCATIONS

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential/ Recommendations
Lot 14-40 Liberty Road Frederick County	Agricultural field adjacent to industrial development	None within APE	Not included in previous Phase I by Fiedel (2000) for mainline improvements. Approximately 80% was included in previous survey by Peck (1979)	On former terrace of the Monocacy River, adjacent to low order tributary	APE is remotely proximal to Wormans Mill Complex indicated in 1858, 1873, 1909	Not likely that archaeological deposits associated with Wormans Mill extend into APE; Given negative prior survey results. **No additional work is recommended**.
Lots 15 A 12 and 13, 15 B 12 and 13, 15 C 12 and 13 Clarksville Road Montgomery County	Wooded, some disturbance from powerline right of way and roadway construction	None within APE	Not included in previous Phase I by Fiedel (2000) for mainline improvements. Approximately 90% was included in previous survey by Kavanagh (1981) but there is no indication that testing was conducted in this location.	In gently sloping headwater valley adjacent to low order tributary of Tenmile Creek	Structure attributed to Elizabeth Powers is situated in or immediately adjacent to APE in 1865 and 1878.	Known site distributions within the region indicate that prehistoric resources, particularly resource procurement locales and short term campsites of the Archaic period, are likely. Given the setting of the APE and positive historic map evidence. **Phase I recommended**.

TABLE III-35
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED WETLAND MITIGATION SITE LOCATIONS

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential/ Recommendations
LISC9 (#9) 30-acre APE north and south of Old Baltimore Road Montgomery County	Poorly drained soils, moderately to severely eroded; subject to periodic flood and scour events	None within APE	None	Floodplain and adjacent terraces of Little Seneca Creek and tributary confluences	Structures shown outside APE in 1865, 1879, 1908	Not likely that archaeological deposits associated with farmsteads extend into APE; poorly drained and eroded setting argues for low prehistoric archaeological potential. **No further work recommended**.
UBEC5 (#5) 20-acre APE east and west of Bethesda Church Road Montgomery County	Former pasture/agricultural field adjacent to historic community of Browningsville	None within APE	None	Floodplain and adjacent terrace margins along Bennett Creek and tributary confluences	Numerous structures indicated in 1865, 1879, 1909b	Proximity to historic community of Browningsville suggests high historic archaeological potential. **Phase I recommended**.
HRRFR28 (#28) 11 acres north of Manor Woods Road Frederick County	Active agricultural field with adjacent wooded tract	18R350 18FR351 Both sites located within APE; no determination of eligibility rendered by MHT	Approximately 75% was included in previous survey by Kavanagh (1982)	Floodplain and adjacent terraces flanking Horsehead Run and tributary confluences	Industrial and residential occupations indicated in 1873	High potential for historic and prehistoric resources in unsurveyed portions of APE; additional **Phase I recommended**. **Phase II evaluations of 18FR350 and 18FR351 recommended**.

TABLE III-35 (CONTINUED)
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED WETLAND MITIGATION SITE LOCATIONS

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential/ Recommendations
LBUC11 (#11) 21 acres in Ijamsville Frederick County	Former pasture/agricultural field adjacent to historic community of Ijamsville	None within APE	None	Floodplain and adjacent terraces flanking Bush Creek and tributary confluences	Structures adjacent to APE in 1858, 1873, 1909a; one structure within APE in 1873	High potential for historic and prehistoric resources; **Phase I recommended**.
SFLCW16 (#16) 40 acres west of Linganore Frederick County	Open pasture; poorly drained soils, that are moderately to severely eroded; steeply sloping terrace margins	None within the APE	None	Floodplain and adjacent terrace margins flanking Linganore Creek and tributary confluences	Structures adjacent to APE in 1858, 1873, 1909a	High archaeological potential for historic resources; **Phase I recommended**.
SFLCWB18 (#18) 25 acres west of Woodville Road Frederick County	Open pasture and wooded tracts; poorly drained soils, that are moderately to severely eroded; steeply sloping terrace margins	None within the APE	None	Floodplain and terrace margins flanking the South Fork Tributary of Linganore Creek and tributary confluence	One structure depicted within the APE in 1873	High archaeological potential for historic resources; **Phase I recommended**

TABLE III-35 (CONTINUED)
ARCHAEOLOGICAL POTENTIAL AT
PROPOSED WETLAND MITIGATION SITE LOCATIONS

Location	Current Condition/ Land Use	Known Sites	Previous Surveys	Setting	Historic Map Research	Archaeological Potential/ Recommendations
NFLCTB21 (#21) 40 acres north of Linganore Frederick County	Open pasture; poorly drained soils, that are moderately to severely eroded	None within APE	None	Floodplain flanking North Fork Tributary of Linganore Creek and tributary confluences	None within APE	Marginal ecological setting and absence of historic map indicated resources suggest low archaeological potential. **No further archaeological investigations recommended.**
LICCR23 (#23) 45 acres east of Walkersville Frederick County	Open woodland, poorly drained soils, moderately sloping terrace	18FR106 18FR178 Both sites located within or immediately adjacent to the APE; no determination of eligibility rendered by MHT	None	Floodplain, terraces, hillslopes flanking Cabbage Run and tributary confluences	One structure depicted within the APE in 1858, 1873, 1090a	High archaeological potential for historic and prehistoric resources; **Phase I recommended.**
LICCR25 (#25) 20 acres in Woodsboro Frederick County	Open pasture; well drained soils	18FR607 within or immediately adjacent to APE; no determination of Eligibility rendered by MHT	Boyce (1986) immediately adjacent to APE	Broad, level floodplain flanking Israel Creek	Structures depicted adjacent to the APE in 1858, 1873, 1911	High archaeological potential for historic and prehistoric resources; **Phase I recommended.**

E. TOPOGRAPHY, GEOLOGY, AND SOILS

1. Topography, Geology, and Soils

a. Existing Conditions

Topography

The topography of the I-270/US 15 Corridor is characterized by a level floodplain within the Monocacy Valley in the north through rolling terrain in the south. Elevations range from about 240 feet at the Monocacy River rising to 650 feet between Comus Road and MD 121. The I-270/US 15 Corridor traverses areas where existing terrain exceeds slopes of 15 percent or more. These areas generally occur where the landform descends to the floodplain of broad stream valleys.

Geologic Formations

The project extends from southeast to northwest through much of the Piedmont physiographic province. The Piedmont lies west of the Coastal Plain province and east of the Blue Ridge province. The east edge of the Blue Ridge province is Catoctin Mountain, just northwest of the I-270/US 15 Corridor. The western edge of the Piedmont province within the Corridor is comprised of the Frederick Valley, which includes the Monocacy River floodplain. This area is generally underlain be limestone and dolomite, which are not very resistant to erosive forces. Several dike structures, or cracks in the rock that have been filled with melted rock (magma), exist in this area. This solidified magma is referred to as diabase, which is similar to basalt. The thicker dikes often produce low ridges throughout the valley. The remainder of the I-270/US 15 Corridor is composed of bedrock formed from metamorphic processes in the Paleozoic age. The assemblage of rock types is heterogeneous and ranges from coarse-grained gneiss to fine grained schistose rocks known as phyllite.

Most of the rocks and geologic formations along the I-270/US 15 Corridor formed through high heat and pressure, which have intensely folded and faulted. The segment of the I-270/US 15 Corridor that starts at Shady Grove and cuts through Gaithersburg contains the Sykesville Formation, Morgan Run Formation, and Conowingo Diamictite. Each of the formations is layered on top of one another, with the Conowingo Diamictite being the youngest in the series. All formations consist of a mixture of sediments, schists, and ultramafic rocks. This mixture is due in most part to underwater landslides that were triggered by plate movement that occurred during the Ordovician period, which explains why pieces of the oceanic crust can be found in the Sykesville Formation.

Moving northwest along the I-270/US 15 Corridor to the edge of the Monocacy River, seven geologic formations occur from oldest to youngest: Marburg Formation, Cash Smith Formation, Araby Formation, Ijamsville Formation, Urbana Formation, Gillis Formation, and Sams Creek Formation. Shearing or tearing forces probably caused by thrust fault motions created most of these formations.

Grove and Frederick Limestone underlie the last section of the Corridor, which crosses the Monocacy River and connects with US 15. These limestones were formed from a carbonate bank that developed during early Cambrian time and continued to accumulate and thicken into the Ordovician time. As the bank extended seaward, the small fluctuations in water levels created conditions in which limestone could form.

The nature of the geologic formations found along the Corridor affects processes such as erosion and surface and groundwater flow. Most of the metamorphic rocks in the Piedmont have the same resistance to erosion. However, the areas underlain by limestones, such as the Frederick Valley, are not particularly resistant. The streams along the Corridor cut steep valleys and could cause more erosion if urbanization were to increase.

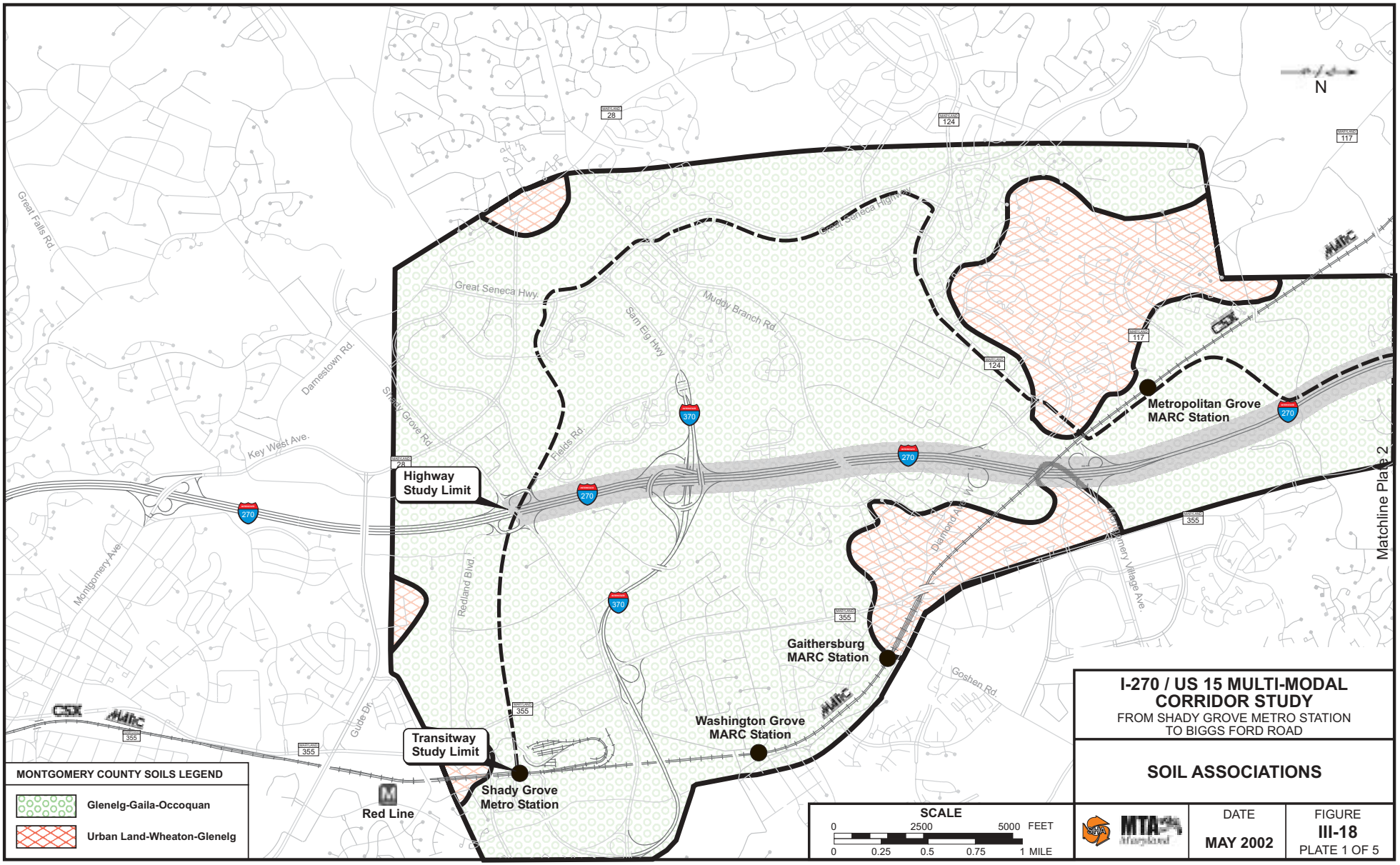
Soils

Figure III-18 shows the soil associations that are intercepted by the extensive project area. A soil association is a landscape that has a distinctive proportional pattern of soils and normally consists of one or more major soils and at least one minor soil. The southern section of I-270 that occurs in Montgomery County and extends to Clarksburg is within the Glenelg-Gaila-Occoquan, Brinklow-Baile-Occoquan, and Urban Land-Wheaton-Glenelg associations. These associations are characterized by moderately deep to very deep, well-drained and poorly drained soils formed in material weathered from schist and gneiss. Most of these soils occur on broad ridge tops and side-slopes and are nearly level to strongly sloping. The section of I-270 that starts at Clarksburg and runs through Hyattstown is within the Blocktown-Brinklow-Linganore Association. This association is dominated by shallow and moderately deep, well-drained soils formed in material weathered from phyllite, schist, and gneiss. The soils are loamy throughout and occur on uplands. All soils within this association are poorly suited to most urban uses, due to the depth of bedrock and the slope.

As I-270 continues through Hyattsville into Frederick County it bisects the soils of the Piedmont Plateau. The soil associations of this area include Cardiff, Manor-Linganore-Montalto, Manor-Edgemont-Brandywine, Manor-Linganore-Urbana, and Manor-Glenelg. Most of the soils are well drained, and some are excessively drained. Erosion control is the most serious problem associated with these soils.

The segments of I-270 and US 15 that continue north through the City of Frederick to Biggs Ford Road are of the Duffield-Haggerstown, Sequatchie-Hagerstown, and Athol soil associations. The soils in these associations are mostly well drained, and only a few are at all droughty and have a very low moisture availability. A few small areas are very rocky and contain massive outcrops of hard limestone. The erosion hazard is not severe, because most of the slopes are gentle and runoff is fairly well controlled.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) has mapped the soil types that occur within these associations for Frederick and Montgomery counties. Seventy-one soil map units occur within the Highway alignment study area representing 37 soil series (**Table III-36**). Twenty-five soil map units occur along the Transitway alignment study area representing 14 soil series (**Table III-37**).

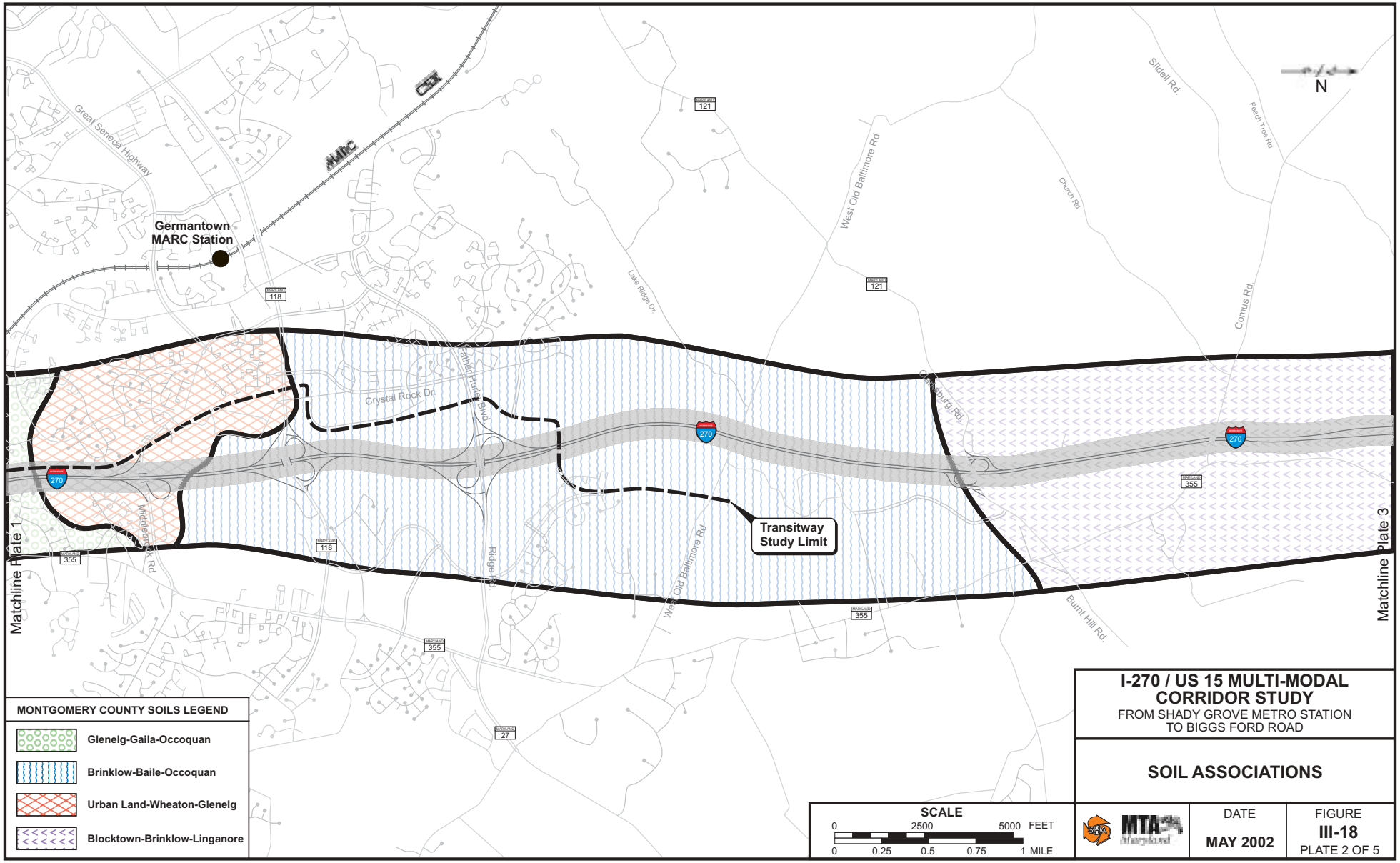


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

SOIL ASSOCIATIONS

DATE	FIGURE
MAY 2002	III-18
	PLATE 1 OF 5

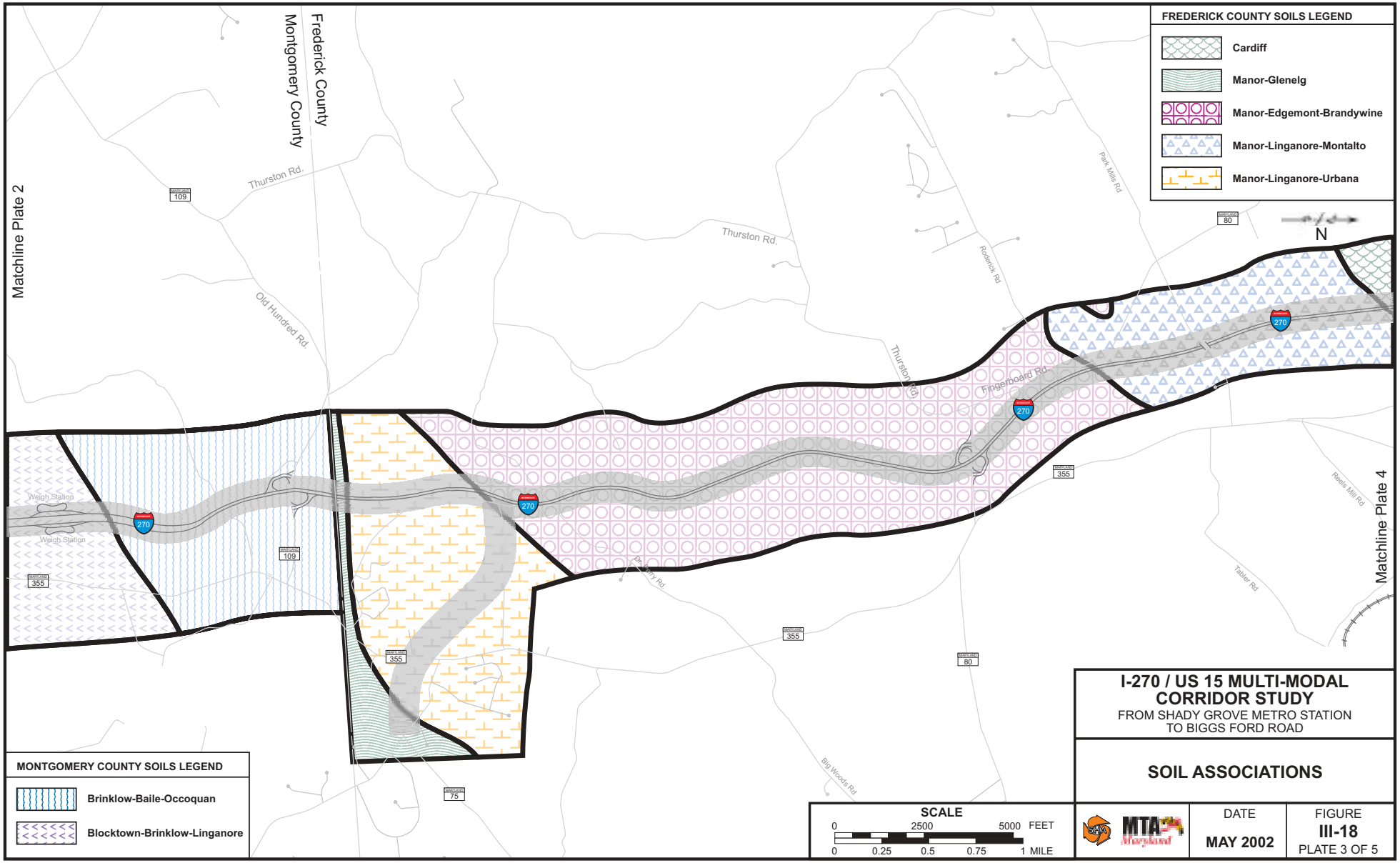


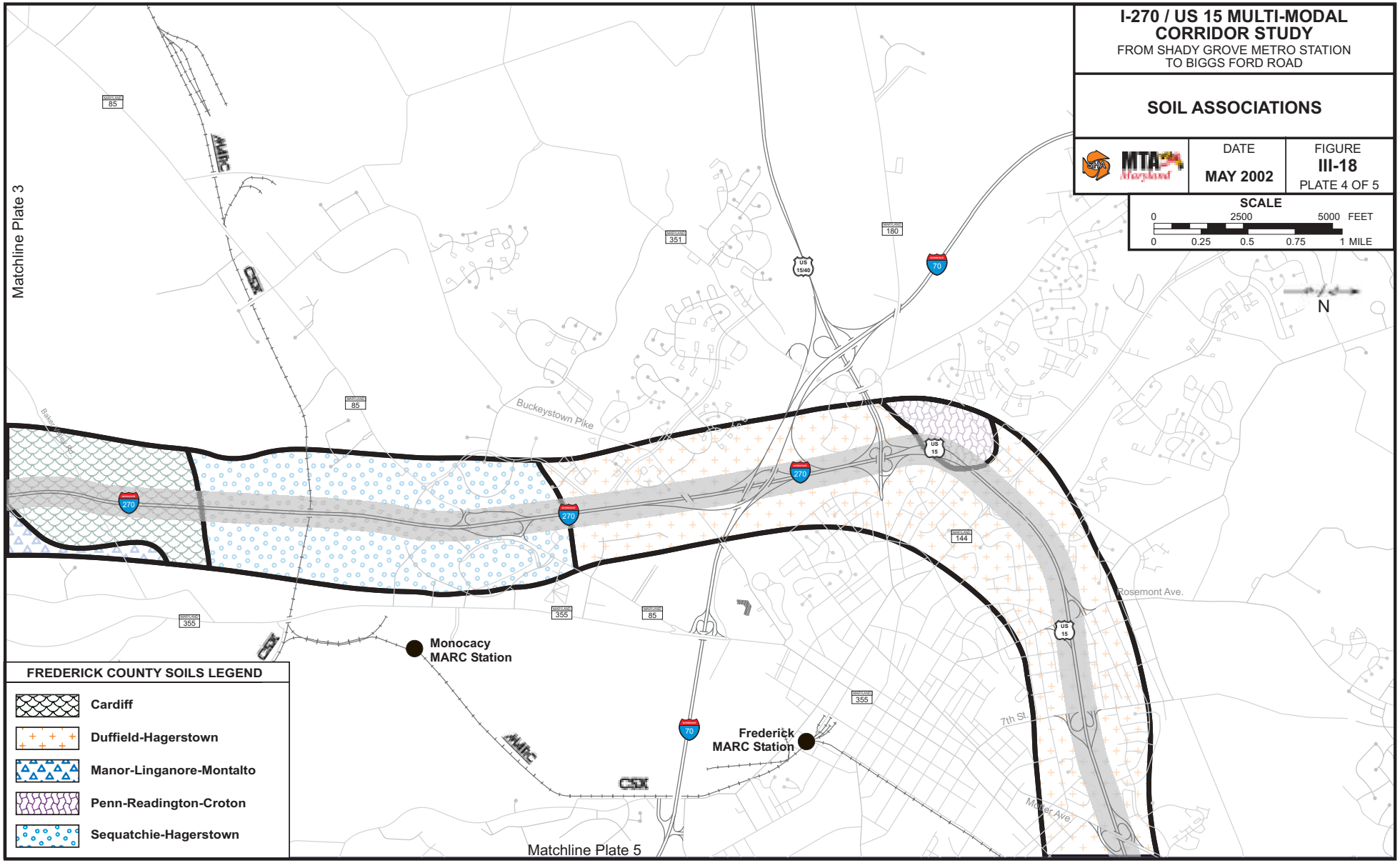
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

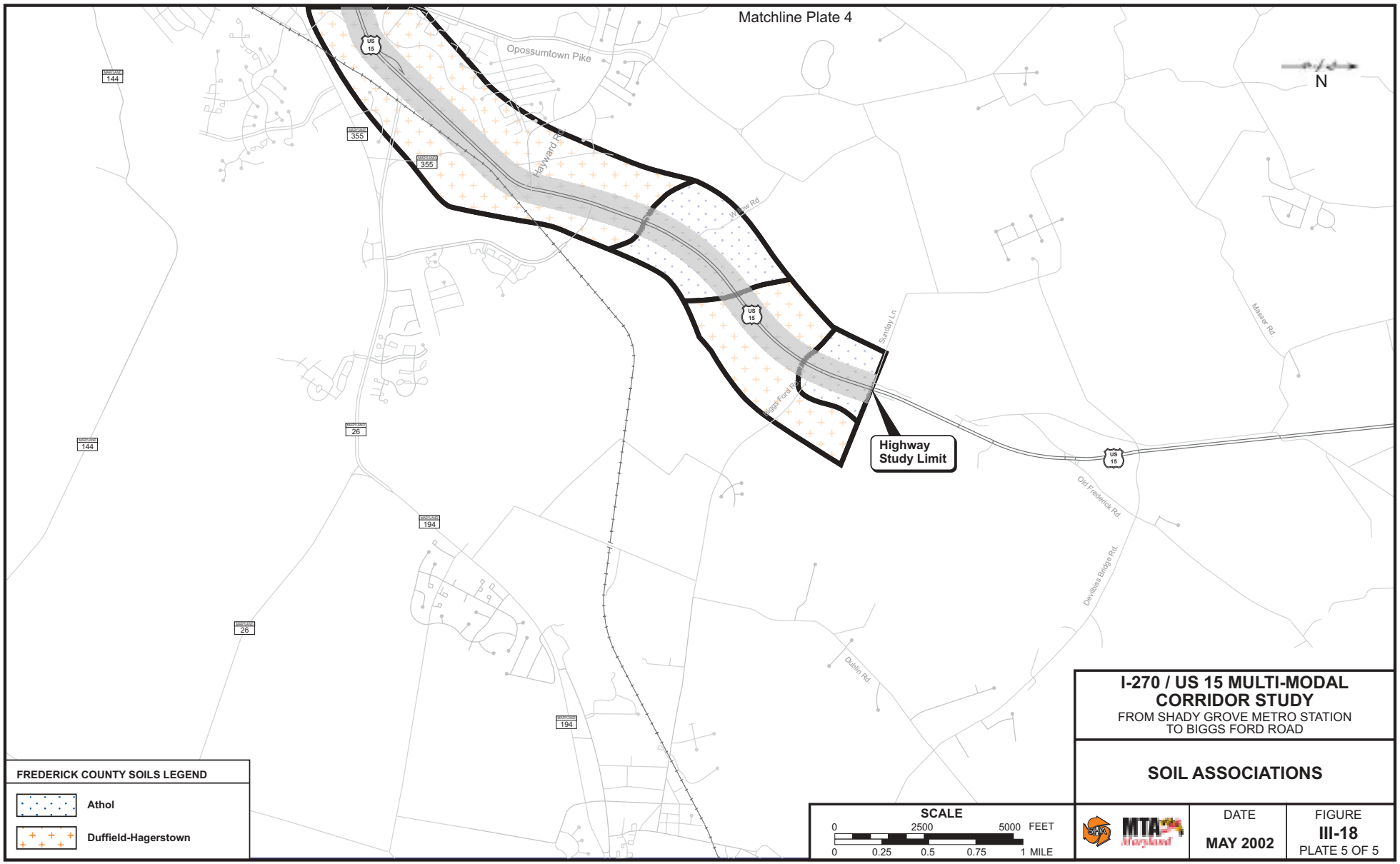
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

SOIL ASSOCIATIONS

DATE	FIGURE
MAY 2002	III-18
	PLATE 2 OF 5


FREDERICK COUNTY SOILS LEGEND
Cardiff
Manor-Glenelg
Manor-Edgemont-Brandywine
Manor-Linganore-Montalto
Manor-Linganore-Urbana
MONTGOMERY COUNTY SOILS LEGEND
Brinklow-Baile-Occoquan
Blocktown-Brinklow-Linganore
Frederick County
Montgomery County
Matchline Plate 2
Matchline Plate 4
Thurston Rd.
Old Hundred Rd.
Fingerboard Rd.
Park Mills Rd
Roderick Rd
Reels Mill Rd
Tabler Rd
Big Woods Rd
Weigh Station
N
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
SOIL ASSOCIATIONS
DATE
MAY 2002
FIGURE
III-18
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
SOIL ASSOCIATIONS
DATE
MAY 2002
FIGURE
III-18
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Buckeystown Pike
Rosemont Ave.
7th St.
Market Ave.
Monocacy MARC Station
Frederick MARC Station
FREDERICK COUNTY SOILS LEGEND
Cardiff
Duffield-Hagerstown
Manor-Linganore-Montalto
Penn-Readington-Croton
Sequatchie-Hagerstown



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

SOIL ASSOCIATIONS

DATE	FIGURE
MAY 2002	III-18 PLATE 5 OF 5

TABLE III-36
SOIL SERIES AND DESCRIPTIONS WITHIN THE HIGHWAY ALIGNMENT

Soil Series	USDA Textures	Drainage Characteristics
Adamstown	Silt loam	Moderately Well Drained
Adamstown-Funkstown	Complex	Moderately Well Drained
Bermudian	Silt loam	Well Drained
Blocktown	Gravelly loam	Well Drained
Brinklow-Blocktown	Channery loams	Well Drained
Buckeystown	Loam, sandy loam	Well Drained
Cardiff	Channery loams	Well Drained
Codorus	Silt loam	Moderately Well Drained
Hatboro	Silt loam	Poorly Drained
Duffield-Ryder	Silt loams, channery silt loams	Well Drained
Edgemont	Rock outcrop complex	Well Drained
Elioak	Silt loam	Well Drained
Gaila	Silt loam	Well Drained
Glenelg-Blocktown	Gravelly loams	Well Drained
Glenelg-Mt. Airy	Channery loams	Well Drained
Glenville	Silt loam	Moderately Well Drained
Baile	Silt loam	Poorly Drained
Hagerstown	Loam, silt loam	Well Drained
Hagerstown-Opequon	Silty clay loam	Well Drained
Hyattstown-Linganore	Channery silt loam	Well Drained
Legore	Gravelly silt loam	Well Drained
Legore-Montalto	Gravelly silt loams	Well Drained
Lindside	Silt loam	Moderately Well Drained
Melvin	Silt loams	Poorly Drained
Mt. Airy	Channery loam	Well Drained
Meyersville	Gravelly silt loam, silt loam	Well Drained
Occoquan	Loam	Well Drained
Reaville	Silt loam	Somewhat Poorly Drained
Rohrersville-Lantz	Silt loams	Somewhat Poorly and Very Poorly Drained
Spoolsville-Catoctin	Complex	Well Drained
Springwood	Gravelly loam	Well Drained
Wheaton-Urban Land	Complex	Well Drained
Whiteford-Cardiff	Channery loams	Well Drained

The properties of soils important for transportation projects include permeability, compactibility, drainage, and shrink-swell potential. For road projects in particular, other considerations such as frost action potential, depth to high water table, depth to bedrock, flooding potential, and slope affect the ease of excavating and grading and the traffic support capacity.

TABLE III-37
SOIL SERIES AND DESCRIPTIONS WITHIN THE TRANSITWAY ALIGNMENT

Soil Series	USDA Textures	Drainage Characteristics
Blocktown	Channery silt loam	Well Drained
Brinklow-Blocktown	Channery silt loam	Well Drained
Occoquan	Loam	Well Drained
Gaila	Silt loam	Well Drained
Neshaminy	Silt loam	Well Drained
Glenelg	Silt loam	Well Drained
Chrome and Conowingo		Well Drained
Chrome	Silt loam	Well Drained
Elioak	Silt loam	Well Drained
Codorus	Silt loam	Moderately Well Drained
Hatboro	Silt loam	Poorly Drained
Glenville	Silt loam	Moderately Well Drained
Wheaton-Urban Land	Complex	Well Drained
Baile	Silt loam	Poorly Drained

The estimated permeability of the soils found along the I-270/US 15 highway and transitway alignments ranges from low to high. The Baile, Reaville, Lantz, and Springwood series contain soils with permeabilities within the upper 24 inches of the soil profile of 0.2 inches per hour or less. The remainder of the soil series has permeabilities that generally range from 0.6 to 2.0 inches per hour. The soils range from poorly drained to well drained, and with the exception of the Brinklow, Duffield, Hagerstown, Opequon, Linganore, Lantz, Rohrersville, Legore, Montalto, Chrome, and Conowingo series, have little potential for shrink-swell. Soils that are severely affected by frost action include Codorus, Hatboro, Glenville, Lantz, Rohrersville, Lindside, Melvin, Reaville, and Baile. Soils with a seasonally high water table to within a half-foot of the ground surface include Baile, Lantz, Melvin, and Hatboro.

Soils encountered along the highway and transitway alignments have been evaluated for roadway constructability. All soils along the alignment have some limitations for use as a roadway. Limitations include slope, large stones, frost action, wetness, flooding, low strength, depth to rock, and shrink-swell. Those soil series with the most severe restrictions include Glenville, Bermudian, Brinklow, Cardiff, Edgemont, Hatboro, Blocktown, Baile, Codorus, Hyattstown, Linganore, Lindside, Melvin, Reaville, Rohrersville, Lantz, and Elioak.

Soils are also rated for their use as a source of roadfill for embankments generally less than six feet high. Soils rated good contain significant amounts of sand or gravel or both, have at least a five-foot depth of suitable material, low shrink-swell potential, few cobbles and stones, slopes of 15% or less, and a depth to the water table of more than three feet. Soils rated fair are comprised of more than 35% silt and clay particles, have a plasticity index of less than 10, have a moderate shrink-swell potential, slopes of 15% to 25%, many stones, and a depth to the water table of between one and three feet. Along the I-270/US 15 Corridor highway and transitway alignments, soils with good or fair ratings include Buckeystown, Cardiff, Edgemont, Hyattstown, Mt. Airy, Myersville, Springwood, Glenelg, Wheaton-Urban Land, Urban Land, and Whiteford.

b. Impacts

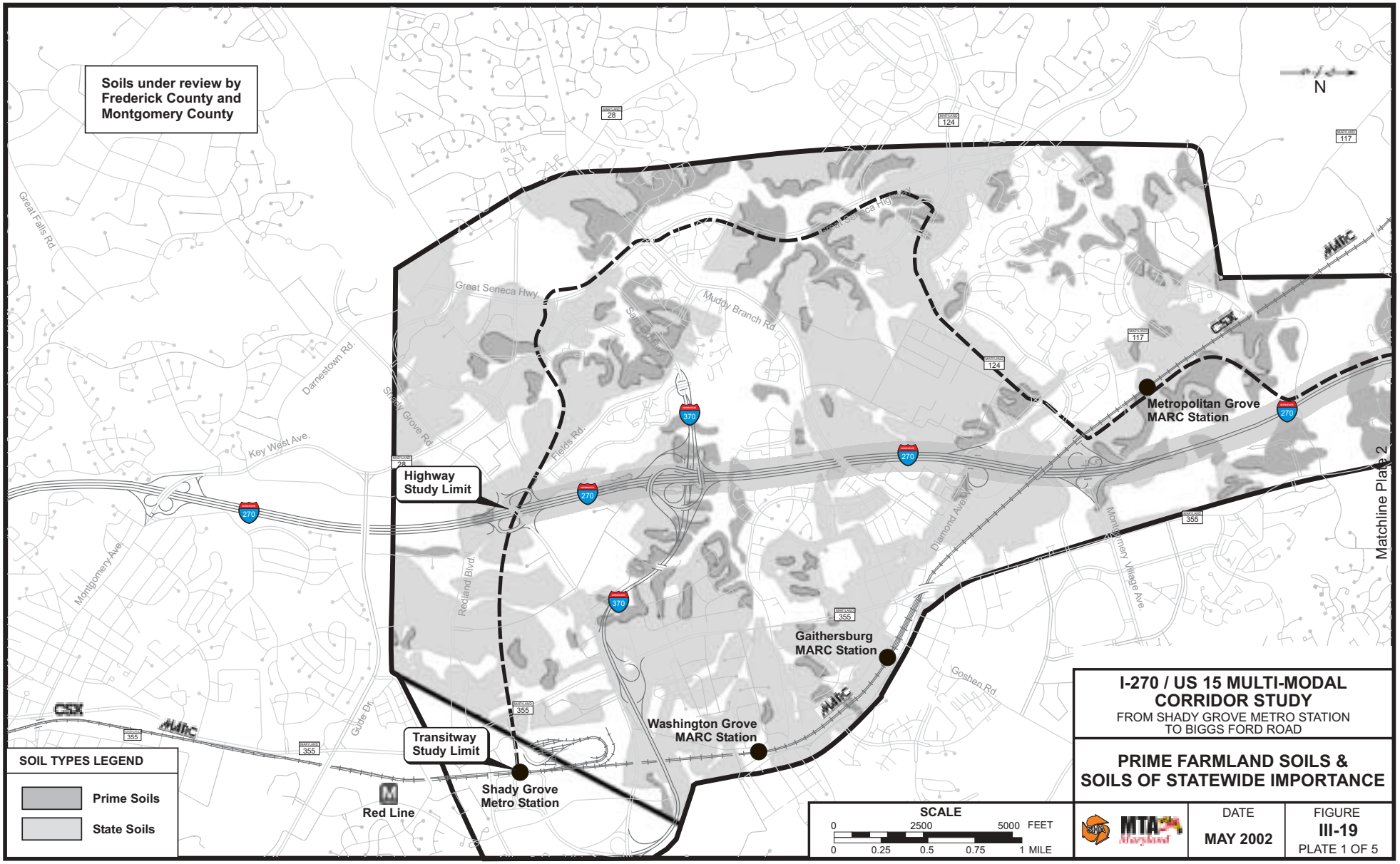
The No-Build, TSM/TDM or build alternates will not affect the overall topography and underlying geology of the I-270/US 15 Corridor. However, in various areas where grading is proposed along the highway and transitway alignments, substantial cuts or fills will be necessary. A more detailed assessment of these impacts will be addressed during later phases of the project. Soil disturbances will not occur as a result of the No-Build Alternate. However, soil disturbances will occur where land grading is necessary to construct roads, park and ride lots, transitway, transitway yard/shop sites, and transitway stations associated with the TSM/TDM and build alternates. Because much of the planned highway and transitway improvements are in areas that have already been disturbed, the impact to adjacent undisturbed soils will in most cases be minor.

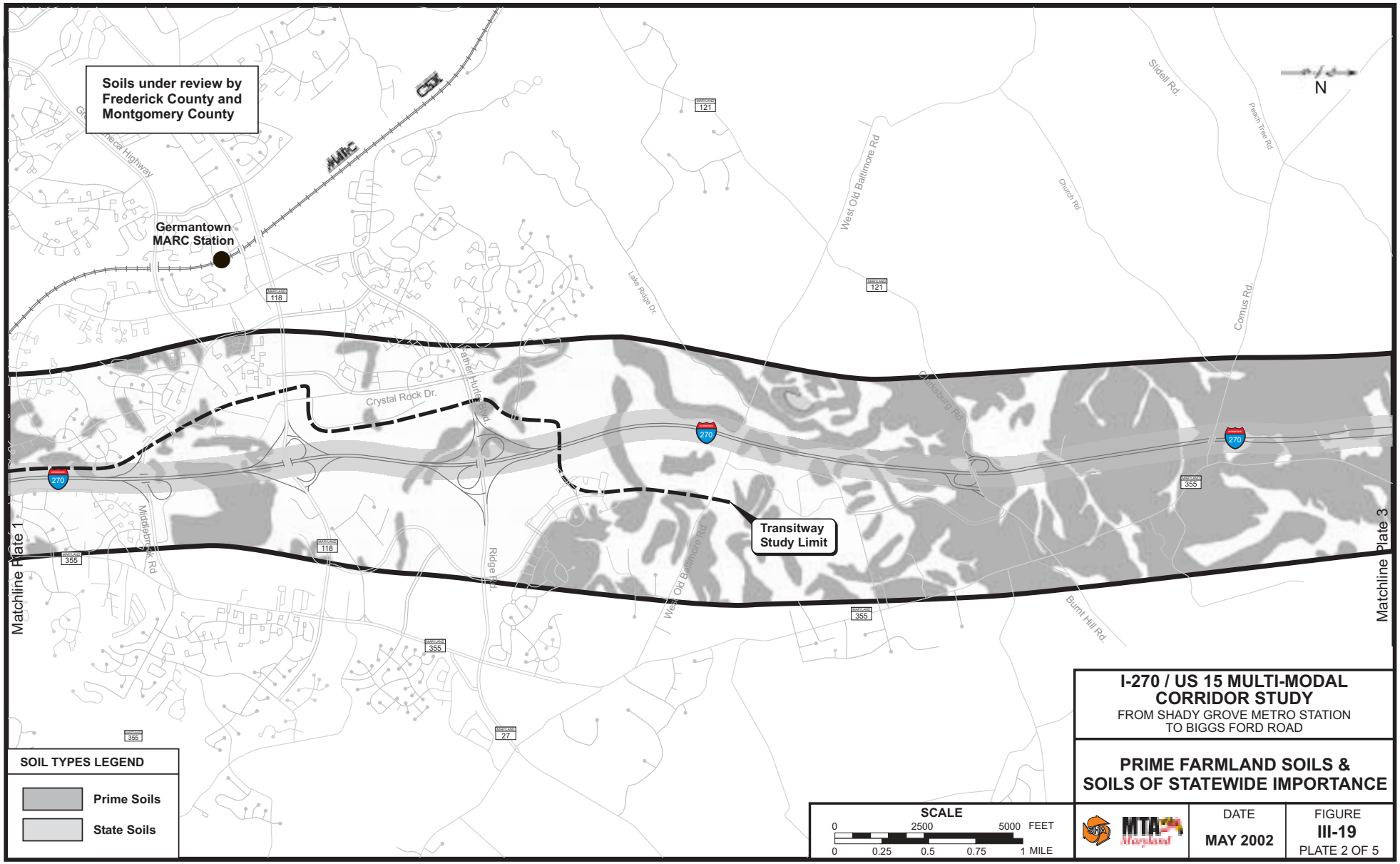
Within the Montgomery County portion of the project area Glenelg, Blocktown, Gaila, Brinklow-Blocktown, Occoquan, Hyattstown, and Linganore-Hyattstown soil types are classified as highly erodible soils. These highly erodible soils comprise over half of the project area in Montgomery County, primarily in the northern portion. Within the Frederick County portion of the project area Cardiff, Codorus-Hatboro, Duffield-Ryder, Duffield-Hagerstown, Glenville, Glenville-Baile, Glenville-Codorus, Hagerstown, Hatboro-Codorus, Legore, Legore-Montalto, Lindside, Melvin-Lindside, Mt. Airy, Myersville, Reaville, Rohrersville-Lantz, Spoolsville-Catoctin, Springwood, and Whiteford-Cardiff soil types are classified as highly erodible soils. Highly erodible soils comprise over three quarters of the project area in Frederick County. To avoid the loss of soil from areas under construction, erosion control techniques such as infiltration, sediment basins and traps, and silt fencing will be used. All areas of exposed soil will be vegetatively or structurally stabilized as soon as practicable.

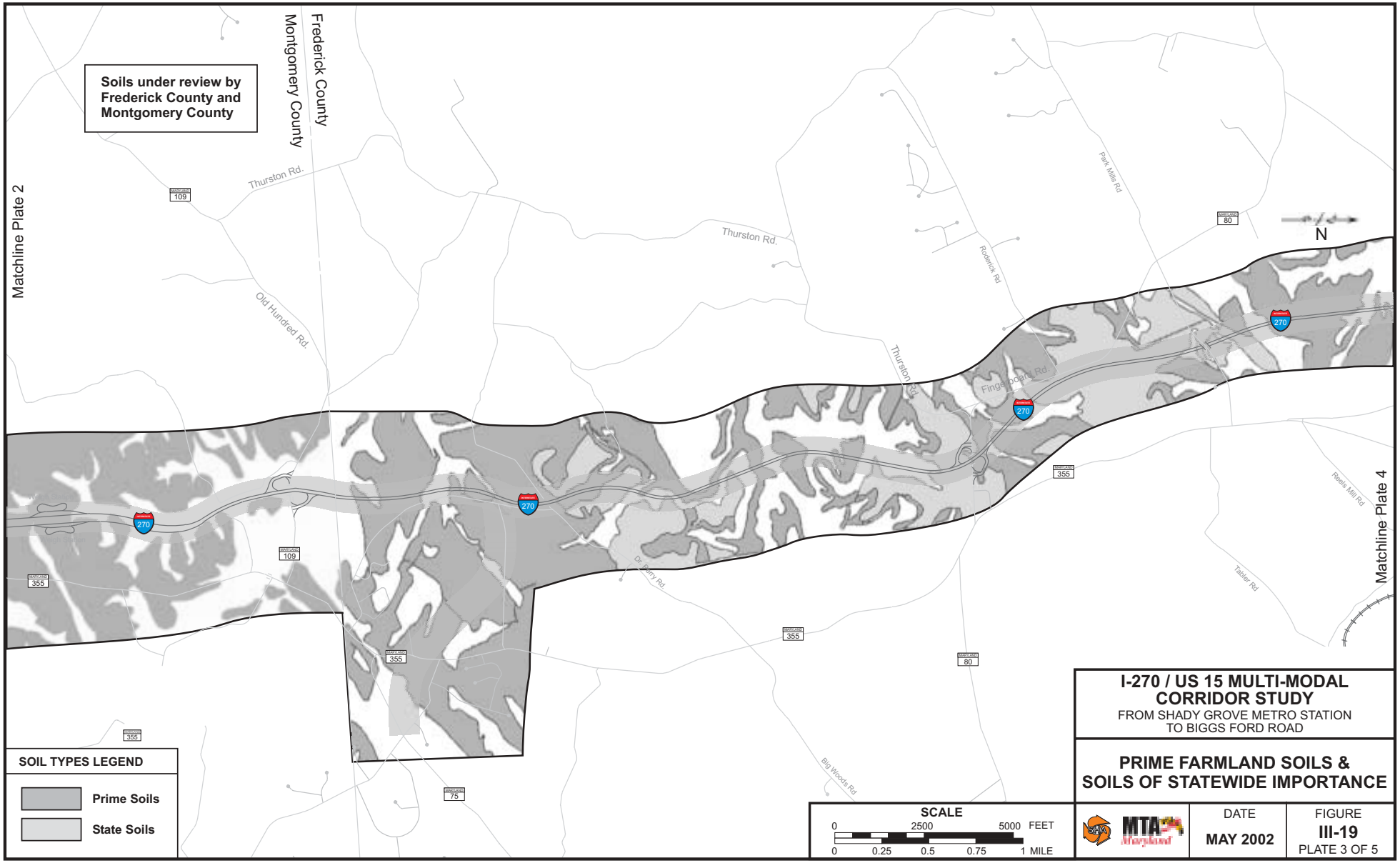
2. Prime Farmlands and Significant Soils

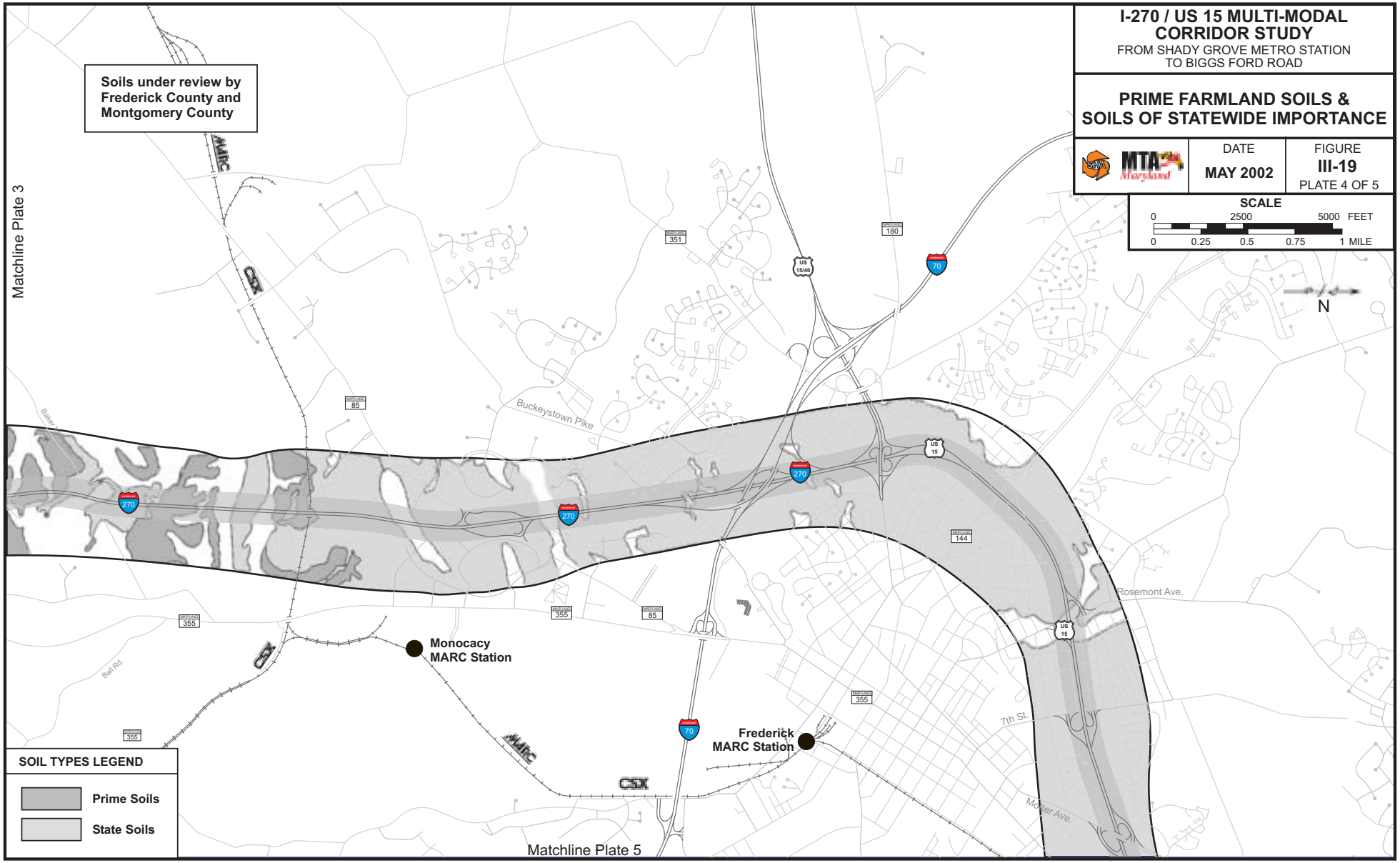
a. Existing Conditions

The Maryland NRCS office was contacted to obtain information regarding prime farmland soils and farmland soils of statewide importance in Frederick and Montgomery counties. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The land does not have to be currently used as cropland, but can be pastureland, forestland, or other land that is not open water or built-up land. Prime farmland soils typically have an adequate and dependable water supply, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt content, and few or no rocks. They are permeable to water and air, not excessively erodible or saturated with water for a long period of time, and do not flood frequently or are protected from flooding. The prime farmland soils and farmland soils of statewide importance that occur within the I-270/US 15 Corridor are mapped in **Figure III-19** and described in **Table III-38** and **Table III-39**, respectively.


Soils under review by Frederick County and Montgomery County
N
Great Falls Rd.
Darnestown Rd.
Key West Ave.
Montgomery Ave.
Great Seneca Hwy.
Muddy Branch Rd.
Shady Grove Rd.
Fields Rd.
Redland Blvd.
Diamond Ave.
Montgomery Village Ave.
Goshen Rd.
Glade Dr.
Highway Study Limit
Transitway Study Limit
Metropolitan Grove MARC Station
Gaithersburg MARC Station
Washington Grove MARC Station
Shady Grove Metro Station
Red Line
CSX
MARC
Matchline Plate 2
SOIL TYPES LEGEND
Prime Soils
State Soils
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PRIME FARMLAND SOILS & SOILS OF STATEWIDE IMPORTANCE
MTA Maryland
DATE
MAY 2002
FIGURE
III-19
PLATE 1 OF 5


Soils under review by Frederick County and Montgomery County
Germantown MARC Station
Transitway Study Limit
Matchline Plate 1
Matchline Plate 3
N
SOIL TYPES LEGEND
Prime Soils
State Soils
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PRIME FARMLAND SOILS & SOILS OF STATEWIDE IMPORTANCE
DATE
MAY 2002
FIGURE
III-19
PLATE 2 OF 5


Soils under review by Frederick County and Montgomery County
Frederick County
Montgomery County
Matchline Plate 2
Matchline Plate 4
Thurston Rd.
Old Hundred Rd.
Park Mills Rd
Roderick Rd
Fingerboard Rd.
Reels Mill Rd
Dr. Perry Rd
Tabler Rd
Big Woods Rd
N
SOIL TYPES LEGEND
Prime Soils
State Soils
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PRIME FARMLAND SOILS & SOILS OF STATEWIDE IMPORTANCE
DATE
MAY 2002
FIGURE
III-19
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PRIME FARMLAND SOILS & SOILS OF STATEWIDE IMPORTANCE
DATE
MAY 2002
FIGURE
III-19
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Soils under review by Frederick County and Montgomery County
Matchline Plate 3
Matchline Plate 5
Buckeystown Pike
Rosemont Ave.
7th St.
Motter Ave.
Bell Rd.
Monocacy MARC Station
Frederick MARC Station
SOIL TYPES LEGEND
Prime Soils
State Soils

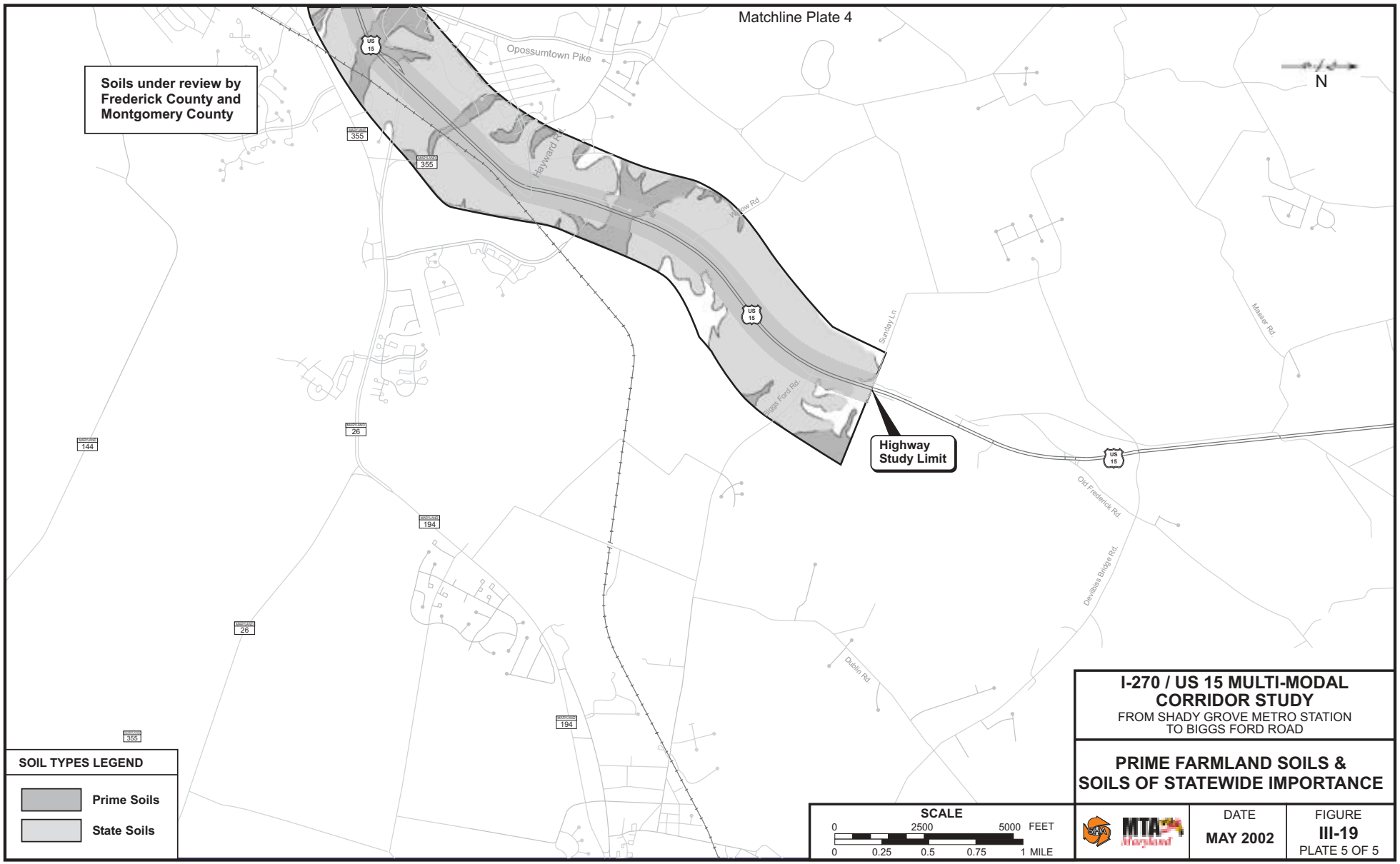

Matchline Plate 4
Soils under review by Frederick County and Montgomery County
N
Opossumtown Pike
Hayward Rd
Willow Rd
Sunday Ln
Biggs Ford Rd.
Masser Rd.
Old Frederick Rd.
Devilbiss Bridge Rd.
Dublin Rd.
Highway Study Limit
US 15
MARYLAND 355
MARYLAND 26
MARYLAND 144
MARYLAND 194
SOIL TYPES LEGEND
Prime Soils
State Soils
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
PRIME FARMLAND SOILS & SOILS OF STATEWIDE IMPORTANCE
MTA Maryland
DATE
MAY 2002
FIGURE
III-19
PLATE 5 OF 5

TABLE III-38
PRIME FARMLAND SOILS WITHIN THE I-270/US 15 CORRIDOR

Map Unit	Soil Series
AdB	Adamstown silt loam, 3 to 8 percent slopes
AfB	Adamstown-Funkstown complex, 0 to 8 percent slopes
BfA	Bermudian silt loam, 0 to 3 percent slopes
BtB	Buckeystown loam, 3 to 8 percent slopes
DtA	Duffield-Ryder silt loams, 0 to 3 percent slopes
DtB	Duffield-Ryder silt loams, 3 to 8 percent slopes
DuB	Duffield and Ryder channery silt loams, 3 to 8 percent slopes
GmB	Glenelg-Mt. Airy channery loams, 3 to 8 percent slopes
GoB	Glenville silt loam, 3 to 8 percent slopes
GvB	Glenville-Codorus complex, 3 to 8 percent slopes
HaB	Hagerstown loam, 3 to 8 percent slopes
HbB	Hagerstown silt loam, 3 to 8 percent slopes
LgB	Legore gravelly silt loam, 3 to 8 percent slopes
LsA	Lindside silt loam, 0 to 3 percent slopes
MuB	Myersville gravelly silt loam, 3 to 8 percent slopes
MvA	Myersville silt loam, 0 to 3 percent slopes
MvB	Myersville silt loam, 3 to 8 percent slopes
SpA	Springwood gravelly loam, 0 to 3 percent slopes
SpB	Springwood gravelly loam, 3 to 8 percent slopes
17B	Occoquan loam, 3-8% slopes
4B	Elioak silt loam, 3 to 8 percent slopes
2A	Glenelg silt loam, 0 to 3 percent slopes
2B	Glenelg silt loam, 3 to 8 percent slopes
27B	Neshaminy silt loam, 3 to 8 percent slopes
1B	Gaila silt loam, 3 to 8 percent slopes

The Farmland Protection Policy Act (FPPA), as amended in 1984 and 1994, includes criteria defining the situations to which the FPPA applies and to which a Form AD-1006 is required. Under this legislation, federal programs are administered in compatibility with state and local government, and private programs and policies to protect farmland. In Frederick and Montgomery counties the FPPA applies to prime farmland soils and soils of statewide importance. The criteria for these designations are related to soil characteristics such as texture, depth to water table, slope, and available moisture. These soils have the best combination of soil quality, growing season, and water supply for growing food and are capable of economically sustaining high crop yields. Urban areas and areas planned for development overlying prime farmland soils and soils of statewide importance are excluded from consideration under the FPPA. While many areas, particularly in Montgomery County, qualify for exclusion because of planned and ongoing development, there are still areas in the northern portion of the county that remain in active farmland and have prime farmland soils or soils of statewide importance. Actively farmed areas also occur in Frederick County north and south of the City of Frederick.

TABLE III-39
SOILS OF STATEWIDE IMPORTANCE WITHIN THE I-270/US 15 CORRIDOR

Map Unit	Soil Series
16B	Brinklow-Blocktown channery silt loam, 3-8% slopes
16C	Brinklow-Blocktown channery silt loam, 8-15% slopes
1C	Gaila silt loam, 8-15% slopes
2C	Glenelg silt loam, 8-15% slopes
9B	Linganore-Hyattstown channery silt loam, 3-8% slopes
9C	Linganore-Hyattstown channery silt loam, 8-15% slopes
17B	Occoquan loam, 3-8% slopes
17C	Occoquan loam, 8-15% slopes

Note: *Table III-39 lists Soils of Statewide Importance in Montgomery County (within the I-270/US 15 Corridor).*

b. Impacts

The No-Build Alternate will not impact prime farmland soils or soils of statewide importance. These soils will be impacted by the TSM/TDM alternate and build alternates of this project. However, based on the alignments of the proposed highway and transitway alternates and other facilities being considered, impacts to farmlands are primarily encroachment rather than a total disturbance to farming operations. Also, according to master plan documents for Montgomery and Frederick counties, many areas that are presently in agricultural use are planned for development. Some of these farm areas are already being converted to commercial, residential, and institutional developments. **Table III-40** summarizes impacts to soils by alternate on agriculturally zoned, actively farmed properties.

In accordance with the Farmland Protection Policy Act (FPPA), coordination is being completed with the NRCS offices of Frederick and Montgomery Counties. The forms are included in **Appendix F** of this document.

TABLE III-40
COMPARISON OF FARMLAND SOILS IMPACTS FOR THE I-270/US 15 CORRIDOR

Farmland Soils	Farmland Soils Impacts (Acres) by Alternate					
	Alternate 1	Alternate 2	Alternates 3A/B	Alternates 4A/B	Alternates 5A/B	Alternate 5C
Prime Farmland Soils	--	14.4	284.6[1]	284.6[1]	291.2[1]	207.7[2]
Soils of Statewide Importance[3]	-	17.3[3]	367.0[3]	367.0[3]	391.9[3]	339.6[3]

1 Includes 88.8 acres of impact for the Transitway Alignment and 14.4 acres of impact for the Park and Ride lots.
2 Includes 14.4 acres of impact for the Park and Ride lots.
3 Includes all soils impacted in Frederick County (including Prime Farmland Soils, Soils of Statewide Importance, and all other soils) and Soils of Statewide Importance impacted in Montgomery County. Coordination is being completed with the NRCS offices of Frederick and Montgomery Counties.

F. SURFACE WATER

1. Waters of the US including Wetlands

a. Existing Conditions

Jurisdictional Wetlands

All Waters of the US, including wetlands, are regulated in accordance with Section 401 and 404 of the Clean Water Act and under the State of Maryland Nontidal Wetlands Protection Act. The US Army Corps of Engineers (USACOE) and the Maryland Department of the Environment (MDE) administer this act for all Waters of the US including wetlands that will potentially be impacted by the project. Impacts to these resources require a Section 401 Water Quality Certificate from the MDE and a Section 404 permit from the USACOE for the discharge of dredged and fill material into Waters of the US, including wetlands.

A detailed wetland survey was conducted within the Corridor to identify wetlands and Waters of the US that could potentially be affected by the proposed project. Existing information from the US Fish and Wildlife Service (USFWS), National Wetland Inventory (NWI) maps, United States Geological Survey (USGS) topographic maps, and NRCS for Montgomery and Frederick counties were reviewed to locate potential wetland areas prior to the field delineation. The field investigation for the I-270/US 15 Corridor highway alignment was conducted from March to September of 1998 to identify and delineate the boundaries of wetlands, while the field investigation for the transitway alignment was conducted in February 1998.

The 1987 USACOE Wetland Delineation Manual was used to determine whether each area met the federal criteria for wetland designation. This manual employs a three-parameter approach to identifying wetlands including the presence of hydrophytic vegetation, hydric soils, and an appropriate hydroperiod. All three parameters must be present for an area to be considered a wetland under Section 404 of the Clean Water Act. Areas that do not meet the three parameters that still may be regulated include open-water, riverine systems (Waters of the US), and certain disturbed areas. Waters of the US are areas that function hydrologically as a conveyance for water but do not exhibit all of the necessary parameters to meet the wetland definition. These areas are typically streams, unvegetated swales or low areas that have an adequate hydroperiod or exhibit hydrologic indicators, but have little or no wetland vegetation or may lack hydric soil indicators. However, as Waters of the US, they are protected under Section 404 and are regulated by the USACOE.

In the fall 1998, the USACOE, MDE and the USFWS participated in Jurisdictional Determination (JD) field reviews to concur with the I-270/US 15 Corridor wetland delineations. The transitway alignment JD occurred in the summer of the following year.

Plans for other facilities, including park and ride lots, transit stations, and yard/shop facility locations, were not developed until Spring 2001. Wetlands and waterways potentially occurring within these proposed facilities were assessed using Maryland Department of Natural Resources (DNR) Nontidal Wetland Guidance Maps. The maps were reviewed for the potential presence of wetlands or waterways at each proposed site and the DNR mapped boundaries transferred onto

project mapping. A field reconnaissance was then conducted for each proposed site to verify the DNR mapping, to fine-tune the wetland boundaries on project mapping, and to record dominant wetland vegetation and hydrologic indicators.

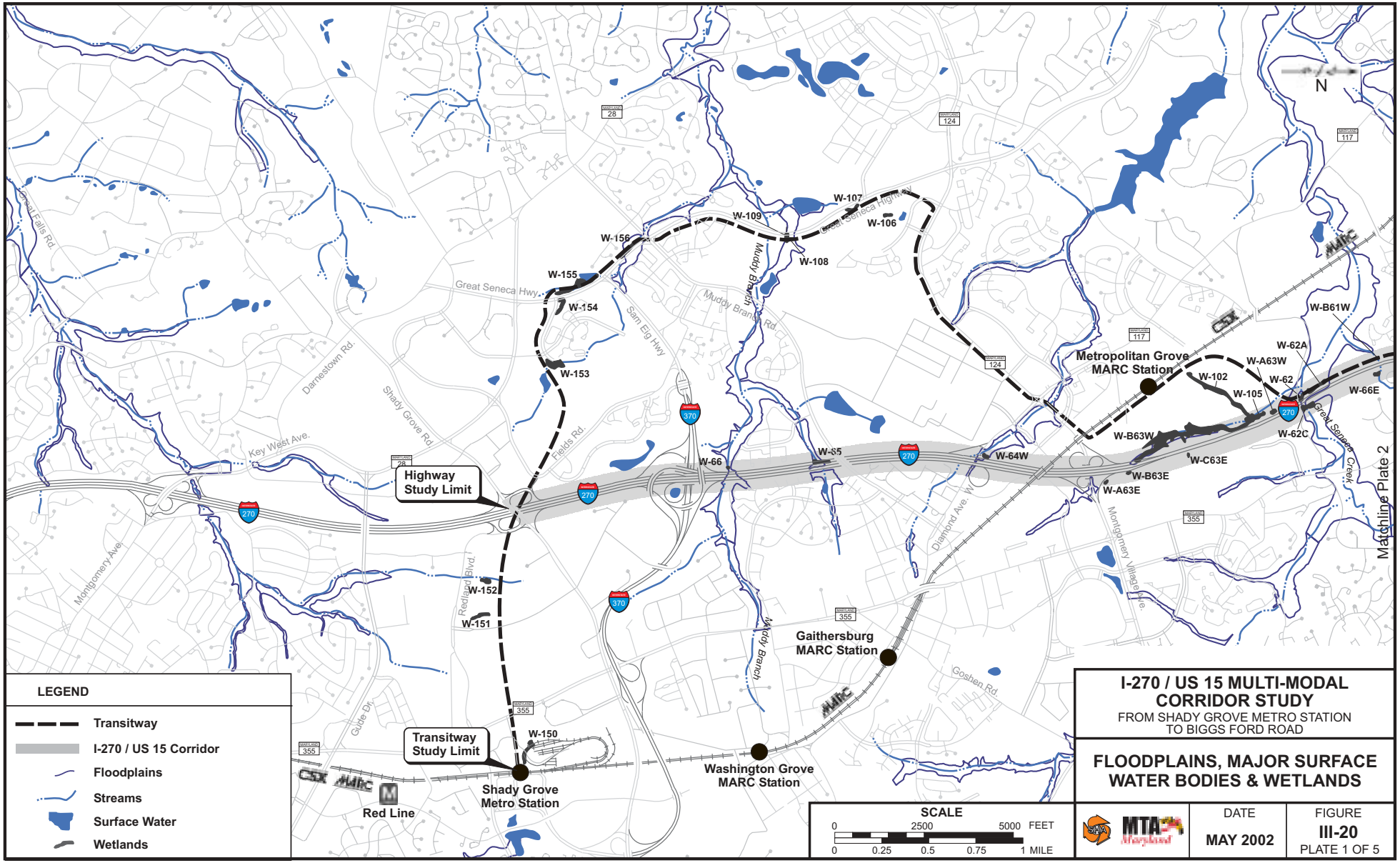
Wetland functions were performed for all wetlands using the Evaluation for Planned Wetlands (EPW) method. This method is a rapid-assessment procedure for use in determining whether a planned wetland has been adequately designed to achieve wetland functional goals. EPW provides a technique for comparing functional capacity of a wetland assessment area and a planned wetland. Functional capacity is the magnitude or degree to which a wetland performs a function. In order to determine this capacity, the functional capacity index (FCI) is used as a dimensionless number from 0.0 to 1.0 that describes a wetland's relative capacity to perform a function, where 0.0 represents no functional capacity and 1.0 represents optimal functional capacity. The EPW method evaluates five major wetland functions that include:

- **Sediment Stabilization (SS)** -- capacity to stabilize and retain previously deposited sediments.
- **Water Quality (WQ)** -- capacity to retain and process dissolved or particulate material to the benefit of downstream surface water quality.
- **Wildlife (WL)** -- degree to which a wetland functions as habitat for wildlife as described by habitat complexity.
- **Fish in Non-Tidal Stream/River (FS)** -- degree to which a wetland habitat meets the food/cover, reproductive, and water quality requirements of fish.
- **Uniqueness/Heritage (UH)** -- presence of characteristics that distinguish a wetland as unique, rare, or valuable**.**

One hundred nineteen (119) numbered wetland areas were flagged within the I-270/US 15 Corridor, including 102 along the highway alignment and 17 along the transitway alignment. **Figure III-20** shows the locations of the wetlands along the highway and transitway alignments. The wetland areas within the I-270/US 15 Corridor fall into four categories including:

- perennial streams and their intermittent tributaries;
- wetland floodplains (palustrine forested, scrub-shrub and emergent) associated with perennial and intermittent streams;
- headwater seep wetlands; and
- wetlands situated within roadside drainage ways.

Details regarding the perennial and intermittent streams throughout the I-270/US 15 Corridor highway and transitway alignments are discussed under the Streams and Water Resources section under Surface Waters.

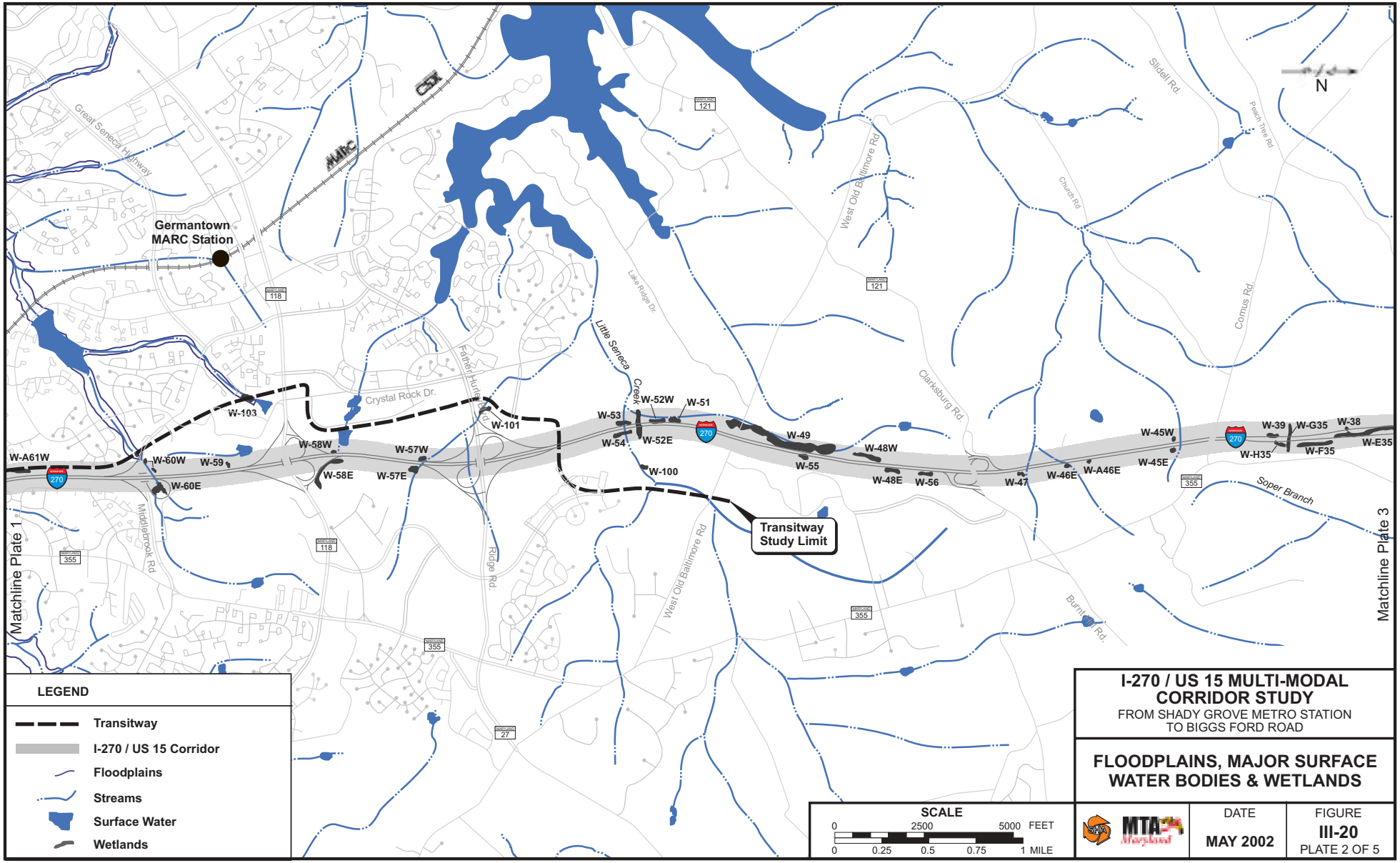


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

FLOODPLAINS, MAJOR SURFACE WATER BODIES & WETLANDS

DATE	FIGURE
MAY 2002	III-20
	PLATE 1 OF 5

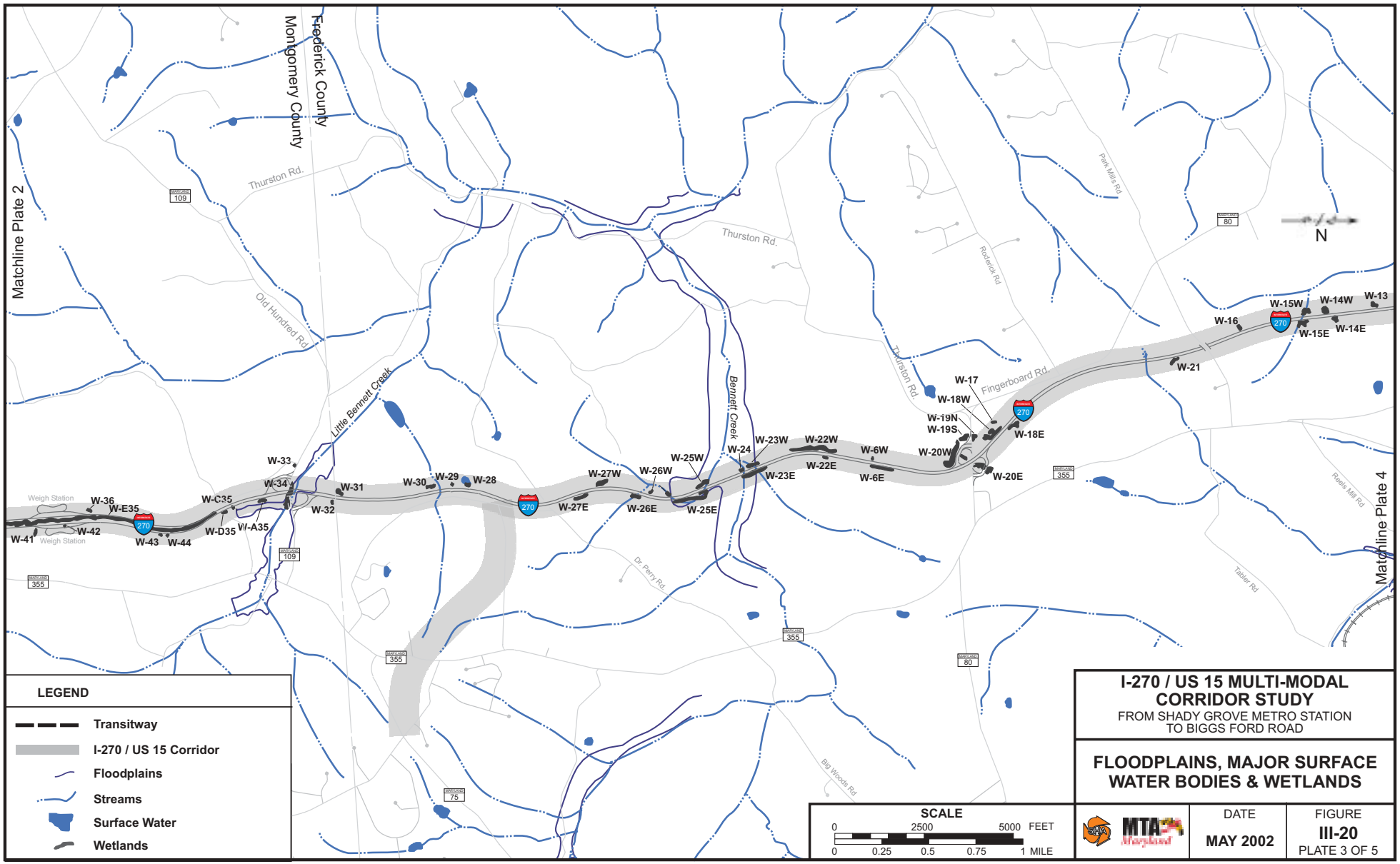


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

FLOODPLAINS, MAJOR SURFACE WATER BODIES & WETLANDS

DATE	FIGURE
MAY 2002	III-20
	PLATE 2 OF 5



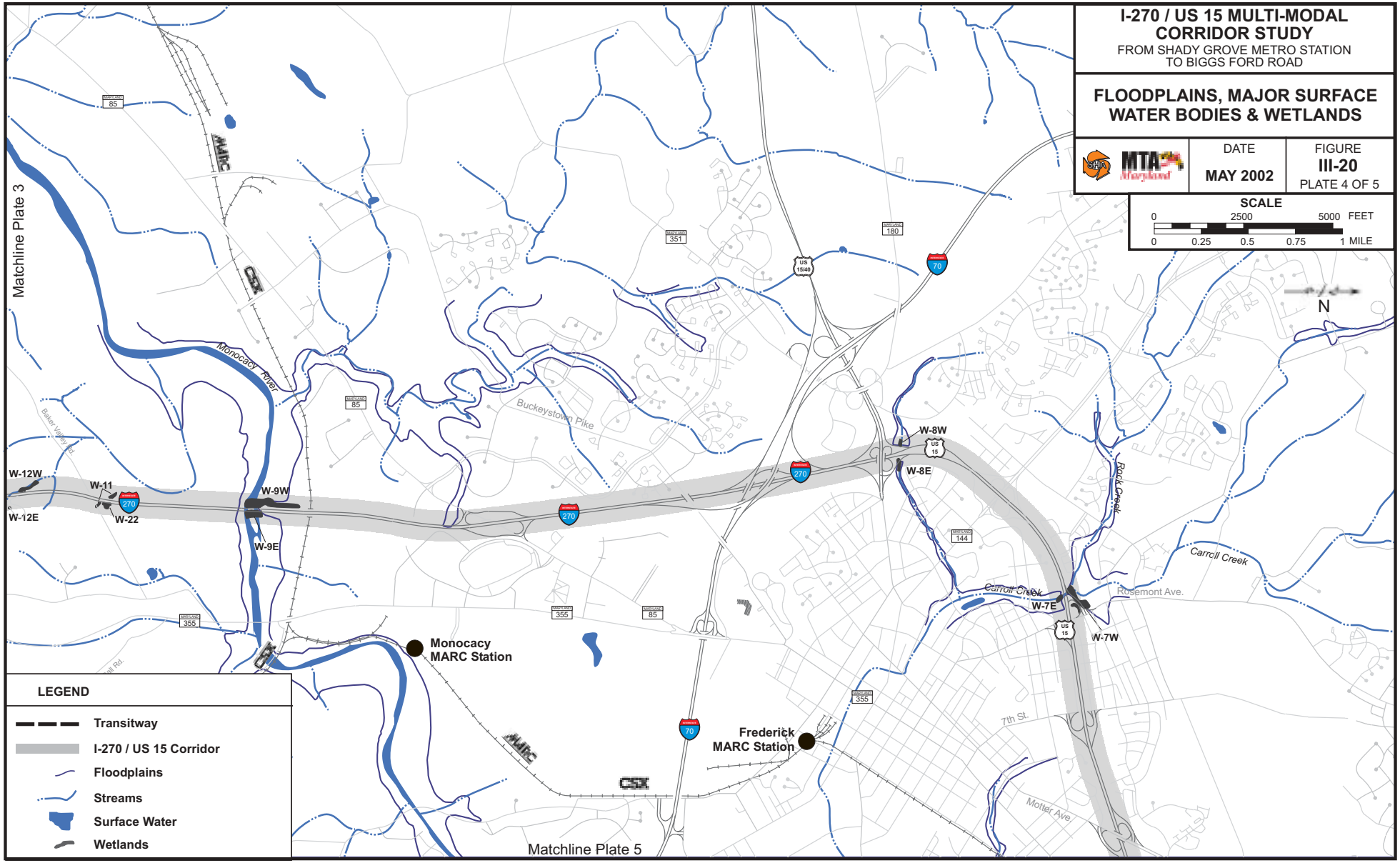
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

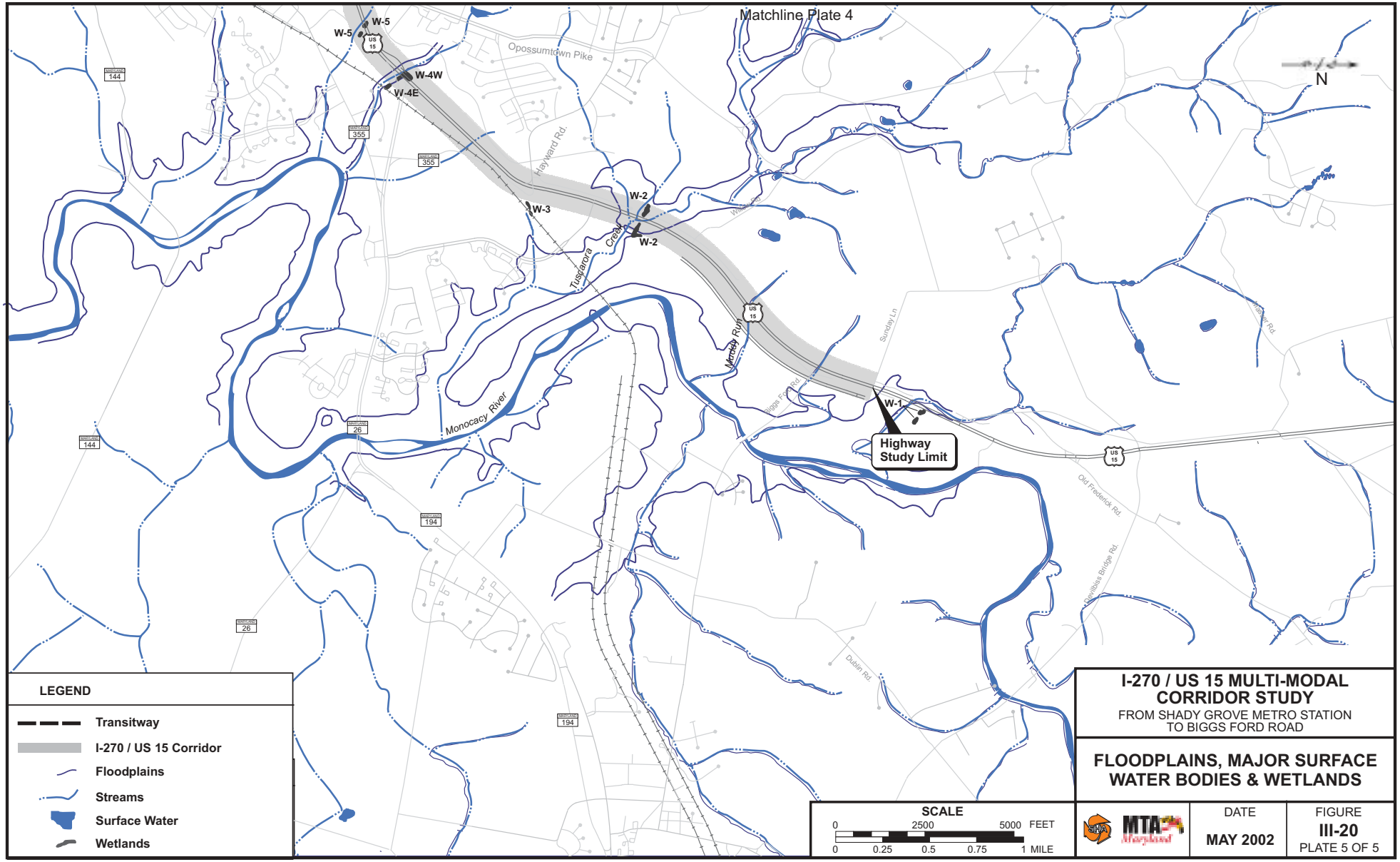
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

FLOODPLAINS, MAJOR SURFACE WATER BODIES & WETLANDS

DATE: MAY 2002

FIGURE III-20 PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
FLOODPLAINS, MAJOR SURFACE WATER BODIES & WETLANDS
DATE
MAY 2002
FIGURE
III-20
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Monocacy River
Buckeystown Pike
Baker Valley Rd.
Rock Creek
Carroll Creek
Rosemont Ave.
7th St.
Motter Ave.
W-12W
W-12E
W-11
W-22
W-9W
W-9E
W-8W
W-8E
W-7E
W-7W
Monocacy MARC Station
Frederick MARC Station
MARC
CSX
LEGEND
Transitway
I-270 / US 15 Corridor
Floodplains
Streams
Surface Water
Wetlands



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

FLOODPLAINS, MAJOR SURFACE WATER BODIES & WETLANDS

DATE: MAY 2002

FIGURE III-20 PLATE 5 OF 5

Highway Alignment

The highway alignment traverses large perennial stream systems, smaller intermittent tributaries, associated floodplain wetlands, and headwater seeps. In addition, some ditches at the toe of the highway embankment have developed wetland conditions that are hydrologically connected to intermittent and perennial streams. **Table III-41** contains a summary of characteristics associated with each numbered wetland flagged within the highway alignment.

The perennial streams identified within the project area include Muddy Run (W-1), Tuscarora Creek (W-2), Carroll Creek (W-7), Rock Creek (W-7), Monocacy River (W-9), Bennett Creek (W-23 and W-24), Little Bennett Creek (W-34), Wildcat Branch (W-35), Gunners Branch (W-60), Little Seneca Creek (W-53), Great Seneca Creek (W-62, W-62A, and W-62C), and Muddy Branch (W-66). A network of fifty smaller perennial and intermittent streams were also identified along the highway alignment.

Many of the larger floodplains or riparian corridors associated primarily with the perennial streams identified above, are comprised of diverse forested, scrub-shrub, or emergent wetlands. Smaller floodplains associated with intermittent streams also occur along the alignment. Many of these systems have been disturbed by the placement of culverts to convey water beneath existing I-270 and US 15. This has led to the establishment of wetlands on sediment bars where accretion has occurred or to the downcutting of the stream where erosion has occurred. Wetlands within riparian corridors along the highway alignment include those associated with W-2, W-9, W-15W, W-15E, W-17, W-18W, W-18E, W-19S, W-19N, W-20W, W-20E, W-22W, W-23W, W-23E, W-25W, W-25E, W-27W, W-30, W-E35, W-F35, W-H35, W-45W, W-46E, W-49, W-53, W-57W, W-58E, W-62A, W-62C, W-B63W, W-C63E, and W-65.

The dominant vegetation found within the forested portions of the floodplains is red maple, silver maple, spicebush, jewelweed, and stout woodreed. The floodplains comprised of scrub-shrub vegetation are dominated by spicebush, box elder, elderberry jewelweed, fowl manna grass, and soft rush, while the emergent areas are dominated by soft rush, blue-joint grass, spike rush, jewelweed, fowl manna grass, skunk cabbage, and deer-tongue witchgrass.

Soil types within these floodplain wetlands are Baile, Blocktown, Cardiff, Chewacia, Congaree, Duffield, Frankstown, Glenville, Hatboro, Lindside, Manor Melvin, and Worsham. The hydric soils within the Corridor include Baile, Hatboro, Manor, Melvin, and Worsham, while Blocktown, Glenville, and Lindside have the potential for hydric inclusions. Soil samples were gleyed or had a low-chroma matrix with redoximorphic features.

The principle functions associated with these wetlands ranked high for both sediment stabilization and water quality, especially in floodplains that have dense cover types which provide long-term retention and processing of recently deposited sediment. These wetlands are functioning at an intermediate or high level for wildlife habitat due to the available cover types, increased size, and minimal disturbance of these floodplains. Wetlands associated with the Monocacy River (W-9), tributary to Little Seneca Creek (W-50) and Little Seneca Creek (W-52) ranked optimal for the uniqueness/heritage function due to their associations with parks that have

significant aesthetic and historical value (i.e., Monocacy National Battlefield and Black Hill Regional Park).

The seep wetlands situated within the headwaters of tributaries and wetlands associated with roadside drainage ways are primarily emergent or scrub-shrub wetlands. These wetlands appear to have a hydroperiod that is seasonally supported by groundwater discharges. Many of these areas have been disturbed by utility line cuts, cattle grazing, or other human-induced factors. Headwater and roadside seep wetlands are associated with W-3, W-4, W-6E, W-7W, W-22, W-12E, W-13, W-14W, W-16, W-20E, W-26E, W-28, W-29, W-31, W-32, W-36, W-45E, W-A46E, W-47, W-48E, W-50, W-52E, W-55, W-56, W-57E, W-58W, W-58E, W-60E, W-61E, and W-64. The diversity of most of these wetlands is limited due to periodic disruption from the roadway.

The dominant vegetation in the emergent wetlands is cattail, arrow-leaved tearthumb, soft rush, jewelweed, rice cutgrass, and water pepper. The scrub-shrub wetlands are dominated by spicebush, jewelweed, and skunk cabbage.

Soil types within these scrub-shrub and emergent wetlands are Baile, Brinklow-Blocktown, Congaree, Glenville, Hatboro, Lindside, Linganore, Manor, and Worsham. Baile and Hatboro are listed as hydric soils, while Glenville, Lindside and Manor have the potential for hydric inclusions. Soil samples were gleyed or had a low chroma matrix with redoximorphic features.

The principle functions associated with wetlands located in roadside ditches and drainage ways rank intermediate for sediment stabilization and water quality due to their small size, periodic disturbance from the roadway and lack of emergent cover types. The wetlands situated in the headwaters of streams rank slightly higher for these functions as most of these wetlands are located away from the road and experience little to no disturbance. The wildlife functions ranked low for both types of wetlands due to their lack of cover types and isolation from other wetland systems.

TABLE III-41
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-1	R2UB1	Inundated – 3”	N/A			
W-2	PEM1C/E	Saturated	Soft Rush	*Juncus effusus*	Melvin	SS- 0.5
		Inundated – 1”	Meadow Fescue	*Lolium pratense*		WQ- 0.8
		Drainage pattern	Smartweed sp.	*Polygonum sp.*		WL- 0.2
		Oxidized root channels	Red Maple	*Acer rubrum*		
			Green Ash	*Fraxinus pennsylvanica*		
	R4SB1		N/A			
	R2UB1		N/A			
W-3	R4SB2		N/A			
	PEM1C	Inundated - <1”	Broad-leaved Cattail	*Typha latifolia*	Lindside	SS- 0.8
		Saturated	Jewelweed	*Impatiens capensis*		WQ- 0.7
		Drift lines				WL- 0.3
		Oxidized root channels				
W-4E	R2UB1	Inundated – 3”	N/A			
W-4W	PEM2E	Inundated - <1”, Saturated	Blunt Spikerush	*Eleocharis obtusa*	Lindside	SS- 0.7
		Oxidized root channels	Fox Sedge	*Carex vulpinoidea*		WQ- 0.8
			Reed Canary Grass	*Phalaris arundinacea*		WL- 0.2
			Sweet Flag	*Acorus calamus*		
			Fowl Bluegrass	*Poa palustris*		
	R2UB1		N/A			
W-5	R4SB1	Inundated – 3”	N/A			
W-6E	R3UB2		N/A			
	PEM1C	Saturated	Broad-leaved Cattail	*Typha latifolia*	Manor channery and gravelly loams	SS- 0.9
		Inundated – 1-5”	Deertongue Witchgrass	*Dichanthelium clandestinum*		WQ- 0.9
		Drainage patterns	Nightshade	*Solanum dulcamara*		WL- 0.4
W-6W	R3UB1		N/A			

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W –7E	R2UB1		N/A			
W-7W	R4SB3	Inundated – 1”	N/A			
	PEM1A/C	Saturated	Spike Rush	*Eleocharis* sp.	Duffield &	SS- 0.8
			Soft Rush	*Juncus effusus*	Frankstown	WQ- 0.9
	PEM1E	Drift lines	Wool Grass	*Scirpus cyperinus*		WL- 0.1
		Drainage patterns	Grass sp.	*Gramineae* sp.		
W-8	R4SB1	Inundated – 4”	N/A			
W-9E	R2UB1		N/A			
W-9W	PFO1A/C	Drift lines	Red Maple	*Acer rubrum*	Lindside	SS- 0.9
		Sediment deposits	Silver Maple	*Acer saccharinum*		WQ- 0.8
		Drainage patterns	Box Elder	*Acer negundo*		WL- 0.6
			Spring Beauty	*Claytonia virginica*		FS- 0.7
			Reed Canary Grass	*Phalaris arundinacea*		UH- 1.0
			Virginia Bluebells	*Mertensia virginica*		
	PSS1A/C	Inundated – 8”	Box Elder	*Acer negundo*		
		Water marks	Moneywort	*Lysimachia nummularia*		
		Drainage patterns				
		Saturated				
		Water-stained leaves				
W-11	R4SB1	Inundated - 4”	N/A			
W-22	PFO1C	Inundated –4”	Silver Maple	*Acer saccharinum*	Cardiff channery loam	SS- 0.6
		Saturated	Poison Ivy	*Toxicodendron radicans*		WQ- 0.7
		Water marks	Slippery Elm	*Ulmus rubra*		WL- 0.5
		Drainage patterns				U/H- 1.0

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-12W	R4SB1		N/A			
W-12E	PFO1C	Inundated - 6”	Green Ash	*Fraxinus pennsylvanica*	Congaree silt loam	SS- 0.5
		Saturated	Black Gum	*Nyssa sylvatica*		WQ- 0.6
		Water marks	Soft Rush	*Juncus effusus*		WL- 0.5
W-13	R3UB1		N/A			
	PEM1E	Saturated	No vegetation present. Wetland designation assumes vegetation will emerge during growing season.		Congaree silt loam	SS- 0.8
		Inundated - 2”				WQ- N/A
		Drainage patterns				WL- 0.1
W-14E	R4SB1		N/A			
W-14W	R4SB1		N/A			
	PSS1E	Saturated (water @ 5”)	Spicebush	*Lindera benzoin*	Manor channery & gravelly loams	SS-0.7
		Inundated - 1”	Multiflora Rose	*Rosa multiflora*		WQ- 0.5
		Drainage pattern	Jewelweed	*Impatiens capensis*		WL- 0.5
		Oxidized root channels	Manna Grass	*Glyceria striata*		
			Sedge	*Carex* sp.		
W-15W	R4SB1		N/A			
	PFO1C/E	Inundated - 0.5”	Silver Maple	*Acer saccharinum*	Glenville silt loam	SS- 0.8
		Saturated	Spicebush	*Lindera benzoin*		WQ- 0.8
		Drainage patterns	Panic Grass	*Dichanthelium clandestinum*		WL- 0.4
		Oxidized root channels	Sedge	*Carex* sp.		
W-15E	R4SB1		N/A			
	PEM1C/E	Inundated - 1”	Blue-joint Grass	*Calamagrostis canadensis*		SS- 0.8
		Saturated	Sedge	*Carex* sp.		WQ- 0.9
		Oxidized root channels	Soft Rush	*Juncus effusus*		WL- 0.2
			Jewelweed	*Impatiens capensis*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-16	PEM2B/E	Inundated - 1”	Sedge	*Carex* sp.	Manor channery & gravelly loams	SS- 1.0
		Saturated	Blue-joint Grass	*Calamagrostis canadensis*		WQ- 0.7
		Drainage patterns	Spike Rush	*Eleocharis obtusa*		WL- 0.3
			Soft Rush	*Juncus effusus*		
W-17	PEM1C/E	Inundated - 1”	Soft Rush	*Juncus effusus*	Glenelg & Chester silt loams	SS- 0.5
		Saturated	Broad-leaved Cattail	*Typha latifolia*		WQ- N/A
		Drainage patterns	Wool Grass	*Scirpus cyperinus*		WL- 0.2
			Sensitive Fern	*Onoclea sensibilis*		
W-18W	R3UB1		N/A			
	R4SB3		N/A			
	PEM2B/E	Inundated - 1”	Jewelweed	*Impatiens capensis*	Worsham silt loam	SS- 0.7
		Saturated	Blue-joint Grass	*Calamagrostis canadensis*		WQ- 0.9
		Water marks				WL- 0.4
	PFO1E	Saturated	Silky Dogwood	*Cornus amomum*		SS- 0.9
			Sedge	*Carex* sp.		WQ- 1.0
			Grass	Gramineae sp.		WL- 0.6
			Jewelweed	*Impatiens capensis*		
W-18E	PSS2B/E	Drainage patterns	Red Maple	*Acer rubrum*		SS- 0.8
		Oxidized root channels	Spicebush	*Lindera benzoin*		WQ- 1.0
	R3UB1		N/A			WL- 0.3
	R4SB3		N/A			

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-19S	R2UB2		N/A			
	PSS1E	Inundated - 1”	Silky Dogwood	*Cornus amomum*	Worsham silt loam	SS- 0.8
		Saturated	Goldenrod	*Solidago* sp.		WQ- 0.8
		Drainage patterns	Soft Rush	*Juncus effusus*		WL- 0.5
		Oxidized root channels	Swamp Milkweed	*Asclepias incarnata*		
			Teasel	*Dipsacus sylvestris*		
W-19N	R2UB2		N/A			
	PSS1E	Inundated - 1”	Spicebush	*Lindera benzoin*		
		Saturated	Black Willow	*Salix nigra*		
		Drainage patterns	Blue-joint Grass	*Calamagrostis canadensis*		
W-20W	R2UB1		N/A			
	R4SB2		N/A			
	PSS1E	Inundated - 1-4”	Spicebush	*Lindera benzoin*	Manor channery & gravelly loams	SS- 0.7
		Saturated	Sedge	*Carex* sp.		WQ- 0.9
		Drainage patterns	Jewelweed	*Impatiens capensis*		WL- 0.5
		Water marks	Blue-joint Grass	*Calamagrostis canadensis*		
		Drift lines				
W-20E	PEM2B/E		Jewelweed	*Impatiens capensis*		SS-0.7
			Blue-joint Grass	*Calamagrostis canadensis*		WQ- 0.9
						WL- 0.4
	PEM1C/E	Sediment deposits	Broad-leaved Cattail	*Typha latifolia*	Manor channery & gravelly loams	SS-1.0
			Sedge	*Carex* sp.		WQ- 1.0
	PFO1C/E	Inundated - 1-4”	Silver Maple	A*cer saccharinum*	Worsham silt loam	SS- 0.7
		Saturated	Poison Ivy	*Toxicodendron radicans*		WQ- 0.7
		Water marks	Stout Woodreed	*Cinna arundinacea*		WL- 0.5
W-21	R4SB1	Inundated – 2”	N/A			

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-22W	R3UB1		N/A		Mixed alluvial	
	PSS1E	Inundated - 0.5”	Spicebush	*Lindera benzoin*	Cardiff channery loam	SS- 0.8
		Saturated	False Nettle	*Boehmeria cylindrica*		WQ- 0.9
		Drainage patterns	Fowl Manna Grass	*Glyceria striata*		WL- 0.7
			Jewelweed	*Impatiens capensis*		
W-22E	R4SB1		N/A			
W-23W	PEM1B	Inundated – 1”	Cattail	*Typha latifolia*	Chewacia silt loam	SS- 0.8
		Saturated	Jewelweed	*Impatiens capensis*		WQ- 0.9
		Drainage patterns	Fowl Manna Grass	*Glyceria striata*		WL- 0.4
W-23E	PEM1/2C	Water marks	Nepal Microstegium	*Microstegium viminea*		SS- O.8
		Drift lines	New England Aster	*Aster novae-angliae*		WQ- 0.9
		Sediment deposits	Broad-leaf cattail	*Typha latifolia*		WL- 0.3
		Oxidized root channels	Jewelweed	*Impatiens capensis*		
			Soft Rush	*Juncus effusus*		
			Deertongue Witchgrass	*Dichanthelium clandestinum*		
W-24	R2UB2/3	Inundated – 1’	N/A			
W-25W	R3UB1		N/A			
	PEM2E	Inundated – 1”	Rice Cutgrass	*Leersia oryzoides*	Chewacia silt loam	SS- 0.9
		Saturated	Jewelweed	*Impatiens capensis*		WQ- 0.9
			Fowl Manna Grass	*Glyceria striata*		WL- 0.4
			Asiatic Tearthumb	*Polygonum perfoliatum*		
			Water Cress	*Nasturtium officinale*		
W-25E	R3UB1		N/A			
	PEM2C	Saturated	Smartweed	*Polygonum* sp.		SS- 0.8
		Drainage patterns	Jewelweed	*Impatiens capensis*		WQ- 0.9
			Arrowleaved Tearthumb	*Polygonum sagittatum*		WL- 0.2
			Deertongue Witchgrass	*Dichanthelium clandestinum*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-26E	R3UB1		N/A			
	PEM2B	Inundated- 2”	Jewelweed	*Impatiens capensis*	Chewacia silt loam	SS- 0.8
		Water marks	Arrowleaved Tearthumb	*Polygonum sagittatum*		WQ- 0.9
		Sediment deposits	Water Pepper	*Polygonum hydropiper*		WL- 0.4
W-26W	R3UB1		N/A			
W-27E	R3UB1		N/A			
W-27W	R3UB1		N/A			
	PEM2E	Inundated – 1-5”	Sensitive Fern	*Onoclea sensibilis*	Manor channery and gravelly loams	SS- 0.7
		Saturated	Jewelweed	*Impatiens capensis*		WQ- 0.8
		Drainage patterns	Goldenrod	*Solidago* sp.		WL- 0.4
	PSS1E	Inundated – 1-5”	Box Elder	*Acer negundo*	Manor channery and gravelly loams	SS- 0.9
		Saturated	Spicebush	*Lindera benzoin*		WQ- 0.9
		Drainage patterns	Jewelweed	*Impatiens capensis*		WL- 0.1
			Fowl Manna Grass	*Glyceria striata*		
W-28	POW	Inundated - >1’				
	PEM2C/E	Saturated	Blunt Spikerush	*Elocharis obtusa*	Linganore channery and gravelly loams	SS- 0.9
		Shallow Inundation; seeps enter pond from above, swales drain pond below.	Water Purslane	*Ludwigia palustris*		WQ- N/A
			Soft Rush	*Juncus effusus*		WL- 0.2
			Canada Rush	*Juncus canadensis*		
			Green Bulrush	*Scirpus atrovirens*		
			Woolgrass	*Scirpus cyperinus*		
			Jewelweed	*Impatiens capensis*		
			Fowl Manna Grass	*Glyceria striata*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-29	PEM2B	Inundated -<1” Saturated Drainage patterns	Rice Cutgrass Jewelweed Shallow Sedge	*Leersia oryzoides* *Impatiens capensis* *Carex lurida*	Linganore channery and gravelly silt loam	SS- 0.7 WQ- 0.8 WL- 0.2
W-30	R3UB1 PFO1E	Inundated – <0.5” Saturated Drainage patterns Water marks	N/A Red Maple Sycamore Spicebush Jewelweed Fowl Manna Grass	 *Acer rubrum* *Platanus occidentalis* *Lindera benzoin* *Impatiens capensis* *Glyceria striata*	Manor channery and gravelly loam	SS- 0.8 WQ- 0.9 WL- 0.2
W-31	R4SB1 PSS1E	Inundated – 1” Saturated Water in pit – 16” Drainage patterns	N/A Spicebush Redtop Grass Nepal Microstegium	 *Lindera benzoin* *Agrostis alba* *Microstegium viminea*	Blocktown channery silt loam	SS- 0.9 WQ- 0.9 WL- 0.3
W-32	PEM2E	Saturated Oxidized root channels	Jewelweed Arrowleaved Tearthumb Nepal Microstegium Tall Goldenrod Pointed broom sedge	*Impatiens capensis* *Polygonum sagittatum* *Microstegium viminea* *Solidago gigantea* *Carex scoparia*	Blocktown channery silt loam	SS- 0.8 WQ- 0.9 WL- 0.2
W-33	R3UB1	Inundated – 1-2”	N/A			
W-34	R3UB1	Inundated – 2-36”	N/A			

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-A35	R3UB1		N/A			
W-C35	R3UB2		N/A			
W-D35	R3UB2		N/A			
W-E35	R3UB2		N/A			
	PSS1E	Saturated	Spicebush	*Lindera benzoin*	Hatboro silt loam,	SS- 0.9
		Drainage patterns	Sweet Pepperbush	*Clethra alnifolia*	Brinklow-Blocktown channery silt loam,	WQ- 0.8
		Oxidized root channels	Elderberry	*Sambucus canadensis*		WL- 0.2
			Arrowwood	*Viburnum dentatum*	Baile silt loam,	
	PEM1/2/C/E		Skunk Cabbage	*Symplocarpus foetidus*	Hyattstown channery silt loam	SS- 0.8
			Jewelweed	*Impatiens capensis*		WQ- 0.9
			Fowl Manna Grass	*Glyceria striata*		WL- 0.1
			Sensitive Fern	*Onoclea sensibilis*		
			Poison Ivy	*Toxicodendron radicans*		
	R3UB2		N/A			
W-F35	PEM2C/E	Drift Lines	Jewelweed	*Impatiens capensis*		
			Soft rush	*Juncus effusus*	Hyattstown channery silt loam	
			Marsh pepper	*Polygonum hydropiper*		
			Rice cutgrass	*Leersia oryzoides*		
			Frank's sedge	*Carex frankii*		
W-G35	R3UB1		N/A			
W-H35	PEM1/2C/E	Drainage pattern in wetland	Deer-tounge witchgrass	*Dichanthelium clandestinum*	Brinklow-Blocktown channery silt loam	
			Fowl manna grass	*Glyceria striata*		
			Frank's sedge	*Carex frankii*		
			Soft rush	*Juncus effusus*		
			Meadow fescue	*Lolium pratense*		
			Cockle-bur	*Xanthium* sp.		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-36	R3UB1		N/A			
	PSS1E	Inundated – 0.5”	Jewelweed	*Impatiens capensis*	Brinklow-Blocktown	SS- 0.8
		Saturated	Spicebush	*Lindera benzoin*	channery silt loam	WQ- 0.9
			Fowl Manna Grass	*Glyceria striata*		WL- 0.4
W-38	R4SB1/3	Inundated – 0.5”	N/A			
W-39	PEM2E	Inundated – 0.5”	Soft Rush	*Juncus effusus*	Glenville silt loam	SS- 0.5
		Saturated	Blunt Spikerush	*Eleocharis obtusa*		WQ- 1.0
			Arrowleaved Tearthumb	*Polygonum sagittatum*		WL- 0.2
			Water Plantain	*Alisma subcordatum*		
			Redtop Grass	*Agrostis alba*		
W-41	R4SB1	Dry bed	N/A			
W-42	R4SB1	Dry bed	N/A			
W-43	R3UB1	Inundated – 1.5”	N/A			
W-44	R3UB1	Inundated – 1”	N/A			
W-45W	R4SB1	Cobble/gravel	N/A			
	PFO1E	Drift lines	Green Ash	*Fraxinus pennsylvanica*	Hatboro silt loam	SS- 0.8
		Drainage patterns in	Spicebush	*Lindera benzoin*		WQ- 1.0
		wetland	Japanese Honeysuckle	*Lonicera japonica*		WL- 0.3
			Garlic Mustard	*Alliaria officinalis*		
			Poison Ivy	*Toxicodendron radicans*		
W-45E	R4SB1		N/A			SS- 0.9
	PEM2E	Drainage patterns	Rice Cutgrass	*Leersia oryzoides*		WQ- 0.9
		Oxidized root channels	Smartweed	*Polygonum* sp.		WL- 0.1

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-46E	R2UB1		N/A			
	PEM1/2E	Saturated	Flattop Goldennrod	*Euthamia graminifolia*	Hatboro silt loam	SS- 0.9
		Drainage patterns	Deertongue Witchgrass	*Dichanthelium clandestinum*		WQ- 0.9
			Soft Rush	*Juncus effusus*		WL- 0.2
			Redtop Grass	*Agrostis alba*		
W-A46E	PEM1A	Inundated - <0.5”	Green Bulrush	*Scirpus atrovirens*		SS- 0.9
		Saturated	Soft Rush	*Juncus effusus*		WQ- N/A
						WL- 0.1
W-47	R3UB1		N/A			
	PEM1/2E	Inundated -1”	Red Maple	*Acer rubrum*	Hatboro silt loam	SS-0.9
	PFO1E	Saturated	Soft Rush	*Juncus effusus*		WQ- 0.9
			Deertongue Witchgrass	*Dichanthelium clandestinum*		WL- 0.2
			Reed Canary Grass	*Phalaris arundinacea*		
W-48W	R3UB1		N/A			
W-48E	PEM1E	Inundated – 1-2”	Broad-leaf cattail	*Typha latifolia*	Baile silt loam	SS- 0.9
		Saturated	Sensitive Fern	*Onoclea sensibilis*		WQ- 1.0
		Sediment deposits	Soft Rush	*Juncus effusus*		WL- 0.2
			Arrowleaved Tearthumb	*Polygonum sagittatum*		
W-49	R3UB1		N/A			
	PFO1C/E	Inundated – 1-2”	Red Maple	*Acer rubrum*	Hatboro silt loam	SS- 0.8
		Saturated	Spicebush	*Lindera benzoin*		WQ- 1.0
		Drainage patterns	Duck Potato	*Sagittaria latifolia*		WL- 0.6
			Jewelweed	*Impatiens capensis*		
			Sensitive Fern	*Onoclea sensibilis*		
			Fowl Manna Grass	*Glyceria striata*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-49	PSS1E	Inundated – 1-2”	Skunk Cabbage	*Symplocarpus foetidus*	Hatboro silt loam	SS- 0.7
		Saturated	Elderberry	*Sambucus canadensis*		WQ- 0.8
		Drainage Patterns	Silky Dogwood	*Cornus amomum*		WL- 0.6
			Smooth Alder	*Alnus serrulata*		
			Water Plantain	*Alisma subcordatum*		
			Arrowleaved Tearthumb	*Polygonum sagittatum*		
			Water Pepper	*Polygonum hydropiper*		
			Soft Rush	*Juncus effusus*		
			Rice Cutgrass	*Leersia oryzoides*		
			Flattop Goldenrod	*Euthamia graminifolia*		
			Frank’s Sedge	*Carex frankii*		
W-50	R3UB1		N/A		Mixed alluvial	
	PSS1B	Depth to water in pit – 7”	Whitegrass	*Leersia virginica*	Hatboro silt loam	SS- 0.8
		Saturated	Halberdleaved tearthumb	*Polygonum arifolium*		WQ- 0.9
		Drainage patterns	Moneywort	*Lysimachia nummularia*		WL- 0.5
		Water-stained leaves	Spicebush	*Lindera benzoin*		U/H- 1.0
			Winterberry	*Ilex verticillata*		
W-51	R3UB1	Inundated – 1-6”	N/A		Mixed alluvial	
W-52W	R2UB1		N/A			
W-52E	R2UB1		N/A			
	PEM1/2C/E	Saturated	Rice Cutgrass	*Leersia oryzoides*	Hatboro silt loam	SS- 1.0
		Sediment deposits	Arrowleaved Tearthumb	*Polygonum sagittatum*		WQ- 1.0
		Drainage patterns in wetland	Soft Rush	*Juncus effusus*		WL- 0.7
			Shallow Sedge	*Carex lurida*		U/H- 1.0
			Jewelweed	*Impatiens capensis*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-53	PFO1C	Saturated Sediment deposits	Yellow Poplar Red Maple Spicebush False Nettle Lady's Thumb Nepal Microstegium Skunk Cabbage	*Liriodendron tulipifera* *Acer rubrum* *Lindera benzoin* *Boehmeria cylindrica* *Polygonum persicaria* *Microstegium viminea* *Symplocarpus foetidus*	Hatboro silt loam	SS- 0.7 WQ- 0.8 WL- 0.5
W-54	R4SB1	Inundated -1"	N/A			
W-55	PEM1/2C/E	Sediment deposits Drainage patterns	Rice Cutgrass Water Pepper Water Purslane Blunt Spikerush Straw-colored Sedge Deertongue Witchgrass	*Leersia oryzoides* *Polygonum hydropiper* *Ludwigia palustris* *Eleocharis obtusa* *Cyperus strigosus* *Dichanthelium clandestinum*	Glenville silt loam	SS- 0.9 WQ- 0.9 WL- 0.2
W-56	PEM1E	Inundated – <1" Saturated Sediment deposits Drainage patterns Oxidized root channels	Fowl Manna Grass Arrowleaved Tearthumb Rice Cutgrass Broad-leaf cattail	*Glyceria striata* *Polygonum sagittatum* *Leersia oryzoides* *Typha latifolia*	Baile silt loam	SS- 0.9 WQ- 0.9 WL- 0.2

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-57W	R3UB1		N/A		Mixed alluvial	
	PFO1A	Inundated – 6”	Red Maple	*Acer rubrum*	Hatboro silt loam	SS-0.8
		Drainage patterns	Sycamore	*Platanus occidentalis*		WQ- 0.9
		Sediment deposit	Black Willow	*Salix nigra*		WL- 0.5
			Ironwood	*Carpinus caroliniana*		
			Whitegrass	*Leersia virginica*		
			Jewelweed	*Impatiens capensis*		
			Water Purslane	*Ludwigia palustris*		
			False Nettle	*Boehmeria cylindrica*		
			Aster	*Aster* sp.		
			Goldenrod	*Solidago* sp.		
			Bugleweed	*Lycopus americanus*		
			Black Willow	*Salix nigra*		
W-57E	PSS1E/F	Inundated - <1”	Arrowwood	*Viburnum dentatum*	Hatboro silt loam	SS- 0.8
		Saturated	Elderberry	*Sambucus canadensis*		WQ- 0.9
			Fowl Manna Grass	*Glyceria striata*		WL- 0.5
			Rice Cutgrass	*Leersia oryzoides*		U/H- 1.0
			Water Pepper	*Polygonum hydropiper*		
			Jewelweed	*Impatiens capensis*		
			Sensitive Fern	*Onoclea sensibilis*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-58W	PEM1B	Inundated – 3”	Rice Cutgrass	*Leersia oryzoides*	Baile silt loam	SS- 0.9
		Saturated	Broad-leaf cattail	*Typha latifolia*		WQ- 0.8
		Drainage patterns	Goldenrod	*Solidago* sp.		WL- 0.2
			Aster	*Aster* sp.		
			Tickseed Sunflower	*Bidens aristosa*		
			Water Purslane	*Ludwigia palustris*		
			Arrowleaved Tearthumb	*Polygonum sagittatum*		
			Jewelweed	*Impatiens capensis*		
			Black Willow	*Salix nigra*		
			Soft Rush	*Juncus effusus*		
W-58E	PFO1A	Dry during visit	Pin Oak	*Quercus palustris*	Baile silt loam	SS- 0.8
		Seasonal high water	Persimmon	*Diospyros virginiana*		WQ- 0.9
		table	Black Willow	*Salix nigra*		WL- 0.5
			Spicebush	*Lindera benzoin*		
			Elderberry	*Sambucus canadensis*		
			Multiflora Rose	*Rosa multiflora*		
			Blackberry	*Rubus allegheniensis*		
			Sensitive Fern	*Onoclea sensibilis*		
			Arrowleaved Tearthumb	*Polygonum sagittatum*		
			White Avens	*Geum canadense*		
			False Nettle	*Boehmeria cylindrica*		
	PEM1/2E	Water marks	Broad-leaf cattail	*Typha latifolia*		SS- 0.8
		Drift lines	Water Purslane	*Ludwigia palustris*		WQ- 0.9
		Sediment deposits	Soft Rush	*Juncus effusus*		WL- 0.3
			Blunt Spikerush	*Eleocharis obtusa*		
			Blue Vervain	*Verbena hastada*		
W-59	R4SB1	Dry	N/A			

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-60W	R3UB1		N/A			
W-60E	PFO1C/E	Inundated – 1-6”	Yellow Poplar	*Liriodendron tulipifera*	Hatboro silt loam	SS- 0.8
		Saturated	Green Ash	*Fraxinus pennsylvanica*		WQ- 1.0
		Drift lines	Spicebush	*Lindera benzoin*		WL- 0.3
		Sediment deposits	Arrowwood	*Viburnum dentatum*		
		Drainage patterns	Japanese Honeysuckle	*Lonicera japonica*		
			Stout Woodreed	*Cinna arundinacea*		
W-A61W	R4SB1	Inundated – 4”	N/A			
W-B61W	R2UB1		N/A			
W-61E	R2UB1		N/A			
	PSS1E	Saturated	Skunk Cabbage	*Symplocarpus foetidus*	Blocktown silt loam	SS- 0.8
		Drainage patterns	Spicebush	*Lindera benzoin*		WQ- 0.8
		Water-stained leaves				WL- 0.3
W-62	R2UB1	Inundated – >6”	N/A		Mixed alluvial	
W-62A	PEM1A	Saturated	Arrowleaved Tearthumb	*Polygonum*	Hatboro silt loam	SS- 0.9
		Depth to water in pit	Barnyard Grass	*Echinocloa crus-galli*		WQ- 0.9
		– 12”	Rice Cutgrass	*Leersia oryzoides*		WL- 0.2
		Water-stained leaves	Soft Rush	*Juncus effusus*		
	PFO1A	Drainage patterns	Green Ash	*Fraxinus pennsylvanica*		SS- 0.9
			Red Maple	*Acer rubrum*		WQ- 1.0
			Winterberry	*Ilex verticillata*		WL- 0.5
			Arrowwood	*Viburnum dentatum*		
			Stout Woodreed	*Cinna arundinacea*		
W-62C	PEM1A	Dried cracked mud	Skunk Cabbage	*Symplocarpus foetidus*	Hatboro silt loam	SS- 0.6
			Soft Rush	*Juncus effusus*		WQ- 0.8
			Whitegrass	*Leersia virginica*		WL- 0.3

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-62C	PFO1A	Drainage patterns	Green Ash	*Fraxinus pennslvanica*	Hatboro silt loam	SS- 0.8
		Dried cracked mud	Red Maple	*Acer rubrum*		WQ- 1.0
			Pin Oak	*Quercus palustris*		WL- 0.3
			Sycamore	*Platanus occidentalis*		
			Box Elder	*Acer negundo*		
			Garlic Mustard	*Alliaria petiolata*		
			False Nettle	*Boehmeria cylindrica*		
			Water Pepper	*Polygonum hydropiperoides*		
W-A63W	R3UB1	Inundated –1-6”	N/A			
W-B63W	R3UB1/2		N/A			
	PFO1A/C/B /F	Inundated – 0-1”	Pin Oak	*Quercus palustris*	Hatboro silt loam	SS- 0.8
		Saturated	Black Willow	*Salix nigra*		WQ- 0.9
		Drift lines	Sycamore	*Platanus occidentalis*		WL- 0.5
		Sediment deposits	Black Gum	*Nyssa sylvatica*		
		Drainage patterns	Red Maple	*Acer rubrum*		
			Black Haw	*Viburnum prunifolium*		
			Spicebush	*Lindera benzoin*		
			Multiflora Rose	*Rosa multiflora*		
			False Nettle	*Boehmeria cylindrica*		
			Nepal Microstegium	*Microstegium viminea*		
			Stout Woodreed	*Cinna arundinacea*		
			Garlic Mustard	*Aliaria officinales*		
			Skunk Cabbage	*Symplocarpus foetidus*		
			Tussock Sedge	*Carex crinita*		

TABLE III-41 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-A63E	R3UB1		N/A			
W-B63E	R3UB1		N/A			
W-C63E	PEM1A	Inundated – 1-2”	Arrowleaved Tearthumb	*Polygonum sagittatum*	Baile silt loam	Baile silt loam
		Saturated	Blue Vervain	*Verbena hastata*		
			Straw-colored Sedge	*Cyperus strigosus*		
			Soft Rush	*Juncus effusus*		
			Jewelweed	*Impatiens capensis*		
			Black Willow	*Salix nigra*		
			Water Pepper	*Polygonum hydropiper*		
W-64	PEM1/2F	Inundated – 4”	Broad-leaf cattail	*Typha latifolia*	Baile silt loam	SS- 0.9
		Saturated	Black Willow	*Salix nigra*		WQ- N/A
		Water marks	Soft Rush	*Juncus effusus*		WL- 0.3
	PEM1/2F	Drainage patterns	Rice Cutgrass	*Leersia oryzoides*	Baile silt loam	SS- 0.9
			Redtop Grass	*Agrostis alba*		WQ- N/A
			Water Pepper	*Polygonum hydropiper*		WL- 0.3

TABLE III-41 CONTINUED
WETLANDS AND WATERS OF THE US WITHIN THE HIGHWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-65	R3UB1	Inundated – 4”	N/A			
	R4SB2	Inundated – 1”	N/A			
	PSS1A		Broad-leaf cattail	*Typha latifolia*	Baile slit loam	SS- 0.9
			Black Willow	*Salix nigra*		WQ- 0.9
			Jewelweed	*Impatiens capensis*		WL- 0.6
			Red Maple	*Acer rubrum*		
W-66	R3UB1	Inundated – 1-6”	N/A			

Notes:

* *The functional assessment score is a number from 0.0-1.0, which describes a wetland’s relative capacity to perform a function, where 0.0 represents no functional capacity and 1.0 represents optimal functional capacity.*

SBEC -- Shoreline Bank Erosion Control
SS -- Sediment Stabilization
WQ -- Water Quality
UH -- Uniqueness/Heritage
FS -- Fish (Non-tidal Stream)

Park and Ride Lots

A desktop survey was conducted using DNR Nontidal Wetland Guidance Maps to identify potential wetlands and waterways within the proposed park and ride lots at Biggs Ford Road, Liberty Road, and Trading Lane. Park and ride lots at MD 124 and MD 117 are part of a separate project. Potential park and ride lots at Observation Drive, MD 75, MD 144, and West 7th Street have not yet been specifically sighted or designed pending studies to determine their need. Field verification of potential wetland areas at the Biggs Ford Road, Liberty Road, and Trading Lane sites was conducted in August 2001 with only dominant vegetation and hydrology being recorded at each site. A routine wetland delineation was not conducted nor were wetlands flagged. A detailed assessment of these wetland areas is needed when these park and ride lots are finalized during the planning process.

There were no wetlands and waterways identified within the proposed park and ride lots at Liberty Road and Biggs Ford Road. A palustrine emergent wetland was identified within the site at Trading Lane. This wetland extends northeast through the site along a tributary to Tuscarora Creek that joins the mainstem on the west side of US 15. The tributary has filled in with sediment due to the adjacent construction site and vegetation has established in these areas. During the site visit, soils were saturated in the upper 12 inches of the soil profile. The dominant vegetation in the wetland consists of broad-leaf cattail, path rush, swamp milkweed, American burreed, short-point flatsedge, and purple-leaf willow-herb. Soils in this area are mapped as Baile silt loam, which is considered hydric by NRCS. The principal functions associated with this wetland system ranked high for sediment stabilization and water quality. Functions associated with wildlife habitat ranked average due to the lack of available cover types.

Transitway Alignment

The USACOE and MDE have taken jurisdiction over 17 wetland areas within the transitway alignment. Characteristics of these areas are summarized in **Table III-42**. Eleven Waters of the US were identified along the alignment, some with palustrine forested, scrub-shrub, or emergent wetlands associated with their fringes. Two palustrine scrub-shrub/emergent wetlands (W-103 and W-108) situated within the alignment are associated with streams that flow outside of the project area.

A majority of the perennial and intermittent streams and adjacent fringe wetlands (W-101, W-104, W-156, W-155, W-154, W-152, W-151, W-150) occur within roadside drainage ways and ditches that flow to Little Seneca Creek, Great Seneca Creek, Gunners Branch (W-104), Muddy Branch (W-109), and Watts Branch. The dominant vegetation within the forested wetland (W-152 and W-150) is black willow, red maple, pin oak, silky dogwood, southern arrowwood, sedge, ground ivy and jewelweed. The scrub-shrub and emergent wetlands are dominated by black willow, red maple, soft rush, white grass, rice cutgrass and cattail. Soil types mapped within these streams and wetland systems include Baile and Hatboro. Both soil types are listed as hydric soils in Maryland. Soil samples exhibited a low-chroma matrix with well defined redoximorphic features. The principle functions associated with these wetlands ranked above intermediate for sediment stabilization and water quality due to their ability to provide short-term

sediment retention. The wildlife functions ranked low due to frequent disturbance from the roadway and lack of available cover types.

W-102 is a very diverse wetland with emergent, scrub-shrub and forested wetland components situated in the floodplains of an intermittent and perennial tributary of Great Seneca Creek. The dominant vegetation in this wetland is sycamore, red maple, highbush blueberry, winterberry, spicebush, stout woodreed, skunk cabbage, white grass, and false nettle. Soils in this wetland are mapped as Blocktown and Gaila. Neither soil is listed as a hydric soil in Maryland, however, both have the potential for hydric inclusions. The principle functions associated with this wetland rank high for sediment stabilization and water quality due to long-term retention and processing of sediment. The wildlife functions ranked intermediate because the wetland is located in an undeveloped portion of the alignment where forested tracts and wetlands are contiguous.

W-103 and W-108 are classified as scrub-shrub wetlands that are associated with streams that originate outside of the project area. The dominant vegetation in these wetlands is black willow, elderberry, soft rush, rice cutgrass, wool grass, monkey flower, seed box, deertongue witchgrass, fall panic grass, arrow-leaved tearthumb, and false nettle. Soil types in the wetland are mapped as Wheaton-Urban Land Complex and Hatboro. Hatboro is listed as a hydric soil in Maryland. The principle functions associated with sediment stabilization and water quality ranked high, while wildlife functions ranked intermediate.

W-62A and W-62C are wetlands located within both the highway and transitway alignments. Refer to the highway alignment discussion for an assessment of the characteristics of wetlands W-62A and W-62C.

Proposed Transit Stations and Yard/Shop Facilities

A field reconnaissance of wetlands and waterways was conducted in August and September 2001 for the proposed major transit stations at COMSAT, Decoverly, Quince Orchard Park/Sioux Lane, National Institute of Science and Technology, Washingtonian, Middlebrook, Germantown, Cloverleaf, Manekin, Century Boulevard, and Crystal Rock Drive. The DNR Nontidal Wetland Guidance Maps were used in the field to verify the occurrence of wetlands and waterways within these potential sites. A routine wetland delineation was not conducted but dominant vegetation and hydrology were noted. A wetland delineation will need to be conducted later in the planning process as these transit station locations become finalized.

Most of the proposed stations that were reviewed in the field are currently being used as existing parking lots for commercial complexes or converted into townhome/condominium communities. Therefore, wetlands and waterways do not occur within these proposed station locations. These stations include Comsat, Metropolitan Grove, Washingtonian, Middlebrook, Germantown, Cloverleaf, Manekin, Century Boulevard, and Crystal Rock Drive.

TABLE III-42
WETLANDS AND WATERS OF THE US WITHIN THE TRANSITWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-100	R2UB1	Inundated – 1-12”	N/A			
W-101	PEM1C/E	Inundated – 12”	Soft Rush	*Juncus effusus*	Hatboro silt loam	SS- 0.8
		Drainage Pattern	Meadow Fescue	*Lolium pratense*		WQ- 0.78
	R2UB1		N/A			WL- 0.1
W-102	R4SB1/2	Mixed alluvial	N/A			
	R2UB1/2	Mixed alluvial	N/A			
	PSS1C/E	Inundated – 1”	Spicebush	*Lindera benzoin*	Blocktown channery	SS- 0.8
		Saturated	Winterberry	*Ilex verticillata*	w/ Baile inclusion	WQ- 0.8
		Drainage patterns	Skunk Cabbage	*Symplocarpus foetidus*		WL- 0.5
			Whitegrass	*Leersia virginica*		
			False Nettle	*Boehmeria cylindrica*		
			Cinnamon Fern	*Osmunda cinnamomea*		
	PEM1C/E	Water-stained leaves	Skunk Cabbage	*Symplocarpus foetidus*	Blocktown channery	SS- 0.8
			Christmas Fern	*Polystichum acrostichoides*	w/ Baile inclusion	WQ- 0.9
			Stout Woodreed	*Cinna arundinacea*		WL- 0.3
	PSS1E	Drainage pattern	Winterberry	*Ilex verticillata*	Blocktown channery	SS- 0.8
		Water-stained leaves	Black Gum	*Nyssa sylvatica*	w/ Baile inclusion	WQ- 0.9
			Skunk Cabbage	*Symplocarpus foetidus*		WL- 0.3
			Highbush Blueberry	*Vaccinium corymbosum*		
	PFO1C/E	Inundated – 1”	Sycamore	*Platanus occidentalis*	Gaila silt loam w/ Baile inclusion	SS- 0.8
		Saturated	Red maple	*Acer rubrum*		WQ- 0.8
		Drainage patterns	Winterberry	*Ilex verticillata*		WL- 0.6
		Water-stained leaves	Spicebush	*Lindera benzoin*		
			Stout Woodreed	*Cinna arundinacea*		

TABLE III-42 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE TRANSITWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-103	PSS1C	Inundated – <1” Saturated Drainage patterns Oxidized root channels	Broad-leaved cattail Soft rush Rice cutgrass Arrowleaved tearthumb False nettle Shallow sedge Elderberry Black willow	*Typha latifolia* *Juncus effusus* *Leersia oryzoides* *Polygonum sagittatum* *Boehmeria cylindrica* *Carex lurida* *Sambucus canadensis* *Salix nigra*	Wheaton-Urban Land Complex	SS- 0.82 WQ- 0.92 WL- 0.56
W-104	R2UB1 PSS1A/C	Inundated – 1-6” Saturated Drainage patterns	N/A Black Willow Red Maple White Grass	 *Salix nigra* *Acer rubrum* *Leersia virginica*	Hatboro	 SS- 0.7 WQ- 0.7 WL- 0.3
W-105	R2UB1	Inundated – 1”-2’	N/A			
W-106	R2UB1	Inundated –2- 4”	N/A			
W-107	R2UB1	Inundated – 1-12”	N/A			
W-108	PSS1C	Inundated – 1-4” Saturated Drainage patterns Oxidized root channels	Black Willow Soft Rush Wool Grass Fall Panic Grass Monkey Flower Seed Box Deertongue Witchgrass Rice Cutgrass	*Salix nigra* *Juncus effusus* *Scirpus cyperinus* *Panicum dichotomiflorum* *Mimulus ringens* *Ludwigia alternifolia* *Dichanthelium clandestinum* *Leersia oryzoides*	Hatboro silt loam	SS- 0.8 WQ- 0.8 WL- 0.4
W-109	R2UB1	Inundated –1-4”	N/A			

TABLE III-42 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE TRANSITWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-150	R2UB2		N/A			
	PFO1A	Inundated- 1-3”	Black willow	*Salix nigra*	Urban land	SS- 0.8
		Sediment deposits	Red maple	*Acer rubrum*		WQ- 0.8
		Drainage patterns	Pin oak	*Quercus palustris*		WL- 0.4
		Oxidized root channels	Silky dogwood	*Cornus amomum*		
		Water-stained leaves	Southern arrowwood	*Viburnum dentatum*		
			Sedge	*Carex* sp.		
			Ground ivy	*Glecoma hederacea*		
			Jewelweed	*Impatiens capensis*		
W-151	R2UB1		N/A			
	PEM1C/E	Drift lines	Goldenrod sp.	*Solidago* sp.	Baile silt loam	SS- 0.9
		Sediment deposits	Red Maple	*Acer rubrum*		WQ- 0.8
		Drainage patterns	Rice Cutgrass	*Leersia oryzoides*		WL- 0.3
		Oxidized root channels	Smartweed	*Polygonum* sp.		
		Stream 1-3” flow				
W-152	R2UB1	Inundated – 0-4”	N/A			
	PFO1C/E	Saturated	Red Maple	*Acer rubrum*	Baile silt loam	SS- 0.7
		Sediment deposits	Pin Oak	*Quercus palustris*		WQ- 0.6
		Water-stained leaves	False Nettle	*Boehmeria cylindrica*		WL- 0.2

TABLE III-42 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE TRANSITWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-153	R2UB3		N/A			
	PFO1C/E	Saturated	Red Maple	*Acer rubrum*	Baile silt loam	SS- 0.6
		Drainage patterns	Spicebush	*Lindera benzoin*		WQ- 0.6
		Oxidized root channels	Buttonbush	*Cephalanthus occidentalis*		WL- 0.3
		Water marks	Pin Oak	*Quercus palustris*		
			Panic Grass	*Dichanthelium* sp.		
			Sedge	*Carex* sp.		
W-153	PEM1C/E	Drift lines	Panic Grass	*Dichanthelium* sp.	Baile silt loam	SS- 0.7
		Saturated	Rice Cutgrass	*Leersia oryzoides*		WQ- 0.7
		Oxidized root channels	Asiatic Tearthumb	*Polygonum perfoliatum*		WL- 0.3
		Sediment deposits	Sedge	*Carex* sp.		
		Drainage patterns	Soft Rush	*Juncus effusus*		
		Water marks	Jewelweed	*Impatiens capensis*		
W-154	R4SB1		N/A		Mixed alluvial	
	PSS1E	Saturated at 10”	Black willow	*Salix nigra*	Hatboro silt loam	SS- 0.9
		Drainage patterns	Broad leaved cattail	*Typha latifolia*		WQ- 0.8
			Soft rush	*Juncus effusus*		WL- 0.3
			Water purslane	*Ludwigia palustris*		

TABLE III-42 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE TRANSITWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-155	R2UB1		N/A			
	PEM1F	Inundated – 1-3”	Black Willow	*Salix nigra*	Hatboro silt loam	SS- 0.9
		Drainage patterns	Rice Cutgrass	*Leersia oryzoides*		WQ- 0.9
		Drift lines	White Grass	*Leersia virginica*		WL- 0.2
	PSS1A	Saturated	Jewelweed	*Impatiens capensis*	Hatboro silt loam	SS- 0.7
			Soft Rush	*Juncus effusus*		WQ- 0.8
			Cattail	*Typha latifolia*		WL- 0.5
			Smooth Alder	*Alnus serrulata*		
			Black Willow	*Salix nigra*		
			Red Maple	*Acer rubrum*		
			Buttonbush	*Cephalanthus occidentalis*		
W-156	R3UB1		N/A		Mixed alluvial	
	PEM1C	Inundated – 4”	Black Willow	*Salix nigra*	Hatboro silt loam	SS- 0.9
		Drainage patterns	White Grass	*Leersia virginica*		WQ- 1.0
			Soft Rush	*Juncus effusus*		WL- 0.3
			Rice Cutgrass	*Leersia oryzoides*		
			Sedge sp.	*Carex* sp.		

TABLE III-42 (CONTINUED)
WETLANDS AND WATERS OF THE US WITHIN THE TRANSITWAY ALIGNMENT

Wetland Number	Cowardin System	Hydrologic Indicators	Dominant Vegetation		Soils	Wetland Function *
W-62A	PEM1A	Saturated	Common Reed	*Phragmites australis*	Hatboro silt loam	SS- 0.9
		Depth to water in pit –12"	Arrowleaved Tearthumb	*Polygonum sagittatum*		WQ- 0.9
		Water-stained leaves	Barnyard Grass	*Echinocloa crus-galli*		WL- 0.2
			Rice Cutgrass	*Leersia oryzoides*		
			Soft Rush	*Juncus effusus*		
	PFO1A		Green Ash	*Fraxinus pennsylvanica*	Hatboro silt loam	SS- 0.9
			Red Maple	*Acer rubrum*		WQ- 1.0
			Box Elder	*Acer negundo*		WL- 0.5
			Winterberry	*Ilex verticillata*		
			Arrowwood	*Viburnum dentatum*		
			Stout Woodreed	*Cinna arundinacea*		
			Whitegrass	*Leersia virginica*		
			Skunk Cabbage	*Symplocarpus foetidus*		
W-62	R2UB1	Inundated – >6"	N/A		Mixed alluvial	

Notes:

* *The functional assessment score is a number from 0.0-1.0, which describes a wetland's relative capacity to perform a function, where 0.0 represents no functional capacity and 1.0 represents optimal functional capacity.*

SBEC -- Shoreline Bank Erosion Control
SS -- Sediment Stabilization
WQ -- Water Quality
UH -- Uniqueness/Heritage
FS -- Fish (Non-tidal Stream)

A perennial tributary of Muddy Branch is located along the south side of the proposed Quince Orchard Park/Sioux Lane Station. The stream is approximately six feet wide with a channel depth ranging between two and four feet. A stormwater management pond has been placed at the headwaters of the stream in an attempt to trap runoff from the adjacent parking lot. The stream is backwatered to the base of the pond as a result of a beaver dam located approximately 160 feet downstream. The habitat complexity of the stream is characterized by a shallow riffle/pool sequence with a combination of low-lying scrub-shrub areas and undercut banks that provide suitable habitat for fish. The dominant vegetation in the riparian buffer consists of sycamore, red maple, multiflora rose, and teasel.

The proposed Decoverly station is located just north of a pond with an emergent wetland fringe, which outlets into a perennial stream. The dominant vegetation in the pond consists primarily of broad-leaf cattail with scattered specimens of black willow and sycamore. The wetland is inundated with one to two feet of water and soils were saturated. Soils in the wetland are mapped as Gaila silt loam, which contains hydric inclusions of Baile silt loam. The stream has been channelized along Great Seneca Highway and riprap has been placed within the channel to stabilize the banks. The habitat complexity of the stream is characterized by a riffle/pool sequence but has been reduced due to the change in substrate and alteration of channel morphology.

The areas proposed for yard/shop facilities include sites near Redland Road, Shady Grove Metro Station, Metropolitan Grove Station and COMSAT Station. Wetlands and waterways were not present within the proposed sites at Redland Road and Shady Grove Metro Station after review of the DNR Wetland Guidance Maps and a field reconnaissance. Sites 1, 2, 3, and 5 of the proposed yard/shop facilities for Shady Grove Station are currently being used as parking lots for the surrounding commercial and industrial complexes. Wetlands and waterways are not present within these proposed sites. However, a palustrine forested and emergent wetland that flows to an intermittent stream was identified within site 4 of the proposed yard/shop facilities. During the site visit, soils in the wetland were saturated in the upper 12 inches. Dominant vegetation in the forested portion of the wetland was black willow, red maple, and black cherry, while the emergent area was dominated by cattail, blue vervain, and soft rush. The wetland connected to an intermittent stream that paralleled the west side of Frederick Road. The channel is approximately three feet wide with a depth of one foot. During the site visit, the stream was not flowing. A narrow strip of trees approximately 25 feet wide on either side of the stream was dominated by silver maple, box elder, and black willow. The principal functions associated with this wetland system ranked high for both sediment stabilization and water quality, while wildlife ranked below average.

Proposed yard/shop facility sites 1-3 at the proposed Metropolitan Grove location have a perennial tributary (R2UB2) to Great Seneca Creek that flows through the site. The stream is approximately six feet wide with a channel depth of three feet. The stream is relatively stable throughout the forested portions of the site; however, disturbance is evident within the power line right-of-way. Most of the vegetation has been removed, while scrub-shrub vegetation remains along the stream, providing little shade and stability to this section of the stream. As the stream flows into the forested portions of the site, habitat complexity is increased as evidenced by a shallow riffle/pool sequence, with deep pools occurring near undercut banks. Erosion is

moderate throughout the stream with minor deposition occurring near the culvert along Game Preserve Road. The forested buffer is composed of ironwood, sycamore, dogwood, tulip poplar, paw paw, and Christmas fern.

The stream flows under the road into site 2A and eventually under the CSX railbed with little change in channel structure and composition. The forested buffer associated with this portion of the stream is composed of the same species described in sites 1-3.

Sites 4 and 5 of the proposed yard/shop facilities in the Metropolitan Grove Station area is situated in uplands with slopes exceeding greater than 15%. Wetlands and waterways were not present within this site.

Sites 1 through 3 proposed for yard/shop facilities within the COMSAT property have an intermittent stream that flows southeast through the sites to join a perennial tributary of Little Seneca Creek. The stream is generated from a stormwater management pond located in site 3. The stream has moderate habitat complexity during the growing season, when water levels are higher. However, a shallow riffle/pool sequence and infrequent flows currently characterize in-stream habitat. A forested riparian buffer is associated with the channel and is dominated by tulip poplar, red maple, spicebush, and white oak.

A seep adjacent to the stream in site 1 is classified as a palustrine forested wetland. During the site visit, soils in the wetland were saturated in the upper 12 inches of the soil profile. The dominant vegetation in this wetland consists of red maple, spicebush, arrowwood, skunk cabbage, and Jack-in-the-pulpit. The intermittent stream joins the mainstem of a tributary to Little Seneca Creek within this site. The perennial tributary is approximately eight feet wide with a channel depth of three feet. Habitat complexity can be characterized by a well-developed riffle/pool sequence with deep pools and undercut banks providing suitable habitat for fish. An extensive forested riparian buffer is associated with the stream, providing bank stability and shade.

Emergent wetland fringes within the stream are common throughout site 1. These wetlands are hydrologically supported by overbank flooding and seasonal base flow. The dominant vegetation in these wetlands consists of skunk cabbage, Jack-in-the-pulpit, false nettle, and arrowwood. The principle functions associated with the entire wetland system for sites 1 through 3 ranked high for sediment stabilization and wildlife, while water-quality ranked intermediate. The rating for fish in non-tidal streams and rivers also ranked high.

Surface Water Hydrology and Drainage Patterns

The Code of Maryland Regulations (COMAR) 26.08.02.07 categorizes Maryland's surface waters by 20 river sub-basins. These sub-basins are further sub-divided into smaller basins, termed segments, for a total of 138 watershed segments. The major sub-basins traversed by the I-270/US 15 Corridor include the Middle Potomac River and the Washington Metropolitan Area sub-basins. The Middle Potomac River sub-basin drains portions of Montgomery and Prince George's counties, and borders on the State of Virginia and the District of Columbia. The Middle Potomac River watershed consists of the lower and upper portions of the Monocacy

River. A portion of the Washington Metropolitan Area sub-basin encompasses sub-watersheds that include Cabin John Creek, sections of the Potomac River and Seneca Creek.

The Middle Potomac River basin drains approximately 609.2 square miles of land. This watershed is developing rapidly and supports a wide range of urban and suburban land uses. Most of the urbanized areas occur in the City of Frederick and in areas near Rockville. There are undeveloped areas (33%), which consist of forests and wetlands, throughout the watershed that serve as buffers to the I-270/US 15 Corridor and to major streams in the Corridor. Most of the land between urbanized areas is less developed and consists of agricultural fields (24%), parklands, and historic properties.

Streams and Water Resources

Sixteen major surface water bodies occur along the I-270/US 15 Corridor (See **Figure III-20)**. Seven of these streams are within Montgomery County and include Gunners Branch, Muddy Branch, Great Seneca Creek, Little Seneca Creek, unnamed tributary to Ten Mile Creek, Wildcat Branch, and Little Bennett Creek. The remaining streams are located within Frederick County and include Bennett Creek, Urbana Branch, Monocacy River, Quarry Branch, Arundel Branch, Rock Creek, Carroll Creek, unnamed tributary of the Monocacy River, Tuscarora Creek, and Muddy Run. The proposed transitway alignment occurs completely within Montgomery County and crosses four of the same streams as the highway alignment. These streams include Muddy Branch, Great Seneca Creek, Gunners Branch, and Little Seneca Creek.

All of the surface waters in the project area are classified by the MDE as Class I-P (water contact recreation, aquatic life, and water supply), Class-III (natural trout), or Class-IV (put-and-take trout). **Table III-43** indicates MDE designated uses for surface waters within the project areas.

In the project area the stream order is related to the width of the streams. The 1st and 2nd order tributaries range in size from 5 to 15 feet wide, while the 3rd order streams average 25 feet in width. The largest streams that cross the project area are 4th order or greater and include the Monocacy River, with a width of 250 feet, and Great Seneca Creek, which is 75 feet wide. Channel depth ranges from 2 inches to 15 feet for these streams, depending upon surrounding land use and geology. A review of USGS maps for Montgomery and Frederick counties indicates that hillside seeps and groundwater discharge areas in combination probably constitute the stream flow in most tributaries with surface water run-off from surrounding upland areas. The majority of the stream channels within Montgomery County are situated in forested stream valleys that have been designated as public parks and historic areas. Streams situated in Frederick County and in the northern portion of the Corridor are surrounded by agricultural land. Most of the tributaries to these larger streams are unvegetated and flow through areas of intense development or agricultural fields.

TABLE III-43
MARYLAND DEPARTMENT OF THE ENVIRONMENT
DESIGNATED USES FOR SURFACE WATERS

Stream	County	Classification
Gunners Branch	Montgomery	Use I
Muddy Branch	Montgomery	Use I
Great Seneca Creek	Montgomery	Use I
Little Seneca Creek	Montgomery	Use IV
Tributaries to Ten Mile Creek	Montgomery	Use I
Wildcat Branch	Montgomery	Use I
Little Bennett Creek	Montgomery/Frederick	Use I
Bennett Creek	Frederick	Use I
Urbana Branch	Frederick	Use I
Monocacy River	Frederick	Use I
Arundel Branch	Frederick	Use I
Rock Creek	Frederick	Use III
Carroll Creek	Frederick	Use III
Unnamed tributary to Monocacy River	Frederick	Use IV
Tuscarora Creek	Frederick	Use III
Muddy Run	Frederick	Use I

Source: *COMAR 26.08.02 Water Quality*

Notes: ***S****treams are listed as they occur within the I-270/US 15 Corridor highway and transitway alignment from Shady Grove Road to its terminus at Biggs Ford Road.*
Class I- water contact, recreation, aquatic life, and water supply
Class III- natural trout waters
Class IV- put and take trout

b. Impacts

Wetlands and Waters of the US are regulated under Section 401 and 404 of the Clean Water Act and under the State of Maryland Nontidal Wetlands Protection Act. Impacts to these resources require a Section 401 Water Quality Certification from MDE and a Joint Federal/State permit for discharge of dredged and fill material into Waters of the US including wetlands.

As shown in **Table III-44, Table III-45,** and **Table III-46** wetland impacts have been identified for the proposed build alternates. Emergent wetlands are the vegetative cover type most impacted by the build options associated with Alternates 3A/B, 4A/B, and 5A/B/C. These emergent areas lack a diversity of vegetative layers that normally increases the functional value of a wetland; however, some are connected to larger wetland systems that provide a diverse and interdependent collection of ecological functions. These systems include Great Seneca Creek, Little Seneca Creek, Monocacy River, Rock Creek, Carroll Creek and Tuscarora Creek. Emergent wetlands occurring at the headwater of a stream or in disturbed portions of the roadway also contribute to the impact numbers under Alternates 3A/B, 4A/B, and 5A/B/C. A portion of

the wetland impacts include forested wetlands associated with the Monocacy River and Little Seneca Creek, which ranked high for the uniqueness/heritage functions due to their proximity within the parks that have significant aesthetic and historical value- Monocacy National Battlefield and Black Hill Regional Park.

TABLE III-44
SUMMARY OF WETLAND IMPACTS ASSOCIATED WITH PROPOSED I-270/US 15 ALTERNATES

Wetland Classification	Alternates					
	No-Build	Alternate 2[1]	Alternates 3A/B	Alternates 4A/B	Alternates 5A/B	Alternate 5C
PEM (acres)	--	0.5	5.5[2]	5.5[2]	6.0[2]	5.7 [3]
PSS (acres)	--	--	1.6 [4]	1.6 [4]	1.9 [4]	1.6
PFO (acres)	--	--	3.6 [5]	3.6 [5]	3.7 [5]	3.4
Riverine (linear feet)	--	--	14,185[6]	14,185[6]	16,331[6]	13,407

[1] *Park and Ride Lot impacts*
[2] *Includes impacts of 0.6 acre for Transitway (includes stations) and 0.5 acre for Park and Ride Lots*
[3] *Includes impacts of 0.5 acre for Park and Ride Lots*
[4] *Includes impacts of 0.4 acre for Transitway (includes stations)*
[5] *Includes impacts of 0.6 acre for Transitway (includes stations)*
[6] *Includes impacts of 2,940 linear feet for Transitway (includes stations)*

TABLE III-45
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. t.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-2	Overall Size	624	565			624	565			624	565		
	Impact	184				184				184			
W-3	Overall Size	265	928			265	928			265	928		
	Impact	50				50				50			
W-4E	Overall Size	187				187				187			
	Impact												
W-4W	Overall Size	343	15,134			343	15,134			343	15,134		
	Impact	44				44				44			
W-5	Overall Size	225				225				225			
	Impact	112				112				112			
W-6E	Overall Size	620	2,215			620	2,215			620	2,215		
	Impact	620	2,215			620	2,215			620	2,215		
W-6W	Overall Size	47				47				47			
	Impact	35				45				45			
W–7E	Overall Size	178				178				178			
	Impact	63				63				63			
W-7W	Overall Size	664	31,405			664	31,405			664	31,405		
	Impact												
W-8	Overall Size	511				511				511			
	Impact												
W-9E	Overall Size	416				416				416			
	Impact	76				82				106			
W-9W	Overall Size	468		8,515	61,870	468		8,515	61,870	468		8,515	61,870
	Impact	71		2,800	5,662	77		4,870	6,798	105		8,515	16,217
W-11	Overall Size	403				403				403			
	Impact	117				180				180			

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-12E	Overall Size				870				870				870
	Impact												
W-12W	Overall Size	795				795				795			
	Impact	280				313				313			
W-13	Overall Size	78	1,995			78	1,995			78	1,995		
	Impact		300				1,983				1,983		
W-14W	Overall Size	166		5,225		166		5,225		166		5,225	
	Impact	50		1,397		59		1,764		59		1,764	
W-14E	Overall Size	264				264				264			
	Impact	140				160				160			
W-15E	Overall Size	175	20,745			175	20,745			175	20,745		
	Impact		4,296				5,555				5,555		
W-15W	Overall Size	190			8,480	190			8,480	190			8,480
	Impact	25			73	45			98	45			98
W-16	Overall Size		3,180				3,180				3,180		
	Impact		800				1,093				1,093		
W-17	Overall Size		5,895				5,895				5,895		
	Impact												
W-18E	Overall Size	415	2,405			415	2,405			415	2,405		
	Impact	85	1,135			85	1,287			85	1,287		
W-18W	Overall Size	758	345	415	5,515	758	345	415	5,515	758	345	415	5,515
	Impact	346	345	415		581	345	415		581	345	415	
W-19N	Overall Size	132		1,550		132		1,550		132		1,550	
	Impact	23		1,533		23		1,533		23		1,533	
W-19S	Overall Size	123		13,230		123		13,230		123		13,230	
	Impact												

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-20E	Overall Size		20,590		6,130		20,590		6,130		20,590		6,130
	Impact		1,072				1,568				1,568		
W-20W	Overall Size	478		44,970		478		44,970		478		44,970	
	Impact	158		7,170		164		11,617		164		11,617	
W-21	Overall Size	301				301				301			
	Impact	144				165				165			
W-22	Overall Size			6,795	1,960			6,795	1,960			6,795	1,960
	Impact		208		1,890		1,357		1,625		1,357		1,625
W-22E	Overall Size	124				124				124			
	Impact	124				124				124			
W-22W	Overall Size	1,335		13,450		1,335		13,450		1,335		13,450	
	Impact	264		2,877		728		5,800		728		5,800	
W-23E	Overall Size		31,760				31,760				31,760		
	Impact		12,196				15,460				15,460		
W-23W	Overall Size		15,725				15,725				15,725		
	Impact		2,447				8,338				8,338		
W-24	Overall Size	266				266				266			
	Impact	123				126				126			
W-25E	Overall Size	1,130	7,775			1,130	7,775			1,130	7,775		
	Impact	335	3,877			430	5,920			430	5,920		
W-25W	Overall Size	393	2,510			393	2,510			393	2,510		
	Impact	215	294			400	894			400	894		
W-26E	Overall Size	225	1,500			225	1,500			225	1,500		
	Impact					225	725			225	725		
W-26W	Overall Size	210				210				210			
	Impact	50				88				88			

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-27E	Overall Size	377				380				380			
	Impact	117				380				380			
W-27W	Overall Size	345		16,185		345		16,185		345		16,185	
	Impact	75		4,275		110		5,780		110		5,780	
W-28	Overall Size		1,530				1,530				1,530		
	Impact						488				488		
W-29	Overall Size		805				805				805		
	Impact						80				80		
W-30	Overall Size	86			10,210	86			10,210	86			10,210
	Impact	34			1,792	45			2,955	45			2,955
W-31	Overall Size	180		3,055		180		3,055		180		3,055	
	Impact	20				105				105			
W-32	Overall Size		400				400				400		
	Impact		275				395				395		
W-33	Overall Size	66				66				66			
	Impact												
W-34	Overall Size	926				926				926			
	Impact	170				156				156			
W-A35	Overall Size	207				207				207			
	Impact	60				83				83			
W-C35	Overall Size	55				55				55			
	Impact	55				55				55			
W-D35	Overall Size	175				175				175			
	Impact	124				175				175			
W-E35	Overall Size	8,344	95	7,155		8,344	95	7,155		8,344	95	7,155	
	Impact												

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-F35	Overall Size	1,074	8,370			1,074	8,370			1,074	8,370		
	Impact	855	5,875			956	6,655			956	6,655		
W-G35	Overall Size	260				260				260			
	Impact					80				80			
W-H35	Overall Size		600				600				600		
	Impact						600				600		
W-36	Overall Size	86		230		86		230		86		230	
	Impact	80		230		85		230		85		230	
W-38	Overall Size	62				62				62			
	Impact	55				62				62			
W-39	Overall Size		9,335				9,335				9,335		
	Impact		4,830				7,683				7,683		
W-41	Overall Size	167				167				167			
	Impact					30				30			
W-42	Overall Size	16				16				16			
	Impact	8				8				8			
W-43	Overall Size	60				60				60			
	Impact	60				60				60			
W-44	Overall Size	75				75				75			
	Impact	54				60				60			
W-45E	Overall Size	70	1,730			70	1,730			70	1,730		
	Impact	20	495			30	911		420	30	911		420
W-45W	Overall Size	85				85				85			
	Impact	10				24				24			
W-46E	Overall Size	85	880			85	880			85	880		
	Impact	60	880			60	880			60	880		

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-A46E	Overall Size		1,015				1,015				1,015		
	Impact		1,015				1,015				1,015		
W-47	Overall Size		2,490		3,300		2,490		3,300		2,490		3,300
	Impact		2,490		1,760		2,490		1,760		2,490		1,760
W-48E	Overall Size		21,800				21,800				21,800		
	Impact		18,795				18,795				18,795		
W-48W	Overall Size	893				893				893			
	Impact	425				425				425			
W-49	Overall Size	3,550	88,235	18,850	138,435	3,550	88,235	18,850	138,435	3,550	88,235	18,850	138,435
	Impact	1,680	30,315	16,505	77,785	1,680	30,315	16,505	77,785	1,680	30,315	16,505	77,785
W-50	Overall Size	441		4,275		441		4,275		441		4,275	
	Impact	416		3,640		416		3,690		416		3,690	
W-51	Overall Size	591			20,290	591			20,290	591			20,290
	Impact	536			1,315	536			1,315	536			1,315
W-52E	Overall Size	106	3,150			106	3,150			106	3,150		
	Impact	90	3,150			90	3,150			90	3,150		
W-52W	Overall Size	80				80				80			
	Impact	75				75				75			
W-53	Overall Size				12,595				12,595				12,595
	Impact				11,700				11,700				11,700
W-54	Overall Size	320			6,405	320			6,405	320			6,405
	Impact	200				200				200			
W-55	Overall Size		6,310				6,310				6,310		
	Impact		6,310				6,310				6,310		
W-56	Overall Size		21,560				21,560				21,560		
	Impact		21,560				21,560				21,560		

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-57E	Overall Size			9,805				9,805				9,805	
	Impact			9,750				9,750				9,750	
W-57W	Overall Size	221			110	221			110	221			110
	Impact	184			110	184			110	184			110
W-58E	Overall Size		121,705		30,930		121,705		30,930		121,705		30,930
	Impact		45,710		6,200		45,710		6,200		61,620		8,390
W-58W	Overall Size		1,325				1,325				1,325		
	Impact		1,325				1,325				1,325		
W-59	Overall Size	136				136				136			
	Impact	117				117				136			
W-60E	Overall Size	645	3,155		8,905	645	3,155		8,905	645	3,155		8,905
	Impact	32				32				32			
W-60W	Overall Size	460				460				460			
	Impact	174				174				174			
W-61E	Overall Size	125		1,295		125		1,295		125		1,295	
	Impact	86		1,290		86		1,290		86		1,290	
W-B61W	Overall Size	140				140				140			
	Impact	90				90				80			
W-A61W	Overall Size	600				600				600			
	Impact	600				600				600			
W-62A	Overall Size		11,760		43,015		11,760		43,015		11,760		43,015
	Impact		5,766		14,545		2,785		18,040		2,785		18,040
W-62C	Overall Size		15,400		10,060		15,400		10,060		15,400		10,060
	Impact		9,630		6,960		9,630		6,960		9,630		6,960
W-62E	Overall Size	204				204				204			
	Impact	155				155				155			

TABLE III-45 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE HIGHWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B				Alternate 5C			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-62W	Overall Size	358				358				358			
	Impact	245				245				200			
W-A63E/	Overall Size	812				812				812			
W-B63E	Impact												
W-A63W	Overall Size	768				768				768			
	Impact												
W-B63W/	Overall Size	5,943	3,820		105,730	5,943	3,820		105,730	5,943	3,820		105,730
W-D63W	Impact												
W-C63E	Overall Size	68				68				68			
	Impact												
W-64	Overall Size		7,300				7,300				7,300		
	Impact		4,200				4,200				4,200		
W-65	Overall Size	522		2,324		522		2,324		522		2,324	
	Impact	522		2,324		522		2,324		522		2,324	
W-66	Overall Size	46				46				46			
	Impact	27				27				27			
Total Linear Feet Impact =		11,245				13,391				13,407			
Total Square Feet Impact =			191,806	54,206	129,792		211,717	65,568	135,766		227,627	69,213	147,375
Total Acres Impact =			4.4	1.2	3.0		4.9	1.5	3.1		5.2	1.6	3.4

[1] *Waters of the US*

TABLE III-46
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE TRANSITWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
W-100	Overall Size	194				194			
	Impact	103				103			
W-101	Overall Size	409	438			409	438		
	Impact	253				253			
W-103	Overall Size			21,300				21,300	
	Impact			15,177				15,177	
W-104	Overall Size	77		625		77		625	
	Impact	60		590		60		590	
W-62A	Overall Size		11,760		43,015		11,760		43,015
	Impact								
W-62	Overall Size		15,400		10,060		15,400		10,060
	Impact								
W-102/105	Overall Size	3,980		5,065	28,820	3,980		5,065	28,820
	Impact	138				138			
W-106/107	Overall Size	1,807				1,807			
	Impact	614				614			
W-108	Overall Size			7,665				7,665	
	Impact			2,863				2,863	
W-109	Overall Size	245				245			
	Impact	100				100			
W-156	Overall Size	739	7,915			739	7,915		
	Impact	739	7,915			739	7,915		
W-155	Overall Size		44,400				44,400		
	Impact		15,440				15,440		
W-154	Overall Size	640		540		640		540	
	Impact								
W-153	Overall Size	400	18,290		35,050	400	18,290		35,050
	Impact	165	665		22,205	165	665		22,205
W-152	Overall Size				11,225				11,225
	Impact				1,778				1,778
W-151	Overall Size	566	3,395			566	3,395		
	Impact	91	686			91	686		
W-150	Overall Size	753			4,250	753			4,250
	Impact	334				334			
W-A63W	Overall Size	768				768			
	Impact	275				275			
First Field Station	Overall Size	775				775			
	Impact	68				68			

TABLE III-46 (CONTINUED)
SUMMARY OF INDIVIDUAL WETLAND SIZE AND IMPACT ALONG THE TRANSITWAY ALIGNMENT

		Alternates 3A/B and 4A/B				Alternates 5A/B			
Wetland Number		**Riverine (WUS[1]) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**	**Riverine (WUS) (ln. ft.)**	**PEM (sq. ft.)**	**PSS (sq. ft.)**	**PFO (sq. ft.)**
Total Linear Feet =		**2,940**				**2,940**			
Total Square Feet =			**24,706**	**18,630**	**23,983**		**24,706**	**18,630**	**23,983**
Total Acres =			**0.6**	**0.4**	**0.6**		**0.6**	**0.4**	**0.6**

[1] *Waters of the U.S.*

Alternate 1

Alternate 1 reflects the No-Build condition and as such is not anticipated to have effects on wetlands or streams.

Alternate 2

The assessment of wetland impacts for Alternate 2 considers the three proposed park and ride lots situated at Liberty Road, Trading Lane and Biggs Ford Road. The impacts are minimal for this alternate, with approximately 0.5 acre of emergent wetland being impacted at the proposed Trading Lane park and ride lot. This impact is based on field verification of MD DNR nontidal wetlands in this area and did not include a routine wetland delineation. A routine wetland delineation will need to be performed and a jurisdictional determination conducted to more accurately determine the amount of impact associated with the park and ride at Trading Lane. Wetlands and waterways were not present within the proposed park and ride lots at Liberty Road and Biggs Ford Road.

Alternates 3A/B and 4A/B

The degree of impact to wetlands within Alternates 3A/B and 4A/B does not differ, as the Master Plan HOV alternate for Alternates 3A/B and the Master Plan General-Purpose alternate for Alternates 4A/B are nearly identical.

Highway Alignment

A majority of the impacts (4.4 acres) associated with Alternates 3 and 4 occur in different types of emergent wetlands that contrast in function and value. A mixture of disturbed roadside wetlands and emergent areas interconnected to larger, more diverse wetland systems are included in this impacted cover type. Emergent wetlands situated within the floodplains of major streams including Great Seneca Creek, Little Seneca Creek, Monocacy River, Rock Creek, Carroll Creek, and Tuscarora Creek provide functions with higher ratings, therefore increasing their overall value. Construction activities occurring in roadside wetlands will not significantly alter the function of these areas because human-induced disturbances already exist in these wetlands.

Wetland hydrology could be undermined in pre-staging construction areas as water is routed away from the site. Undermining groundwater driven wetlands, such as those interconnected to larger wetland systems, decreases the functional capacity of the wetland to provide water to the system, increasing the extent of the impact.

The alternates will impact approximately 3.0 acres of forested wetlands primarily located within the floodplains of major stream systems. Most of the floodplain wetlands are designated stream valley parks that are infrequently disturbed and have been protected from adjacent development or alteration. Removal of woody vegetation to accommodate widening of the existing road will significantly alter the forested wetlands by reducing sediment retention time and ultimately influencing water quality. These wetlands also function as wildlife corridors due to their location in stream valley parks. Altering the dense cover type that currently exists in these wetlands could result in the loss of some wildlife species. In addition, those wetlands within the floodplains of the Monocacy River and Little Seneca Creek hold unique and historical values. Development within the Corridor has reduced these types of environments, increasing the rarity of those still present.

Approximately 1.2 acre of scrub-shrub wetland will be impacted by Alternates 3A/B and 4A/B. The scrub-shrub wetlands occur in drainage ways that are frequently disrupted by the roadway. Impacts are minimal in these areas due to the limited diversity and lack of valuable functions.

Alternates 3A/B and 4A/B will affect approximately 11, 245 linear feet of stream within the corridor. A total of fifty streams will be traversed by the highway alignment and include both tributaries and the mainstems to which they flow. These mainstems include Muddy Branch, Great Seneca Creek, Little Seneca Creek, Wildcat Branch, Little Bennett Creek, Bennett Creek, Monocacy River, Carroll Creek, Rock Creek, and Tuscarora Creek. Refer to the section on water quality for a detailed discussion of stream channel impacts associated with construction measures.

Transitway Alignment

A majority of the wetlands impacted by the transitway alignment include perennial and intermittent streams with adjacent fringe wetlands that occur within roadside drainage ways and ditches. Approximately 2, 940 linear feet of stream will be affected by the transitway alignment. These systems flow to Little Seneca Creek, Great Seneca Creek, Gunners Branch, Muddy Branch, and Watts Branch. Most of the wetland impacts (0.6 acre) are to emergent areas within drainage ways that are frequently disturbed by adjacent roadways. However, these wetland systems provide moderate functional ratings for sediment stabilization and water quality by retaining sediment and other pollutants from road runoff. Forested wetlands will also be impacted (0.6 acre), as the transitway extends through relatively undisturbed landscapes in which wooded lots are the dominant cover type. The scrub-shrub wetlands impacted (0.4 acre) by the transitway alignment occur within major drainage ways that are frequently disturbed.

Due to a recent shift in the transitway alignment to improve the horizontal geometrics between the highway and transitway alignments, additional wetland and waterway impacts are being considered in areas that were not previously delineated. There is no impact to a tributary of

Great Seneca Creek on the west side of I-270. The impact is to Wetland 62A in this location as it is an emergent and forested wetland. Field verification of these areas using DNR Nontidal Wetland Guidance Maps have confirmed the approximate locations of these wetlands and waterways within the alignment, however, these sites have not been flagged or surveyed. Therefore, the impact numbers are an approximation based on both surveyed and non-surveyed wetlands and streams. A wetland delineation should be conducted for those additional wetlands and waterways before finalizing wetland impacts associated with the transitway alignment. Further investigations into avoiding or minimizing the impact to this wetland will need to conducted.

Proposed Transitway Yard/Shop Facilities

Wetlands and waterways impacted by the originally selected options for the transitway yard/shop facilities are identified in **Table III-47**. Impacted wetlands occur at sites 1 through 3 at COMSAT Station. Impacts associated with site 1 effect 1.4 acres of forested wetlands and 2,176 linear feet of the adjacent stream. Construction of yard/shop facilities at site 2 will impact 612 linear feet of stream channel, while site 3 construction will impact 348 linear feet of stream channel. The footprint for site 3 will also span a portion of the pond from which the stream originates, impacting 0.7 acre of open water. Based in part on potential wetland and waterway impacts at proposed COMSAT transit yard/shop facilities, Sites 1 and 3 have been removed from further consideration. Therefore, of the two options currently being assessed at the COMSAT site, only Site 2 would have a waterway impact. More detailed studies of potential yard/shop facilities at all three sites are planned prior to the FEIS. Wetlands and waterways associated with any potential facilities will be assessed in detail, surveyed, and verified by regulatory agencies prior to the FEIS.

TABLE III-47
COMPARISON OF WETLAND, WATERWAY, AND FLOODPLAIN IMPACTS FOR THE TRANSITWAY YARD/SHOP FACILITIES

Wetland/Waterwa Classification[1]	Transitway Yard/Shop Facilities											
	Shady Grove					Metropolitan Grove			COMSAT			
	Site 1	Site 2 [2]	Site 3	Site 4	Site 5	Site 1-3 [2]	Site 2A	Site 4-5	Site 1 [2]	Site 2	Site 3 [2]	Site 4
POW (acres)	--	--	--	--	--	--	--	--	--	--	0.7	--
PFO (acres)	--	--	--	--	--	--	--	--	1.4	--	--	--
Riverine (linear feet)	--	--	--	--	--	--	--	--	2,176	612	348	--
Floodplain	--	--	--	--	--	1.3	--	--	--	--	--	--

[1] *POW = Palustrine Open Water; PFO = Palustrine Forest; Riverine = Stream Channel*

[2] *Sites have been eliminated from further consideration.*

Alternate 5A/B/C

The overall impacts to wetlands associated with Alternates 5A and 5B are slightly higher than Alternate 5C. Alternates 5A and 5B include a transitway alignment, while Alternate 5C considers a premium express busway that will use the direct access HOV lanes along the highway alignment.

Highway Alignment

Alternate 5C will have a greater effect on streams in the corridor with 13, 407 linear feet of impact, compared to 13, 391 linear feet impacted by Alternates 5A and 5B. The increase in impact stems from the inclusion of direct access ramps at I-370, MD 118, and MD 85/Shockley Drive under Alternate 5C. Emergent wetlands will receive the greatest amount of disturbance followed by forested and then scrub-shrub cover types. The highway alignment of Alternates 5A/B/C traverses most of the same wetland and stream systems as it does for Alternates 3A/B and 4A/B, with the only difference being that more of the system is impacted under Alternate 5A/B/C from the inclusion of both an HOV and general-purpose lane in each direction along I-270 between MD 121 and I-70.

Transitway Alignment

The proposed transitway alignment included in Alternates 5A and 5B is the same as that proposed under Alternates 3A/B and 4A/B. Therefore, the proposed transitway alignment under Alternates 5A and 5B will have the same potential impact to wetlands and waterways.

Proposed Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities are the same as those proposed for Alternates 3A/B and 4A/B. Therefore, the potential impacts to wetlands and waterways are also the same as proposed for Alternates 3A/B and 4A/B.

c. Avoidance and Minimization

Complete avoidance of impacts to surface waters and wetlands is not possible due to the quantity of these systems in the project area and their orientation perpendicular to the proposed alternates and transitway alignment. However, impacts have been avoided or minimized wherever possible through the initial placement of alignments to avoid unnecessary crossings. Investigations of further avoidance and minimization measures are on going and will continue throughout all phases of the planning process and engineering design for the project. Additional measures currently being assessed include alignment shifts, elimination of proposed interchanges, and relocation of roads based on resource agency coordination.

During final design, bridges and culverts will be designed to maintain the geomorphic stability of the stream channels as bankfull and flood-prone elevations are evaluated. Consideration will be given to the full range of crossing options including bridging and culvert designs such as bottomless arch and depressed culverts that allow for the maintenance of a natural stream

bottom, reduce the risk of creating barriers to fish movement, and maintain corridors for wildlife passage.

Short-term construction impacts will be minimized through strict adherence to SHA erosion and sediment control procedures and MDE stormwater management regulations. These procedures include the use of BMPs and structural controls such as the minimization of exposed soils through vegetative cover, use of contouring and diversion to reduce water velocities, routing of runoff to retention basins and installation of control structures such as sediment fences. For Class I surface waters, in-stream work may not be conducted during the period March 1 through June 15, inclusive, during any year, while Class III waters have a restriction for in-stream construction between October 1 through April 30. Surface waters designated as Class IV have an in-stream restriction during the period March 1 through May 31. Long-term impacts to water quality will be minimized to the extent possible through the use of an SHA and Maryland Transit Administration (MTA) approved stormwater management plan. Stormwater management plans will be in compliance with MDE requirements and will be designed to treat both quantity and quality of stormwater runoff prior to discharge into receiving waters.

d. Mitigation

Mitigation planning for unavoidable wetland impacts of the I-270/US 15 Multi-Modal Corridor project has followed the guidelines of the Maryland Compensatory Mitigation Guidance (1994). Mitigation requirements under Section 404 are typically determined based on some ratio of wetland acres replaced to wetland acres lost. The exact ratio is decided by the regulatory agencies, but general ratios for palustrine emergent wetlands is 1:1 and for palustrine forested and palustrine scrub/shrub wetlands is 2:1. Identification of compensatory wetland mitigation sites has also taken into consideration the goal of replacing functions and values lost by the potentially impacted wetlands.

The purpose of this investigation was to identify suitable wetland mitigation sites that can provide SHA and MTA with compensatory mitigation for wetlands expected to be impacted by the I-270/US 15 Multi-Modal Corridor project. Preliminary review indicated that SHA would need to mitigate for wetland impacts within portions of four watersheds in the Washington Metropolitan Area sub-basin (MDE 02-14-02) and the Middle Potomac sub-basin (MDE 02-14-03), including the Seneca Creek Watershed (MDE 02140208), the Potomac River Montgomery County area drainage (MDE 02140202), the Lower Monocacy Watershed (MDE 02140302) and the Upper Monocacy Watershed (MDE 02140303). The goal of this site search was to identify at least 90 acres of potential wetland mitigation based upon a 2:1 mitigation ratio. Initial estimates indicated approximately 45 acres of wetland impacts, but the actual amount of impacts were reduced through avoidance and minimization efforts. **Table III-48** and **Table III-49** represent the updated number of wetland impacts and subsequent mitigation estimates based on the project alternates and potential transitway yard/shop facility sites, respectively.

TABLE III-48
WETLAND (ACRES) AND WATERWAY (LINEAR FEET) IMPACTS AND MITIGATION ESTIMATES FOR EACH I-270/US 15 ALTERNATE

Project Alternates	Palustrine Emergent (1:1)	Palustrine Scrub/Shrub (2:1)	Palustrine Forested (2:1)	Linear Feet of Riverine (1:1)	Wetland Totals (Acres)
Alternate 1	NA	NA	NA	NA	NA
Mitigation Estimate	NA	NA	NA	NA	NA
Alternate 2	0.5	--	--	--	0.5
Mitigation Estimate	0.5	--	--	--	0.5
Alternate 3A/B	5.5	1.6	3.6	14,185	10.7
Mitigation Estimate	5.5	3.2	7.2	14,185	15.9
Alternate 4A/B	5.5	1.6	3.6	14,185	10.7
Mitigation Estimate	5.5	3.2	7.2	14,185	15.9
Alternate 5A/B	6.0	1.9	3.7	16,331	11.6
Mitigation Estimate	6.0	3.8	7.4	16,331	17.2
Alternate 5C	5.7	1.6	3.4	13,407	10.7
Mitigation Estimate	5.7	3.2	6.8	13,407	15.7

NA Not Applicable

The wetland mitigation site search utilized a Geographic Information System (GIS) for the preliminary identification of potential mitigation areas. The criteria used for the identification of potential sites were: located on non-forested or open areas at least five acres in size, contained hydric soils or soils with hydric inclusions, and located topographically on slopes less than 3 percent. These potential areas were verified in the field during windshield surveys and accepted or rejected depending on the criteria above. Acceptable sites were documented with information on hydrologic conditions, vegetation, existing wetlands, bank and floodplain characteristics, current land use, constraint issues, and any potential stream restoration associated with the site. Potential stream restoration was included only for the main stem tributary associated with each site.

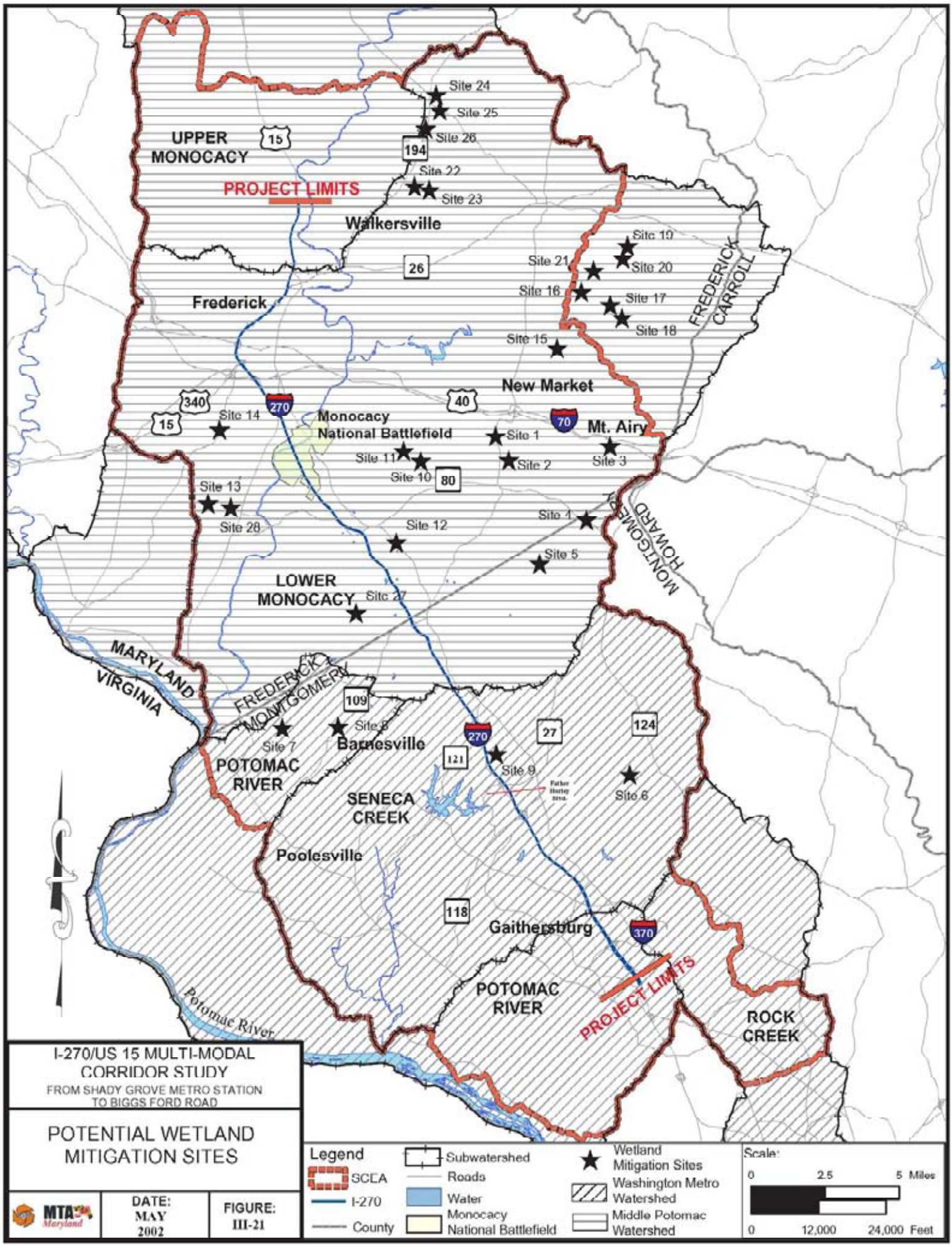
TABLE III-49
WETLAND (ACRES) AND WATERWAY (LINEAR FEET) IMPACTS AND MITIGATION ESTIMATES FOR POTENTIAL TRANSITWAY YARD/SHOP FACILITIES

COMSAT Yard/Shop Facility Sites	Palustrine Open Water (1:1)	Palustrine Forested (2:1)	Linear Feet of Riverine (1:1)	Wetland Totals (Acres)
Site 1	0	1.4	2,176	1.4
Mitigation Estimate	0	2.8	2,176	2.8
Site 2	0	0	612	0
Mitigation Estimate	0	0	612	0
Site 3	0.7	0	348	0.7
Mitigation Estimate	0.7	0	348	0.7
Site 4	0	0	0	0
Mitigation Estimate	0	0	0	0

The windshield surveys produced 27 potential mitigation sites. All property owners were notified by SHA and given a 30-day period for response. During the notification period another potential mitigation site was added to the list as a result of an interested property owner, which increased the number of potential sites to 28, see **Figure III-21**. The initial on-site evaluations were conducted on 24 of the 28 sites to verify existing information and gather additional data on vegetation, soils and hydrologic features associated with each site. On-site evaluations were not performed on four potential sites due to access issues associated with the properties.

The 28 potential mitigation sites were ranked based on soils, hydrology, slope, habitat value, type of mitigation, constraint issues, and the amount of earthwork required to develop the site. The 28 sites identified and described in the Wetland Mitigation Site Search Report (April 2001) represent approximately 621 acres of potential wetland mitigation and 79,000 linear feet of stream restoration. The top nine sites with the highest rank were recommended as high-priority sites and represent over 200 acres of potential mitigation and 27,000 linear feet of stream restoration. A 200-acre minimum mitigation acreage was established for the project to provide approximately two times the amount of acreage required of the site search (90 acres). This allows for sites to be eliminated by the resource agencies or any other constraint issues. The nine sites are described in detail in the Wetland Mitigation Site Search Report (April 2001), and correspond to the best sites suggested for compensatory mitigation requirements associated with the I-270/US 15 Multi-Modal Corridor project. In addition, potential stream restoration was estimated for the main stem tributary associated with each site identified and is noted in the site descriptions.

Field reviews of the potential wetland mitigation sites were held on-site on April 25 and 26 and May 2 and 3, 2001. Individuals from the EPA, USACOE, MDE, DNR and SHA were in attendance at different times throughout the four days of review.



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

POTENTIAL WETLAND MITIGATION SITES

MTA Maryland

DATE: MAY 2002

FIGURE: III-21

Legend

- SCEA
- I-270
- County
- Subwatershed
- Roads
- Water
- Monocacy National Battlefield
- Wetland Mitigation Sites
- Washington Metro Watershed
- Middle Potomac Watershed

Scale:

0 2.5 5 Miles

0 12,000 24,000 Feet

Three of the sites previously recommended as high-priority sites were dropped down on the priority list because of agency comments during the field evaluations. Additional sites were added to the agency field reviews to ensure an appropriate amount of mitigation for anticipated wetland and waterway impacts. Site 9 was not evaluated during agency field reviews because the site had already been accepted by the agencies and is under negotiation by SHA. Sites 1, 2, 3, 4, 6, 7, 10, 24 and 27 were not evaluated during the agency field reviews because the sites did not represent the best sites for wetland mitigation. Site 17 was not evaluated during the agency field reviews because access to the site was not granted by one of the property owners.

A total of thirteen sites were evaluated with the resource agencies and are described below. **Table III-50** represents a summary of the high-priority mitigation sites and an estimate of mitigation credits based on information obtained during the agency field reviews. Following the agency field reviews, the environmental review agencies suggested that the mitigation approach target the North Fork and South Fork watersheds of Linganore Creek, which includes sites 16 through 21. The agencies recommended preferential use of these sites and concurred that these sites would be instrumental in providing wetland restoration, creation and enhancement, as well as providing stream restoration and expanding greenways. Emphasis will be placed on this watershed approach for sites 16 through 21, but will not preclude the other high-priority mitigation sites identified and discussed in this section. An assessment of potential archeological resources was completed for each of the wetland mitigation sites (refer to **Table III-31**). In addition, coordination with the State Historic Preservation Office has been initiated for the mitigation sites to determine the effects on any potential historic or cultural resources. The following information was compiled as a summary of comments and conversations during the four days of site reviews and submitted to all attendees for their confirmation.

TABLE III-50
SUMMARY OF POTENTIAL WETLAND AND STREAM MITIGATION SITES

Priority#	Site#	Estimate of Wetland Mitigation Credits (Acres)	Estimate of Potential Stream Restoration (Linear Feet)
1	5	20.0	2,600
2	19/20[1]	12.6+	10,000+
3	18[1]	14.4	1,400
4	25	10.3	1,500
5	21[1]	10.6	2,500
6	11	16.9	3,200
Totals		**94.1+**	**29,600+**

[1] *Agency preferred sites.*

Site 5

This site is located on the east and west sides of Bethesda Church Road just north of the intersection with Clarksburg Road in Montgomery County. The site is associated with the floodplain of Bennett Creek and is located in the Upper Bennett Creek drainage (021403020225) of the Lower Monocacy subwatershed (02140302). This site borders the National Register Eligible Browningsville Historic District. The property owner would like to create a pond with commercial fishery ("channel catfish"). Site 5 is associated with the regional sole source aquifer.

This site was approved by the agencies. Comments included extending the riparian planting into the north end of site to create upland forest transitioning into forested wetlands for greater canopy coverage.

Site 8

This site is located on the west side of Old Hundred Road (Rt. 109) at an unnamed tributary to Little Monocacy River, just north of the Barnesville Township in Montgomery County. The site is associated with the floodplain of the unnamed tributary and is located in the Little Monocacy River drainage (021402020853) of the Potomac River Montgomery County area subwatershed (02140202). This unnamed tributary to the Little Monocacy River is associated with the regional sole source aquifer. Site 8 could provide an opportunity to create wetlands and expand the woody vegetated buffer that currently exists along the stream. Stream restoration associated with the site would primarily involve riparian plantings. The reforestation of the riparian area will create an additional benefit by providing greenway connections. The agencies concurred with the use of this site for riparian planting and wetland creation. Comments included a recommendation to investigate the depth to groundwater and other hydrologic sources for the wetland creation component. Preliminary estimates for creation potential at this site have not been determined.

Site 11

This site is located on the north side of Price Distillery Road just east of Ijamsville Road in Frederick County. The site is associated with the floodplain of Bush Creek and is located in the Lower Bush Creek drainage (021403020229) of the Lower Monocacy subwatershed (02140302). This site provides an opportunity for enhancement of prior converted wetlands and wetland creation. Depth to groundwater will be determined with monitoring wells and a water budget will be developed. Agencies concurred with the use of this site. Comments included: hydrology for the wetlands should be "off-line" from Bush Creek; an upland forest buffer transitioning to the created forested wetlands should be considered; and riparian stabilization plantings would be beneficial along portions of Bush Creek.

Site 13

This site is located east of New Design Road, west of the B & O Railroad, north of Manor Woods Road and just south of Keller Lime Plant Road (abandoned) in Frederick County. The site is associated with an unnamed tributary to Horsehead Run and is located in the Horsehead Run and Rocky Fountain Run drainage (021403020227) of the Lower Monocacy subwatershed (02140302). Site 13 is associated with an unnamed tributary to Horsehead Run that flows into the western portion of site 28. This deep and narrow, spring-fed tributary begins just upstream of the site across New Design Road. Portions of this tributary to Horsehead Run are dominated by submerged aquatic vegetation (SAV). The original mitigation approach was to restore a more natural dimension and pattern to this apparently straightened and deepened reach, which would provide approximately 2,500linear feet of stream restoration. This site was not recommended by the agencies for wetland creation or for stream restoration due to the prevalence of SAV's in the

stream. Disturbance or even riparian plantings may shade the SAV's and diminish their water quality benefits.

Site 14

This site is located on the east and west sides of Ballenger Creek Pike (Rt. 351) just northeast of Elmer Derr Road in Frederick County. The site is associated with the floodplain of Ballenger Creek and is located in the Ballenger Creek drainage (021403020230) of the Lower Monocacy subwatershed (02140302). Site 14 is considered mainly for potential stream enhancements, since Ballenger Creek is considered natural trout waters (Use III Waters). Sparse woody vegetation along this reach does not currently provide adequate shading or bank protection to promote trout reproduction. However, the channel has a good substrate of gravel and cobble. Approximately 2,000 linear feet of stream in the eastern portion of the site has potential for stream restoration, primarily riparian plantings and buffer enhancements. The portion of the site west of Ballenger Creek Pike is a proposed reforestation area for an adjacent housing development. Agencies did not find this site suitable for wetland creation efforts, but recommended riparian enhancements, which would improve water quality and benefit trout reproduction.

Site 16

This site is located on the north side of Glissans Mill Road, where it intersects with Kimmel Road in Frederick County. The site is associated with the floodplain of the South Fork of Linganore Creek and is located in the South Fork and Woodville Branch drainage (021403020235) of the Lower Monocacy subwatershed (02140302). The proposed mitigation for this site would include forested wetland creation, riparian plantings and cattle exclusion. The site may require excavation up to three to four feet on the western portion of the site. Completion of a water budget and installation of monitoring wells is recommended for this area. The potential for stream restoration is evident, however, riparian plantings and livestock exclusion would be contrary to the operation of business (dairy farm) for the property owner. The agencies thought this site had marginal wetland creation potential. It was recommended that the site be used only for riparian area enhancements.

Site 18

This site is located on the north and south sides of Glissans Mill Road, east of Harrisville Road and west of Wilson Road in Frederick County. The site is associated with the floodplain of the South Fork of Linganore Creek and is located in the South Fork and Woodville Branch drainage (021403020235) of the Lower Monocacy subwatershed (02140302). The mitigation concept for this property would include wetland creation, enhancement and preservation along with stream restoration. Potential stream restoration could include livestock exclusion, bank stabilization and riparian plantings. Riparian plantings would be concentrated in the western and northeastern areas. Existing forested wetlands would be preserved and the existing emergent and prior converted wetlands would be enhanced by the establishment of woody vegetation. Wetland creation would be confined to the southwest area of the site and on areas adjacent to the creek (north side of Glissans Mill Road). Hydrologic/hydraulic and water budget studies will need to be conducted for the site. Agencies recommended preferential use of this site and suggested that

the sediment input from steep slopes (near the house) be addressed in development of the mitigation plan.

Site 19/20

This site is located on the west side of Emerson Burrier Road and Woodville Road and south of Liberty Road (MD 26) in Frederick County. The site is associated with the floodplains of Talbot Branch, North Fork of Linganore Creek and an unnamed tributary of the North Fork which are located in the North Fork and Talbot Branch drainage (021403020238) of the Lower Monocacy subwatershed (02140302). These properties consist of three parcels owned by members of the same family. Portions of these properties were included in both sites 19 and 20. They are being considered primarily for stream restoration and wetland creation where feasible. These large properties would serve to expand and connect the discontinuous greenways in this predominantly agricultural area. The western portion of site 20 has potential for wetland creation. A ditch/swale present on the south side of Talbot Branch would provide additional hydrology. Stream restoration associated with this site could include riparian plantings, willow staking, livestock exclusion, and streambank alterations in some areas. The west side of site 19 has some stream restoration potential, which could include riparian enhancements, livestock exclusion and possibly some in-stream work. There may be potential to create some pocket wetlands along portions of this area. The agencies suggested investigating wetland creation potential with monitoring wells. The valley to the west of site 19 (Parcel 27) contains a straightened stream reach with some adjacent emergent wetlands. This area has stream restoration opportunities including riparian plantings for reducing thermal impacts and promoting trout reproduction. There may be the potential to create additional wetland pockets; however, this would require additional investigation of the water budget. The agencies recommended preferential use of these sites and concurred that these sites would be instrumental in connecting and expanding greenways especially in conjunction with other adjacent mitigation sites. This site would provide stream restoration and wetland restoration/creation opportunities. They recommend investigating any records at the local soil conservation district to determine if drainage tiles were installed on the site. Coordination with the State Historic Preservation Office is currently being conducted on this site to determine the effects on any potential historic or cultural resources.

Site 21

This site is located on the northeast and southwest sides of Dollyhyde Road, east of Mapleville Road and west of Emerson Burrier Road in Frederick County. The site is associated with the floodplain of the North Fork of Linganore Creek and is located in the North Fork and Talbot Branch drainage (021403020238) of the Lower Monocacy subwatershed (02140302). The western portion of the site is being excluded from site review due to property owner disinterest. The eastern portion is being considered for the restoration and enhancement of wetlands, and stream restoration in the form of riparian plantings, livestock exclusion and bank stabilization. The property owner of the eastern portion of the site met the reviewers on-site and presented a list of objectives that he developed for his property. The property owner provided some information of the property including: a spring entering from the east side (between Dollyhyde Road and the knoll - near owner's house location) that was ditched by a previous farmer and appears to be feeding an area mapped as prior converted wetlands; seeps east of the knoll, and a

field on the northwest portion of the property (west of the creek) that he would like to keep for hay production. One of the property owner's objectives is to construct a pond. Agencies comments included concerns about increased water temperatures from the pond outfall, preference for an "off-line" system, and the need for plantings around the pond for shading/cooling. The agencies recommended preferential use of this site with the following comments: perform hydrologic/hydraulic studies on stream and floodplain; northeastern end of site appears to be higher and drier than the rest and may not be as suitable for wetland creation; riparian plantings would be beneficial on-site; groundwater monitoring wells should be installed to investigate water budget; a mosaic of forested and emergent wetland creation is recommended; and, some of the very wet areas may not support forested wetlands. There was also a recommendation for an investigation of Bog Turtle habitat in the wet meadow.

Site 22

This site is located on the south side of Daysville Road just west of Hoffman Seachrist Road and east of Water Street in Frederick County. The site is associated with the floodplain of Cabbage Run and Israel Creek, and is located in the Lower Israel Creek and Cabbage Run drainage (021403020237) of the Lower Monocacy subwatershed (02140302). Considered mainly for its 2,000 linear feet of potential stream restoration, this site was rejected by the agencies primarily due to issues associated with Lehigh's mining operation upstream of the site.

Site 23

This site is located on the north side of Daysville Road just west of Hoffman Seachrist Road in Frederick County. The site is associated with the floodplain of Cabbage Run and is located in the Lower Israel Creek and Cabbage Run drainage (021403020237) of the Lower Monocacy subwatershed (02140302). Portions of this site are within Lehigh mining company property. These three properties could provide approximately 4,000 linear feet of stream restoration opportunities. This and adjacent properties that make up site 23 would be negatively affected by mining operations, which would be contrary to mitigation efforts at this site. Agencies did not concur with the use of this site due to issues associated with Lehigh's mining operation.

Site 25

This site is located on the south side of Woodsboro Road (MD 550), east of Woodsboro Pike (MD 194) and west of Hoffman Seachrist Road in Frederick County. The site is associated with the floodplain of Israel Creek and is located in the Lower Israel Creek and Cabbage Run drainage (021403020237) of the Lower Monocacy subwatershed (02140302). The proposal for this site is to create wetlands on the east side of Israel Creek, enhance the existing wetlands, and restore stable banks to a portion of the creek. The existing prior converted wetlands are inundated with 1-6 inches of standing water and are vegetated primarily by non-native species. Soil borings revealed a fragipan at a depth of two feet in the area between prior converted wetlands and Israel Creek. Stream restoration would include livestock exclusion, bank stabilization, and riparian plantings that would improve water quality and aquatic habitat. DNR may have historically stocked this stream because the property owner has observed trout and sunfish in past years. The agencies concurred with the use of this site with the following comments: investigate the water

budget with monitoring wells, the work proposed in the existing wetlands may be considered preservation with some enhancement by planting native herbaceous plants, and gradually grade areas transitioning from emergent to forested wetlands. There may be wetland potential on the west side of Israel Creek by using the hydrology from a drainage ditch/stream located on the west side of Israel Creek paralleling the south side of Woodsboro Road. A jurisdictional determination will need to be conducted by NRCS.

Site 28

This site is located west of Buckeystown Pike (MD 85), north of Manor Woods Road, east of the B & O Railroad and south of Keller Lime Plant Road in Frederick County. The site is associated with the floodplain of Horsehead Run and an unnamed tributary flowing into the site from the west. The site is located in the Horsehead Run and Rocky Fountain Run drainage (021403020227) of the Lower Monocacy subwatershed (02140302). The original mitigation approach was to enhance the existing emergent wetlands and transition to forested wetlands where possible. However, the site may be too wet for forested wetlands and emergent wetlands are more extensive than mapped. The western area of the site (near railroad tracks) is inadequate for wetland creation. However, there is the possibility for some riparian enhancement opportunities along the unnamed tributary to Horsehead Run. Potential stream restoration along the unnamed tributary to Horsehead Run, between areas mapped as emergent wetlands, could include riparian plantings and livestock exclusion. The agencies agree with the use of this site at least for preservation.

2. Wetlands of Special State Concern

a. <u>Existing Conditions</u>

Nontidal Wetlands of Special State Concern (NTWSSC) have been specially designated by the State of Maryland as deserving of special protections due to their ecological significance. The Wildlife and Heritage Division of DNR indicates that a NTWSSC, known as the Germantown Bog, is situated 400 feet upstream of Wetland 57E. Wetland 57E extends 100 feet east of the I-270/Father Hurley Boulevard interchange and continues outside of the project area along a tributary to Little Seneca Creek. These areas are most likely connected hydrologically as the tributary spans the distance between the two wetlands. The records from the DNR database indicate that there are state threatened plant species within the Germantown Bog. These species include Canadian burnet (Sanguisorba canadensis), swamp-oats (Spenopholis pensylvanica), and Buxbaum's sedge (Carex buxbaumii). An RTE survey was conducted within Wetland 57E and surrounding areas even though the succession of threatened plant species is unlikely due to the wetland's frequent disruption by roadway maintenance. However, the hydrologic connection between Wetland 57E and the Germantown Bog warranted a survey to confirm their absence or presence within this area. There were no RTEs found within Wetland 57E and the surrounding area.

b. Impacts

Non-tidal Wetlands of Special State Concern have been designated by the State of Maryland as deserving of special protections due to their ecological significance. The Highway alignment of Alternates 3A/B, 4A/B, and 5A/B/C will not directly impact the Germantown Bog due to its location approximately 400 feet east of the proposed right-of-way for each alternate. While impacts will occur to Wetland 57E through the addition of highway lanes, the Germantown Bog lies upstream of Wetland 57. Because the NTWSSC lies upstream of the impacted wetland, no indirect effects to the NTWSSC are anticipated as well. The Transitway alignment lies west of I-270; therefore, no impacts to the Germantown Bog are anticipated from this transit alignment.

c. Mitigation

Because of their designated status, impacts to NTWSSC will require additional coordination with MDE and the DNR Wildlife and Heritage Division. Maryland State Highway Administration (SHA) will work with the agencies to determine the extent of the impact and assess whether the impacts would diminish the ecological significance of the wetland. Alternate selection and avoidance and minimization efforts will be coordinated with agency personnel to find the alternate that best balances natural resource and other impacts with project purpose and need.

3. Surface Water Quality

a. Existing Conditions

Sections 401 and 402 of the Clean Water Act attempt to reduce some of the negative effects of development on water resources by mandating that state and federal water quality standards be met for activities that result in the discharge of materials to "Waters of the United States." Section 401 requires a Water Quality Certificate for discharge of dredged or fill material, while Section 402 dictates that a National Pollution Discharge Elimination System (NPDES) permit be obtained for any point discharges such as a stormwater management pond.

The surface water quality standards established by MDE are based on the designated uses of surface waters and the water quality criteria that pertain to each of these designations. Both state and county organizations were contacted regarding ambient water quality data for surface waters identified within the I-270/US 15 Corridor in Montgomery and Frederick counties. Both the Maryland Biological Stream Survey (MBSS) of the DNR and MDE assess the ecological health of the State's nontidal streams by conducting biological and chemical sampling within 1st, 2nd and 3rd order streams in Maryland. At a local level, the Department of Environmental Protection for Montgomery County has established a Countywide Stream Protection Strategy (CSPS) (1999) that incorporates biological and habitat sampling of Montgomery County streams in order to identify and prioritize subwatershed areas in need of attention.

The streams within the I-270/US 15 Corridor that are designated by MDE as Class I streams are Gunners Branch, Muddy Branch, Great Seneca Creek, Little Bennett Creek, Bennett Creek, Urbana Branch, Monocacy River and an unnamed tributary, Quarry Branch, Arundel Branch, and Muddy Run. Available data for pH, temperature, and dissolved oxygen levels taken from MBSS

sampling stations over a three year period (1995-1997) for Gunners Branch, Muddy Branch, Great Seneca Creek, Little Bennett Creek, and Bennett Creek, comply with the state water quality standards stated in COMAR regulations 26.08.02.01. The pH levels ranged from 6.76 to 8.76, while water temperatures ranged from 13 to 22.3oC. Dissolved oxygen levels ranged from 5.8 to 10.5 mg/l. **Table III-51** indicates water quality criteria for designated uses.

High nutrient levels (nitrate, total nitrogen, orthophosphate, total phosphorus) and elevated fecal coliform and pH levels were observed at water quality monitoring stations on the lower portions of Seneca Creek and portions of the Monocacy River just downstream of Frederick. State standards for fecal coliform levels relate to large numbers of samples taken over a short period of time, with a public health hazard being assumed if the fecal coliform density exceeds the log mean of 200 most probable number (mpn) per 100 milliliter (ml), based on a minimum of five samples taken over a 30-day period, or if 10% of the total number of samples in one month exceed 400 mpn per 100 ml. Samples were only taken once per month from the Monocacy station between 1993 and 1997; however, of the 54 samples in the data set, the 200 mpn per 100 ml level was exceeded 34 times. Levels ranged from 7.8 to 40,000 mpn per 100 ml. High bacteria and nutrient levels are probably due to agricultural and urban runoff, municipal discharges, and upstream sources.

TABLE III-51
WATER QUALITY CRITERIA SPECIFIC TO DESIGNATED USES

Designated Use	Constituents				
	Dissolved Oxygen (mg/l)	Fecal coliform (mpn/100ml)	pH	Turbidity (FTU)	Temperature (°C)
Class I	>5	Exceeds log mean of 200 per 100 ml, based on a minimum of not less than five samples taken over a 30-day period.	>6.5	>150	<32
Class II	>5	<14	>6.5	>150	<32
Class III	>5 at any time, with a minimum daily average of <6.	Exceeds log mean of 200 per 100 ml, based on a minimum of not less than five samples taken over a 30-day period.	>6.5	>150	<20
Class IV	>5	Exceeds log mean of 200 per 100 ml, based on a minimum of not less than five samples taken over a 30-day period.	>6.5	>150	<23.9

Source: *COMAR 26.08.02 Water Quality*

The streams designated as Class III-P that are situated in Frederick County within the northern portion of the I-270/US 15 Corridor are Wildcat Branch, Rock Creek, Carroll Creek, tributaries to Ballenger Creek, and Tuscarora Creek. This designation includes waters that have the potential for or are suitable for the growth and propagation of trout and are capable of supporting trout populations and their associated food organisms, as well as supplying water for public use. Data collected from sampling stations on a tributary to Carroll Creek and the mainstem of Tuscarora Creek, west of the I-270/US 15 Corridor, exhibited dissolved oxygen levels well above

the state standard (5mg/l) for Class III streams. Dissolved oxygen levels ranged from 9.5 to 11.5mg/l. The state standard for temperature in Class III streams may not exceed 68°F (20°C) or the ambient temperature of the surface waters, whichever is greater. Water temperatures at the Tuscarora Creek sampling stations were at a maximum for the state standard at 69°F (20.5°C), while temperatures for the tributary to Carroll Creek were 52.7°F (11.5°C).

Little Seneca Creek is the only stream within the I-270/US 15 Corridor highway and transitway alignments designated by MDE as a Class IV-P stream. Class IV-P streams are considered recreational trout waters, which have an adult trout "put-and-take" population and may be used for public water supplies. State standards for Class IV-P are comparative to those of Class I for dissolved oxygen and pH, with the only difference being temperature. The maximum temperature in accordance with COMAR 26.08.03.03-0.5 may not exceed 75°F (23.9°C) or the ambient temperature of the surface waters, whichever is greater. Data collected from two sampling stations just up and downstream of the I-270 roadway exhibited pH, temperature and dissolved oxygen levels that are in compliance with state standards.

b. Impacts

Direct impacts to streams are regulated at the federal level under Section 404 of the Clean Water Act and by the State of Maryland through its wetlands and waterways regulations. Impacts to these resources would require a Joint Section 404 Wetland permit as well as Section 401 Water Quality Certification from MDE.

Long-term impacts to surface waters are not anticipated if Best Management Practices (BMP) for both stormwater and sediment control are implemented. Long-term effects can permanently alter hydrology and biological structure of in-stream habitat. Short-term effects usually occur during the construction phases of the build alternates, where impacts to surface water resources are temporary. Temporary impacts include grading or the removal and manipulation of vegetation.

All of the build alternates for both highway and transitway options will require new or extended stream crossings and therefore have the potential to directly impact surface waters during construction. These streams include Muddy Branch, Gunners Branch, Great Seneca Creek, Little Seneca Creek, Wildcat Branch, Little Bennett Creek, Bennett Creek, Carroll Creek, Rock Creek, Monocacy River, Tuscarora Creek and their tributaries. Bridge and culvert crossings of streams have been known to cause considerable local degradation of stream channels, often causing backwater or increased downstream scour, sediment deposition, over-widening and bank erosion. Depending on design, culverts can cause siltation of the channel substrate and reduce the surface area available for macroinvertebrate colonization and fish refugia.

Alternate 5C will have the most impact to streams in the I-270/US 15 corridor due to the addition of direct access ramps at I-370 (not preferred), MD 118, and MD 85/Shockley Drive. This general-purpose lane will require additional bridge extensions in which the cut and fill area will be expanded to accommodate this construction. These impacts would be associated with culvert or bridge extensions in portions of the stream already disturbed by the existing crossing.

The proposed park and ride lots and yard/shop facilities will require extensive areas of impervious pavement. Uncontrolled runoff from impervious surfaces can potentially impact stream stability through chemical pollution, thermal loading, and alteration of in-stream habitat. Most of these highway and transitway facilities, including the transitway alignment, cross first order streams that are typically the most sensitive to the destabilizing effects of channel changes. These indirect impacts are caused by increases in level and frequency of peak discharges in receiving streams and by the introduction of pollutants that typically accumulate on road surfaces and become mobilized during rain events. Clearing and grading of forested land would be required to construct these facilities and the transitway alignment, reducing shade and increasing water temperatures within the stream. These impacts will be most evident in streams crossed by the transitway due to its extension through relatively undisturbed landscapes. In addition, thermal loading could significantly alter in-stream habitat for streams with a Class III or Class IV designation, due to the temperature requirements needed for trout populations. Those streams with a Class III or IV designation include Little Seneca Creek, Carroll Creek, Rock Creek, and Tuscarora Creek. Refer to **Table III-50** for water quality criteria specific to the designated use.

4. Wild and Scenic Rivers

a. Existing Conditions

The DNR Wild and Scenic Rivers program was developed to protect the scenic, recreational, and aquatic habitat values of the state's wild and scenic rivers. Rivers under this program are protected from development that would diminish the character of the resource. The Monocacy River, which crosses the I-270/US 15 Corridor near Urbana in Frederick County, is designated as a state wild and scenic river.

The Monocacy River is the largest Maryland tributary of the Potomac River. It originates near the Maryland and Pennsylvania border at the confluence of Marsh and Rock Creeks. From its origin, the river flows south to Double Pipe Creek, marking the border between Frederick and Carroll counties. The stream flows south solely within Frederick County and east of Frederick City until it empties into the Potomac River.

The Monocacy River watershed includes the town of Frederick, 13 miles upstream from its confluence with the Potomac River. The forests adjacent to the river within the project area lie within the Monocacy National Battlefield, the site of a significant Civil War battle.

b. Impacts

The Monocacy River will not be directly impacted by the bridge extension associated with Alternates 3A/B, 4A/B, and 5A/B/C. Placement of bridge support piers for the widening of I-270 under Alternates 3A/B and 4A/B and the additional lane for Alternate 5A/B/C will occur in areas already cleared or maintained for the existing bridge. The natural character of the stream and its surroundings will not be altered from its human-induced condition near or adjacent to the existing bridge. Therefore, no impacts are anticipated to the Monocacy River under the Wild and Scenic Rivers Act.

c. Mitigation

The Monocacy River's designation as a State wild and scenic river does not require mitigation for impacts to this stream system. Instead, the designation is used to preserve the character of the river, not necessarily to halt development and use of the river.

5. Special Protection Areas

a. Existing Conditions

The Montgomery County Department of Environmental Protection (DEP) has designated a 4,646-acre area within the Little Seneca and Ten Mile Creek watersheds as a Special Protection Area (SPA). This area is identified as the Clarksburg SPA, which extends across the I-270 Corridor from the crossing of Ten Mile Creek north of the MD 121 interchange to the crossing of Little Seneca Creek south of West Old Baltimore Road. An SPA is a geographic area where existing water resources, or other environmental features directly relating to those water resources, are of high quality or are unusually sensitive. SPA lands are also those areas where proposed land uses would threaten the quality or preservation of those resources or features in the absence of special water quality protection measures which are closely coordinated with appropriate land use controls (Chapter 19, Section 19-61 of the Montgomery County Code).

Chapter 19, Article V of the Montgomery County Code requires that the DEP prepare a conservation plan for each SPA. The purpose of the conservation plan is to:

1) Describe the current status of aquatic living resources, physical stream habitat, and water chemistry conditions within each SPA watershed.

2) Identify critical natural resources (watershed hydrology, stream channel morphology, water quality, aquatic habitat, sediment loading, etc.), which must be protected to achieve and maintain a high level of water quality protection that, at a minimum, meet established state water quality standards as defined in COMAR 26.08.01-.04.

3) Provide guidance in establishing site specific performance goals for development projects and other land disturbance activities within Special Protection Areas (SPA).

Performance goals are established for each development project within the SPA and are intended to enhance protection of on-site water resources or other features relating to those water resources during the development process. The SPA conservation plan provides guidance for the development of site specific performance goals. Through the SPA process, innovative site layouts and linked best management practices are required to maximize the protection of water quality, stream habitat, and aquatic life.

b. Impacts

The Maryland-National Capital Park and Planning Commission (M-NCPPC) and the Montgomery County Department of Park and Planning (MCDPP) have developed guidelines for the protection of natural resources within environmentally sensitive areas designated as Special

Protection Areas (SPAs). The Clarksburg SPA crosses I-270 and includes the Little Seneca Creek watershed north and south of MD 121. To protect water resources within the SPA, implementation of these guidelines in conjunction with County water quality regulations could result in expanded wetland buffers, expanded and accelerated forest conservation, and imperviousness limitations.

Expanded wetland buffers are dependent on the watershed use category. The Little Seneca Creek watershed is use IV, recreational trout waters. Within this designated use, the expanded buffer could extend up to 125 feet from the edge of the stream bank or wetland depending upon whether the wetland is a wetland of special state concern, the proximity of steep slopes, and the presence of highly erodible soils.

Expanded and accelerated forest conservation will be required for alternates within the SPA that are subject to Montgomery County Forest Conservation requirements. These requirements will include the retention or establishment of forest in all buffers on a site and will include a five-year maintenance plan and the planting of trees that are three to four feet in height and shrubs that are 18 to 24 inches in height.

With respect to imperviousness limitations, the Clarksburg SPA has an impervious limit of 15 percent to the entirety of each site. The imperviousness coverage must be calculated over the entire project property.

c. Mitigation

Compliance with the M-NCPPC and MCDPP guidelines for the Clarksburg SPA will be investigated during final project design. No mitigation requirements are addressed in the SPA guidelines; however, these details will need to be addressed during project specific review.

6. Floodplains

a. Existing Conditions

US Department of Transportation Order 5650.2 entitled "Floodplain Management and Protection" prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of floodplain impacts.

DOT Order 5650.2 defines "significant floodplain encroachment" as an encroachment resulting in one or more of the following construction or flood-related effects:

- A considerable probability of loss of human life;
- Likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility; and
- A notable adverse impact on natural and beneficial floodplain values.

The Order further defines natural and beneficial floodplain values to include but not be limited to: natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry.

The Federal Emergency Management Agency (FEMA) estimated floodplain limits for 100-year storm events using Flood Insurance Rate (FIR) Maps for Montgomery and Frederick counties. FEMA delineates 100-year (Zone A) and 500-year (Zone B) floodplains on the FIR maps as part of the Flood Insurance Program. The 100-year floodplain refers to the areas along or adjacent to a stream or body of water that are capable of storing or conveying floodwaters during a 100-year frequency storm. The approximate locations of the 100-year floodplains of all major streams have been shown for the project area (See **Figure III-20**).

Proposed Highway Alignment

The FEMA designated 100-year floodplains within the I-270/US 15 Corridor highway alignment parallel the main stems of Muddy Branch, Long Draught Branch, Great Seneca Creek, Gunners Branch, Little Bennett Creek, Bennett Creek, Monocacy River, Rock Creek, Carroll Creek, Tuscarora Creek and their tributaries.

Most of the prominent streams located in Montgomery County and the southern portions of Frederick County are bordered by forested 100-year floodplains that range in size from 1,000 to 2,000 feet in width. Most of these forested stream valleys have been retained as public parks or recreation areas in which minimal disturbance is allowed due to their aesthetic and historical value. The existing I-270/US 15 roadway bisects these areas with bridge and culvert spans that have support components placed within the 100-year floodplain itself. Additional engineering and assessment of impacts may be required to obtain a permit for placing additional bridge piers and culverts within these FEMA designated floodplains.

The 100-year floodplains associated with the tributaries of Muddy Branch, Long Draught Branch, Great Seneca Creek, Ballenger Creek, Carroll Creek, and the Monocacy River either bisect or parallel the I-270/US 15 Corridor in frequently maintained interchanges or road rights-of-way. These FEMA designated floodplains are relatively small in size compared to the main stems into which these tributaries flow. Frequent disruption and alteration of the floodplains occur within the interchanges and along the I-270/US 15 Corridor due to the removal of vegetation for roadway maintenance and the use of riprap and concrete to stabilize the tributaries.

Proposed Park and Ride Lots

There are no FEMA designated 100-year floodplains within the proposed park and ride lots at Liberty Road and Biggs Ford Road. However, the 100-year floodplain of Tuscarora Creek extends through the northeastern half of the proposed park and ride at Trading Lane. This portion of the floodplain is primarily active farmland with areas of wetland situated throughout. The FEMA floodplain is frequently disturbed due to agricultural practices and adjacent development.

Proposed Transitway Alignment

The transitway alignment traverses many of the same 100-year floodplains associated with the I-270 Corridor highway alignment due to its north-south alignment along the roadway. In areas where the transitway is situated within the I-270 right of way, similar portions of the floodplain are crossed for Great Seneca Creek, Gunners Branch and their tributaries. Other portions of the 100-year floodplains for Muddy Branch and its tributary are intersected as the transitway deviates east and west of the I-270 right of way to the proposed station locations.

The largest floodplains in width (600-1,000 feet), compared to other streams within the transitway, include Muddy Branch, Gunners Branch, and Great Seneca Creek. Forested tracts that extend perpendicular to the transitway surround these streams. Further analysis of impacts and engineering constraints may be required for those floodplains near existing roads, in which additional culverts or bridge piers will be placed for the transitway alignment.

Proposed Transit Stations and Yard/Shop Facilities

A portion of the 100-year floodplain associated with a tributary to Great Seneca Creek is located in proposed sites 1-3 at Metropolitan Grove. The floodplain is located in a relatively undisturbed area where low-density residential development is the surrounding land use. A large forested tract with mid to late successional trees characterizes the current conditions of the FEMA floodplain.

b. Impacts

The significance of floodplain encroachment was evaluated with respect to the criteria in Executive Order 11988 (Floodplain Management). Floodplain encroachment was also analyzed according to the Federal Aid Highway Program Manual which recommends that longitudinal encroachment (encroachment that parallels the stream channel) be avoided whenever possible. Project alternates are not configured in such a manner that major longitudinal floodplain encroachments will occur. The majority of floodplain encroachments will be from transverse crossings for each of the build alternates and the transitway alignment (encroachment from roadway development that crosses the valley widths of floodplains). **Table III-52** present the potential encroachment into FEMA designated 100-year floodplains by the alternates and facilities associated with highway and transitway alignments.

TABLE III-52
COMPARISON OF FLOODPLAIN IMPACTS FOR THE HIGHWAY AND TRANSITWAY ALIGNMENTS (ACRES)

Alternates	Alignment		
	Highway	Transitway[1]	Alternate
1: No-Build	0	0	0
2: TSM/TDM Alternate	3	0	3
3A: Master Plan HOV/LRT	20	3	23
3B: Master Plan HOV/BRT	20	3	23
4A: Master Plan General-Purpose/LRT	20	3	23
4B: Master Plan General-Purpose/BRT	20	3	23
5A: Enhanced Master Plan HOV/General-Purpose/LRT	21	3	24
5B: Enhanced Master Plan HOV/General-Purpose/BRT	21	3	24
5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus	21	N/A	21

[1] *Transitway impacts include transit stations.*
NA Not applicable

Alternate 1

Alternate 1 is the No-Build alternate and as such is not anticipated to impact the 100-year floodplains within the Corridor.

Alternate 2

Alternate 2 is the TSM/TDM alternate, which includes the construction of park and ride lots in Frederick County at the intersections of US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road. Approximately three acres of the 100-year floodplain for Tuscarora Creek will be impacted by the construction of the US 15/Trading Lane park and ride lot. There are no FEMA floodplains associated with the US 15/MD 26 and US 15/Biggs Ford Road park and ride lots.

Alternates 3A/B and 4A/B

Alternates 3A/B, the Master Plan HOV alternate, and Alternates 4A/B, the Master Plan General-Purpose alternate are nearly identical and the potential effects for both alternates will result in the same amount of impact. These two alternates are, therefore, assessed together.

Highway Alignment

Impacts to 100-year floodplains for Alternates 3A/B and 4A/B will occur in portions of the floodplain that have already been disturbed by the existing I-270/US 15 highway crossing. Alternates 3A/B and 4A/B will impact approximately 20 acres of 100-year floodplains associated with Muddy Branch, a tributary to Muddy Branch, tributary to Great Seneca Creek, Great Seneca Creek, Monocacy River, Carroll Creek, Rock Creek, and Tuscarora Creek. The floodplain of the Monocacy River is part of the National Battlefield designation for this stream system. However, this designation does not warrant different mitigation requirements than those stated by FEMA and MDE.

Transitway Alignment

The transitway alignment will impact approximately three acres of the 100-year floodplains associated with Muddy Branch, Gunners Branch, Great Seneca Creek, and a tributary to Great Seneca Creek. Potential impacts to floodplains are more significant for the transitway as the alignment extends through relatively undisturbed landscapes. Vegetation removal and grading for the track bed and the transit station at Muddy Branch could alter the flow regime of the 100-year flood event as well as increase the potential for downstream flooding of residential and commercial areas.

Proposed Transitway Yard/Shop Facilities

The proposed shop facilities for the Metropolitan Grove sites 1-3 will impact 1.3 acres of a 100-year floodplain associated with a tributary to Great Seneca Creek. The removal of woody vegetation in this area could significantly impact the 100-year floodplain by reducing floodflow storage and increasing erosive forces within the stream.

Alternate 5

The impacts to FEMA floodplains associated with Alternates 5A/B/C are identical for the highway alignment. Alternates 5A and 5B have the same impacts to 100-year floodplains under the transitway option. Due to the replacement of the transitway alignment with a premium express busway, Alternate 5C will use the direct access HOV lanes along the highway alignment. Therefore, impacts to FEMA floodplains for the transitway alignment are not anticipated for Alternate 5C.

Highway Alignment

Alternate 5 poses the greatest impact (21 acres) to 100-year floodplains due to the addition of a general-purpose lane between MD 121 and I-70, which impacts the same floodplains as Alternate 3 and 4 with the addition of Muddy Branch, Wildcat Branch, Little Bennett, and Bennett Creek. Refer to the highway option under Alternates 3A/B and 4A/B for the discussion of impacts associated with the 100-year floodplains that these alternates have in common. Additional impacts associated with Muddy Branch, Wildcat Branch, Little Bennett, and Bennett Creek occur in areas previously disturbed by the existing I-270 Corridor. Severity of impact is reduced as these landscapes have already been manipulated to accommodate existing bridge and stormwater designs.

Transitway Alignment

The proposed transitway alignment included in Alternates 5A/B is the same as that proposed under Alternates 3A/B and 4A/B. Therefore, the proposed transitway alignment under Alternates 5A/B will have the same potential impact to floodplains.

Proposed Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities are the same as those proposed for Alternates 3 and 4. Therefore, the proposed transitway alignment under Alternates 5A and 5B will have the same potential impact to 100-year floodplains.

c. Avoidance and Minimization

Efforts to minimize and avoid impacts to 100-year floodplains will continue throughout the planning and engineering process. Techniques that will be investigated to further minimize or avoid impacts may include alignment shifts to ensure the narrowest possible crossing, and bridging of floodplains to further reduce encroachment and allow for unrestricted passage of floodwaters. Hydrologic and hydraulic studies should be conducted to determine the bridge or culvert opening sizes for the various alternates.

d. Mitigation

All construction occurring within the FEMA designated 100-year floodplain must comply with FEMA approved local floodplain construction requirements. These requirements consider structural elevations, fill levels, and grading elevations. If, after compliance with the requirements of Executive Order 11988 and 11990 Floodplain Management, new construction of structures or facilities are to be located in a floodplain, accepted floodproofing and other flood protection measures shall be applied to new construction or rehabilitation. To achieve flood protection, wherever practicable, structures should be elevated above the base flood level rather than filling for culvert placement.

G. GROUNDWATER

1. Existing Conditions

The availability of groundwater is largely controlled by the geology of an area. The I-270/US 15 Corridor highway and transitway alignments, and associated facilities (park and ride lots, stations, and yard/shop facilities) are located within the Piedmont physiographic province, which can be subdivided topographically into lowland and upland areas. These areas are underlain by dense, almost impermeable bedrock that yields water primarily from secondary porosity and permeability provided by fractures. Aquifer recharge areas are highly variable in the Piedmont province because it is determined by local precipitation and runoff, which are influenced by topographic relief and the capacity of the land surface to accept infiltrating water. Groundwater throughout the Piedmont occurs primarily under water table conditions (unconfined) with the depth to water averaging approximately 30 feet below the land surface (The Status of the Quantity and Quality of Groundwater in Maryland, 1982, DNR).

An aquifer is a geologic formation such as fractured rock or coarse sand, which possesses the porosity required to store and transmit water in usable quantities. Three principal types of bedrock aquifers underlie the Piedmont province: crystalline rock, aquifers in early Mesozoic basin, and carbonate-rock aquifers.

The Wissahickon and the Marburg Formations extend throughout most of the I-270/US 15 Corridor highway and transitway alignments in Montgomery County. These two major aquifers are composed of crystalline metamorphic and igneous rocks, which are overlaid with an unconsolidated, porous material called regolith. The regolith and fractures in the bedrock serve as the principal places for storage and transmission of water. Groundwater movement is generally along short flow paths from interstream recharge areas to the nearest stream.

The rocks of the early Mesozoic basin include beds of sandstone, arkose, and conglomerate that were originally porous. However, due to compaction and cementation, the pores have been reduced in size and are now poorly connected. Therefore, groundwater in the Mesozoic rock moves primarily along joints, fractures, and bedding planes with little hydraulic connection between individual aquifers.

The carbonate-rock aquifers within the Piedmont province are composed of rocks that have a fair degree of permeability or porosity due to solution weathering along bedding planes, joints, faults, and other partings. The Frederick Limestone Formation and the Grove Limestone Formation are the two types of major carbonate aquifers within Frederick County. These highly productive aquifers provide much of the water used for public supply in Frederick County.

Most of the water withdrawn from the crystalline-rock and undifferentiated sedimentary-rock aquifers is used for domestic and commercial supplies. The water used for public supply is primarily withdrawn from the aquifers in early Mesozoic basins and the carbonate-rock aquifers.

A portion of the Maryland Piedmont aquifer that begins at Darnestown-Germantown Road and extends north to Fingerboard Road has been designated by EPA as a sole source of drinking water for parts of Montgomery and Frederick counties. EPA's Sole Source Aquifer (SSA) program allows individuals and organizations to petition the EPA to designate aquifers as the "sole or principal" source of drinking water for an area. The program was established under Section 1424(e) of the Safe Drinking Water Act (SDWA) of 1974 to provide EPA review of federal financially assisted projects planned for an area and to determine their potential for contaminating the aquifer so as to create a significant hazard to public health.

Approximately 62% of the domestic drinking water used in this area is supplied by this groundwater aquifer. Water enters the designated portion of the Maryland Piedmont Aquifer through local precipitation, which creates water table conditions throughout the designated area. The designated area includes portions of the Piedmont aquifer, its streamflow source zone, and its recharge zone, which are one in the same. This area consists of the following drainage and sub-drainage basins within both the highway and transitway alignments:

- Little Seneca Creek Basin - from the headwaters of Little Seneca Creek to the confluence with Great Seneca Creek, including the Ten Mile Creek and Bucklodge Creek drainage basin.
- Little Bennett Creek Basin - from the headwaters of Little Bennett Creek to the confluence with Bennett Creek.
- Bennett Creek Basin - from the headwaters of Bennett Creek to the confluence with Little Bennett Creek.

Groundwater Quality

Groundwater in both Montgomery and Frederick counties is an abundant natural resource that serves as a significant source of drinking water and a source of water for industrial and agricultural uses. Groundwater also contributes sub-surface and base flow water to the streams and wetlands throughout these counties.

The EPA applies drinking water standards to groundwater that is used as a public drinking water supply. These standards are defined as maximum contaminant levels (MCL), which determine the maximum concentration of a pollutant permitted in drinking water. These contaminants include inorganic and organic chemicals, radionuclides, and microorganisms. Public water supplies that exceed the MCL are required to immediately address the problem by altering the treatment effort or closing down the well.

The quality of groundwater varies depending on the different rock types found within the aquifers of the Piedmont province. Water supplies from these aquifers are generally suitable for drinking and other uses. Iron, manganese, and sulfate can occur locally in large concentrations. These constituents are not regulated but can cause cosmetic effects such as skin or tooth discoloration or aesthetic effects that include taste, odor, or color. The National Secondary Drinking Water Regulations are non-enforceable guidelines that regulate these contaminants based on their cosmetic and aesthetic effects in drinking water; water systems are not required to comply with permitted contaminant levels. Large iron concentrations can be attributed to corrosion or the action of iron-fixing bacteria on iron and steel casings and well fittings. Manganese concentrations are found in the crystalline rock and undifferentiated sedimentary-rock aquifers. These minerals, when weathered, can contribute both iron and manganese to groundwater, especially if the water is slightly acidic. The acceptable drinking water level for the concentration of hydrogen ions, which is measured in pH units, ranges from a slightly acidic 6.7 to a basic 7.6. These pH levels in groundwater are within the range set forth by the National Secondary Drinking Water Regulations.

The Maryland Geological Survey (MGS, 1989) and the US Geological Survey (USGS, 1997) have collected groundwater data from a network of wells and springs located in Montgomery and Frederick counties. Sampling of groundwater occurred between 1987 and 1997 for dissolved solids, nutrients, trace elements, radon, pesticides, volatile organic compounds, dissolved oxygen, and pH. Groundwater samples taken from wells, along the I-270/US 15 Corridor highway and transitway alignments in Montgomery County, exhibited low levels of total dissolved solids (TDS). Lower TDS values taken from wells within these non-carbonate crystalline aquifers are an indication that supply potentially comes from sites of recharge. Samples were more acidic in these aquifers, with median pH values ranging from 5.3 to 6.7. Wells in the carbonate aquifers of Frederick County and northern portions of Montgomery County provided samples higher in pH and TDS values than those from the crystalline aquifers in more southern portions of Montgomery County. Trace-element concentrations from all groundwater samples throughout the project area were generally low. Median iron concentrations ranged from 3 milligrams per liter (mg/l) to 30 mg/l (overall median: 12 mg/l) and median manganese concentrations ranged from <1 mg/l to 12 mg/l (overall median: 4 mg/l).

Existing and potential sources of groundwater contamination include landfills, underground storage tanks, injection wells, and improper storage of salt or other material on bare ground. Other sources of groundwater contamination that are not easily identified include septic systems, application of nutrients and pesticides, animal waste, urban runoff, highway de-icing, and land applications of sewage sludge and wastewater.

2. Impacts and Mitigation Measures

Regulatory, planning, and research programs for groundwater are implemented by the State of Maryland. The Maryland Department of Health and Mental Hygiene, through its Office of Environmental Programs is responsible primarily for regulatory and operational programs with regard to water quality aspects of groundwater. The DNR, the MDE Water Management Administration and the Maryland Geological Survey regulate groundwater use through an appropriation-permit program. Federal statutes further prevent groundwater contamination by protecting recharge areas or sole source aquifers. The Sole Source Aquifer of the Safe Drinking Water Act, Section 1424(e), allows the Administrator of EPA to designate the aquifers that serve as principal drinking water sources and to prevent a contamination of the aquifer that could lead to a significant hazard to public health.

Alternate 1

The No-Build Alternate (Alternate 1) reflects current and programmed conditions within the I-270/US 15 corridor; therefore, impacts to groundwater resources are not anticipated.

Alternate 2

Alternate 2 is the TSM/TDM alternate, which includes the construction of park and ride lots in Frederick County at the intersections of US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road. The excavation required to construct these park and ride lots is only necessary to level the ground surface for paved areas. These sites are currently composed of relatively flat terrain, which reduces the depth of excavation needed during the construction process. Therefore, impacts to groundwater pathways and resources are not anticipated. The proposed park and ride lots will not impact the sole source aquifer as these sites are not located in the designated area of the aquifer.

Alternate 3A/B and 4A/B

Alternate 3A/B, the Master Plan HOV alternate and Alternate 4A/B, the Master Plan General-Purpose alternate are nearly identical, and with respect to the assessment of potential effects, the two alternates will result in the same level of impact and are therefore assessed together.

<u>Highway Alignment</u>

Most upgrades to the highway in Alternates 3A/B and 4A/B will occur at-grade with the existing I-270/US 15 highway, reducing the depth of excavation needed to construct these road improvements and preventing any alteration of groundwater flow within the Corridor. However, potential sources of groundwater contamination from highway deicing, urban runoff, and fuel

tank leakages may seep into groundwater supplies as the movement of water between surface water and groundwater provides a major pathway for chemical transfer between the terrestrial and aquatic systems. Implementation of BMPs during and after construction, such as stormwater management ponds, biofiltration systems, and the use of sediment/erosion control will reduce the amount of contaminants entering groundwater supplies by treating runoff from the roadway.

Both alternates traverse the designated area of the sole source aquifer within the Little Seneca Creek, Little Bennett Creek, and Bennett Creek basins. Indirect impacts to the aquifer may occur as highway constituents, such as those described above, enter groundwater supplies during storm events. However, the use of Best Management Practices will decrease the amount of time the constituent spends in the aquifer and diminish the contamination to a level that does not pose a public health hazard.

Transitway Alignment

Under Alternates 3A/B, 4A/B, and 5A/B, the proposed transitway alignment includes either a LRT or BRT option. Both the LRT and BRT option will provide transitway stations. While many of these stations will include impervious areas of parking lots and buildings, most are proposed for construction on existing developed ground. Facilities proposed in undeveloped areas will use stormwater management BMPs to reduce pollutant runoff from impervious surfaces, thus reducing potential groundwater contamination and loss. Groundwater impacts from construction and operation of the light rail transit alignment would likely be less than for the bus option, as open track surfaces would provide less impervious surfaces and fewer potential sources of contaminants than paved roadways for bus transit.

Proposed Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities warrant larger areas of pavement than the proposed stations. The types of constituents entering groundwater resources are similar to those described in the highway alignment. However, a larger volume of pollutants is expected due to the increase in surface area. Filtration of these chemicals through bioretention facilities and the use of MDE stormwater management practices will need to be implemented to reduce the level of contaminant entering the groundwater systems. Impacts to the sole source aquifer are similar to those described in the highway alignment. Refer to the sections above for a detailed discussion on impacts associated with the sole source aquifer.

Alternate 5

Alternate 5 is the Enhanced Master Plan HOV/General Purpose alternate. The difference in this alternate compared to Alternates 3 and 4 is the inclusion of both an HOV and general-purpose lane in each direction along I-270 between MD 121 and I-70. Alternate 5C includes the addition of direct access ramps at I-370, MD 118, and MD 85/Shockley Drive for the premium express busway.

Highway Alignment

The highway improvements associated with Alternate 5 between I-370 and MD 121 are the same as those for Alternates 3A/B and 4A/B. Therefore, potential effects to groundwater are also the same. The additional lane in Alternates 5A/B/C may contribute a higher volume of pollutants due to increased surface area, but the difference is not significant enough to distinguish between the alternates. Refer to the highway option under Alternates 3A/B and 4A/B for a detailed discussion on effects to groundwater.

Proposed Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities are the same as those proposed for Alternates 3A/B and 4A/B. Therefore, the potential impacts to groundwater resources are also the same as those proposed for Alternates 3A/B and 4A/B.

H. HABITAT AND WILDLIFE

1. Terrestrial Habitat and Wildlife

a. Existing Conditions

The I-270/US 15 Corridor extends from a mostly urban, developed landscape at the southern end to a mostly rural, but rapidly developing landscape at the northern end. However, between the north and south ends, the Corridor crosses several large undeveloped parklands that provide relatively undisturbed habitat for wildlife. Terrestrial habitats along the Corridor were identified through field reconnaissance and generally fall into four categories: agricultural, developed, old field, and forest.

Highway Alignment

Along the highway alignment, including proposed MD 75 extended, agricultural areas include crop fields such as corn and soybean, hay, and pastures. Thin strips of natural shrub or tree growth forming hedgerows and treelines, often divide agricultural fields with different cover types. Developed habitats include residential, commercial, and institutional areas with manicured lawns and tree and shrub plantings. Old fields represent abandoned agricultural fields that are in various stages of succession to a forested condition if left undisturbed. Grasses, wildflowers, briers, shrubs, and small trees generally dominate these habitats. Forest habitat generally occurs as small buffer strips in developed and agricultural areas. Larger forest tracts are generally associated with stream valleys, wetland areas, or steep-sloped lands, which have been restricted from development by regulation or inaccessibility. Other large forest tracts occur on local, state, or federal parklands.

Agricultural land: occurs primarily along the northern portion of the Corridor north of MD 118. Some agricultural land still exists south of MD 118, however, it is converting rapidly to residential, commercial, and institutional uses. This conversion is also rapidly occurring between MD 118 and MD 121. Larger areas of agricultural habitat occur between MD 121 and the City of Frederick along I-270 and between the City of Frederick and Biggs Ford Road along US 15.

Much of this area is also experiencing a loss of agricultural land to residential and commercial developments. However, at the Monocacy National Battlefield within the Corridor, nearly 1,600 acres of agricultural land will be preserved.

The majority of agricultural land is in crop fields and pasture for dairy farm operations. Corn, soybean, and hay are the primary crops grown in these areas. Corn and soybean fields do not maintain a high diversity of wildlife species, however, various species will visit the fields for food. They may include white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), white-footed mouse (*Peromyscus leucopus*), American crow (*Corvus brachyrhynchos*), red-winged blackbird (*Agelaius phoeniceus*), mourning dove (*Zenaida macroura*), Canada goose (*Branta canadensis*), and ring-necked pheasant (*Phasianus colchicus*).

Hay fields can be good habitat for grassland nesting species if cutting cycles allow for completion of breeding prior to the first harvest. Common grassland nesting birds and other wildlife include grasshopper sparrow (*Ammodramus savannarum*), red-winged blackbird, Eastern meadowlark (*Sturnella magna*), meadow vole (*Microtus pennsylvanicus*), groundhog (*Marmota monax*), and red fox (*Vulpes vulpes*). Other species may only forage within hay fields or over-winter in this habitat, especially if native warm season grasses are used. Warm season grasses include big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum nutans*), and switchgrass (*Panicum virgatum*). Warm season grasses thrive during the heat of the summer and go to seed late in the summer. This provides food for wildlife throughout the fall and early winter months. Hay fields that have been converted to warm season grassland habitat occur at the Monocacy National Battlefield. Species that may hunt these fields or use them during the winter include birds of prey such as red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and barn owl (*Tyto alba*); white-tailed deer; savannah sparrow (*Passerculus sandwichensis*); and dark-eyed junco (*Junco hyemalis*).

Pasture for dairy cattle grazing is generally comprised of low-growing cool season grasses such as fescue (*Festuca* spp.) that are of limited value to wildlife species. Wildlife commonly associated with dairy farms include invasive species that thrive in human-induced environments such as European starling (*Sturnus vulgaris*), brown-headed cowbird (*Molothrus ater*), rock dove (*Columba livia*), and house sparrow (*Passer domesticus*).

Developed habitat: occurs within the metropolitan areas of the Corridor, particularly the cities of Rockville, Gaithersburg, Germantown, and Frederick. Many of the residential, commercial, and institutional developments in these areas were built on former agricultural land, and are thus comprised of recently planted lawn grasses, shrubs, and trees. Much of this planted vegetation is comprised of ornamental and non-native species. Consequently, much of the wildlife using these areas, such as the European starling, is adapted to human-modified environments. However, where development has occurred adjacent to agricultural land or parkland, or where wildlife has been displaced because of the development, other wildlife species may temporarily use these habitats. These species include white-tailed deer, fox, raccoon, opossum, and mice. In older residential developments where landscape plantings have matured and a variety of fruit or seed producing trees, shrubs, and herbaceous plants occur or where people supply food in specially designed feeders, many species of birds can be found. These species that can inhabit smaller, more disturbed sites with a mix of vegetation types include gray squirrel (*Sciurus carolinensis*),

eastern chipmunk (*Tamias striatus*), tufted titmouse (*Baeolophus bicolor*), Carolina Chickadee (*Poecile carolinensis*), Carolina wren (*Thryothorus ludovicianus*), red-bellied woodpecker (*Melanerpes carolinus*), and downy woodpecker (*Picoides pubescens*).

Old field habitat: occurs where agricultural fields have been abandoned. This habitat type is the least abundant of the terrestrial habitats along the I-270/US 15 Corridor. Small areas exist primarily in the northern half of the Corridor where agricultural fields are still relatively numerous. The old field community varies in structure depending upon the time since the last disturbance. Newly abandoned agricultural land in early succession provides primarily grasses and wildflowers that can be important for birds, small mammals, and insects such as butterflies and bees. Many of the same grassland species of birds described above for hay fields commonly occur in these habitats. Older fields, where succession has advanced to the small tree and sapling stage and where plant species diversity has increased, provide resources for a wider variety of wildlife. Within the study area, wildlife species commonly occurring in these habitats include white-tailed deer, meadow vole, shrew, fox, groundhog, eastern cottontail (*Sylvilagus floridanus*), black rat snake (*Elaphe obsoleta*), eastern garter snake (*Thamnophis sirtalis*), field sparrow (*Spizella pusilla*), gray catbird (*Dumetella carolinensis*), brown thrasher (*Toxostoma rufum*), common yellowthroat (*Geothlypis trichas*), yellow-breasted chat (*Icteria virens*), and house wren (*Troglodytes aedon*). Where small mammal populations are abundant, birds of prey such as red-tailed hawk and American kestrel are also common.

Forest habitat: occurs as small strips between developments or farm fields and larger tracts along stream valleys, within wetlands, on steep-sloped areas, and within parklands. The dominant forest types are deciduous except where earlier successional stands contain a predominance of pine. While considerable development has occurred along the Corridor, particularly at the southern end, large forested tracts still remain within protected parkland. From south to north along the Corridor, larger tracts of forest occur along Muddy Branch (Summit Hall and Muddy Branch Parks), within Brown's Station Park, along Great Seneca Creek, along and adjacent to Little Seneca Creek (Black Hill Regional Park), along Little Bennett Creek, and along the Monocacy River (Monocacy National Battlefield). Smaller woodlots occur elsewhere along the Corridor.

According to the Vegetation Map of Maryland, the I-270/US 15 Corridor intercepts five forest associations including sugar maple - basswood; chestnut oak; tulip poplar; sycamore - green ash - box elder - silver maple; and river birch - sycamore. The Vegetation Map of Maryland shows a band of sugar maple - basswood vegetation in the extreme northern portion of the US 15 Corridor between Tuscarora Creek and Biggs Ford Road. However, this area is completely agricultural and devoid of forested vegetation.

The tulip poplar association is mapped from south of Tuscarora Creek, through the city of Frederick to the Monocacy River, between Bennett and Little Bennett Creeks, adjacent to Little Seneca Creek, and from MD 118 to the south end of the study area. The dominant canopy tree within the association is tulip poplar (*Liriodendron tulipifera*). Within the I-270/US 15 Corridor most of the forested areas occurring on gently sloped uplands were observed to belong to this association. The species composition of these forests is similar to the described type association

except where disturbance has favored early successional species such as Virginia pine (*Pinus virginiana*) or invasion by non-native species such as tree of heaven (*Ailanthus altissima*).

The sycamore - green ash - box elder - silver maple association is mapped along the major waterways including Tuscarora Creek, Rock Creek, Monocacy River, Bennett Creek, Little Bennett Creek, Ten Mile Creek, Little Seneca Creek, and Great Seneca Creek. Sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), and silver maple (*Acer saccharinum*) make up the majority of the stocking. This forest association was confirmed along the Corridor highway alignment at each of the major stream crossings, and included forested wetlands and riparian areas.

The chestnut oak association is mapped from south of the Monocacy River to Bennett Creek, between Bennett and Little Bennett Creeks, from south of Little Bennett Creek to Little Seneca Creek, and between Little and Great Seneca Creeks. This forest association typically occurs on rocky, steep-sloped terrain. Chestnut Oak is the dominant canopy tree. Small areas of this forest association were observed within Black Hill Regional Park, Little Bennett Regional Park, and the Monocacy National Battlefield.

The river birch - sycamore association is mapped along the Muddy Branch floodplain within the I-270/US 15 Corridor highway alignment. River birch (*Betula nigra*) and sycamore are the dominant canopy trees within this association. The Vegetation Map of Maryland shows this forest association extending along Muddy Branch to I-270. No forest stand was identified in this location within the project area, however, scattered sycamore and river birch were observed.

The forests along the I-270/US 15 Corridor vary in their ability to support wildlife depending upon the size, degree of disturbance, community structure, presence of streams or wetlands, and proximity to other habitats. The small forest strips within the developed landscape generally support the fewest wildlife species. These patches of forest are often disturbed and contain many low quality exotic plant species. Typical wildlife using these areas includes those disturbance tolerant species described above.

The larger forest tracts along the Corridor support a greater diversity of both plant and animal species, but also vary depending upon the amount of human-induced or wildlife-induced disturbance. Most forests along the Corridor contain a large population of white-tailed deer. These deer herds have eaten much of the understory of the forests, changing the natural vegetation composition and, in many areas eliminating low cover for many species of wildlife. Generally these larger forest tracts still support a wide variety of both resident wildlife and migratory bird species. Common resident wildlife species include raccoon, opossum, gray squirrel, southern flying squirrel (*Glaucomys volans*), eastern chipmunk, white-footed mouse, big brown bat (*Eptesicus fuscus*), star-nosed mole (*Condylura cristata*), short-tailed shrew (*Blarina carolinensis*), striped skunk (*Mephitis mephitis*), box turtle (*Terrapene carolina*), American toad (*Bufo americana*), wood frog (*Rana sylvatica*), spring peeper (*Pseudacris crucifer*), spotted salamander (*Ambystoma maculatum*), red-backed salamander (*Plethodon cinereus*), brown snake (*Storeria dekayi*), eastern hognose snake (*Heterodon platyrhinos*), black rat snake, tufted titmouse, Carolina chickadee, white-breasted nuthatch (*Sitta carolinensis*), blue jay (*Cyanocitta cristata*), great horned owl (*Bubo virginianus*), red-bellied woodpecker, downy woodpecker, and

northern flicker (*Colaptes auratus*). Common migratory bird species include eastern wood-pewee (*Contopus virens*), ruby-throated hummingbird (*Archilochus colubris*), great-crested flycatcher (*Myiarchus crinitus*), and blue-gray gnatcatcher (*Polioptila caerulea*).

The largest forest tracts, those of 50 or more contiguous acres (see **engineering plan, sheets HWY 2** though **HWY 9** in **Volume 2 of 2, Chapter IX**), also provide habitat for a specialized group of birds known as forest interior dwelling birds or FIDS. These species require large tracts of forest to sustain viable breeding populations. DNR has designated twenty-five bird species that breed in Maryland as FIDS. The group includes colorful songbirds that breed in the mid-Atlantic region and migrate to Central and South America to spend the winter, as well as year round residents and short-distance migrants. Over the past 30 to 40 years many of these species have shown consistent population declines because of habitat loss on the wintering grounds and fragmentation of forests on the breeding grounds. Many of these species nest on or near the ground and are thus susceptible to mammalian predators such as raccoons, foxes, and skunks. Canopy nesting species are susceptible to predation by squirrels, blue jays, and crows. In smaller woodlots, concealment from these predators is more difficult. Those FIDS commonly encountered along the I-270/US 15 Corridor include resident species such as red-shouldered hawk (*Buteo lineatus*), hairy woodpecker (*Picoides villosus*), and pileated woodpecker (*Dryocopus pileatus*). Other commonly encountered FIDS include migratory species such as Acadian flycatcher (*Empidonax virescens*), wood thrush (*Hylocichla mustelina*), red-eyed vireo (*Vireo olivaceus*), northern parula (*Parula americana*), black-and-white warbler (*Mniotilta varia*), worm-eating warbler (*Helmitheros vermivorus*), ovenbird (*Seiurus aurocapillus*), Louisiana waterthrush (*Seiurus motacilla*), and scarlet tanager (*Piranga olivacea*).

Transitway Alignment

The proposed transitway alignment follows existing roadways and extends through mostly developed lands at the southern end of the project area. At the northern end, the transitway alignment crosses agricultural and forestland before terminating just north of the COMSAT Communications facility. A proposed hiker/biker trail parallels portions of the transitway alignment throughout its length.

The same terrestrial habitats were identified along the transitway alignment as along the I-270/US 15 Corridor highway alignment, including agricultural, developed, old field, and forest. Agricultural lands are primarily crop and hay fields often with shrub or tree lines separating fields. Developed areas provide managed lawn and landscaped shrub and tree plantings within residential, commercial, and institutional lots. Old field habitat occurs where agricultural lands have been left fallow or on vacant development lots. These habitats commonly consist of coastal broomsedge (*Andropogon virginicus*) grasses, brambles such as blackberries (*Rubus* spp.), and early successional woody plants such as red maple, black cherry, and red cedar (*Juniperus virginiana*). Forest associations occurring along the transitway alignment include all of those listed for the I-270/US 15 Corridor highway alignment except the sugar maple - basswood association. The associations found along the transitway alignment follow the same pattern as those along the I-270/US 15 Corridor highway alignment. The tulip poplar association occurs throughout the alignment on moist uplands, often adjacent to streams. The sycamore - green ash - box elder - silver maple association occurs along the major waterways in the northern portion of

the alignment while the river birch - sycamore association occurs along Muddy Branch. The chestnut oak association is scattered throughout the transitway alignment and occurs on steep-sloped uplands with thin soils.

The transitway alignment generally follows existing roadways and consequently overlaps only the edges of forest stands. Where the alignment crosses forest habitat is primarily east of the CSX railroad tracks at the Metropolitan Grove Metro Station. This forest is mapped in the tulip poplar association and is comprised of tulip poplar, mixed oaks, hickories, red maple, and American beech in the canopy. Understory vegetation is comprised of arrowwood, flowering dogwood, spicebush, low bush blueberries, poison ivy, grape, Virginia creeper, and Japanese honeysuckle. The alignment passes through additional portions of forest habitat south of the Little Seneca Creek crossing and at its terminus just north of the COMSAT Communications facility. Both of these woodlots are mapped within the tulip poplar association. The forest stand south of Little Seneca Creek is mature, occurs on a north-facing slope and is dominated by tulip poplar and mixed oaks. Maples dominate the stand at the north end of the transitway alignment. None of the woodlots crossed by the alignment are greater than 50 acres in size and, therefore, do not represent ideal FIDS habitat. These forest stands do provide habitat for many other wildlife species that occur within smaller patches of woods or wood edges. Representatives of these species were described above.

The transitway alignment includes stations with park and ride and walking access. The proposed transitway stations generally occur in developed or rapidly developing areas along the transitway alignment. Most proposed sites have already been cleared of vegetation and in many cases have been graded level for future construction. Some of these sites were cleared within deciduous and coniferous forest habitat, but only small strips of trees remain. At least two proposed station sites (Quince Orchard Park/Sioux Lane and COMSAT) contain old field habitat with scattered early successional forest, while one station site (Washingtonian) is presently a crop field.

Proposed Transitway Yard/Shop Facilities

Proposed transitway yard/shop facilities occur immediately adjacent to the proposed transitway alignment. Potential facilities are being investigated adjacent to the Shady Grove Metro Station, northeast of the Metropolitan Grove transit station, and at the proposed COMSAT rail terminus. At each potential location several yard/shop site options are being investigated. Following a thorough assessment of potential impacts and other constraints associated with each optional site, a single site will be selected.

The proposed Shady Grove Metro Station rail yard/shop facility sites under investigation occur on developed land with few landscaped trees and shrubs in the medians of parking lots or on small strips of land between buildings or lots that have not been maintained. The potential yardsites northeast of the Metropolitan Grove station occur within mostly steep sloped upland forest habitat of the tulip poplar association. Common canopy species include poplar, oaks, red maple, and cherry. One potential site includes a small parcel of agricultural land and rural residential developments. The forested habitat in this location is part of a large contiguous forest that provides suitable habitat for FIDS. The proposed rail yard/shop facility sites at COMSAT occur in areas with a mix of forest, old field, and developed conditions. A small pond is located

within yard/shop facility site 3. A tributary stream flows east through yard/shop facility sites 2 and 3 and enters an unnamed tributary of Little Seneca Creek within yard/shop facility site 1. Forested habitat is primarily riparian with red maple, poplar, and oaks comprising the dominant canopy species. This area provides excellent habitat for wildlife in a mosaic landscape of agriculture and riparian stream corridors.

b. Impacts

Terrestrial habitats will not be impacted by the No-Build Alternate and would be impacted by the TSM/TDM alternate and each of the build alternates. Effects to terrestrial resources will involve the conversion of habitat to impervious road, rail, or other associated facility. Effects could also result from the human-induced introduction of invasive non-native plant and animal species into undisturbed habitat adjacent to newly impacted sites. However, because the highway alignment alternates generally involve the addition of travel lanes immediately to the outside or within the median of the existing highway and the transitway alignment generally follows exiting roadways, the majority of these effects will be to maintained grassy strips or narrow rows of trees. The largest areas of potential impact to terrestrial habitats will occur within the proposed COMSAT transitway station, transitway yard/shop facilities, and portions of the transitway alignment. The transitway yard/shop facilities are mostly planned for undeveloped land adjacent to the transitway alignment. Proposed MD 75 extended represents potential habitat and wildlife impacts associated with a new roadway section. However, the majority of impacts are to active agricultural fields and disturbed forest and shrub habitat at a rubble landfill.

Table III-53 illustrates the relative impacts of each alternate on terrestrial forest habitats within the project corridor. A more specific discussion of effects to terrestrial habitat and wildlife from each alternate follows.

TABLE III-53
COMPARISON OF TERRESTRIAL FOREST IMPACTS FOR THE HIGHWAY AND TRANSITWAY ALIGNMENTS (ACRES)

Alternate	Alignment		
	Highway	Transitway [1]	Alternate Total
1: No-Build	0	0	0
2: TSM/TDM Alternate	0	0	0
3A: Master Plan HOV/LRT	156	27	183
3B: Master Plan HOV/BRT	156	27	183
4A: Master Plan General-Purpose/LRT	156	27	183
4B: Master Plan General-Purpose/BRT	156	27	183
5A: Enhanced Master Plan HOV/General-Purpose/LRT	172	27	199
5B: Enhanced Master Plan HOV/General-Purpose/BRT	172	27	199
5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus	180	NA	180

1 Transitway impacts include transit stations.
NA Not applicable

Alternate 1

Alternate 1 is the No-Build Alternate and as such is not anticipated to have effects on terrestrial habitat or wildlife.

Alternate 2

Alternate 2 is the TSM/TDM alternate, which includes the construction of park and ride lots in Frederick County at the intersections of US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road. Construction of proposed park and ride lots will result in land use changes from agricultural to developed. No forest impacts are anticipated, though, there will be a loss of cropland at all three of the proposed lots. Minor wildlife displacements will occur from these improvements. These displacements are made more of a concern because of additional planned development associated with these interchanges. However, wildlife diversity in crop fields and pastures is generally low compared to that of other habitat types.

Alternates 3A/B and 4A/B

Alternate 3A/B, the Master Plan HOV alternate and Alternate 4A/B, the Master Plan General-Purpose alternate are nearly identical and with respect to the assessment of potential effects, the two alternates will result in the same level of impact and are therefore assessed together.

Highway Alignment

With the exception of a few interchanges and proposed MD 75 extended, highway alignment improvements under Alternates 3A/B and 4A/B will generally involve the widening of existing roadways. From Shady Grove Road to approximately MD 109 and the Monocacy River to the northern terminus along US 15 at Biggs Ford Road, the widening will be to the outside of the existing highway. This will result in encroachment effects on adjacent habitat. Between approximately MD 109 and the Monocacy River the road widening will be to the inside, which will affect only managed grassy strips in the median. Proposed interchange improvements will result in additional impacts to terrestrial habitats, particularly where ramps are proposed outside the current interchange configuration. Proposed MD 75 extended will impact primarily agricultural habitat and narrow tree rows, however, the alignment does cross several smaller forest stands resulting in approximately two acres of forest impact.

Forest impacts associated with the highway alignment for Alternates 3A/B and 4A/B are estimated to be 156 acres. Much of this impact occurs where the outside lane additions will encroach upon the large, undeveloped parks (Seneca Creek State Park and Black Hill Regional Park) and stream crossings (Great Seneca Creek, Little Seneca Creek, Little Bennett Creek) in Montgomery County. Other large forested areas that will receive encroachment impacts occur adjacent to I-270 just south of MD 118; between MD 121 and Comus Road, and north and south of the truck weigh station. These larger forested tracts are characterized by mostly mature upland deciduous vegetation. Roadway widening adjacent to stream crossings will result in encroachment impacts to riparian forest and forested wetland habitat. These larger forested tracts support breeding populations of FIDS. Encroachment impacts will slightly reduce the size of these forested tracts, however, it should not affect their suitability as FIDS habitat. The overall

forest impacts along the I-270 alignment also include disturbance of smaller, more isolated stands of forest. These forest patches support fewer wildlife species and smaller numbers of individuals than the larger, more contiguous forest stands. Nevertheless, elimination of these small habitats may lead to localized displacements of individuals and species.

Minor interchange improvements assessed in this document are planned at MD 117, MD 124, Middlebrook Road, MD 118, Father Hurley Boulevard, MD 85, and Jefferson Street. More significant improvements or newly planned interchanges occur at New Cut Road, MD 121, MD 75, MD 80, Trading Lane, and Biggs Ford Road. Minor interchange improvements will result in few encroachment impacts to forest habitat. These impacts are not considered significant and will have little effect on wildlife species using them. New interchanges or existing interchanges planned for major renovation will have greater affects on forest habitat. Proposed New Cut Road and its associated ramps to I-270 will impact upland and wetland forest west of I-270. This habitat is associated with a tributary of Little Seneca Creek. While the forest is only about 300 feet wide at the planned crossing of New Cut Road, it is part of a forested corridor that extends from Black Hill Regional Park to the south to forest and farmland habitat to the north. Baltimore Road interrupts the forest canopy to the south making it less desirable FIDS habitat. The road also reduces the connectivity of the habitat and provides a minor barrier to the movements of smaller amphibians and reptiles. However, the land on either side of Baltimore Road is valuable wildlife habitat because it provides requisite food, shelter, water, and nesting sites for birds and other wildlife. Its proximity to other habitat types also adds to the diversity in the area. Ramp construction on the east side of I-270 will impact about a third of a small (± 5-acre) upland deciduous woodlot on the COMSAT property. These impacts could result in displacements of individuals, but will not likely result in the loss of species.

Ramp improvements at MD 121 include a new ramp from northbound I-270 to MD 121 (southeast quadrant) and a new loop ramp from westbound MD 121 to southbound I-270 (northwest quadrant). The ramp improvements in the southeast quadrant could impact forest habitat east of I-270 and south of MD 121. These impacts would be to the edge of a 30 to 40-acre upland deciduous forest between I-270 and Gateway Center Drive. Ramp construction impacts would represent an encroachment to the habitat and would not significantly affect wildlife use of the area. The ramp improvements in the northwestern quadrant will occur within already maintained grassy vegetation. This area is of limited value to wildlife and is not considered an impact.

Another new I-270 interchange is planned at MD 75 extended. Under Alternates 3A/B and 4A/B this interchange will involve a loop ramp to the west of I-270 and a single exit and entrance ramp along northbound I-270. West of I-270, impacts will primarily be to cropland with small areas of impact to narrow upland deciduous forest rows. East of I-270 ramp construction will impact larger areas of mostly contiguous forest north and south of Mott Road. The upland coniferous and deciduous forest is less than 10 acres in size, and could be reduced by half (±5 acres) after road construction. This will result in displacements of wildlife species.

Ramp improvements at MD 80 will mostly impact old field habitat and cropland. However, small areas of upland deciduous forest will be impacted west of I-270. These impacts will be narrow and linear and will negatively affect wildlife resources by bisecting the habitat with a

road. However, planned development in this area will likely result in wildlife displacements regardless of roadway improvements.

New interchanges at Trading Lane and Biggs Ford Road will primarily impact cropland. These impacts will not disturb wildlife significantly, as cropland habitat does not support a large diversity of wildlife species. Also these impacts will be relatively minor within a landscape still dominated by this type of agricultural use.

Transitway Alignment

Under Alternates 3A/B and 4A/B, the proposed transitway alignment is being investigated as either a LRT or BRT option. Regardless of the mode of transit, the proposed alignment and corresponding impacts will be the same. As discussed above, the proposed transitway alignment follows existing or proposed roadways throughout most of its length from the Shady Grove Metro Station to COMSAT Station. This will minimize the extent of environmental impacts and will result mainly in encroachment impacts to terrestrial habitats. Overall forest impacts associated with the transitway alignment will total 27 acres.

The alignment extends away from existing roadways near the intersection of Decoverly Drive and Great Seneca Highway, between Great Seneca Highway and Twin Lakes Drive, between Metropolitan Grove Station and I-270, and through the United States Department of Energy (DOE) property. At Decoverly Drive the alignment crosses upland deciduous forest both east and west of Great Seneca Highway. These woodlots are relatively small remnant forest stands in a rapidly developing area. The relatively small size of these forests makes them suitable primarily to more generalist or edge-loving species of birds and other wildlife. According to the Master Plan for the area, the woodlot east of Great Seneca Highway is proposed for development. This will further reduce the available forested habitat in the region forcing wildlife into a smaller area. However, because of the nature of these wooded tracts, they will continue to provide habitat for generalist species, although many fewer individuals will be able to be supported in the smaller area.

The stretch of transitway between the Metropolitan Grove Station and I-270 will also pass through upland deciduous forest habitat. However, unlike the small, fragmented forest stands near Decoverly Drive, the forest adjacent to proposed Watkins Mill Road east of Metropolitan Grove Station is large, contiguous, and relatively mature. It is ideal FIDS habitat and likely supports many species of mammals, reptiles, and amphibians as well. The transitway will split this forest patch into two halves providing new openings for nest predators of FIDS such as brown-headed cowbirds. The clearing for the transitway should be as narrow as possible to minimize the disturbance to FIDS and other wildlife. The transitway between Great Seneca Highway and Twin Lakes Drive will pass through mostly old field habitat with scattered cedar trees. The land surrounding the transitway alignment through this area is planned for development according to the Master Plan. Therefore, even though the alignment itself will result in minor disturbance to this habitat, there will ultimately be little of the habitat remaining following complete build-out of the area. The transitway alignment through the DOE property will impact primarily managed lawn and other landscaped areas. A small area of mostly shrub

habitat between the DOE and the adjacent residential neighborhood will also be impacted. No significant effect on wildlife is anticipated, as wildlife use of this area is already limited.

The transitway alignment is also proposed to follow a planned roadway through forested habitat. This will occur along an extension of Observation Drive from Dorsey Mill Road to COMSAT. The alignment will impact an 800-foot wide mature upland deciduous forest just south of Little Seneca Creek. This forest patch is marginal FIDS habitat that will be further degraded by the transit crossing. The transitway will also impact pastureland within the floodplain of Little Seneca Creek and cropland between the creek and COMSAT. The transitway will also follow within the median of the planned extension of Century Boulevard from just south of MD 27 north to I-270. This extension will impact primarily open land that has been previously disturbed for development and for use as a driving range. These planned roadways will likely be built before or during the construction of the transitway lessening the overall impact on the resource from the transitway alignment.

Most of the proposed transit station sites occur on developed land or on land under development. Stations proposed to have park and ride facilities that are not currently developed or under development include Washingtonian, Quince Orchard Park/Sioux Lane, Manekin, and COMSAT. The Washingtonian station is presently a crop field, but is planned for development according to the Master Plan for the area. The Manekin station is presently a driving range with a fringe of trees comprising a narrow forested area on either side. Forest impacts associated with this station are less than one half acre. This area is planned for development with the extension of Century Boulevard. Quince Orchard/Sioux Lane Station is planned within old field and regrowth forest habitat between Great Seneca Highway and Twin Lakes Drive. Forest impacts at this station are approximately two acres. As mentioned above, this area is also slated for development, which will all but eliminate the habitat following construction. The COMSAT station will impact a small upland deciduous forest and old field habitat on the COMSAT property. The three-acre woodlot is relatively isolated and likely provides habitat for edge-loving species of wildlife.

Proposed Transitway Yard/Shop Facilities

Proposed transitway yard/shop facilities generally have a larger footprint than stations and will impact broader areas of habitat. **Table III-54** provides a comparison of potential forest impacts associated with each yard/shop facility site at each location. The yard/shop facility sites under investigation at the Shady Grove Metro station occur on mostly developed land. No significant impact is anticipated at this location. Proposed yard/shop facility sites just northeast of the Metropolitan Grove Metro Station occur within mostly forested habitat. These sites will impact between 14 and 20 acres of forest within a large, contiguous upland deciduous forest. As mentioned with respect to the transitway alignment through this area, impacts to this forest will reduce the suitability of the area for sensitive FIDS species as well as reduce the area available for other wildlife species. Forest impacts associated with the COMSAT yard/shop facility sites ranges from two to nearly 21 acres. These impacts are to both upland and wetland forest adjacent to a tributary of Little Seneca Creek. Some of the potential sites will also result in impacts to adjacent old field habitat on the COMSAT property. These impacts will displace many individual birds and other wildlife, but will likely not result in local losses of species because of

the availability of similar habitat immediately adjacent to the site. While all originally proposed yard/shop facility sites were assessed for potential impacts to habitat and wildlife, several sites have already been removed from further consideration for various reasons. These include Shady Grove site 2, Metropolitan Grove site 1-3, and COMSAT sites 1 and 3. Removal from further consideration of Metropolitan Grove site 1-3 eliminates the potential impact of approximately 20 acres of forest habitat. Similarly, removal from consideration of COMSAT sites 1 and 3 eliminates the potential impact of approximately 23 acres.

TABLE III-54
COMPARISON OF TERRESTRIAL FOREST IMPACTS FOR THE TRANSITWAY YARD/SHOP FACILITIES (ACRES)

Yard/Shop Facility Location	Impact (Acres)
Shady Grove	
Site 1	0.5
Site 2[1]	0
Site 3	1.1
Site 4	0
Site 5	0
Metropolitan Grove	
Site 1-3[1]	19.9
Site 2A	14.4
Site 4-5	14.2
COMSAT	
Site 1[1]	20.9
Site 2	8.2
Site 3[1]	2.0
Site 4	9.1

[1] *Sites have been eliminated from further consideration.*

Alternate 5A/B/C

Alternate 5A/B/C is the Enhanced Master Plan HOV/General-Purpose alternate. It differs from Alternates 3A/B and 4A/B by the inclusion of both an HOV and general-purpose lane in each direction along I-270 between MD 121 and I-70. Alternate 5C includes the addition of direct access ramps at I-370, MD 118, and MD 85/Shockley Drive. Like the previous two alternates Alternate 5A includes LRT and Alternate 5B includes BRT transitway options. However, instead of a transitway alignment, Alternate 5C includes a premium express busway that will use the direct access HOV lanes along the highway alignment.

Highway Alignment

Between I-370 and MD 121 highway improvements under Alternate 5A/B/C are the same as those for Alternates 3A/B and 4A/B. Therefore, potential effects are also the same. Between MD 121 and I-70 Alternate 5A/B/C will include one additional lane in either direction compared to Alternates 3A/B and 4A/B. The additional lanes are proposed to the outside of the existing roadway creating encroachment effects on terrestrial habitats. As discussed above, encroachment effects disturb habitats but do not create large impacts where no impacts previously existed such

as would be the case if a new roadway were being constructed through previously undisturbed habitat. Potential forested impacts associated with Alternate 5A and 5B total 172 acres. This is slightly higher than impacts estimated for Alternates 3A/B and 4A/B because of the lane expansion to the outside of the existing roadway between MD 121 and Shockley Drive. Between Shockley Drive and I-70 the additional lanes will be accommodated within the same outside right-of-way as that proposed for Alternates 3A/B and 4A/B by adding lanes within the median. As a result of the direct access lanes at the three interchanges described above, Alternate 5C will impact approximately 180 acres of forest habitat. The direct access ramps at I-370 will extend the HOV lanes from the median of I-270 to and from I-370 as well as a new general-purpose lane from westbound I-370 to northbound I-270. These lanes will be added to the north of the existing ramp from westbound I-370 to northbound I-270. Forest impacts in this location will occur to the floodplain of Muddy Branch. This upland deciduous forest is an important natural corridor in an otherwise developed landscape, providing habitat for a range of wildlife species adapted to living within urban centers. The direct access ramps to the remaining interchanges are within the median of existing I-270 and will not result in impacts to terrestrial habitat or wildlife.

Transitway Alignment

The proposed transitway alignment included in Alternates 5A/B is the same as that proposed under Alternates 3A/B and 4A/B. Therefore, the proposed transitway alignment under Alternates 5A/B will have the same potential impact to forest habitat (27 acres) as was described for Alternates 3A/B and 4A/B.

Proposed Transitway Yard/Shop Facilities

The proposed transitway yard/shop facilities are the same as those proposed for Alternates 3A/B and 4A/B. Therefore, the potential impacts to terrestrial habitat and wildlife are also the same as proposed for Alternates 3A/B and 4A/B.

c. Mitigation

Forest resources are protected through the state Forest Conservation Act and Reforestation Law Natural Resource Article 5-103 for state funded projects. The law requires that transportation projects cut or clear only the minimum number of trees and other woody plants as necessary and that is consistent with sound design practices. The law also requires reforestation at a 1:1 ratio if forest impacts total an acre or more. The reforestation lands must be on state-owned land or other publicly owned land. Several reforestation options in the following order may be used to meet the requirements of the Reforestation Law and include:

- Reforestation on-site in the project right-of-way
- Reforestation on public land within the county and subwatershed in which construction occurred
- Reforestation within the county or subwatershed within the state in which construction occurred
- Payment into the Reforestation Law fund in the amount of $4,356 per acre deforested

The selection of an alternative that has the least habitat loss for wildlife species would result in avoidance or minimization of adverse impacts. These avoidance and minimization measures will be assessed during final design. Stormwater management practices that minimize the discharge of sediment or environmental contaminants would help protect sensitive habitats. Choosing alignments that skirt the edges of the habitat rather than split the habitat into two smaller fragments can minimize the effects of habitat fragmentation. The inclusion of adjacent floodplains in the crossing of streams by bridges and culverts will provide travel corridors for wildlife and allow connectivity between habitats.

2. Aquatic Habitat

a. Existing Conditions

Perennial and intermittent non-tidal streams provide most of the aquatic habitat throughout the I-270/US 15 Corridor. Non-tidal waters are restricted to both modified/natural stream channels and ponds. Farm ponds become more prevalent as the I-270/US 15 Corridor extends north into Frederick County and land use shifts to agriculture.

The non-tidal streams throughout the study area are host to several freshwater species that can be categorized as aquatic macro-invertebrates. Aquatic macro-invertebrates include insects, worms, mollusks, crustaceans, and other organisms that live in freshwater habitats. This diverse community of organisms, especially benthic (bottom-dwelling) forms, are good indicators of localized water quality conditions because many macro-invertebrates have limited migration

patterns and include species that have a broad range of trophic and pollution tolerances. Site specific impacts and cumulative effects on surface water quality can be assessed through the changes in composition and structure of the macroinvertebrate community.

The quality and quantity of in-stream and riparian habitat affect both the structure and composition of resident biological communities. The documentation of general land use; description of the stream origin and type; summary of the riparian vegetation features; and measurements of in-stream parameters such as width, depth, flow, and substrate are imperative to understanding the health of an aquatic community.

Aquatic macroinvertebrate sampling in combination with physical habitat assessment has been conducted by DNR, MDE, DEP, and the Save Our Streams organization for streams throughout both Montgomery and Frederick counties. The DEP has collected data for Muddy Branch, Gunners Branch Great Seneca Creek, Wildcat Branch, Little Seneca Creek, and Upper Ten Mile Creek. The County's baseline stream monitoring program has developed an Index of Biological Integrity (IBI) that is comprised of measurements, or metrics, of the fish and aquatic insect community found in the County's highest quality, least impaired streams. Biological integrity is defined as "the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the best natural habitats within a region" (Karr and Dudley 1957). A scoring criteria table is used to organize measurements of fish and aquatic insect community metrics, which are used to transform calculated biological community metric values into comparative scores that can be summed. The summed scores from baseline stream monitoring stations are compared to the full range of summed scores found among the reference streams and incorporated into Biological Integrity Classes. The classes are four narratives (excellent, good, fair, or poor) that signify a further departure from the highest quality reference condition found among the reference streams. **Table III-55** contains descriptions of Biological Integrity Classes and relative IBI scores based on the Montgomery County protocols. Habitat trends and physical habitat assessments were examined to confirm resource condition trends for each stream and watershed. The relationship between habitat scores and IBI scores are synonymous, with high habitat scores predicting high IBI scores.

Both Save our Streams and the MBSS team of DNR also uses a benthic index of biological integrity, such as those described in EPA's Rapid Bioassessment Protocols to develop an IBI for streams in both Montgomery and Frederick counties. The protocol compares benthic assemblages at each site to those found at minimally impacted reference sites and uses a Hilsenhoff Biotic Index that evaluates the pollution tolerance of benthic macro-invertebrates, especially their tolerance to organic pollution. **Table III-56** contains narrative descriptions of stream biological integrity associated with each of the IBI scores used in the EPA Rapid Bioassessment Protocols. A tolerance value of 0 to 10 is assigned to each taxon collected. The Index is calculated as an average tolerance value for the assemblage weighted by the abundance of each taxon.

TABLE III-55
BIOLOGICAL INTEGRITY CLASSES FOR MONTGOMERY COUNTY'S DEPARTMENT OF ENVIRONMENTAL PROTECTION STREAM PROTOCOLS

IBI Score	Narrative Integrity Class	Characteristics
46 to 50	Excellent	Comparable to the biological community found in reference streams. Exceptional assemblage of species with a balanced community composition.
34 to 45	Good	Decreased number of sensitive species, decreased number of specialized feeding groups some intolerant species present.
22 to 33	Fair	Intolerant and sensitive species are largely absent; unbalanced feed group structure.
10 to 21	Poor	Top carnivores and many expected species absent or rare; general feeder and tolerant species dominant.

Source: *Plafkin et al. 1989 and Karr et al. 1986, Ohio EPA 1987.*

TABLE III-56
NARRATIVE DESCRIPTIONS OF STREAM BIOLOGICAL INTEGRITY ASSOCIATED WITH EACH OF THE IBI SCORES FOR US EPA RAPID BIOASSESSMENT PROTOCOLS

IBI Score	Narrative Integrity Class	Characteristics
4.0-5.0	Good	Comparable to reference streams considered to be minimally impacted. Fall within upper 50% of reference site conditions.
3.0-3.9	Fair	Comparable to reference conditions, but some aspects of biological integrity may not resemble the qualities of these minimally impacted streams. Fall within the lower portion of the range of reference sites (10^{th} to 50^{th} percentile).
2.0-2.9	Poor	Significant deviation from reference conditions, with many aspects of biological integrity not resembling the qualities of these minimally impacted streams, indicating some degradation.
1.0-1.9	Very Poor	Strong deviation from reference conditions, with most aspects of biological integrity not resembling the qualities of these minimally impacted streams, indicating severe degradation.

Source: *Barbour et al. 1999.*

The MBSS adopted a scale by Bode and Novak that includes four categories ranging from non-impacted to severely impacted. For the sampling that occurred from 1995 to 1997, these four categories were used with narrative ratings assigned as follows:

- Scores of 0 to 4.5 are rated good
- Scores of 4.51 to 6.5 are rated fair
- Scores of 6.51 to 8.5 are rated poor
- Scores of 8.51 to 10.0 are rated very poor

The physical habitat is also assessed with an index (PHI) but is not summed with the benthic IBI score for an overall rating. Four individual physical habitat metrics were determined to be

important in discriminating reference sites from degraded sites: in-stream habitat, structure, velocity/depth diversity, embeddedness, and aesthetic quality. Four categories similar to those used for benthic IBI were established as follows:

- Scores of 72 to 100 are rated good
- Scores of 42 to 71.9 are rated fair
- Scores of 12 to 41.9 are rated poor
- Scores of 0 to 11.9 are rated very poor

The habitat conditions for the sections of streams crossed by the I-270/US 15 Corridor are relatively the same. Stations located within the upper portions of Muddy Branch are rated fair for both biological integrity and habitat condition because the stream channel is incised and bank stability is poor. Sediment deposition and embeddedness of the channel substrate can be attributed to high levels of imperviousness in and around the riparian buffer of the stream. The MBSS sampling stations downstream of I-270 exhibited a PHI of 68 and an IBI of 2.56, which represents a fair rating for both the habitat and benthic community. Most likely the cause of impairment in this portion of Muddy Branch is related to habitat alteration.

The I-270/US 15 Corridor bisects the headwaters of Upper Long Draught and Gunners Branch, which are tributaries to Great Seneca Creek. Both the DEP and MBSS rated the headwaters of these streams as fair for both habitat and biological integrity. High-density areas in Gaithersburg, including commercial areas and the National Institute of Standards and Technology drain to these streams. Many of these areas do not have on-site runoff controls, as regional controls were widely used when the area was developed. The sedimentation of these tributaries, as well as the extensive clearing along the right-of-way for I-270 has contributed to the fair rating for Great Seneca Creek. Overall, the Great Seneca Creek is rated good due to the contiguous forested buffers that surround this stream, however areas near MD 355 and I-270 have caused substantial disruption to the buffer. Wildcat Branch is the only tributary to Great Seneca Creek that received an excellent rating for biological integrity and a rating of good for habitat conditions because low-density land uses predominate. A tributary of Wildcat Branch flows within the median strip of I-270. This tributary is presently experiencing some bank erosion and sediment deposition.

Portions of Little Seneca Creek, Little Bennett Creek, and Upper Ten Mile Creek have been influenced by a fracture fault line, which runs through these watersheds. These fault lines have influenced the channel morphology significantly, creating an environment that supports a diverse and sensitive benthic macroinvertebrate community. The Hilsenhoff Index for both Ten Mile Creek and Little Seneca Creek were between 4 and 5, which shows an unimpaired, pollution-sensitive, macroinvertebrate community. Samples taken from the MBSS stations upstream of the I-270 roadway exhibited excellent to good ratings for both biological integrity and habitat conditions.

Samples taken from MBSS stations located just upstream of the I-270 roadway from Bennett Creek exhibited a high score for PHI and fair scores for IBI and the Hilsenhoff Index. This indicates impairment to the macroinvertebrate community either through chemical input to the stream or altered flow. The DEP designated this portion of Bennett Creek as good for both

biological integrity and habitat conditions. However, reconnaissance of the upper watershed revealed areas of deeply entrenched channels in the headwaters.

Macroinvertebrate sampling and habitat assessments were not conducted for Rock Creek, Carroll Creek, and Muddy Run within the I-270/US 15 Corridor in Frederick County. (There is no explanation as to why habitat assessments were not conducted for the streams specified. The agencies do not explain their rationale as to why they choose certain streams for sampling.) The available data from MBSS was collected and reviewed for portions of the I-270/US 15 Corridor that crosses Tuscarora Creek, and Monocacy River. The Tuscarora Creek station is situated west of US 15 near Charlesville. Samples taken from this station exhibited scores that were rated poor for both biological integrity and habitat conditions. The Hilsenhoff Index was rated fair, indicating that the possible cause of impairment could be habitat degradation or nutrient enrichment. Most of the forested buffer along Tuscarora Creek has long since been removed for agricultural purposes. Sampling stations on a tributary to the Monocacy River situated north of the project area displayed fair ratings for biological integrity, habitat conditions, and the Hilsenhoff index. The possible cause of impairment is the alteration of the buffers along this stream due to the encroachment of agricultural areas and intense development.

The Project Team conducted macroinvertebrate sampling in Fall 2000 using EPA's Rapid Bioassessment Protocols for portions of the Monocacy River located upstream and downstream of I-270. These samples exhibited fair ratings for biological integrity and habitat conditions. A dominance of species intolerant of pollution, such as mayflies and caddisflies, were collected in both areas of the Monocacy River. However, species diversity was limited throughout the samples, lowering the overall biological integrity score. Black fly larvae and beetle species were dominant in the upstream samples of the Monocacy. These pollution tolerant species indicate an overall imbalance in the community, indicating a chemical or altered flow impairment within the stream. During the site visit, a sewer line was observed within the sampling reach and a sewer gas smell was evident.

Fisheries

The DNR, MDE, and Montgomery County Department of Environmental Protection (DEP) were contacted for existing data on fisheries. Available data from the MBSS for streams within the I-270/US 15 Corridor were reviewed for years 1994 through 1997. Random sampling of fish occurred during the summer period using electrofishing methods within 75-meter stream segments at pre-selected stations throughout Montgomery and Frederick counties. Captured fish were identified to species, if possible, counted, and examined for visible external pathologies or other anomalies. The Montgomery County DEP has collected data from over 200 monitoring stations throughout the county in which fish were sampled during the summer and fall of 1997 and 1998. Supplemental data from MDE for streams within Frederick County that would be impacted by highway and transitway improvements to the I-270/US 15 Corridor were also examined.

Most of the streams designated as Use I throughout the highway and transitway alignments support a warm-water fish community. The most abundant fish species collected within this type of community were American eel (*Anguilla rostrata*), blacknose dace (*Rhinichthys atratulus*),

bluntnose minnow (*Pimephales natatus*), creek chub (*Semotilus atromaculatus*), fantail darter (*Etheostoma flabellare*), greenside darter (*Etheostoma blennioides*), largemouth bass (*Micropterus salmoides*), Potomac sculpin (*Cottus girardi*), redbreast sunfish (*Lepomis auritus*), swallow-tail shiner (*Notropis procne*), white sucker (*Catostomus commersoni*), and yellow bullhead (*Ameiurus natalis*). These freshwater species spend most of the year in non-tidal freshwater areas, but many migrate downstream in winter months. The largemouth bass is the only semianadromous species that lives in estuarine waters and spawns in freshwater. Catadromous species such as the American eel inhabit freshwater during adult life stages but spawn in coastal waters of higher salinity.

The creek chub, white sucker, and yellow bullhead are pollution tolerant species that are adapted to a wide range of conditions. Several of these species were collected in the headwaters of Muddy Branch, Long Draught Branch, Gunners Branch, and along tributaries within the cleared right-of-way of I-270, where turbid, slow-moving conditions are prevalent due to the intensely developed and impervious areas that surround these stream systems within the City of Gaithersburg. Mixed uses and high densities adjacent to I-270, the proposed transitway alignment, and other proposed transportation facilities have detrimentally impacted riparian buffers causing a decrease in available habitat for fish.

The I-270 Corridor also crosses Little Seneca Creek, Little Bennett Creek and its tributaries, and Bennett Creek where some of the most diverse cold-water fish communities reside. Little Seneca Creek is designated as recreational trout waters in the vicinity of the I-270 highway and transitway alignment, while Little Bennett and tributaries support wild trout populations above MD 355. An abundance of blacknose dace, brown trout, mottled sculpin, Potomac sculpin, and rainbow trout were collected at monitoring stations located near I-270 within Soper's Branch and Little Seneca Creek. Brown and rainbow trout usually spawn upstream in areas where ample current and clean gravel substrates are available. Several of these cold-water species are sensitive to fluctuations in temperature and dissolved oxygen levels, which are heavily influenced by the surrounding land use. The riparian buffer of these stream systems is comprised of large forested tracts, which have been preserved or protected through stream valley park acquisition. Removal or encroachment of the buffer through development could severely alter the in-stream conditions needed to support a cold-water fish community.

Cold-water fish communities also exist within the northern portions of the Corridor highway alignment at the US 15 crossing of Carroll and Tuscarora Creeks. Carroll Creek is designated as a Put-and-Take Youth/Blind Trout Fishing Area, in which adult brown and rainbow trout are stocked during the spring and fall months. Sampling conducted by DNR within the portion of Carroll Creek that extends from US 15 upstream to Shookstown Road recovered 28 brown trout and 12 rainbow trout, indicating movement by both species out of the stocked areas. Native brook trout have also been located in portions of Tuscarora Creek located upstream of US 15. Maintaining cool water temperatures and protection from silt and sedimentation is crucial to native trout populations.

US 15 crosses several warm-water streams that include a tributary to the Monocacy River, Quarry Branch, Arundel Branch, portions of Tuscarora Creek, and Muddy Run. Most of these streams were not sampled for fish, however sampling did occur in the Monocacy River in 1997.

Many species that are found in the Monocacy would be expected to occur in these streams as well due to the short distance between where US 15 crosses these tributaries and their confluence with the Monocacy River. The types of species sampled included carp (*Cyprinus carpio*), common shiner (*Notropis amoenus*), spottail shiner (*Notropis hudsonius*), swallowtail shiner, rosyface shiner (*Notropis rubellus*), spotfin shiner (*Notropis spilopterus*), bluntnose minnow, white sucker, northern hog sucker (*Hypentelium nigricans*), golden redhorse (*Moxostoma erythrurum*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), smallmouth bass (*Micropterus dolomieui*), largemouth bass, and tesslated darter (*Etheostoma olmstedi*).

b. Impacts and Mitigation

Long-term impacts to aquatic habitat are not anticipated for the No-Build, TSM/TDM alternate or build alternates. Short-term construction effects from bridge and culvert extensions could temporarily displace macroinvertebrate and fish populations as increased sediment loads enter the stream. Excessive sediment can reduce the available substrate for benthic colonization and fish refugia. Turbid water conditions generated from the construction phases of the build alternates could potentially suffocate "pollution sensitive" species. However, most of the construction for bridge extensions is occurring in portions of the stream that are currently disturbed by the existing crossing. Assemblages of pollution tolerant species are more likely to occur in these areas, as the existing road has already altered in-stream habitat.

Strict adherence to sediment and erosion control measures during the build phases of the highway and transitway options are necessary, especially in Little Seneca Creek, Rock Creek, Carroll Creek, and Tuscarora Creek. These streams harbor some of the most diverse cold-water fish communities comprised primarily of trout. These species are particularly sensitive to fluctuation in temperature and dissolved oxygen levels. An influx of sediment downstream of the alignments could reduce available levels of dissolved oxygen. Selective clearing rather than clear-cutting of woody vegetation is needed to retain portions of the buffer for shading to maintain cooler water temperatures.

The proposed transit stations and yard/shop facility sites could have long-term impacts to aquatic habitat and species. The facilities will provide additional areas of impervious surfaces that will increase surface runoff and potential pollutants being delivered to streams within the project corridor. Surface runoff is frequently warmed as it flows over hot paved surfaces or through stormwater ponds. Thermal stressors can significantly alter the structure of a stream's biological community by reducing diversity and sensitive species composition. The yard/shop facilities at Metropolitan Grove Station and COMSAT Station would permanently displace and destroy in-stream habitat and macro-invertebrate populations. These sites are on tributaries to Great Seneca Creek and Little Seneca Creek, which contain unimpaired, pollution-sensitive, macroinvertebrate communities. Piping these tributaries to accommodate a concrete pad for the yard/shop facilities would remove the channel substrate. More pollution-tolerant species, such as black fly larvae and beetle species, would migrate to these areas, reducing species diversity. Extensive clearing would be required in undisturbed, forested riparian buffers. Removal of the stream buffers would increase water temperatures, making in-stream conditions more suitable for warm-water fish communities. These communities are comprised of pollution tolerant species that are

adaptable to a wide range of conditions. These species include creek chub, white sucker, and yellow bullhead.

Chemical impairment to an aquatic community could occur in streams adjacent to proposed highway and transitway facilities. The introduction of pollutants such as particulates, petroleum based fuels, metals, deicing salts and other contaminants that typically accumulate on road surfaces and become mobilized during rain events could be deposited into adjacent streams. Impacts to aquatic habitat and species would include limited species diversity due to the migration of more pollution tolerant species.

The implementation of BMPs for both sediment and erosion control and stormwater management will reduce pollutant loads and control runoff. Stormwater runoff would be managed under the updated MDE Stormwater Management Regulations and would be in compliance with COMAR 26.09.02 Stormwater Management Practices under these regulations, including: on-site infiltration, flow attenuation by open vegetated swales and natural depressions, stormwater retention structures, and stormwater detention structures.

3. Rare, Threatened or Endangered Species

a. Existing Conditions

Rare, threatened, or endangered (RTE) species are regulated at the federal level under Section 7 of the Endangered Species Act. At the state level, RTE species are regulated under the Maryland Non-game and Endangered Species Act. The USFWS and the DNR were contacted regarding the potential presence of RTE species within the project area. According to the USFWS database, there are no federally proposed or listed endangered or threatened species known to occur within the I-270/US 15 highway and transitway alignments, or other facilities associated with the highway or transitway areas. The DNR Natural Heritage database indicates that there are records for species of concern that have been known to occur on or immediately adjacent to the overall project area or within approximately one mile of the project area.

RTE species listed within the overall I-270/US 15 Corridor highway and transitway alignments fall on five quadrangle maps including Rockville, Gaithersburg, Germantown, Urbana, and Frederick. The data are sorted by species known to occur on or immediately adjacent to the Corridor and species known to occur within one mile of the project. Only those species known to occur on or immediately adjacent to the project are described.

State Listed Species Known to Occur on or Immediately Adjacent to the Project

State listed threatened species known to occur on or immediately adjacent to the project area include sedge wren (*Cistothorus platensis*), Canadian burnet (*Sanguisorba canadensis*), swamp-oats (*Sphenopholis* pensylvanica), and Buxbaum's sedge (*Carex buxbaumii*).

Sedge wren is known to have bred historically within the headwaters of Watts Creek in Montgomery County (Rockville Quad). Within the project limits, the headwater areas of Watts Creek occur on the King Farm. This property is presently under construction as a mixed-use development including office complexes and residential units. The transitway alignment is

proposed to follow a newly constructed road through this property. The Canadian burnet, swamp-oats, and Buxbaum's sedge all were known to occur within a wetland designated as a Nontidal Wetland of Special State Concern by MDE. This wetland is known as the Germantown Bog and occurs in an unnamed tributary to Little Seneca Creek. The wetland lies outside the study area north of I-270, just south of the Father Hurley Boulevard interchange in Montgomery County (Germantown Quad).

b. Impacts and Mitigation

The USFWS has indicated that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to occur within the project impact area. The DNR response letter documented the presence of RTE species immediately adjacent to the project impact area. These species include sedge wren, Canada burnet, swamp-oats, and Buxbaum's sedge. The three plant species are associated with the Germantown Bog, a state designated wetland of special state concern. This wetland is located just south of the Father Hurley Boulevard interchange and approximately 400 feet east of the proposed right-of-way for Alternates 3A/B, 4A/B, and 5A/B/C. The wetland is associated with an unnamed tributary of Little Seneca Creek that drains west across the I-270 Corridor. Alternates 3A/B, 4A/B, and 5A/B/C impact a wetland downstream of the wetland of special state concern. During field investigations for the I-270 corridor project none of these species were identified within this wetland. Therefore, no impacts to these state listed species are anticipated.

According to a letter from DNR dated March 5, 2001 providing supporting information on possible RTE species within the project area, there are no recent sedge wren records within the project area. A copy of this letter is included in the Comments and Coordination section of this document. In the early 1990s, the species was known to breed within the headwaters of Watts Creek. The King Farm property lies within the headwaters of Watts Creek. The proposed transitway alignment extends through this property, which is presently being developed as a corporate park. The DNR letter states that the area has undergone considerable recent development, and that it is unknown whether this species is still attempting to breed in this general vicinity. The corporate development has impacted most of the emergent wetland areas on the King Farm property preferred by this species. Regardless of the potential presence of this species, the proposed project will not impact sedge wren habitat. The proposed transitway alignment will follow existing roadways through this area and the highway alignment is outside the known area of sedge wren occurrence. No other state listed species are known to occur within the project impact area.

I. HAZARDOUS MATERIALS/WASTE SITES

1. Existing Conditions

a. Initial Site Assessment Methodology

An Initial Site Assessment (ISA) was conducted to identify the potential presence of hazardous or other environmentally sensitive waste sites in the project area. The hazardous materials technical report, entitled *I-270/US 15 Multi-Model Corridor Preliminary Screening Assessment of Transportation Corridor Alignments*, (RK&K and PB, March 1999) contains detailed information obtained during the hazardous waste analysis. The hazardous materials technical report is available for inspection at SHA and MTA offices during normal business hours.

The ISA included the following tasks:

- **Corridor Field Reconnaissance** – The project team traveled the alternate alignments to observe adjacent and nearby properties for site operations that presented a relatively high risk of contaminant releases to the environment.

- **Regulatory Database Search** – The project team reviewed the ASTM database search reports which detail the results of the address-based searches of 24 federal and state databases, including those that compile information under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), National Priority List (NPL), Toxic Substances Control Act (TSCA), State Hazardous Waste System (SHWS), Leaking Underground Storage Tank (LUST) database, and UST and aboveground storage tank (AST) registration systems.

- **Review of Public Regulatory Documents** – The project team submitted a Public Information Act request to the Maryland Department of the Environment (MDE) and reviewed available case files for several sites with documented contaminant releases. Copies of selected case files are included in Appendix D of the hazardous materials technical report.

b. Sites of Environmental Concern

Based on review of the regulatory database results and the field reconnaissance of proposed Corridor alternates, the following sites are noted for documented or potential contaminant releases or for operations that generate hazardous wastes. Refer to the hazardous materials technical report for location of the following sites of environmental concern:

Leaking Underground Storage Tanks (LUST)

- **LUST #6, Rockville, Maryland, MDE Case No. 92-1490 MO2**: Petroleum product was observed on the groundwater during removal of two USTs in 1992. Groundwater monitoring continued until June 1997 when MDE issued a notice of compliance.

- **LUST #2, Urbana, Maryland.** The database search identified this site located near the northbound I-270 ramps, as a facility with a leaking UST case file. However, the MDE file contained no reference to UST leaks or releases of any kind. The facility passed MDE inspections in 1995 and 1996.

- **LUST #3, Gaithersburg, Maryland MDE Case No. 94-2941 MO2:** This site adjoins the CSX corridor. The removal of two USTs in June 1994 encountered gasoline-contaminated soil. Approximately 100 tons of impacted soil was removed for offsite remediation and disposal. MDE placed the case on the inactive docket in November 1994.

- **LUST #4, Gaithersburg, Maryland, MDE Case No. 88-1633 MO:** This site is located near the southbound I-270 and the proposed Transitway rights-of-way. A leaking gasoline UST was reported in 1988. Chevron operated a groundwater remediation system from October 1990 through March 1995. Annual monitoring of five groundwater monitoring wells continues. This Chevron facility has been demolished and the site has been regraded pending future development.

- **LUST #5, Gaithersburg, Maryland, MDE Case No. 9-1142 MO1**: This site is located near the ramp to northbound I-270. A gasoline release was discovered in January 1989 prior to UST replacement in March 1989. Texaco operated a remediation system consisting of total fluids recovery, air stripping, carbon filtration, and soil vapor extraction through 1995. Groundwater monitoring was discontinued in November 1996 following MDE file closure.

- **LUST #1, Frederick, Maryland, MDE Case No. 90-2413FR:** A gasoline release was detected in 1990 at this site adjoining the ramp from southbound Buckeystown Pike to northbound I-270. Dissolved hydrocarbon concentrations were monitored and reported semiannually. During station renovation in June and July 1997, the USTs were replaced and 1,284 tons of contaminated soils were removed for offsite remediation.

Potential CERCLA sites

Three properties were listed in the EPA CERCLIS program as potentially contaminated sites under CERCLA (Superfund) and are listed in the hazardous materials technical report. In each case, preliminary assessment of the suspected contaminant release indicated that contamination was not detected or the level of contamination did not warrant regulation under Superfund.

- **NFRAP #1, Gaithersburg, Maryland.** This facility abuts the south side of the CSX alignment near the proposed Watkins Mill Road interchange. Trichloroethylene (TCE) was discovered in an onsite well in 1983. Preliminary Assessment and Screening Site Inspections by EPA resulted in a finding of No Further Remedial Action Planned (NFRAP) in 1990.

- **NFRAP #2, Gaithersburg, Maryland**. This site adjoins the Transitway alignment. A preliminary assessment was performed to investigate unspecified contamination. Based on the assessment results, EPA issued a NFRAP finding in 1991.

- **NFRAP #3, Gaithersburg, Maryland**. This facility adjoins the transitway alignment. EPA issued a NFRAP decision following a Preliminary Assessment of an unspecified contaminant discovery. The location of the spill within the facility was not provided.

RCRA Large Quantity Generators

Review of the RCRA database of facilities that generate more than 1,000 kilograms per month of non-acutely hazardous waste or more than 1 kilogram per month of acutely hazardous waste included 29 sites near the I-270/US 15 Corridor. The three facilities on the large-quantity generators (LQG) list that were investigated for suspected releases are the same as the NFRAP sites discussed above. Two other LQG sites are located adjoining proposed transitway alignments. These sites include Potential Site of Concern (PSC) #3 in Clarksburg. The remaining site, a technology/research company located adjacent to the transitway alignment in Gaithersburg, had no documented contamination problems at the time of the regulatory database search. Refer to the hazardous materials technical report for the complete list of RCRA large quantity generators.

Corridor Field Reconnaissance

Due to the size of the project area and the preliminary nature of the alternate alignments, the project team performed a limited "walkover" (conducted in February 1999) as part of the overall Corridor field reconnaissance to confirm the locations of the sites of concern identified during review of the regulatory database reports and MDE case files. The project team also sought to identify, to the extent possible, other locations where on-site operations suggest a potential for existing or future contaminant releases. Nine sites of potential concern were noted based only on observations of existing site conditions or operations and do not necessarily suggest a high probability of site contamination. These sites are listed below and in the hazardous materials technical report:

- **PSC #9 Gaithersburg, Maryland:** Monitoring well casings were visible near the ramp from westbound Montgomery Village Avenue to northbound I-270. The monitoring wells were located near the base of a slope extending down from the large facility along Frederick Road. The wells may indicate a recent or ongoing assessment of suspected groundwater contamination.

- **PSC #8 Germantown, Maryland:** This electric power substation is enclosed by I-270 southbound, the I-270 southbound entrance ramp, and eastbound Middlebrook Road.

- **PSC #7 Clarksburg, Maryland**: located between I-270 and Frederick Road. A large electric power substation is located on this site.

- **PSC #6 Clarksburg, Maryland:** located between I-270 and Frederick Road. The site is used for staging and storing trucks and equipment. No permanent facilities were visible. On-site fueling of equipment was being performed from a contractor-owned tanker truck.

- **PSC #5 Clarksburg, Maryland:** located between I-270 and Frederick Road. Trailers and vans are stored on this facility. No information is available concerning truck maintenance or fuel storage operations on site.

- **PSC #4 Clarksburg, Maryland:** located between I-270 and Frederick Road. This facility stores and maintains cranes and other heavy equipment.

- **PSC #3 Clarksburg, Maryland:** located between I-270 and Frederick Road. This site contains storage and maintenance facilities for a variety of trucks and heavy equipment. This facility includes seven MDE-registered USTs and is registered as a RCRA Large Quantity Generator.

- **PSC #2 Urbana, Maryland**: located on the south side of Fingerboard Road west of the entrance ramp to southbound I-270. The site location and layout, which includes a rectangular concrete pad surrounded by asphalt pavement, suggest past operation as a service station. The project team specifically requested MDE records for this site; however, no regulatory documentation was available.

- **PSC #1 Frederick, Maryland:** this facility is located approximately 600 feet east of the northbound I-270 exit ramp. A contractor was excavating at this site on the corner of Jefferson Street and Prospect Boulevard. A vacuum truck was on site as part of a UST removal operation. The removal of the old USTs is part of a UST upgrade in accordance with an MDE permit to install new 8,000-gallon and 12,000-gallon USTs.

Summary

The initial site assessment did not identify any sites where construction of the proposed transportation alternates would be expected to encounter severe soil or groundwater contamination. Modest levels of soil or groundwater contamination were documented at five facilities and suspected at four facilities within the project area. These facilities include six leaking UST sites (service stations) under MDE regulation and three NFRAP sites regulated by EPA.

c. Leaking Underground Storage Tanks (LUST)

MDE has closed the files on three of the leaking UST sites by issuing letters of compliance or placing the files on the inactive docket. One service station, the Urbana Exxon, was erroneously identified in the leaking UST database and was in compliance. The two leaking UST facilities with active files are both in post-remediation monitoring. The contaminant plumes at both sites have been remediated to the maximum extent practical and the remediation systems have been dismantled following MDE approval. Groundwater monitoring is expected to continue until

MDE determines that dissolved petroleum concentrations have declined below levels that would present a human health risk.

Although unanticipated contamination may remain at or near the leaking UST facilities, review of the available documentation indicates that these sites do not appear to present a significant risk to construction of the transportation alignment alternates under consideration.

d. Potential CERCLA sites (NFRAP)

The three NFRAP sites were investigated under EPA supervision. Although little detailed information is provided by the available documentation, each site was investigated and in each case, the contaminant release was either unconfirmed or determined to be insufficient to warrant further assessment or remedial action. The three NFRAP sites are not anticipated to impact construction along the proposed transportation alignment alternates.

e. RCRA Large Quantity Generators

Five RCRA large quantity generators are located adjacent to the proposed transitway or highway improvements. Three of these sites have been listed as NFRAP sites. The sites identified as RCRA large quantity generators are facilities that store, use, and dispose of significant quantities of hazardous materials under normal operating conditions. Because relatively large quantities of hazardous materials are maintained on site, the potential exists for accidental release of these materials to site soil or groundwater. Considering the location relative to the proposed transportation alignments and the lack of documented contaminant releases, these facilities present minimal risk to the construction of the proposed transportation alignment alternates. For the remaining two sites, each have no record of documented releases, however, one is listed as a site of potential concern. The PSC sites are discussed in the following section, Potential Sites of Concern.

f. Potential Sites of Concern (PSC)

The ISA identified nine facilities within the project area based on their proximity to proposed alignments and observation of site operations including heavy equipment storage and maintenance, UST replacement, monitoring well installation, or electrical power distribution. Although these sites have not been identified in the regulatory databases as contaminant release sites, the sites should be considered as potential sources of environmental contamination during construction of transportation alignment alternates.

More detailed environmental assessments should be performed for specific sites of concern and large property acquisitions following approval of transportation alternates and prior to property acquisition and negotiation. A regulatory database search should be performed to update the documentation on known contaminant releases along the alignment. Where appropriate, based on site observations and available documentation, assessment efforts may include ASTM Phase I ESAs or Phase II Site Investigations with soil and/or groundwater sampling and analysis. The potential sites of concern should be considered for further assessment, depending on the proximity of the site to the approved alignments and the nature of the proposed construction.

2. Impacts and Mitigation Measures

The Preliminary Screening Assessment was completed and documented March 1999. A field reconnaissance was conducted to identify sites that may be environmentally contaminated due to past and present uses of a facility. In total, 18 sites were identified as having documented contamination problems or having onsite operations that could result in subsurface contamination. Nine sites were listed as potential sites of concern (PSC) based on observation of site operations. Three sites were investigated by EPA under Superfund qualifications, resulting in a finding of No Further Remedial Action Planned (NFRAP). MDE intends to pursue more detailed investigation of Maryland NFRAP sites, but as of 1999, no MDE action had begun at these sites.

Six sites were documented as Leaking Underground Storage Tank (LUST) sites with MDE regulated investigation and remediation of soil and groundwater contamination. Clean-up activities at these sites are either in progress or completed. The available documentation did not describe any of the 18 sites as severely contaminated. However, no regulatory or site investigation data was available for the nine PSCs, and very limited investigations were performed at the NFRAP sites. **Table III-57** provides the potential impact to the sites identified by the Preliminary Screening Assessment. The table also lists the alternates that potentially may impact the site.

Subsequent to the field reconnaissance and regulatory file database research, the project alternates have been altered to include additional transitway length from Metropolitan Grove to Clarksburg. Review of this additional transitway alignment length with respect to the database research coverage area and potential hazardous material sites has resulted in the conclusion that no additional geographic boundary research is required. Considering the date of the Preliminary Screening Assessment, it is recommended that additional hazardous material evaluation be conducted prior to the selection of a selected alternate.

No potential sites are associated with the No-Build Alternate. There are six potential sites associated with Alternates 3A, 4A and 5A, and four potential sites associated with Alternates 3B, 4B, 5B and 5C.

Remediation strategies for identified sites would also be undertaken, as required and appropriate. It is recommended that a more detailed environmental assessment be performed once a selected alternate is determined for those sites that will be impacted. Where appropriate, assessment efforts may include ASTM Phase I ESAs or Phase II Site Investigations with soil and/or groundwater sampling and analysis.

TABLE III-57
HAZARDOUS MATERIAL SITES WITHIN THE IMMEDIATE VICINITY OF THE I-270/US 15 CORRIDOR

Site No.	Plan Sheet No.	Alternate	Description of Impact
Potential Sites of Concern (PSC)			
PSC 1	Hwy 12		No impact
PSC 2	Hwy 8		No impact
PSC 3	Hwy 6	3A/B, 4A/B, 5A/B/C	These three sites lie adjacent to one another, and all border I-270 northbound. The additional ROW will impact these sites.
PSC 4	Hwy 6	3A/B, 4A/B, 5A/B/C	
PSC 5	Hwy 6	3A/B, 4A/B, 5A/B/C	
PSC 6	Hwy 6		No impact
PSC 7	Hwy 6		No impact
PSC 8	Hwy 3		No impact
PSC 9	Hwy 2		No impact
Leaking Underground Storage Tank (LUST)			
LUST 1	Hwy 11		No impact
LUST 2	Hwy 8		No impact
LUST 3	Hwy 2	3A, 4A, 5A	Proposed transitway will impact this site on its northern corner, and will impact an existing parking lot and forested area.
LUST 4	Hwy 1		No impact, though transitway will run adjacent to the site.
LUST 5	Hwy 1		No impact
LUST 6	Tran 2	3A, 4A, 5A	Proposed transitway will run parallel to the site on its southeastern side, but will impact this site in its easternmost corner where no structures exist.
No Further Remediation At Present (NFRAP)			
NFRAP 1	None		No impact
NFRAP 2	Tran 4		No impact
NFRAP 3	Hwy 2	3A/B, 4A/B, 5A/B/C	Construction of a direct access ramp will impact forested vegetation, and grassland on the northwestern corner of the site.

Examples of remediation strategies may include:

1) Modified construction techniques and schedule (e.g. performing construction work under a site specific Health and Safety Plan or utilizing sediment and erosion controls).
2) Underground storage tank (UST) or above ground storage tank (AST) removal.
3) Product recovery.
4) Soil containment technologies (e.g. capping, vertical barriers, horizontal barriers, and surface controls).
5) Soil removal and off-site treatment or disposal.
6) Soil treatment technologies (e.g. vapor extraction, bioventing immobilization, dewatering, physical treatment, chemical treatment (lime neutralization), biological treatment (cultured micro-organisms, in-situ treatment/surface bio-reclamation), thermal treatment (desorption).

7) Groundwater treatment (e.g. physical treatment (coagulation/flocculation, oil-water separation, air stripping, adsorption), chemical treatment (neutralization, precipitation, ion exchange, oxidation/reduction), and in-situ treatment (bioventing).

J. AIR QUALITY

1. Existing Conditions

a. Relevant Pollutants

"Air Pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or reducing human or animal health.

Eight air pollutants have been identified by the US Environmental Protection Agency (EPA) as being of concern nationwide: carbon monoxide, sulfur oxides, hydrocarbons, nitrogen oxides, ozone, particulate matter sized 10 microns or less, particulate matter with a size of 2.5 microns or less, and lead. The sources of these pollutants, their effects on human health and the nation's welfare, and their final deposition in the atmosphere vary considerably. A brief description of each pollutant is given below.

Carbon Monoxide

Carbon monoxide (CO) is a colorless and odorless gas that is generated in the urban environment primarily by the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations of CO are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. CO chemically combines with the hemoglobin in red blood cells to decrease the oxygen carrying capacity of the blood. Prolonged exposure can cause headaches, drowsiness, or loss of equilibrium.

Sulfur Oxides

Sulfur oxides (SOx) constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of great importance. The health effects of SOx include respiratory illness, damage to the respiratory tract, and bronchioconstriction. Relatively little SOx is emitted from motor vehicles.

Hydrocarbons

Hydrocarbons (HC) include a wide variety of organic compounds emitted principally from the storage, handling, and use of fossil fuels. Though HC can cause eye irritation and breathing difficulty, their principal health effects are related to their role in the formation of ozone.

Nitrogen Oxides

Nitrogen oxides (NO_X) constitute a class of compounds that include nitrogen dioxide (NO_2) and nitric oxide (NO); both of which are emitted by motor vehicles. Although NO_2 and NO can irritate the eyes and nose and impair the respiratory system, NO_X, like HC, is of concern primarily because of its role in the formation of ozone.

Ozone

Ozone (O_3), or photochemical oxidants, is a major cause of lung and eye irritation in an urban environment. It is formed through a series of reactions involving HC and NO_X that take place in the atmosphere in the presence of sunlight. Relatively high concentrations of O_3 are normally found only in the summer.

Particulate Matter

Particulate pollution is composed of solid particles or liquid droplets, which are small enough to remain, suspended in the air. In general, the particulate pollution may include dust, soot, and smoke which may be irritating but not usually poisonous. Particulate pollution may also include bits of solid or liquid substances that may be highly toxic. Of particular concern are those particles that are smaller than or equal to 10 microns and 2.5 microns in size, (PM_{10}) and ($PM_{2.5}$) respectively. The data collected through many nationwide studies indicates that most of the PM_{10} is the product of fugitive dust, wind erosion and agricultural and forestry sources, while a small portion is the product of fuel combustion processes. In the case of $PM_{2.5}$ the combustion of fossil fuels account for a significant portion of this pollutant. The main health effect of air-borne particulate matter is on the respiratory system.

Lead

Lead (Pb) is a stable element that persists and accumulates both in the environment and in animals. Its principal effects in humans are on the blood-forming, nervous, and renal systems. Lead levels in the urban environment from mobile sources have significantly decreased due to the federally mandated switch to lead-free gasoline.

The pollutants that are most important for air quality impact analysis are those that can be traced principally to motor vehicles. In the study area ambient concentrations of CO and O_3 are predominantly influenced by motor vehicle activity. Emissions of HC, NO_X and $PM_{10/2.5}$ come from both mobile and stationary sources. Emissions of SO_X and Pb are associated mainly with various stationary sources.

b. National And State Ambient Air Quality Standards

As required by the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for seven major air pollutants. These pollutants are: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_X, and Pb. New NAAQS for O_3 and $PM_{2.5}$ were passed into law on July 16, 1997 (Federal Register Notice July 18, 1997, effective date September 16, 1997). The new standards were set aside however on May 14, 1999.

The National and State ambient air quality standards are summarized in **Table III-58** and described below. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

- **CO** - Two primary standards exist for carbon monoxide, which depend on the period used to compute the concentration of carbon monoxide. Based on an eight-hour maximum, the primary standard is 9 ppm (10 $mg/m^{3)}$ and based on a one-hour maximum, the primary standard is 35 ppm (40 mg/m^3), both of which are not to be exceeded more than once per calendar year. The State and National standards are the same.

- **Total Suspended Particulates / PM_{10}** - On July 31, 1987, the EPA replaced total suspended particulate (TSP) as the indicator for particulate matter with PM_{10}. The reason for changing the standard was based on an assessment of available scientific information indicating that the smaller particles can penetrate deeper into the respiratory tract and efforts should be concentrated on controlling their levels in the ambient air. The PM_{10} primary and secondary standards are 50 ug/m^3 (annual arithmetic mean) and 150 ug/m^3 (24-hour average), which is not to be exceeded on more than an average of one day per calendar year.

- **Fine Particulate Matter ($PM_{2.5}$)** - On July 16, 1997, EPA established a new standard for particulates with a diameter smaller than 2.5 microns ($PM_{2.5}$). Medical evidence indicated that these much smaller particles are also of serious concern to human health, since they lodge deeply in the lungs and can cause premature deaths and respiratory problems. The $PM_{2.5}$ standards are based on (I) a 24-hour exposure set at 65 ug/m^3 and (II) an annual average exposure set at 15 ug/m^3. The 24-hour limit is the 98th percentile of the highest levels measured at a neighborhood oriented monitoring site, averaged over a three-year period. On May 14, 1999 a panel of the US Court of Appeals set aside the new $PM_{2.5}$ standard. The standard is currently in place but not enforceable at this time.

- **SO_2** - Two primary and one secondary standard exist for SO_2, which are based on the time averaging period. Based on an arithmetic mean or 24-hour average, the primary standards are 0.03 ppm (80 $ug/m^{3)}$ and 0.14 ppm (365 $ug/m^{3)}$ respectively. Based on a three-hour maximum, the secondary standard is 0.5 ppm (1300 $ug/m^{3)}$. All of the standards are not to be exceeded more than once per year.

- **NO_2** - One primary and one secondary standard exists for NO_2. Based on an annual arithmetic mean, both the primary standard and the secondary standard are .053 ppm (100 ug/m^3).

- **O_3** - One primary and one secondary standard exists for O_3. Based on a one-hour maximum, both the primary and the secondary standards of 0.12 ppm (235 ug/m^3) are not to be exceeded more than an average of one day per year. This standard is being phased out and replaced with a new 8-hour standard set to protect public health against longer

exposure periods. It has been found that longer-time exposures, even at levels below the existing standard, could cause significant health effects, including asthma, breathing and respiratory problems, and possible long term lung damage and lower immunity to disease. The new 8-hour O_3 standard is set at 0.08 ppm. A violation of this standard will occur if the 3-year average of the annual 4th highest daily maximum 8-hour concentration exceeds the standard. The existing 0.12 ppm standard will be retained for current nonattainment areas until such areas meet the standard for three consecutive years. On May 14, 1999 a panel of the US Court of Appeals set aside the new ozone standard. The new 8-hour standard is in place but is currently not enforceable.

- **Lead** - One primary and one secondary standard exists for lead. Based on a three-month quarterly mean, both the primary and secondary standards are 1.5 ug/m^3.

TABLE III-58
NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	State Standards		
	Averaging Period	Primary [a]	Secondary
Carbon Monoxide	8 Hour [b]	9 ppm (10 ug/m^3)	No Secondary Standard
	1 Hour [b]	35 ppm (40 ug/m^3)	No Secondary Standard
Lead	Maximum Quarterly Average	1.5 ug/m^3	Same as Primary
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm (100 ug/m^3)	Same as Primary Standard
Ozone	Maximum Daily 1-hour Average [c]	0.12 ppm (235 ug/m^3)	Same as Primary Standard
	4th Highest 8-hour Daily Maximum [dg]	0.08 ppm	Same as Primary Standard
Particulate Matter (PM_{10})	Annual Arithmetic Mean [e]	50 ug/m^3	Same as Primary
	24-hour [e]	150 ug/m^3	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)**	Annual Arithmetic Mean [f,g]	15 ug/m^3	Same as Primary
	98th percentile 24-hour [f,g]	65 ug/m^3	Same as Primary
Sulfur Dioxide	Annual Arithmetic Mean	80 ug/m^3 (0.03 ppm)	---
	24-hour[b]	365 ug/m^3 (0.14 ppm)	---
	3-hour[b]	---	1300 ug/m^3 (0.5 ppm)

Source: *US Environmental Protection Agency, "National Primary and Secondary Ambient Air Quality Standards." (49 CFR 50) Maryland Department of the Environmental, Air Quality Division*

Notes:

a *Parenthetical value is an approximately equivalent concentration.*

b *Not to be exceeded more than once per year.*

c *The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.1 ppm is equal to or less than 1, as determined according to Appendix H of the Ozone NAAQS. The 1-hour standard only applies to areas that are still designated nonattainment. For areas with air quality data showing attainment, the 1-hour has been revoked.*

d. *The 8-hour ozone standard applies to areas that have been designated as reaching attainment of the 1-hour standard. The 8-hour standard is met when the 3-year average of the annual 4th highest daily maximum 8-hour ozone concentration is less than or equal to 0.08 ppm.*

e *Particulate standards when using PM10 (Particulates less than 10 mm in diameter) as the indicator pollutant. The annual standard is attained when the expected annual arithmetic mean concentration is less than of equal to 50 ug/m3 (3-year average); the 24-hour standard is attained when the expected number of days above 150 ug/m3 is equal or less than 1.*

f *Particulate standards when using PM2.5 as the indicator pollutant. The annual standard is met when annual average of the quarterly mean PM2.5 concentrations is less than or equal to 15ug/m3, when averaged over 3 years. If spatial averaging is used, the annual averages from all monitors within the area may be averaged in the calculation of the 3-year mean. The 24-hour standard is met when the 98th percentile value, averaged over 3 years, is less than or equal to 65 ug/m3.*

g *On May 14, 1999 the Circuit Court of Appeals for the District of Columbia remanded the revised ozone and particulate standards to the EPA for re-evaluation. To date, the ruling still stands. The EPA still plans to challenge the rulings but has yet to do so.*

Abbreviations: *ppm = parts per million, ug/m^3= micrograms per cubic meter*

c. Air Quality Regulations and Planning

Clean Air Act Amendments of 1990

The Clean Air Act Amendments of 1990 (CAAA) and the Final Conformity Rule (40 CFR Parts 51 and 93) direct the EPA to implement environmental policies and regulations that will ensure acceptable levels of air quality.

The Clean Air Act and the Final Conformity Rule affect proposed transportation projects such as the I-270/US 15 Corridor Multi-Modal project. According to Title I, Section 101, Paragraph F of the Amendments, "No federal agency may approve, accept or fund any transportation plan, program or project unless such plan, program, or project has been found to conform to any applicable State Implementation Plan (SIP) in effect under this act." The Final Conformity Rule defines conformity as follows:

Conformity to an implementations plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and

That such activities will not:

i. cause or contribute to any new violation of any NAAQS in any area:
ii. increase the frequency or severity of any existing violation of any NAAQS in any area; or
iii. delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

Attainment Status of the Study Area

Section 107 of the 1977 CAAA requires that EPA publish a list of all geographic areas in compliance with the NAAQS, as well as those not in attainment of the NAAQS. Areas not in compliance with the NAAQS are termed nonattainment areas. Areas, which have insufficient data to make a determination, are unclassified, and are treated as being in attainment areas until proven otherwise. Areas, which were designated as nonattainment when the CAAA were implemented but have since attained compliance with the standards, are classified as "maintenance areas". The designation of an area is made on a pollutant-by-pollutant basis.

Frederick and Montgomery Counties are part of the Metropolitan Washington Council of Governments (MWCOG). The MWCOG is a regional organization of Washington area local governments. The MWCOG is composed of 17 local governments surrounding the nation's capital, plus area members of the Maryland and Virginia legislatures, the US Senate and the US House of Representatives. Montgomery County was classified from 1992 – 1995 as a moderate nonattainment area for CO. It was reclassified as a maintenance area on March 3, 1996. Montgomery County and Frederick County are classified as serious nonattainment area for Ozone ($O_{3)}$. On January 3, 2001, the EPA finalized its approval of the DC-MD-VA Revised Phase II Attainment Plan. EPA also approved the extension of the 1-hour attainment date to 2005.

Montgomery and Frederick counties are classified as in attainment for PM_{10}, Pb and NO_2.

d. Ambient Air Quality in the Project Area

Local Meteorology

The nature of the surrounding atmosphere is an important element in assessing the ambient air quality of an area. The project area is located east of the Blue Ridge, Bull Run and Catoctin Mountains. The terrain in the project area is mostly low rolling hills. Easterly winds cause an upslope effect from the Atlantic Ocean, located approximately 120 miles east and the Chesapeake Bay located approximately 35 miles east.

The project area is in the middle latitudes, where the general atmospheric flow is from west to east, favors a continental climate with four well defined seasons. Summers are warm and at times humid. Winters are mild. Generally pleasant weather prevails in spring and autumn. The coldest period, when temperature average 21 degrees, occurs in late January. The warmest period, averaging 88 degrees, occurs in the last half of July. Precipitation is rather evenly distributed throughout the year. Annual precipitation has ranged from about 25 inches to more than 55 inches. Rainfalls of over 10 inches in a 24-hour period have been recorded during the passage of tropical storms. The seasonal snowfall is nearly 24 inches, but varies greatly from season to season. Snowfalls of 4 inches or more occur only twice each winter on average. Accumulations of over 20 inches from a single storm are extremely rare. Storm damage results mainly from heavy snows and freezing rains in winter and from hurricanes and severe thunderstorms during the other seasons.

Precipitation helps cleanse the atmosphere of pollutants. Very small particles in the atmosphere act as condensation nuclei, triggering the formation of raindrops, while larger particles are literally washed from the air during precipitation events. Precipitation also prevents the drying of the ground, alleviating the formation of fugitive dust; however, precipitation can combine with the oxides of sulfur and nitrogen to produce another form of pollution, namely acid rain.

Prevailing winds are from the south except during the winter months when they are from the northwest. The windiest period is late winter and early spring. Winds are generally less during the night and early morning hours and increase to a high in the afternoon. Winds may reach 50 to 60 miles per hour or even higher during severe summer thunderstorms, hurricanes, and winter storms. Wind speed direction, and its variability has a large influence on the dispersion of atmospheric pollutants.

Monitored Air Quality

The Air and Radiation Management Administration (ARMA), within the Maryland Department of the Environment (MDE) is responsible for implementing and enforcing regulations to assure that the air Maryland citizens' breath is clean and healthful. This mission is accomplished through several methods including air pollution monitoring. Maryland monitors the six criteria pollutants year round from 33 monitoring site. Since the measurable concentration of a given air contaminant at a particular time and place is highly dependent on meteorological conditions, wind speed, and direction of instruments, barometric pressure, solar radiation, and relative humidity are also monitored at some of these locations. The ARMA verifies, analyzes, and

collates all data collected by the monitors. Industries voluntarily, or under agreement or order, submit air monitoring data to the ARMA. Data collected and reported thereby must meet minimum quality assurance requirements established by the ARMA and EPA, as outlined in the Federal Register Part 58 and its Appendices.

Monitored air quality data within or near the study area for CO, O_3 and PM_{10} for the years 1995-2000 is presented in **Table III-59**. Further monitoring information can be found in Appendix A of the air quality technical report.

TABLE III-59
AMBIENT AIR QUALITY MONITOR DATA
1995-2000

Contaminant Location/Year	Max 1-Hour	2nd Max 1-Hour	No. Days Standard Exceeded	Max 8-Hour	2nd Max 8-Hour	No. Days Standard Exceeded
Carbon Monoxide (CO)(ppm)						
Rockville – Montgomery County - 1995	4.9	4.7	0	3.7	3.4	0
Rockville – Montgomery County - 1996	5.7	4.9	0	3.3	3.0	0
Rockville – Montgomery County - 1997	4.7	3.7	0	2.7	2.5	0
Bladensburg – Prince George County - 1997	10.9	8.9	0	7.0	6.8	0
Bladensburg – Prince George County - 1998	7.7	7.3	0	5.0	4.8	0
Bladensburg – Prince George County - 1999	8.0	7.5	0	5.1	4.3	0
Air Quality Standard	**35.0**	**35.0**		**9.0**	**9.0**	

Particulate Matter 10 Microns or Less (PM_{10})(ug/m^3)	**Maximum 24 Hour**	**2nd Maximum 24-Hour**	**No. Days Standard Exceeded**
Frederick – Frederick County - 1995	61	59	0
Rockville – Montgomery County - 1995	71	57	0
Suitland-Silver Hill – Prince George County - 1998	61	53	0
Suitland-Silver Hill – Prince George County - 1999	64	57	0
Suitland-Silver Hill – Prince George County - 2000	59	56	0
Air Quality Standard	**150**	**150**	

	Highest Readings				**No. Days**
	First	**Second**	**Third**	**Fourth**	**Standard Exceeded**
Ozone (O_3)(ppm)					
Frederick – Frederick County - 1998	.131	.108	.106	.106	1
Frederick – Frederick County - 1999	.128	.114	.106	.103	1
Frederick – Frederick County - 2000	.109	.108	.096	.095	0
Rockville – Montgomery County - 1998	.136	.122	.113	.112	1
Rockville – Montgomery County - 1999	.125	.113	.111	.108	1
Rockville – Montgomery County - 2000	.093	.091	.091	.090	0
Air Quality Standard	**0.12**	**0.12**	**0.12**	**0.12**	

Source: *6/21/01 - EPA Office of Air Quality Planning and Standards (AIRS Data). MDE Air Quality Data Reports*

2. Impacts and Mitigation Measures

a. Pollutants for Analysis

Pollutants that can be traced principally to motor vehicles and are thus relevant to the evaluation of the project impacts, include CO, HC, NO_X, O_3 and PM_{10}. Transportation sources account for a very small percentage of regional emissions of SO_X and Pb, thus a detailed analysis is not required. While EPA has indicated that PM_{10} is a pollutant of concern for mobile source projects, PM_{10} hot spot analysis guidance has not been adopted by the EPA. It is possible that a hot-spot analysis for PM_{10} may be required in the future.

HC and NO_X emissions from automotive sources are of concern primarily because of their role as precursors in the formation of ozone and particulate matter. Ozone is formed through a series of reactions, which take place in the atmosphere in the presence of sunlight. Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of HC and NO_X emissions are therefore generally examined on a regional or "mesoscale" basis. PM_{10} is also examined on a regional basis, although, as previously discussed, a localized or hot-spot analysis may be required in the near future.

CO impacts are localized. Even under the worst meteorological conditions and most congested traffic conditions, high concentrations are limited to within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle emissions are the major source of CO. 77% of nationwide CO emissions come from transportation sources. Other major sources are wood burning stoves, incinerators and industrial sources. Consequently, it is appropriate to predict concentrations of CO on a localized or "microscale" basis.

b. Mesoscale Analysis

The regional or mesoscale analysis of a project determines a project's overall impact on regional air quality levels. A transportation project is analyzed as part of a regional transportation network developed by the County or State. Projects included in this network are found in the Constrained Long Range Plan (CLRP) and the Transportation Improvement Plan (TIP). The TIP includes a regional analysis that utilizes Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) within the region to determine daily “pollutant burden” levels. The results are used to determine if an area is in conformity with regulations set forth in the Final Conformity Rule.

This project appears in the Interstate Development and Evaluation program of MDOT’s FY 2001-2006 Consolidated Transportation Plan (CTP), the list of funded transportation projects, and is currently funded only for the planning phase. If a build alternate is selected as the “preferred alternate” to address congestion and safety issues along the Corridor, this project would be recommended for inclusion in MWCOG’s Constrained Long Range Plan (CLRP) for the region. The project would then become a candidate for engineering (final design), right-of-way acquisition and construction funding in future CTP programs. The CTP is updated and reviewed annually with local and state elected officials.

For the purpose of comparing the project's alternates, a mesoscale analysis was conducted. The results are shown in **Table III-60**. As shown in the table, the regional pollutant burdens for each alternate have. As shown in the table, the regional pollutant burdens for each alternate have less than a 1% variation among them.

TABLE III-60
MESOSCALE AIR QUALITY ANALYSIS

Alternate Year - 2025	Daily Pollutant Burden (Kg./day)			% Variation From No-Build		
	CO	NO_X	HC	CO	NO_X	HC
No-Build	1,150,638	222,392	107,425	-	-	-
TSM/TDM	1,150,644	222,393	107,426	0%	0%	0%
Alternate 3A	1,150,480	222,567	107,316	0.0%	0.1%	-0.1%
Alternate 3B	1,150,504	222,366	107,413	0%	0%	0%
Alternate 4A	1,150,480	222,567	107,316	0.0%	0.1%	-0.1%
Alternate 4B	1,150,504	222,366	107,413	0%	0%	0%
Alternate 5A	1,150,953	222,659	107,360	0.0%	0.1%	-0.1%
Alternate 5B	1,150,793	222,628	107,345	0.0%	0.1%	-0.1%
Alternate 5C	1,150,289	222,530	107,298	0.0%	0.1%	-0.1%

c. Microscale Air Quality Analysis

Microscale air quality modeling was performed using the most recent version of the EPA mobile source emission factor model (MOBILE 5b) and the CAL3QHC version 2 air quality dispersion model to estimate existing, future No-Build, and future build CO levels at selected locations in the project area. For this analysis only build scenarios for Alternates 3B and 5A were analyzed. Alternates 3B and 5A will most likely demonstrate the largest project impacts of eight build alternates. Alternate 3B is considered the worst-case scenario for air quality due to reduced highway capacity, increased buses and increased traffic congestion. These conditions will produce high volumes and decreased speed within the study area. Both of these factors can contribute to degraded air quality. The analysis of Alternate 5A demonstrates the impact a LRT facility will have on air quality.

Vehicular Emissions

Vehicular Emissions were estimated using the EPA MOBILE 5b vehicular emission factor model (MOBILE 5b, EPA Memo to Regional Air Directors, 10/11/96). MOBILE 5b is an interim update to EPA's vehicular emission factor model, MOBILE 5b (User's Guide to MOBILE 5b, Mobile Source Emission Factor Model, Ann Arbor, Michigan, March 1993).

Vehicular emissions are affected by the type of vehicles using the facility. The percentages of each type of vehicle and each major roadway type are shown in **Table III-61**. The percentages used were provided by the MWCOG.

TABLE III-61
VEHICLE MIX INFORMATION MOBILE 5B

Vehicle Type	Fleet Percent
Light Duty Gas Vehicles	82.0
Light Duty Diesel Vehicles	1.4
Light Duty Gas Trucks	10.5
Light Duty Diesel Trucks	0.0
Heavy Duty Gas Vehicles	1.6
Heavy Duty Diesel Vehicles	2.9
Motorcycles	1.6

Emission estimates account for three possible vehicle operating conditions: cold-vehicle operation, hot-start operation and hot stabilized operation. CO emissions are greatest when engines are cold (cold-start mode) and when engines are restarted shortly after they were shut off (hot-start mode). 20.6% of the vehicles were considered to be in cold-start mode, 27.3% of the vehicles were considered to be in the hot-start mode, and 47.9% were considered to be in a hot stabilized mode. These conditions were recommended by MWCOG.

Emissions are also affected by speed, ambient temperature, vehicle age and mileage distribution. An ambient temperature of 46.5^{o}F, with a minimum temperature of 33^{o}F and maximum temperature of 53^{o}F, was recommended by MWCOG. Local vehicle age was also provided by MWCOG. Emission estimates used for this analysis can be found in Appendix B of the Air Quality Technical Report.

Dispersion Model

Mobile source models are the basic analytical tools used to estimate CO concentrations expected under given traffic, roadway geometry, and meteorological conditions. The mathematical expressions and formulations that comprise the various models attempt to describe an extremely complex physical phenomenon as closely as possible. The dispersion modeling program used in this study for estimating pollutant concentrations near roadway intersections is the CAL3QHC (Version 2.0) dispersion model developed by the EPA and released in 1992.

CAL3QHC is a Gaussian model recommended in the *EPA Guidelines for Modeling Carbon Monoxide From Roadway Intersections* (EPA-454/R-92-005). Gaussian models assume that the dispersion of pollutants downwind of a pollution source follow a normal distribution around the center of the pollution source.

Different emission rates occur when vehicles are stopped (idling), accelerating, decelerating and moving at different *average* speeds. CAL3QHC simplifies these different emission rates into the following two components:

- Emissions when vehicles are stopped (idling) during the red phase of a signalized intersection.
- Emissions when vehicles are in motion during the green phase of a signalized intersection.

The CAL3QHC (Version 2.0) air quality dispersion model has undergone extensive testing by the EPA and has been found to provide reliable estimates of inert (non-reactive) pollutant concentrations resulting from motor vehicle emissions. A complete description of the model can be found in the *User's Guide to CAL3QHC version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations near Roadway Intersections* (EPA-454/R-92-006).

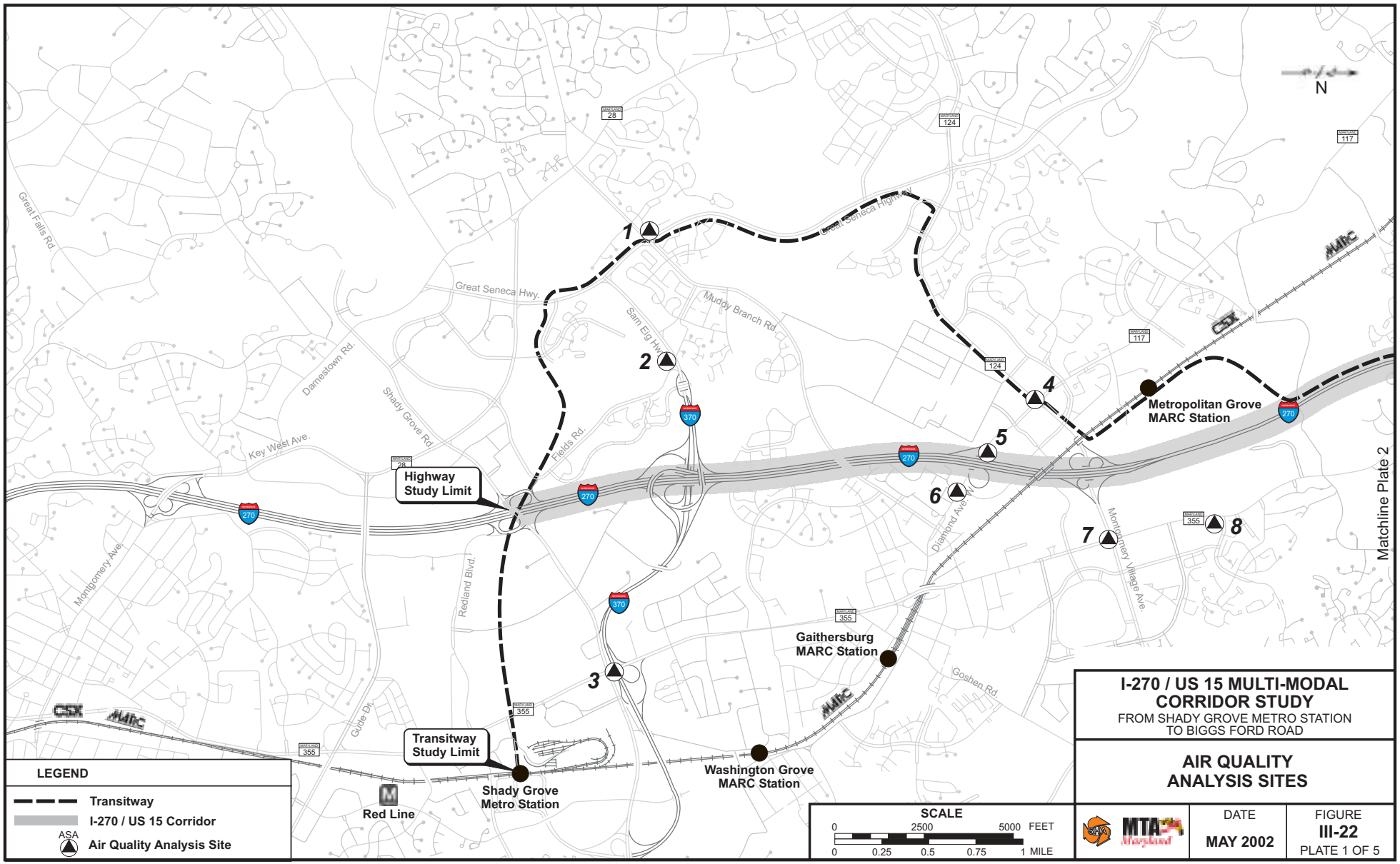
Site Selection / Receptor Locations

CO levels were estimated at 37 sites within the defined study area using the CAL3QHC (version 2) model. These sites consist of 23 intersections and 14 freeflow locations. The analysis sites were selected through a screening methodology based on intersection volumes, Levels of Service (LOS) and project-induced changes in traffic conditions. As shown in **Table III-62**, 69 intersections were screened. Nineteen of the 23 intersections analyzed failed the screening either because the LOS decreased in one of the build scenarios as compared to the No-Build scenario or the volume increased (along with a LOS below D) in one of the build scenarios as compared to the No-Build scenario. The highest volume intersection, MD 124 and MD 355, was also chosen for analysis. The remaining three intersections; Fields Road and Sam Eig, MD 117 and Perry Parkway, MD 121 and MD 355, were chosen due to community concerns and nearby sensitive receptors (residences, churches, parks, etc). Fourteen freeflow locations were chosen for analysis based on nearby land use and proximity of sensitive receptors. The sites chosen for analysis are listed in **Table III-63** and shown in **Figure III-22**. Receptors were chosen at each site in accordance with the guidelines found in EPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections* (EPA-454/R-92-005) and with respect to the unique geometry of each analysis site.

Meteorological Conditions

The transport and concentration of pollutants emitted from motor vehicles are influenced by three principal meteorological factors: wind direction, wind speed, and the temperature profile of the atmosphere. The values for these parameters were chosen to maximize pollutant concentrations at each prediction site (i.e., to establish a conservative worst-case situation).

- **Wind Direction**. Maximum CO concentrations are normally found when the wind is assumed to blow parallel to a roadway adjacent to the receptor location. At complex intersections, however, it is difficult to predict which wind angle will result in maximum concentrations. At each receptor location, therefore, the approximate wind angle that would result in maximum pollutant concentrations was used in the analysis. All wind angles from 0° to 360° (in 5° increments) were considered.
- **Wind Speed**. CO concentrations are greatest at low wind speeds. A conservative wind speed of one meter per second (2.2 miles per hour) was used to predict CO concentrations during peak traffic periods.



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

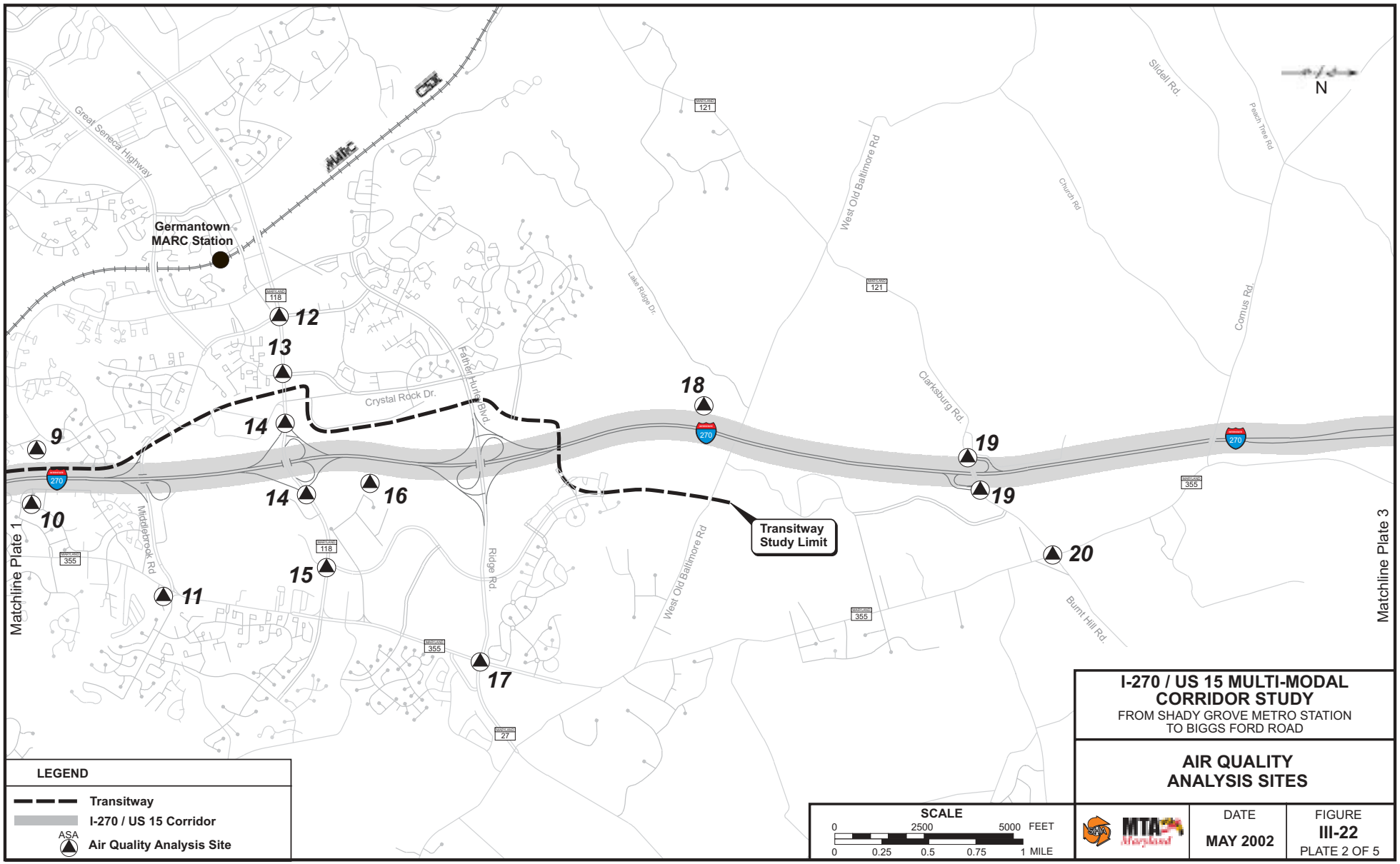
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

AIR QUALITY ANALYSIS SITES

DATE: MAY 2002

FIGURE III-22

PLATE 1 OF 5

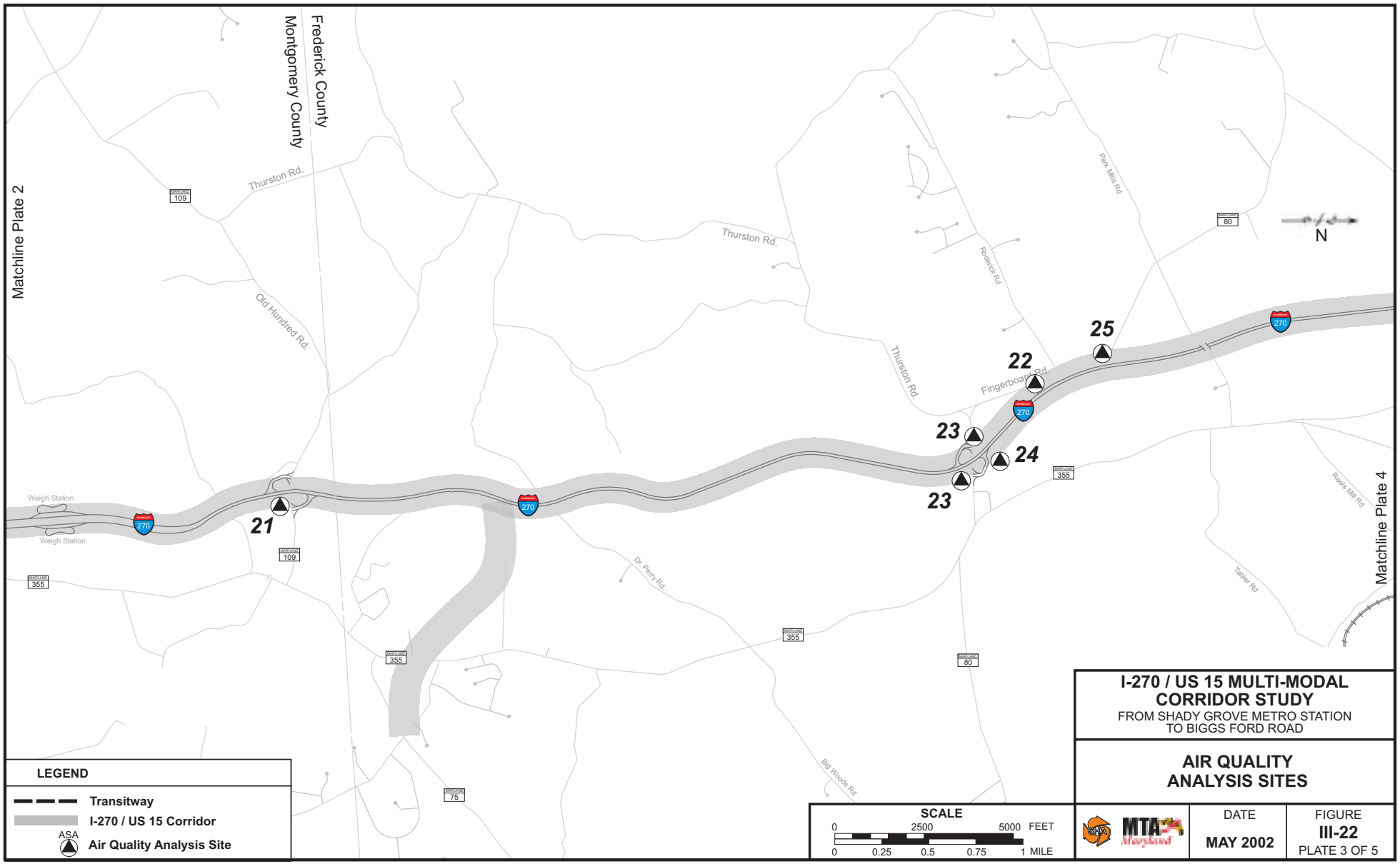


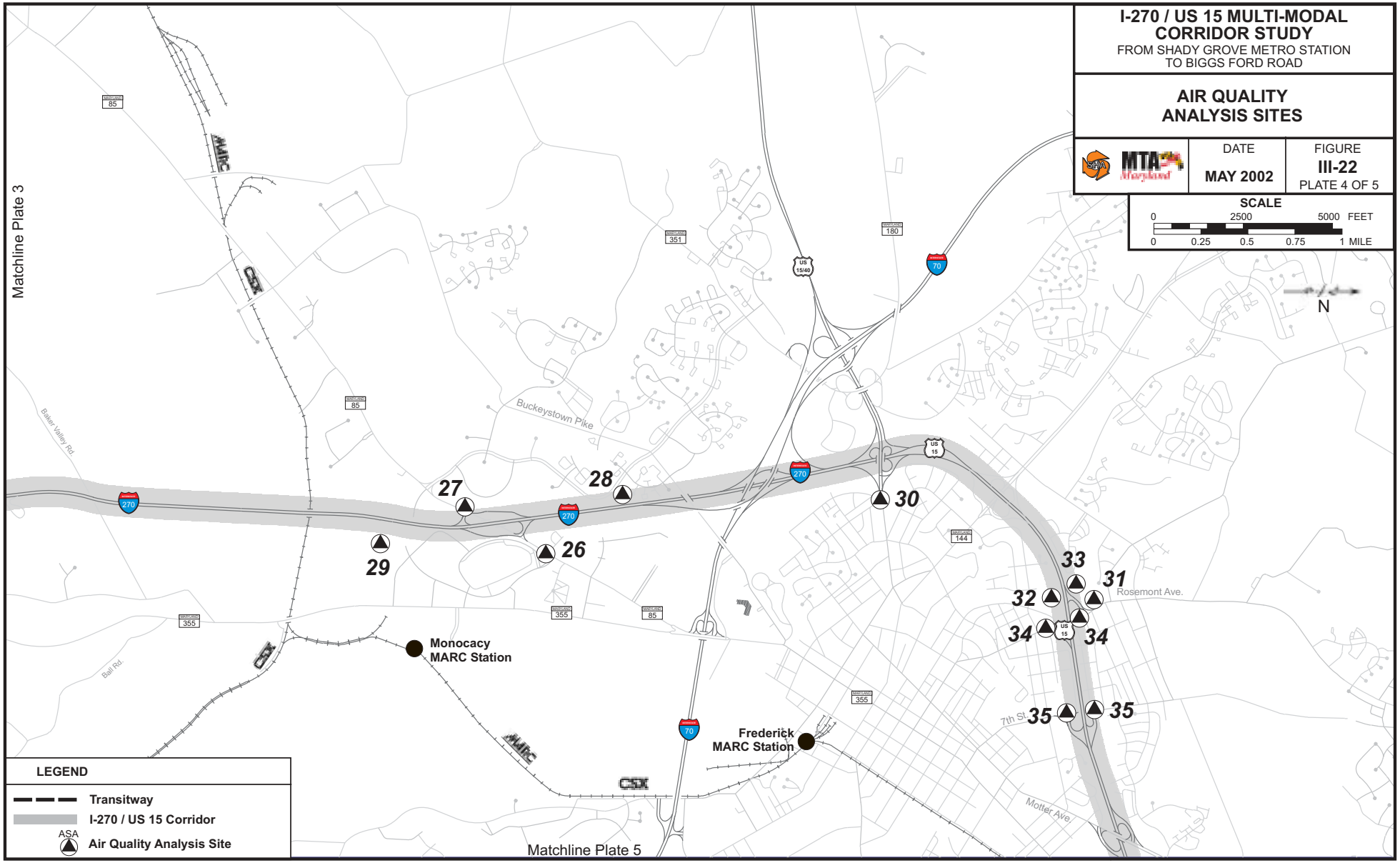
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

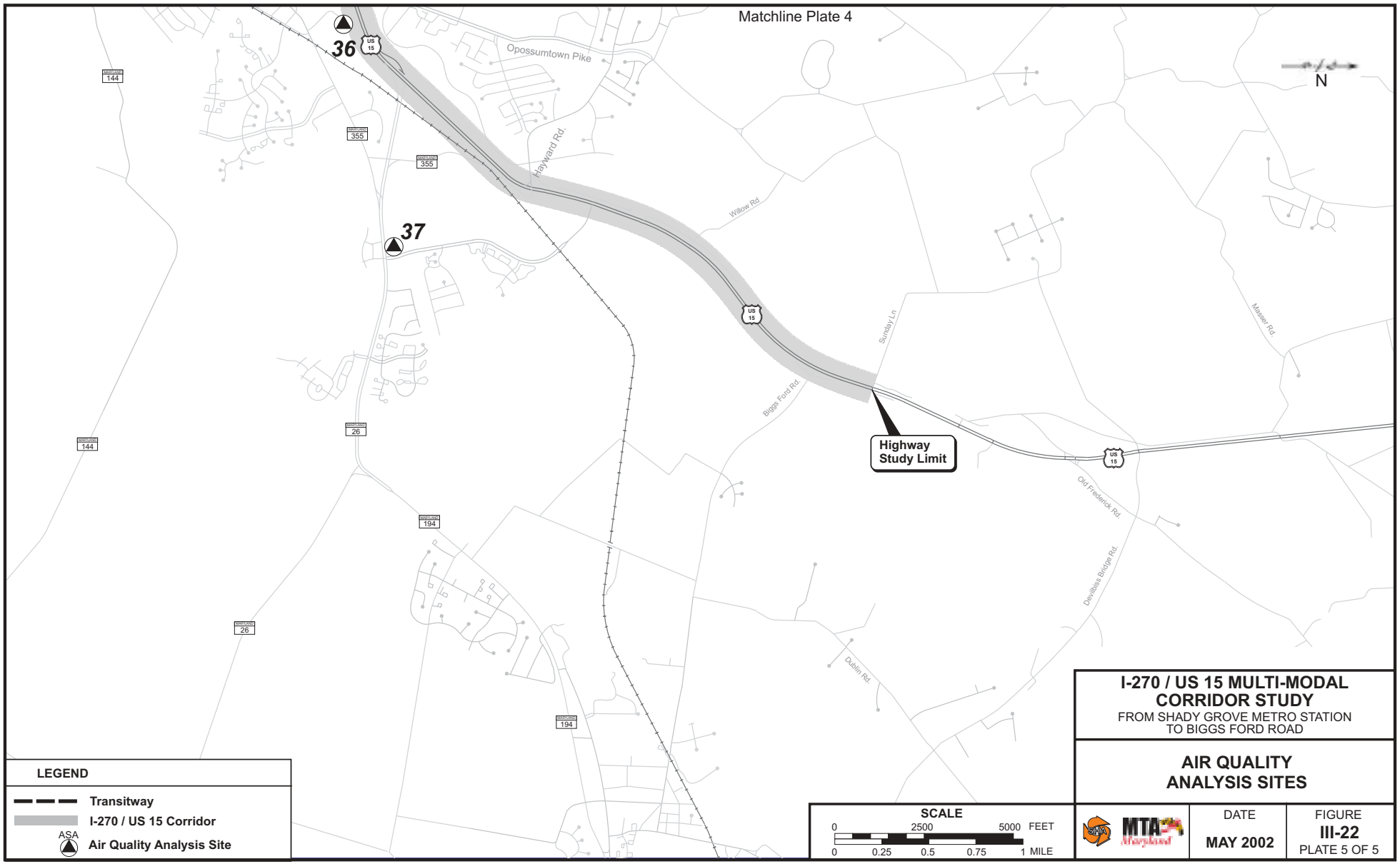
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

AIR QUALITY ANALYSIS SITES

DATE	FIGURE
MAY 2002	III-22
	PLATE 2 OF 5


Matchline Plate 2
Frederick County
Montgomery County
Thurston Rd.
Old Hundred Rd.
Thurston Rd.
Park Mills Rd
Roderick Rd
Thurston Rd.
Fingerboard Rd.
Weigh Station
Weigh Station
Dr. Perry Rd.
Reels Mill Rd
Tabler Rd
Big Woods Rd
Matchline Plate 4
N
21
22
23
23
24
25
270
355
109
80
75
LEGEND
Transitway
I-270 / US 15 Corridor
ASA
Air Quality Analysis Site
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
AIR QUALITY ANALYSIS SITES
DATE
MAY 2002
FIGURE
III-22
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
AIR QUALITY ANALYSIS SITES
DATE
MAY 2002
FIGURE
III-22
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Buckeystown Pike
Bauer Valley Rd.
Bail Rd.
Rosemont Ave.
7th St.
Motter Ave.
Monocacy MARC Station
Frederick MARC Station
27
28
29
26
30
31
32
33
34
35
LEGEND
Transitway
I-270 / US 15 Corridor
ASA
Air Quality Analysis Site


Matchline Plate 4
36
37
US 15
Opossumtown Pike
Hayward Rd.
Willow Rd
Sunday Ln
Biggs Ford Rd.
Highway Study Limit
Old Frederick Rd.
Devilbiss Bridge Rd.
Dublin Rd.
Masser Rd.
MARYLAND 144
MARYLAND 355
MARYLAND 26
MARYLAND 194
N
LEGEND
Transitway
I-270 / US 15 Corridor
ASA
Air Quality Analysis Site
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
AIR QUALITY ANALYSIS SITES
MTA Maryland
DATE
MAY 2002
FIGURE
III-22
PLATE 5 OF 5

- **Temperature and Profile of the Atmosphere**. An ambient temperature of 46.5°F, a "mixing" height (the height in the atmosphere to which pollutants will rise) of 1,000 meters, and neutral atmospheric stability (stability class D) conditions were used in estimating microscale CO concentrations. The selection of these meteorological parameters was based on recommendations from the MWCOG. This data was found to be the most representative of the conditions existing along the project area.

The CO levels estimated by the model are the maximum concentrations which could be expected to occur at each air quality receptor site analyzed, given the assumed simultaneous occurrence of a number of worst-case conditions (peak hour traffic conditions, conservative vehicular operating conditions, low wind speeds, low atmospheric temperature, neutral atmospheric conditions, and maximizing wind direction).

Persistence Factor

Peak eight-hour concentrations of CO were obtained by multiplying the highest peak hour CO estimates by 0.7. This factor, recommended by MWCOG, the MDE and approved by EPA, takes account of the fact that over eight hours (as distinct from a single hour) vehicle volumes will fluctuate downwards from the peak, vehicle speeds may vary, and meteorological conditions including wind speed and wind direction will vary as compared to the very conservative assumptions used for the single hour.

Analysis Years

The existing year, the project's opening year (2015) and the project's design year (2025) were analyzed to determine the project's air quality effects.

Background Concentrations

Microscale modeling is used to predict CO concentrations resulting from emissions from motor vehicles using roadways immediately adjacent to the location at which predictions are being made. A CO "background" level must be added to this value to account for CO entering the area from other sources upwind of the receptors.

A one-hour CO background level of 6 ppm and an eight hour background level of 2.9 ppm were added to each analysis site. These values were recommended for use by the MDE.

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TABLE III-62
AIR QUALITY ANALYSIS SITE SELECTION SCREENING PROCESS

Site #	Intersection	No-Build						Alternate 3B						Alternate 5A						Alternate 3B V/C vs. No-Build		Alternate 5A V/C vs. No-Build		Alternate 3B Volume vs. No-Build		Alternate 5A Volume vs. No-Build	
		AM			PM			AM			PM			AM			PM										
		LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	AM	PM	AM	PM	AM	PM	AM	PM
1	MD 355 and Shady Grove Road*	F	1.48	10,475	F	1.40	11,575	F	1.52	10,825	F	1.48	12,450	F	1.46	10,625	F	1.44	12,100	W	W	S/B	W	W	W	W	W
2	Sam Eig and Fields Road*	F	1.17	7,100	F	1.50	10,075	F	1.11	6,750	F	1.44	9,525	F	1.13	6,800	F	1.46	9,700	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
3	Great Seneca and Muddy Branch*	F	1.31	8,050	F	1.75	9,800	F	1.44	7,000	F	1.47	8,750	F	1.14	6,950	F	1.73	8,725	W	S/B	S/B	S/B	S/B	S/B	S/B	S/B
4	MD 117 and Perry Parkway*	F	1.17	5,700	F	1.37	6,775	E	0.93	4,925	F	1.15	5,400	E	0.95	4,950	F	1.18	5,575	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
5	MD 117 and MD 124*	F	1.22	6,650	F	1.57	8,150	F	1.06	6,050	F	1.33	7,600	F	1.10	6,225	F	1.46	7,725	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
6	MD 124 and MD 355*	F	1.53	11,250	F	1.95	13,400	F	1.55	11,200	F	1.93	12,950	F	1.59	10,725	F	1.80	12,700	W	S/B	W	S/B	S/B	S/B	S/B	S/B
7	MD 355 and Watkins Mill Road*	F	1.23	7,775	F	1.57	9,075	F	1.31	8,825	F	1.41	8,825	F	1.36	8,850	F	1.49	9,050	W	S/B	W	S/B	W	S/B	W	S/B
8	MD 355 and Middlebrook Road*	F	1.55	9,275	F	1.91	9,650	F	1.51	9,425	F	1.93	9,750	F	1.57	9,575	F	1.85	9,675	S/B	W	W	S/B	W	W	W	W
9	Middlebrook Road and Great Seneca Highway	A	0.57	3,125	C	0.80	3,850	A	0.51	2,800	B	0.70	3,500	A	0.52	2,875	B	0.70	3,500	C or better	C or better	C or better	C or better	S/B	S/B	S/B	S/B
10	MD 118 and Middlebrook Road*	F	1.11	5,975	F	1.36	7,075	F	1.34	6,175	F	1.30	7,100	F	1.13	5,675	F	1.30	6,625	W	S/B	W	S/B	W	W	S/B	S/B
11	MD 118 and Observation Drive*	F	1.16	6,800	F	1.16	6,200	F	1.12	7,575	F	1.10	6,825	F	1.13	7,675	F	1.12	6,875	S/B	S/B	S/B	S/B	W	W	W	W
12	MD 118 and Crystal Rock Drive*	F	1.07	5,150	F	1.82	7,325	F	1.32	7,025	F	1.89	8,325	F	1.19	5,675	F	1.87	7,850	W	W	W	W	W	W	W	W
13	Father Hurley and Crystal Rock Drive	F	1.32	6,200	B	0.66	4,725	F	1.31	5,800	A	0.55	4,600	F	1.27	5,875	B	0.63	4,675	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
14	MD 27 and MD 355*	F	1.85	8,125	F	1.57	6,550	F	2.05	8,925	F	1.37	7,100	F	2.14	9,025	F	1.43	7,200	W	S/B	W	S/B	W	W	W	W
15	MD 121 and MD 355*	F	2.41	8,650	F	1.91	7,125	F	2.32	7,225	F	1.61	5,175	F	2.31	7,650	F	1.61	5,875	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
16	MD 355 and MD 75	F	1.66	3,125	F	1.38	3,475	F	1.09	3,175	F	1.28	3,675	F	1.17	3,175	F	1.30	3,550	S/B	S/B	S/B	S/B	W	W	W	W
17	MD 26 and Trading Lane*	D	0.89	4,850	F	1.11	4,900	F	1.39	7,675	F	1.55	6,875	F	1.38	7,700	F	1.58	6,950	W	W	W	W	W	W	W	W
18	MD 85 and Spectrum Drive*	B	0.64	4,150	F	1.12	5,925	D	0.90	5,250	F	1.26	6,300	D	0.85	4,825	F	1.11	5,875	W	W	W	S/B	W	W	W	S/B
19	Jefferson and Prospect*	F	1.09	5,150	E	0.91	4,675	F	1.12	4,950	D	0.83	4,350	F	1.13	4,850	D	0.82	4,350	W	S/B	W	S/B	S/B	S/B	S/B	S/B
20	I-270 NB off ramp to I-370	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
21	I-270 SB off ramp to I-370	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
22	I-270 NB off to MD 117	F	1.83	5,750	F	1.70	6,225	F	1.20	5,150	F	1.91	6,225	F	1.23	5,150	F	1.91	6,350	S/B	W	S/B	W	S/B	S/B	S/B	W
23	I-270 SB on to MD 117*	F	2.45	6,825	F	1.89	6,625	F	1.72	7,575	F	1.55	7,825	F	1.75	7,650	F	1.59	7,875	S/B	S/B	S/B	S/B	W	W	W	W
24	I-270 NB off ramp at MD 124	NA	NA	NA	NA	NA	NA	F	1.28	8,025	F	1.58	9,600	F	1.29	8,100	F	1.61	9,675	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B

TABLE III-62 (CONTINUED)
AIR QUALITY ANALYSIS SITE SELECTION SCREENING PROCESS

Site #	Intersection	No-Build						Alternate 3B						Alternate 5A						Alternate 3B V/C vs. No-Build		Alternate 5A V/C vs. No-Build		Alternate 3B Volume vs. No-Build		Alternate 5A Volume vs. No-Build	
		AM			PM			AM			PM			AM			PM										
		LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	AM	PM	AM	PM	AM	PM	AM	PM
25	I-270 SB off ramp at MD 124	NA	NA	NA	NA	NA	NA	F	1.04	7,350	F	1.03	6,325	F	1.04	7,325	D	0.90	5,825	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
26	I-270 NB off ramp at Watkins Mill Road	NA	NA	NA	NA	NA	NA	F	1.17	6,825	F	1.24	6,675	F	1.17	6,925	F	1.19	6,850	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
27	I-270 SB on ramp at Watkins Mill Road	NA	NA	NA	NA	NA	NA	D	0.83	5,600	C	0.74	5,425	D	0.85	5,675	C	0.79	5,600	D or better	D or better	D or better	D or better	S/B	S/B	S/B	S/B
28	I-270 SB off ramp at Watkins Mill Road	NA	NA	NA	NA	NA	NA	F	1.13	5,725	E	0.99	5,500	F	1.17	5,850	F	1.04	5,650	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
29	I-270 NB off ramp at Middlebrook Road	NA	NA	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
30	I-270 SB off ramp at Middlebrook Road	F	1.31	6,525	F	1.19	6,300	F	1.39	7,025	F	1.32	6,825	F	1.41	7,075	F	1.32	6,825	W	W	W	W	W	W	W	W
31	I-270 NB off ramp at MD 118*	F	1.50	5,975	D	0.86	3,625	F	1.57	8,900	F	1.48	8,450	F	1.57	8,975	F	1.50	8,475	W	W	W	W	W	W	W	W
32	I-270 SB off ramp at MD 118*	F	1.16	8,250	F	1.02	6,975	F	1.13	10,000	F	1.10	8,050	F	1.14	10,050	F	1.12	8,050	S/B	W	S/B	W	W	W	W	W
33	I-270 NB off ramp at Father Hurley	A	0.45	4,350	A	0.39	4,925	B	0.68	5,350	C	0.74	5,525	B	0.70	5,425	C	0.75	5,500	D or better	D or better	D or better	D or better	W	W	W	W
34	I-270 SB off ramp at Father Hurley Boulevard	A	0.52	6,825	A	0.56	4,450	D	0.86	7,375	B	0.66	5,050	D	0.84	7,350	B	0.67	5,000	D or better	D or better	D or better	D or better	W	W	W	W
35	I-270 NB off ramp to Newcut Road	NA	NA	NA	NA	NA	NA	F	1.13	2,875	F	1.37	3,150	F	1.13	2,800	F	1.40	3,175	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
36	I-270 SB off ramp to Newcut Road	NA	NA	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
37	I-270 NB off ramp at MD 121*	F	1.11	3,950	F	1.01	4,550	C	0.81	3,250	B	0.67	3,400	B	0.68	2,850	B	0.72	2,950	C or better	C or better	C or better	C or better	S/B	S/B	S/B	S/B
38	I-270 SB off ramp at MD 121*	F	1.64	4,550	F	1.28	3,825	E	0.94	3,475	C	0.80	2,625	E	0.94	3,025	C	0.75	2,225	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
39	I-270 NB off ramp at MD 109	F	1.20	2,625	F	1.91	2,800	B	0.68	1,775	C	0.75	2,075	B	0.64	1,700	E	0.99	2,400	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
40	I-270 SB off ramp at MD 109	F	1.38	2,650	E	0.94	1,575	D	0.84	1,975	A	0.62	1,250	D	0.83	2,025	C	0.73	1,525	C or better	C or better	C or better	C or better	S/B	S/B	S/B	S/B
41	I-270 NB off ramp at MD 75	NA	NA	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE III-62 (CONTINUED)
AIR QUALITY ANALYSIS SITE SELECTION SCREENING PROCESS

Site #	Intersection	No-Build						Alternate 3B						Alternate 5A						Alternate 3B V/C vs. No-Build		Alternate 5A V/C vs. No-Build		Alternate 3B Volume vs. No-Build		Alternate 5A Volume vs. No-Build	
		AM			PM			AM			PM			AM			PM										
		LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	AM	PM	AM	PM	AM	PM	AM	PM
42	I-270 SB off ramp at MD 75	NA	NA	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
43	I-270 NB off ramp at MD 80*	F	1.26	3,625	F	1.10	3,400	F	1.43	4,600	F	1.38	4300	F	1.45	4775	F	1.36	4,375	W	W	W	W	W	W	W	W
44	I-270 SB off ramp at MD 80*	F	1.41	3,200	F	1.14	2,650	F	2.36	4,900	F	1.88	4,275	F	2.39	5,025	F	1.86	4,225	W	W	W	W	W	W	W	W
45	I-270 NB off ramp at MD 85	A	0.46	4,650	C	0.76	6,900	A	0.61	6,125	F	1.34	7,925	A	0.52	5,525	F	1.12	6,950	W	W	W	W	W	W	W	W
46	I-270 SB off ramp at MD 85*	A	0.56	6,450	C	0.73	6,400	C	0.76	8,300	D	0.87	7,525	C	0.79	7,475	C	0.76	6,700	D or better	D or better	D or better	D or better	W	W	W	W
47	I-270 NB off ramp at I-70	NA	NA	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
48	I-270 SB off ramp at I-70	NA	NA	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
49	US 40 NB off ramp at US 15/US 340	E	0.99	6,800	A	0.55	5,925	F	1.03	6,625	E	0.92	8,050	F	1.03	6,575	E	0.91	7,975	W	W	W	W	S/B	W	S/B	W
50	US 40 SB off ramp at US 15/US 340	NA	NA	NA	NA	NA	NA	F	1.48	6,800	F	1.40	7,750	F	1.47	6,775	F	1.38	7,675	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
51	US 15 NB off ramp at MD 144	E	0.95	4,025	F	1.01	4,700	E	0.92	4,475	E	0.92	5,050	E	0.95	4,550	E	0.93	5,150	S/B	S/B	S/B	S/B	W	W	W	W
52	US 15 SB off ramp at MD 144	A	0.46	1,625	C	0.77	2,700	A	0.46	5,325	E	0.91	6,400	A	0.47	5,450	E	0.91	6,500	S/B	W	W	W	W	W	W	W
53	US 15 NB off ramp at Rosemont Avenue*	F	1.24	3,250	F	1.65	4,225	F	1.54	4,075	F	1.97	4,725	F	1.57	4,125	F	1.92	4,925	W	W	W	W	W	W	W	W
54	US 15 SB off ramp at Rosemont Avenue*	A	0.60	3,325	D	0.82	3,675	E	0.95	3,650	F	1.00	3,575	E	0.96	3,675	F	1.05	3,650	W	W	W	W	W	S/B	W	S/B
55	US 15 NB off ramp at 7th Street*	C	0.72	2,450	F	1.02	2,899	D	0.87	3,075	F	1.28	3,600	D	0.84	3,075	F	1.23	3,550	W	W	W	W	W	W	W	W
56	US 15 SB off ramp at 7th Street*	F	1.05	3,075	E	1.00	3,325	F	1.07	3,150	F	1.13	3,625	F	1.02	3,000	F	1.11	3,500	W	W	S/B	W	W	W	S/B	W
57	US 15 NB off ramp at Motter/Opossum Pike	C	0.72	3,275	E	0.94	3,450	F	1.22	3,725	F	1.32	3,900	F	1.26	3,650	F	1.37	4,025	W	W	W	W	W	W	W	W
58	US 15 SB off ramp at Motter/Opossum Pike	F	1.30	3,625	E	0.98	3,975	E	0.94	3,500	D	0.90	3,875	E	0.91	3,425	D	0.90	3,950	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
59	US 15 NB at MD 26	F	1.58	5,450	F	1.29	5,400	F	1.04	5,300	C	0.72	4,550	F	1.02	5,250	B	0.71	4,550	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B

TABLE III-62 (CONTINUED)
AIR QUALITY ANALYSIS SITE SELECTION SCREENING PROCESS

Site #	Intersection	No-Build						Alternate 3B						Alternate 5A						Alternate 3B V/C vs. No-Build		Alternate 5A V/C vs. No-Build		Alternate 3B Volume vs. No-Build		Alternate 5A Volume vs. No-Build	
		AM			PM			AM			PM			AM			PM										
		LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	LOS	V/C	Volume	AM	PM	AM	PM	AM	PM	AM	PM
60	US 15 SB at MD 26	F	1.37	5,825	F	1.48	5,175	F	1.01	4,500	E	0.96	3,300	E	1.00	4,500	E	0.92	3,275	E or better	E or better	E or better	E or better	S/B	S/B	S/B	S/B
63	US 15 NB at Trading Lane	F	1.52	6,025	F	1.41	5,975	D	0.83	5,225	D	0.90	5,275	D	0.83	5,300	D	0.87	5,150	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
64	US 15 SB at Trading Lane	F	1.52	6,025	F	1.41	5,975	E	0.91	4,850	F	1.01	4,850	E	0.91	4,825	E	1.00	4,750	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B
67	US 15 NB at Biggs Ford Road	F	1.86	7,275	F	1.54	6,525	D	0.89	2,425	B	0.69	2,800	D	0.89	2,475	B	0.69	2,825	D or better	D or better	D or better	D or better	S/B	S/B	S/B	S/B
68	US 15 SB at Sunday's Lane	F	1.86	7,275	F	1.54	6,525	A	0.41	1,225	A	0.53	1,275	A	0.44	1,275	A	0.53	1,300	C or better	C or better	C or better	C or better	S/B	S/B	S/B	S/B
69	US 15 SB at Biggs Ford Road	F	1.86	7,275	F	1.54	6,525	E	0.97	2,075	D	0.84	1,750	F	1.00	2,125	D	0.84	1,775	S/B	S/B	S/B	S/B	S/B	S/B	S/B	S/B

Notes: *NA = Information not yet available*
NS = No Signal
S/B = Same or Better
W = Worse
** = Sites selected for further analysis*

TABLE III-63
AIR QUALITY ANALYSIS SITES

Site #	Site Description
1	Muddy Branch Road and Great Seneca Highway
2	Fields Road and Sam Eig Highway
3	MD 355 and Shady Grove Road
4	MD 117 and MD 124
5	I-270 Southbound ramp at MD 117
6	MD 117 and Perry Parkway
7	MD 355 and MD 124 (Montgomery Village Avenue)
8	MD 355 and Watkins Mill Road
9	New Covenant Fellowship Church
10	Staleybridge Road – Residence
11	MD 355 and Middlebrook Road
12	MD 118 and Middlebrook Road
13	MD 118 and Crystal Rock Drive
14	I-270 Northbound and Southbound ramps at MD 118
15	MD 118 and Observation Drive
16	Milestone Apartments
17	Father Hurley Boulevard (MD 27) and MD 355
18	Black Hill Regional Park
19	I-270 Northbound and Southbound ramps at MD 121
20	MD 121 and MD 355 (Historical Church)
21	Little Bennett Regional Park
22	8546 Fingerboard Road – Residence
23	I-270 Northbound and Southbound ramps at MD 80
24	Urbana Community Park
25	8358 Fingerboard Road – Residence
26	Spectrum Drive and MD 85
27	I- 270 Southbound ramp at MD 85
28	5819 Farmgate Court – Residence
29	Monocacy National Battlefield
30	Jefferson Street/Prospect Boulevard/Pearl Street
31	Waterford Park
32	Fairfield Park
33	Residence near Waterford Park
34	US 15 Northbound and Southbound ramps at Rosemont Avenue
35	US 15 Northbound and Southbound ramps at 7th Street
36	Rose Hill Manor
37	MD 26 and Trading Lane

Traffic Information

Traffic data for the air quality analysis were derived from traffic counts and other information developed as part of an overall traffic analysis for the project using methodology accepted by SHA. The microscale CO analysis was performed based on data from this analysis for the AM and PM peak traffic periods. These are the periods when maximum traffic volumes occur on local streets and when the greatest traffic and air quality effects of the proposed project are expected.

The percentages of each type of vehicle, for the existing and future year conditions, were determined using data for the Metropolitan Washington area provided by the MWCOG. Vehicle speeds used in the analysis were obtained from traffic information developed for this project. Appendix C of the Air Quality Technical Report contains all traffic information used for the air quality analysis.

Summary Of Potential Impacts

Maximum one-hour and eight-hour CO levels predicted at the 37 analysis sites within the study area are shown in **Table III-64** and **Table III-65**, respectively. All predicted concentrations are below the applicable one-hour Federal and State Standard of 35 ppm and eight-hour Federal and State Standard of 9 ppm. CAL3QHC (Version 2) input and output information for each site is contained in Appendix D of the Air Quality Technical Report.

d. Construction Impacts on Air Quality

Construction related effects of the project would be limited to short-term increased fugitive dust and mobile source emissions during construction. General guidelines are listed below which help to reduce adverse effects.

Fugitive Dust Emissions

Fugitive dust is airborne particulate matter, generally of a relatively large particulate size. Construction-related fugitive dust would be generated by haul trucks, concrete trucks, delivery trucks, and other earth moving vehicles operating around the construction sites. This would be due primarily to particulate matter resuspended ("kicked up") by vehicle movement over paved and unpaved roads, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks.

Generally, the distance that particles drift from their source depends on their size, emission height, and wind speed. Small particles (30 to 100 micron range) can travel several hundred feet before settling to the ground, depending on wind speed. Most fugitive dust, however, is made up of relatively large particles (i.e., particles greater than 100 microns in diameter). These particles are responsible for the reduced visibility often associated with this type of construction. Given their relatively large size, these particles tend to settle within 20 to 30 feet of their source.

TABLE III-64
MAXIMUM PREDICTED PEAK 1-HOUR CO CONCENTRATIONS (PPM)

Site #	Description	Existing		No-Build 2015		Alternate 3B 2015		Alternate 5A 2015		No-Build 2025		Alternate 3B 2025		Alternate 5A 2025	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Muddy Branch Road and Great Seneca Highway	10.1	9.6	8.8	9.4	8.4	9.2	8.5	9.3	9.2	10.0	10.8	10.6	11.0	11.3
2	Fields Road and Sam Eig Highway	9.1	9.1	6.7	7.3	6.7	7.7	7.1	7.3	6.7	8.2	7.6	8.7	7.2	8.4
3	MD 355 and Shady Grove Road	10.3	11.1	10.5	11.8	11.3	11.0	10.4	10.7	11.1	11.1	10.8	11.0	11.0	11.2
4	MD 117 and MD 124	7.2	8.5	7.9	8.8	7.3	8.4	7.4	8.7	8.9	8.7	8.7	9.8	8.6	9.4
5	I-270 SB ramp at MD 117	7.5	8.3	8.3	6.8	6.3	7.0	6.3	6.8	8.8	6.9	7.1	8.3	7.4	10.8
6	MD 117 and Perry Parkway	6.9	10.0	7.2	7.6	6.9	7.0	6.9	7.2	7.6	8.2	7.3	7.4	7.3	7.5
7	MD 355 and MD 124	10.1	10.6	9.5	10.2	9.0	9.9	9.4	9.9	10.1	10.7	9.8	10.5	9.7	10.6
8	MD 355 and Watkins Mill Road	10.5	8.3	8.5	8.6	8.7	8.8	8.7	8.8	8.9	11.1	9.8	10.0	9.7	9.9
9	New Covenant Fellowship Church – 18901 Waring Station Road	5.8	5.3	6.1	5.9	5.7	5.4	5.9	5.4	5.6	5.5	5.7	5.5	5.9	5.5
10	Staleybridge Road - Residence	6.7	6.2	7.0	7.7	6.6	6.6	6.8	6.6	6.3	6.7	6.5	6.6	6.8	6.6
11	MD 355 and Middlebrook Road	10.3	9.3	9.0	9.8	8.8	11.1	11.0	9.4	9.2	10.7	9.9	10.4	10.0	10.1
12	MD 118 and Middlebrook Road	8.0	8.4	7.7	8.8	8.7	9.1	8.0	9.1	8.5	8.8	9.3	9.3	8.6	9.3
13	MD 118 and Crystal Rock Drive	8.6	8.6	7.9	9.0	8.3	8.9	7.8	8.8	8.6	9.0	8.4	11.4	8.8	10.4
14	I-270 NB and SB ramps at MD 118	5.9	5.9	5.5	5.9	5.5	6.0	6.7	6.1	5.9	6.1	7.0	6.5	7.0	6.5
15	MD 118 and Observation	5.6	6.0	7.2	7.5	7.2	7.1	7.1	7.3	8.3	8.1	7.9	8.4	7.9	8.9
16	Milestone Apartments	5.1	5.3	4.8	5.3	4.8	4.9	4.7	4.9	4.9	5.0	4.8	5.0	4.7	4.9
17	Father Hurley Boulevard (MD 27) and MD 355	8.6	7.6	9.1	8.9	9.1	10.6	9.6	9.1	11.1	10.2	10.3	11.2	12.8	7.8
18	Black Hill Regional Park	6.5	6.5	5.5	6.3	6.3	6.2	6.3	6.1	7.4	6.8	6.3	6.3	6.3	6.3
19	I-270 NB and SB ramps at MD 121	5.6	5.5	5.9	6.1	5.8	5.9	5.7	5.7	7.7	8.7	6.3	6.5	6.3	6.2
20	MD 121 and MD 355 (Historical Church)	5.5	6.1	7.6	7.7	7.6	6.5	7.6	6.6	10.6	9.7	7.7	8.2	9.9	9.1
21	Little Bennett Regional Park	5.2	5.2	4.9	5.7	5.6	6.2	5.3	6.0	5.3	6.0	5.6	6.2	5.3	6.0
22	Residence - 8546 Fingerboard Road	5.7	5.7	6.3	6.0	7.0	6.6	6.6	6.6	6.2	5.9	7.0	6.6	6.5	6.6

TABLE III-64 (CONTINUED)
MAXIMUM PREDICTED PEAK 1-HOUR CO CONCENTRATIONS (PPM)

Site #	Description	Existing		No-Build 2015		Alternate 3B 2015		Alternate 5A 2015		No-Build 2025		Alternate 3B 2025		Alternate 5A 2025	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
23	I-270 NB and SB ramps at MD 80 (Park and Ride – Historical District, churches)	5.6	6.0	6.0	5.6	6.1	5.9	5.9	5.7	6.1	5.9	7.2	6.7	7.1	6.6
24	Urbana Community Park	5.9	5.9	6.0	6.1	6.5	7.2	6.4	6.3	6.2	6.6	6.7	7.4	6.7	6.5
25	Residence - 8358 Fingerboard Road	5.9	5.8	6.7	6.0	7.4	7.0	7.0	6.7	6.5	6.0	7.4	7.0	6.5	6.7
26	Spectrum Drive and MD 85	5.6	10.4	6.5	9.4	6.5	8.0	6.3	9.2	6.6	9.8	6.6	8.9	6.5	8.3
27	I- 270 SB ramp at MD 85	6.9	6.6	6.3	6.0	6.5	6.3	6.2	6.3	6.5	6.3	7.7	7.1	7.1	6.9
28	Residence - 5819 Farmgate Court	5.1	5.3	5.7	5.0	5.1	5.1	5.1	5.1	5.9	5.1	6.7	6.2	5.5	5.7
29	Monocacy National Battlefield	5.2	5.2	5.6	5.6	5.9	5.9	5.3	5.4	5.0	5.0	6.3	6.4	5.7	5.8
30	Jefferson/Prospect/Pearl	11.7	11.6	9.9	10.4	9.8	9.7	9.7	9.7	10.5	11.2	10.4	11.2	10.3	10.3
31	Waterford Park	5.3	5.4	5.0	5.6	5.3	5.7	5.4	5.7	5.0	5.9	6.0	5.8	6.0	5.9
32	Fairfield Park	6.0	6.2	5.5	7.6	6.5	6.9	6.5	6.9	5.6	8.0	6.8	7.0	7.0	7.1
33	Residence near Waterford Park	5.9	6.0	5.3	6.7	6.4	6.7	6.4	6.7	5.5	6.7	6.7	7.0	7.0	7.0
34	US 15 NB and SB ramps at Rosemont Avenue	7.3	8.0	6.4	9.8	7.4	8.0	7.4	8.0	6.9	10.1	8.3	8.1	8.3	8.3
35	US 15 NB and SB ramps at 7th Street	5.9	6.3	6.0	6.1	6.3	6.2	6.5	6.3	6.3	6.5	6.4	6.6	6.5	6.6
36	Rose Hill Manor	5.4	5.5	5.0	5.2	5.4	5.5	5.4	5.5	5.0	5.1	5.6	5.7	5.6	5.7
37	MD 26 and Trading Lane	8.9	8.2	7.9	8.0	10.	9.4	9.6	9.3	9.2	9.0	12.5	13.0	12.6	11.9

Notes: *Predicted Levels include a background of 4.4 ppm*
State and Federal one-hour CO standard = 35 ppm

TABLE III-65
MAXIMUM PREDICTED PEAK 8-HOUR CO CONCENTRATIONS (PPM)

Site #	Description	Existing	No-Build 2015	Alternate 3B 2015	Alternate 5A 2015	No-Build 2025	Alternate 3B 2025	Alternate 5A 2025
1	Muddy Branch Road and Great Seneca Highway	6.9	6.4	6.3	6.3	6.8	7.4	7.7
2	Fields Road and Sam Eig Highway	6.2	4.9	5.2	4.9	5.6	5.9	5.7
3	MD 355 and Shady Grove Road	7.6	8.1	7.7	7.3	7.6	7.5	7.7
4	MD 117 and MD 124	5.8	6.0	5.7	5.9	6.1	6.7	6.4
5	I-270 SB ramp at MD 117	5.6	5.6	4.7	4.6	6.0	5.6	7.4
6	MD 117 and Perry Parkway	6.8	5.1	4.7	4.9	5.6	5.0	5.1
7	MD 355 and MD 124	7.2	7.0	6.8	6.8	7.3	7.2	7.2
8	MD 355 and Watkins Mill Road	7.2	5.8	6.0	6.0	7.6	6.8	6.8
9	New Covenant Fellowship Church – 18901 Waring Station Road	3.9	4.1	3.8	4.0	3.7	3.8	4.0
10	Staleybridge Road - Residence	4.5	5.2	4.4	4.6	4.5	4.4	4.6
11	MD 355 and Middlebrook Road	7.0	6.7	7.6	7.5	7.3	7.1	6.9
12	MD 118 and Middlebrook Road	5.7	6.0	6.2	6.2	6.0	6.3	6.3
13	MD 118 and Crystal Rock Drive	5.8	6.1	6.1	6.0	6.1	7.8	7.1
14	I-270 NB and SB ramps at MD 118	4.0	4.0	4.0	4.5	4.1	4.7	4.7
15	MD 118 and Observation	4.0	5.1	4.9	4.9	5.6	5.7	6.1
16	Milestone Apartments	3.5	3.5	3.3	3.3	3.3	3.3	3.3
17	Father Hurley Boulevard (MD 27) and MD 355	5.8	6.2	7.2	6.5	7.6	7.7	8.8
18	Black Hill Regional Park	4.4	4.2	4.2	4.2	5.0	4.2	4.2
19	I-270 NB and SB ramps at MD 121	3.7	4.1	4.0	3.8	5.9	4.4	4.2
20	MD 121 and MD 355 (Historical Church)	4.1	5.2	5.1	5.1	7.2	5.6	6.8
21	Little Bennett Regional Park	3.5	3.8	4.2	4.0	4.0	4.2	4.0

TABLE III-65 (CONTINUED)
MAXIMUM PREDICTED PEAK 8-HOUR CO CONCENTRATIONS (PPM)

Site #	Description	Existing	No-Build 2015	Alternate 3B 2015	Alternate 5A 2015	No-Build 2025	Alternate 3B 2025	Alternate 5A 2025
22	Residence - 8546 Fingerboard Road	3.8	4.2	4.7	4.4	4.2	4.7	4.4
23	I-270 NB and SB ramps at MD 80 (Park and Ride – Historical District, churches)	4.0	4.0	4.1	4.0	4.1	4.9	4.8
24	Urbana Community Park	4.0	4.1	4.9	4.3	4.4	5.0	4.5
25	Residence - 8358 Fingerboard Road	4.0	4.5	5.0	4.7	4.4	5.0	4.5
26	Spectrum Drive and MD 85	7.1	6.4	5.4	6.3	6.7	6.1	5.6
27	I- 270 SB ramp at MD 85	4.7	4.2	4.4	4.2	4.4	5.2	4.8
28	Residence - 5819 Farmgate Court	3.5	3.8	3.4	3.4	4.0	4.5	3.8
29	Monocacy National Battlefield	3.5	3.7	4.0	3.6	3.3	4.3	3.9
30	Jefferson/Prospect/Pearl	8.0	7.1	6.7	6.6	7.7	7.7	7.0
31	Waterford Park	3.6	3.7	3.8	3.8	4.0	4.0	4.0
32	Fairfield Park	4.2	5.1	4.7	4.7	5.4	4.7	4.8
33	Residence near Waterford Park	4.0	4.5	4.5	4.5	4.5	4.7	4.7
34	US 15 NB and SB ramps at Rosemont Avenue	5.4	6.7	5.4	5.4	6.9	5.6	5.6
35	US 15 NB and SB ramps at 7th Street	4.2	4.1	4.2	4.4	4.4	4.4	4.4
36	Rose Hill Manor	3.7	3.5	3.7	3.7	3.4	3.8	3.8
37	MD 26 and Trading Lane	6.1	5.4	6.8	6.5	6.3	8.9	8.6

Note: *Predicted Levels include a background of 2.9 ppm*
State and Federal eight-hour CO standard = 9 ppm

In order to minimize the amount of construction dust generated, the guidelines below should be followed. The following preventative and mitigative measures should be taken to minimize the possible particulate pollution problem:

I. Site Preparation

A) Minimize land disturbance;
B) Use watering trucks to minimize dust;
C) Cover trucks when hauling dirt;
D) Stabilize the surface of dirt piles if not removed immediately;
E) Use windbreaks to prevent any accidental dust pollution;
F) Limit vehicular paths and stabilize these temporary roads; and
G) Pave all unpaved construction roads and parking areas to road grade for a length no less than 50 feet where such roads and parking areas exit the construction site to prevent dirt from washing onto paved roadways.

II. Construction

A) Cover trucks when transferring materials;
B) Use dust suppressants on traveled paths which are not paved;
C) Minimize unnecessary vehicular and machinery activities; and
D) Minimize dirt track-out by washing or cleaning trucks before leaving the construction site (alternative to this strategy is to pave a few hundred feet of the exit road, just before entering the public road).

III. Post Construction

A) Revegetate any disturbed land not used;
B) Remove unused material;
C) Remove dirt piles; and
D) Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities.

Mobile Source Emissions

Since emissions of CO from motor vehicles increase with decreasing vehicle speed, disruption of traffic during construction (such as the temporary reduction of roadway capacity and the increased queue lengths) could result in short-term elevated concentrations of CO. In order to minimize the amount of emissions generated, every effort should be made during the construction phase to limit disruption to traffic, especially during peak travel periods.

e. Conclusions

The maximum one-hour and eight-hour CO levels were predicted at 37 analysis sites within the study area. A combined total of over 600 receptors were analyzed at these sites. Alternate 3B demonstrated the highest one-hour and eight-hour CO levels of 13.0 ppm and 8.9 ppm, respectively, at site 37 (MD 26 and Trading Lane).

Alternate 3B is predicted to have higher CO levels than the No-Build Alternate at 15 sites in 2015 and at 21 sites in 2025. Alternate 5A is predicted to have higher CO levels than the No-Build Alternate at 10 sites in 2015 and at 15 sites in 2025. The higher CO levels predicted under Alternate 3B are due to reduced highway capacity, increased buses and increased traffic congestion. These conditions produce higher volumes and decreased speed within the study area, which contribute to the predicted increases in CO.

Based on the one-hour predicted CO levels, the air quality is predicted to improve or stay the same at 12 sites with the project. The air quality is expected to deteriorate at 25 sites with the project. All predicted concentrations are below the applicable one-hour Federal and State CO Standard of 35 ppm and eight-hour Federal and State CO standard of 9 ppm. CAL3QHC (Version 2) input and output information for each site is contained in Appendix D of the Air Quality Technical Report.

K. NOISE ANALYSIS

1. Methodology

This section describes the existing noise conditions in the study area and presents applicable standards and criteria in order to assess the future environmental noise effects from operation of the proposed highway and transit alternates. These effects will be determined by quantifying the project's future noise impacts.

A number of factors affect sound when it is perceived as noise. These factors include the actual level of sound (or noise), the frequencies involved, the period of exposure to the noise, and the changes or fluctuations in the noise levels during exposure. Noise levels are measured in units called decibels. Since the human ear does not respond equally to all frequencies (or pitches), measured sound levels (in decibel units at standard frequency bands) are often adjusted or weighted to correspond to the frequency response of human hearing and the human perception of loudness. The weighted sound level is expressed in units called A-weighted decibels (dBA) and is measured with a calibrated sound meter.

Noise levels that correlate with human perception are expressed in such descriptors as hourly L_{eq} and L_{dn}. L_{eq} is the level of a constant sound in dBA which, in a given situation and time period, has the same sound energy as does the time-varying sound over the same period. One-hour equivalent noise levels (L_{eq}) measured every hour over a continuous 24-hour period are sometimes used to calculate a composite 24-hour exposure measure called the day-night sound level (L_{dn}) which applies a 10-dBA penalty to nighttime sound levels between the hours of 10:00 PM and 7:00 AM to account for the increased noise sensitivity of people during sleep. The FTA

uses hourly L_{eq} and the 24-hour energy average noise level (L_{dn}) to determine transit noise impacts on adjacent land uses. The L_{eq} descriptor is exclusively used by the FHWA (Federal Highway Administration) and the SHA (Maryland State Highway Administration) for highway noise impact determination.

According to FTA's *Transit Noise and Vibration Impact Assessment*, April 1995, use of L_{eq} and L_{dn} is appropriate because these levels are sensitive to the frequency of occurrence and duration of noise events, including transit operations, which may be characterized by infrequent noise. Because the L_{dn} and daytime L_{eq}(1-hour) have similar values for typical noise environment, the daytime or early evening L_{eq} can be used for evaluating noise effects at locations where nighttime sensitivity is not a factor. For land use involving only daytime activities (e.g., churches, schools, libraries, parks) the effect is evaluated in terms of L_{eq} (1-hour), defined as the L_{eq} for the noisiest hour of transit related activity during which human activities occur at the noise-sensitive location. L_{dn} is used for land uses (e.g., homes, hospitals and hotels) where nighttime sensitivity is a factor (*Transit Noise and Vibration Impact Assessment*, FTA, April 1995).

2. Human Perception to Changes in Noise Levels

The average individual's ability to perceive changes in noise levels are well documented. Generally, changes in noise levels less than 3 dBA will be barely perceived by most listeners, whereas a 10 dBA change normally is perceived as a doubling (or halving) of noise levels. The general principle on which most noise acceptability criteria is based is that a change in noise is likely to cause annoyance wherever it intrudes upon the existing noise from all other sources (i.e., annoyance depends upon the noise that exists before the start of a new noise-generating project or an expansion of an existing project).

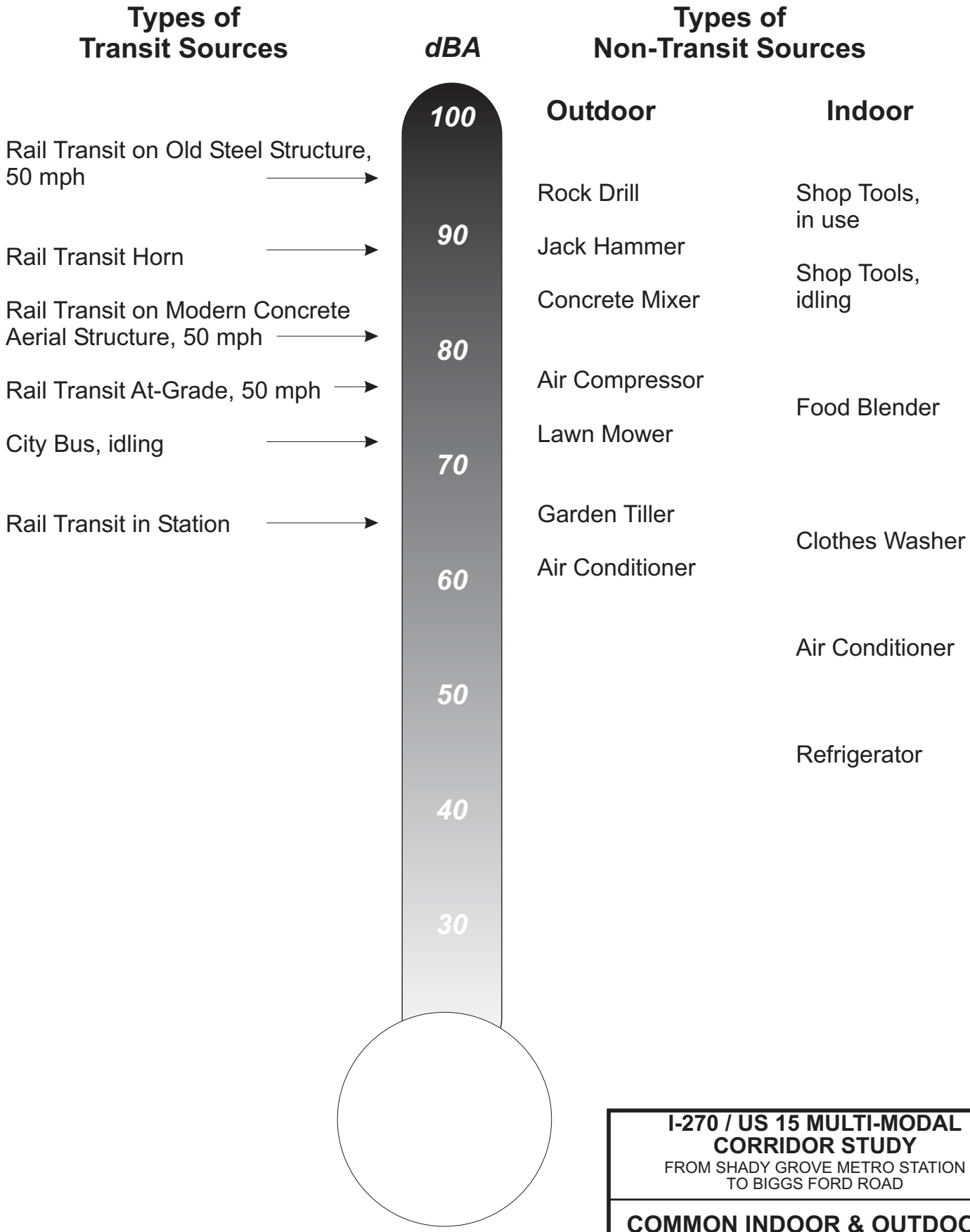
Community noise levels in urban areas usually range between 45 and 85 dBA, 45 dBA being the daytime level in a typical quiet living room and 85 dBA being the approximate instantaneous maximum level near the sidewalk adjacent to heavy traffic. Average ambient noise levels for different types of communities are listed below:

- 40 - 50 dBA for suburban
- 45 - 55 dBA for average urban
- 50 - 60 dBA for high density urban
- 50 - 70 dBA for commercial
- Over 60 dBA for industrial

For reference and orientation to the decibel scale, representative environmental noises and their respective dBA levels are shown in **Figure III-23**

3. Noise Criteria

The basic goals of noise criteria, as they apply to highway and transit projects, are to minimize the adverse noise effects on the community and, where necessary and appropriate, to provide feasible and reasonable noise control.



Source: *Transit Noise and Vibration Impact Assessment, FTA, April 1995.*

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

COMMON INDOOR & OUTDOOR NOISE LEVELS (AT 50 FEET)

	DATE	FIGURE
SHA MTA Maryland	MAY 2002	III-23

Several types of guidelines and criteria are used to assess the effects of noise from transit and highway projects. These include APTA and FTA guidelines, the WMATA criteria and the FHWA guidelines. APTA, FTA, and WMATA guidelines were developed specifically for assessing noise effects from transit noise sources operating on fixed guideways or at fixed facilities. The FHWA procedures are used to assess noise impacts from highway traffic. Maryland State Highway traffic noise impact criteria are based on the FHWA procedures.

a. Standards Used in the Noise Analysis

The following standards are used in the noise analysis:

- APTA Guidelines for Design of Rapid Transit Facilities (1981)
- WMATA Noise and Vibration Design Criteria (2001)
- FTA Transit Noise and Vibration Assessment Guidelines (1995) and
- FHWA and SHA Traffic Noise Criteria

b. Noise Criteria for Transit Operations

APTA Guidelines and WMATA Criteria

The 1981 APTA *Guidelines for Design of Rapid Transit Facilities* (June 1981) and the WMATA criteria (2001) were used to assess noise effects of the Transitway's operational impact on community noise levels. In addition, the 1995 FTA guidelines contained in *Transit Noise and Vibration Assessment* (April 1995) were also used as they represent the Federal standard. Montgomery and Fredrick counties have no specific noise control ordinance for rapid transit vehicles. The State of Maryland code exempts noise from public rapid transit vehicles.

The APTA guidelines and WMATA criteria are based on maximum single pass-by noise level in dBA from train operations. **Table III-66** specifies APTA guidelines for maximum levels for different community categories in the transit corridor. WMATA criteria for maximum airborne noise from train operations are the same as the APTA guidelines.

TABLE III-66
APTA GUIDELINES FOR MAXIMUM AIRBORNE
PASSBY NOISE FROM TRAIN OPERATIONS (DBA) (L max)

A. Residences and Commercial Buildings

Community Area Category	Single Family	Multi-family	Commercial
I. Low Density Residential	70	75	80
II. Average Residential	75	75	80
III. High Density Residential	75	80	85
IV. Commercial	80	80	85
V. Industrial/Highway	80	85	85

B. Specific Types of Buildings

Building or Occupancy Type	Maximum Pass-by Noise Level
Amphitheaters	65
"Quiet" Outdoor Recreation Area	70
Concert Halls, Radio and TV Studios	70
Churches, Theaters, Schools, Hospitals, Museums, Libraries	75

Note: *APTA criteria for maximum pass-by noise from train operations are essentially the same as WMATA criteria. These criteria are generally applicable at the near side of the nearest dwelling or occupied building under consideration but not less than 15 meters (50 feet) from track centerline.*

Table III-67 presents WMATA criteria along a mainline. The impact assessment for the I-270/US 15 project is based on the application of all of the three criteria. The impact assessed by using the most stringent criterion is used in determining the mitigation needs at the identified sites.

According to the APTA guidelines and the WMATA criteria, the maximum single pass-by level from train operations shall not exceed 70 dBA in low-density residential areas and 75 dBA in average residential areas. According to the FTA guidelines, combined noise from traffic and train operations in residential areas shall not exceed the existing ambient traffic noise in the areas by 1 dBA or more if existing L_{dn} is between 65 and 75 dBA. No further increase is allowed if existing L_{dn} is equal to or greater than 75.

TABLE III-67
WMATA CRITERIA FOR NOISE CONTROL ALONG MAINLINE
(GENERAL CATEGORIES OF COMMUNITIES
ALONG WMATA METRO SYSTEM CORRIDORS)

Area Category	Typical (Average) Noise Levels	Typical Day/Night Exposure Levels – L_{dn}
I. Low Density Urban	40-50 dBA (day) 35-45 dBA(night)	Below 55
II. Average Urban Residential	45-55 dBA (day) 40-50 dBA(night)	50-60
III. High Density Urban	50-60 dBA (day) 45-55 dBA(night)	55-65
IV. Commercial	60-70 dBA (day and night)	Over 60
V. Industrial areas or Freeway and Highway Corridors	Over 60 dBA (day and night)	Over 65

FTA Guidelines

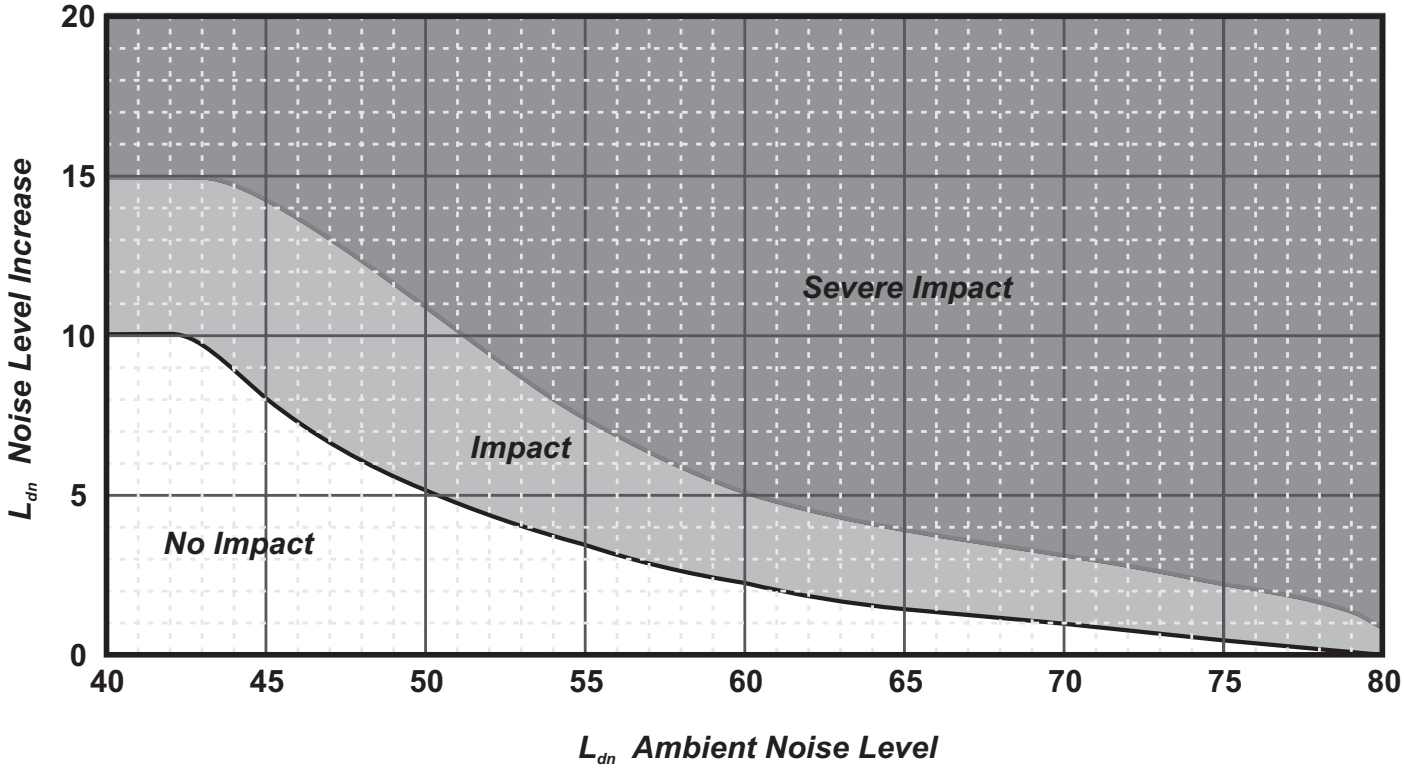
FTA guidelines for noise at various land use categories determine the choice of noise descriptors (L_{eq} or L_{dn}) to be used in noise impact assessment. For example, for residential land uses, the noise descriptor that is used to characterize the existing noise and the future project noise is L_{dn}. For land uses involving daytime and evening uses the noise descriptor is $L_{eq}(h)$ which is defined as the hourly equivalent continuous noise level L_{eq} for the noisiest hour of train-related activity during hours of noise sensitivity.

FTA Assessment based on Cumulative Noise Exposure

FTA guidelines are based on relative impact criteria whereby project noise impacts are assessed by comparing the increase in future total hourly L_{eq} or L_{dn} project noise levels with the project against the existing hourly L_{eq} or L_{dn} noise levels without the project. Project impacts are categorized as "No Impact", "Impact", or "Severe Impact" as determined from the allowable increase in cumulative noise exposure over existing noise levels. **Figure III-24** shows the noise impact criteria for "Category 2" land uses in terms of allowable increase in cumulative exposure. As the existing level of noise increases, the allowable level of transit noise increases, but the total amount by which that community's noise can increase (increase in cumulative noise level) is reduced. This accounts for the unexpected result that a noise level that is less than the existing noise level can still cause an impact. This is illustrated in an example shown in **Table III-68** where the allowed transit noise is shown for different existing noise levels. Any increase greater than shown in the table will cause an impact. For example, as the existing noise level increases from 50 to 70 dBA, the allowed transit noise level increases from 53 to 64 dBA. However, the allowed increase in community noise level decreases from five to one dBA.

FTA Assessment based on Project Noise Exposure

The FTA noise impact criteria presented in **Table III-69** are also used for assessing transit noise impacts by following a slightly different procedure, i.e., by comparing the existing outdoor noise levels and the future outdoor noise levels from the proposed transit project. Both assessment procedures -- one based on increase in cumulative noise exposure as explained above and the other based on project noise exposure -- yield identical results in terms of category of impact from future project noise levels from future train operations.



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

INCREASE IN CUMULATIVE NOISE LEVELS ALLOWED BY FTA CRITERIA

	DATE	FIGURE
SHA MTA Maryland	MAY 2002	III-24

TABLE III-68
NOISE LEVELS DEFINING IMPACT FOR TRANSIT PROJECTS

Existing Noise Exposure* $L_{eq}(h)$ or L_{dn} (dBA)	Project Noise Impact Exposure, * $L_{eq}(h)$ or L_{dn} (dBA)					
	Category 1 or 2 Sites			Category 3 Sites		
	No Impact	Impact	Severe Impact	No Impact	Impact	Severe Impact
51	<54	54-60	>60	<59	59-65	>65
52	<55	55-60	>60	<60	60-65	>65
53	<55	55-60	>60	<60	60-65	>65
54	<55	55-61	>61	<60	60-66	>66
55	<56	56-61	>61	<61	61-66	>66
56	<56	56-62	>62	<61	61-67	>67
57	<57	57-62	>62	<62	62-67	>67
58	<57	57-62	>62	<62	62-67	>67
59	<58	58-63	>63	<63	63-68	>68
60	<58	58-63	>63	<63	63-68	>68
61	<59	59-64	>64	<64	64-69	>69
62	<59	59-64	>64	<64	64-69	>69
63	<60	60-65	>65	<65	65-70	>70
64	<61	61-65	>65	<66	66-70	>70
65	<61	61-66	>66	<66	66-71	>71
66	<62	62-67	>67	<67	67-72	>72
67	<63	63-67	>67	<68	68-72	>72
68	<63	63-68	>68	<68	68-73	>73
69	<64	64-69	>69	<69	69-74	>74
70	<65	65-69	>69	<70	70-74	>74
71	<66	66-70	>70	<71	71-75	>75
72	<66	66-71	>71	<71	71-76	>76

TABLE III-68 (CONTINUED)
NOISE LEVELS DEFINING IMPACT FOR TRANSIT PROJECTS

Existing Noise Exposure* $L_{eq}(h)$ or L_{dn} (dBA)	Project Noise Impact Exposure, * $L_{eq}(h)$ or L_{dn} (dBA)					
	Category 1 or 2 Sites			Category 3 Sites		
	No Impact	Impact	Severe Impact	No Impact	Impact	Severe Impact
73	<66	66-71	>71	<71	71-76	>76
74	<66	66-72	>72	<71	71-77	>77
75	<66	66-73	>73	<71	71-78	>78
76	<66	66-74	>74	<71	71-79	>79
77	<66	66-74	>74	<71	71-79	>79
>77	<66	66-75	>75	<71	71-80	>80

*Note: L_{dn} is used for land use where nighttime sensitivity is a factor; L_{eq} during the hour of maximum transit noise exposure is used for land use involving only daytime activities.** Source: *Transit Noise and Vibration Impact Assessment, FTA, April 1995*

TABLE III-69
FTA NOISE EFFECT CRITERIA: EFFECT ON CUMULATIVE NOISE EXPOSURE
LDN OR LEQ IN DBA (ROUNDED TO NEAREST WHOLE DECIBEL)

Existing Noise Exposure	Allowable Project Noise Exposure	Allowable Combined Total Noise Exposure	Allowable Noise Exposure Increase
45	51	52	7
50	53	55	5
55	55	58	3
60	57	62	2
65	60	66	1
70	64	71	1
75	65	75	0

***Source**: Transit Noise and Vibration Impact Assessment, FTA, April 1995.*

c. Noise Criteria for Highway Traffic

Table III-70 presents FHWA and SHA traffic noise impact criteria. The FHWA standards found in Federal Regulation 23 CFR 772 contain Noise Abatement Criteria (NAC) for different land use categories. The NAC are considered to be maximum noise levels for outdoor activities, and for certain indoor activities. The Federal Regulation states that: "Noise impacts occur when the predicted traffic noise levels approach or exceed the NAC levels or when the predicted traffic noise levels substantially exceed the existing noise levels". Approach noise abatement criterion level in Maryland is 1 dBA less than the noise abatement criteria levels shown in the following table.

TABLE III-70
NOISE ABATEMENT CRITERIA FOR HIGHWAY PROJECTS (1)

Activity Category	dBA L_{eq} (1 hr)	Description of Activity
A	57	Lands on which serenity and quietness of extraordinary significance serve an important public purpose and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72	Developed lands, properties, or activities, not included in Categories A or B.
D	---	Undeveloped lands.
E	52	Interior spaces of Category B, where applicable.

Source: *Federal Highway Administration 23 CFR 772*
(1) Approach noise abatement criterion in Maryland is 1 dBA less than the noise abatement criteria levels shown.

4. Measurement Program

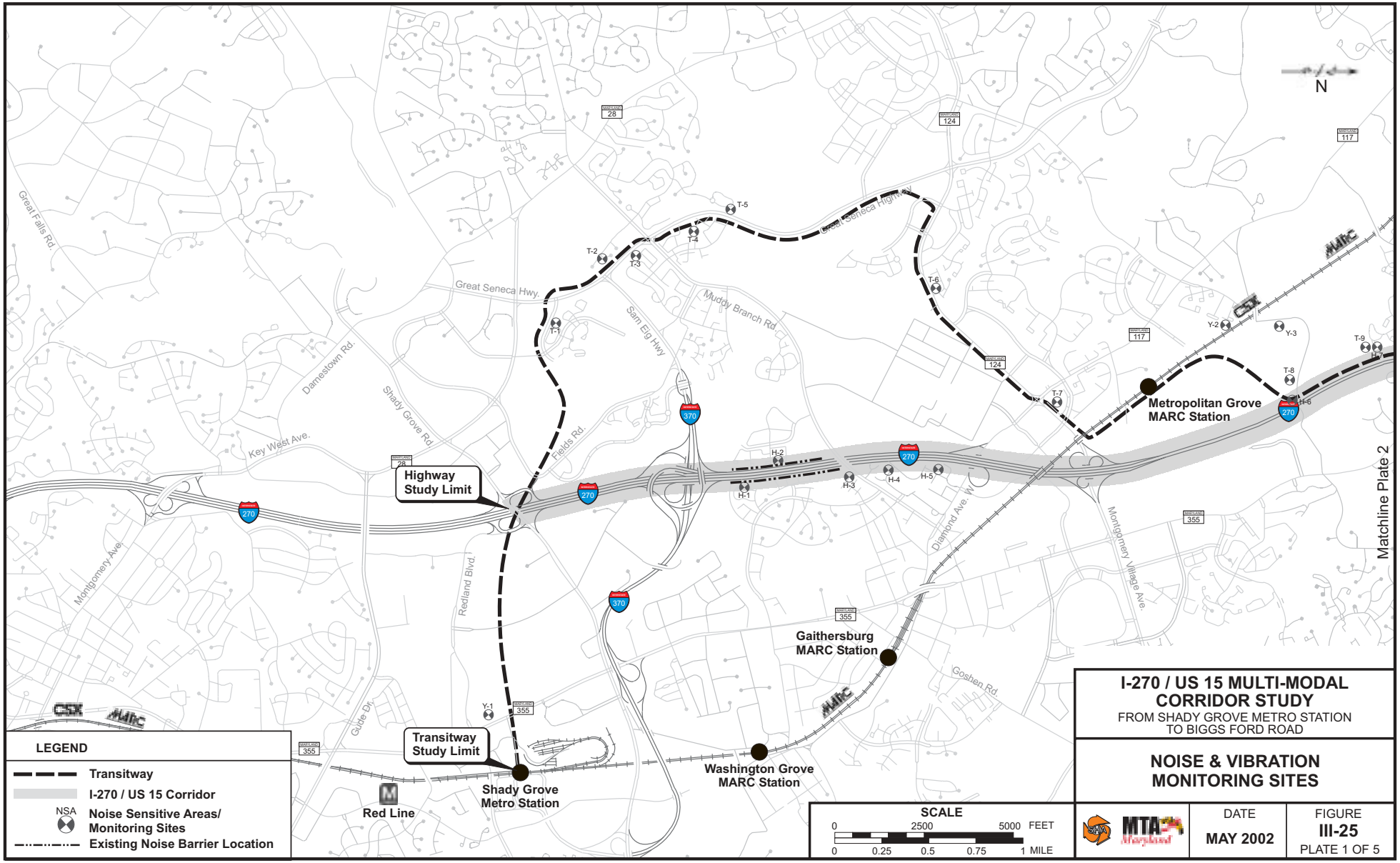
a. Monitoring Sites

Existing noise levels were recorded at 55 sites adjacent to the proposed highway improvements and at 18 sites near the proposed transit alignment. **Figure III-25** depicts the locations of the highway and transit noise monitoring sites within the project study area. Letter "T" followed by the site number identifies transit sites and letter "H" followed by site number identifies highway sites. Monitoring locations included residential, commercial, and historic buildings representative of typical land uses. A brief description of each measurement location and its land use category was recorded.

The measurement sites were selected on the basis of several factors, the most important of which was the site's potential sensitivity to changes in traffic noise and/or train noise levels. As required by the FTA, 24-hour day-night noise levels (L_{dn}) were monitored at the residential FTA "Category 2" sites to determine the potential impact of the proposed transit alternates and short-term peak hour, L_{eq}(1-hr) dBA, measurements were performed to determine potential noise impacts for the highway alternates.

Of the 55 highway sites selected, four are located in a National Park (sites H-26, H-27, H-28 and H-29). Four other sites are located in areas designated as Historic Districts. Site H-21 in the Urbana Historic District, site H-30 in the Monocacy National Battlefield Historic District, site H-49 in the Spring Bank Historic District and site H-52 in the Birely-Roelkey Farmstead Historic District.

Where proximity to train noise source and transit corridor is similar among the sensitive sites within a land use category, noise measurements taken at one site would be representative of noise

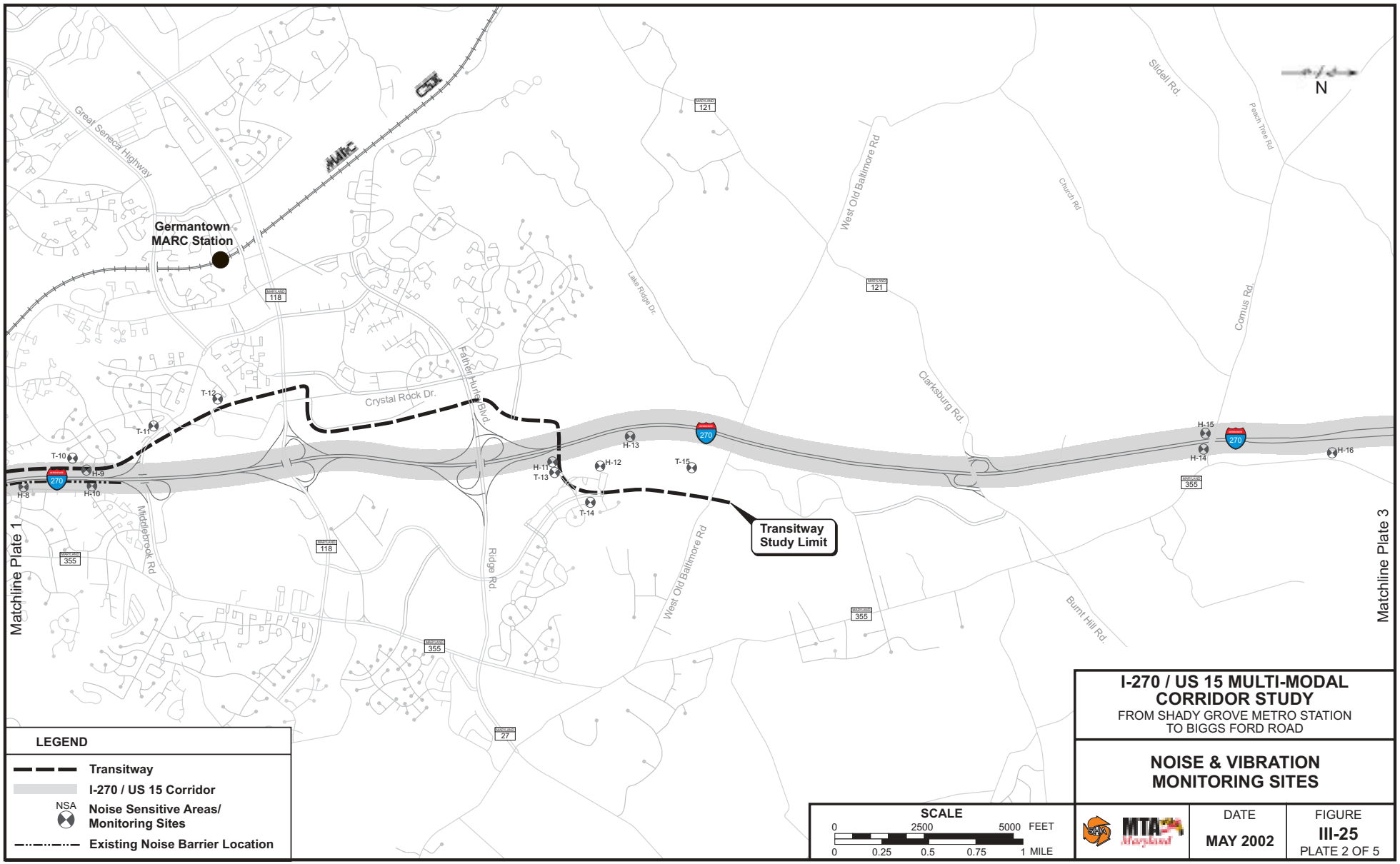


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

NOISE & VIBRATION MONITORING SITES

DATE	FIGURE
MAY 2002	III-25
	PLATE 1 OF 5

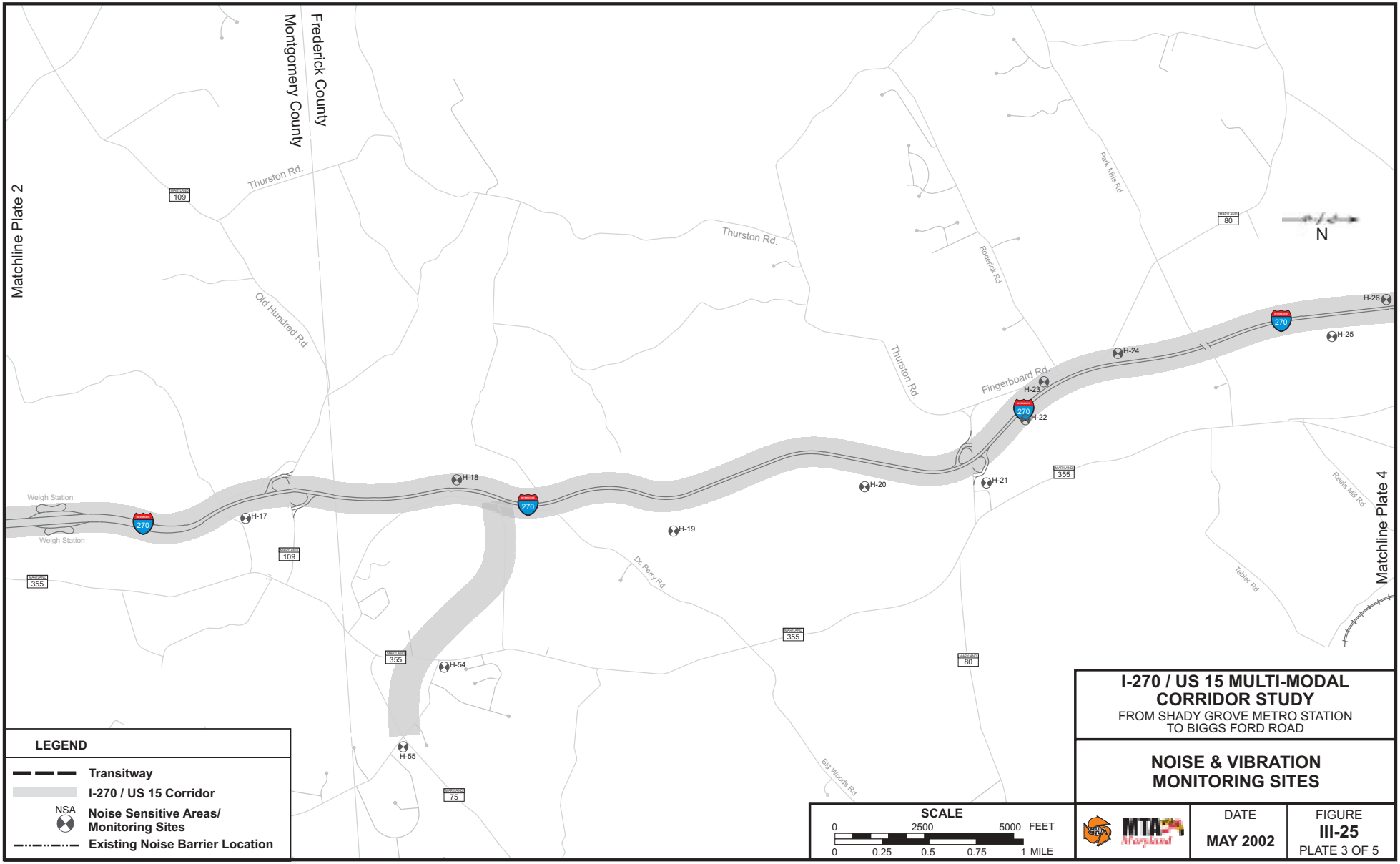


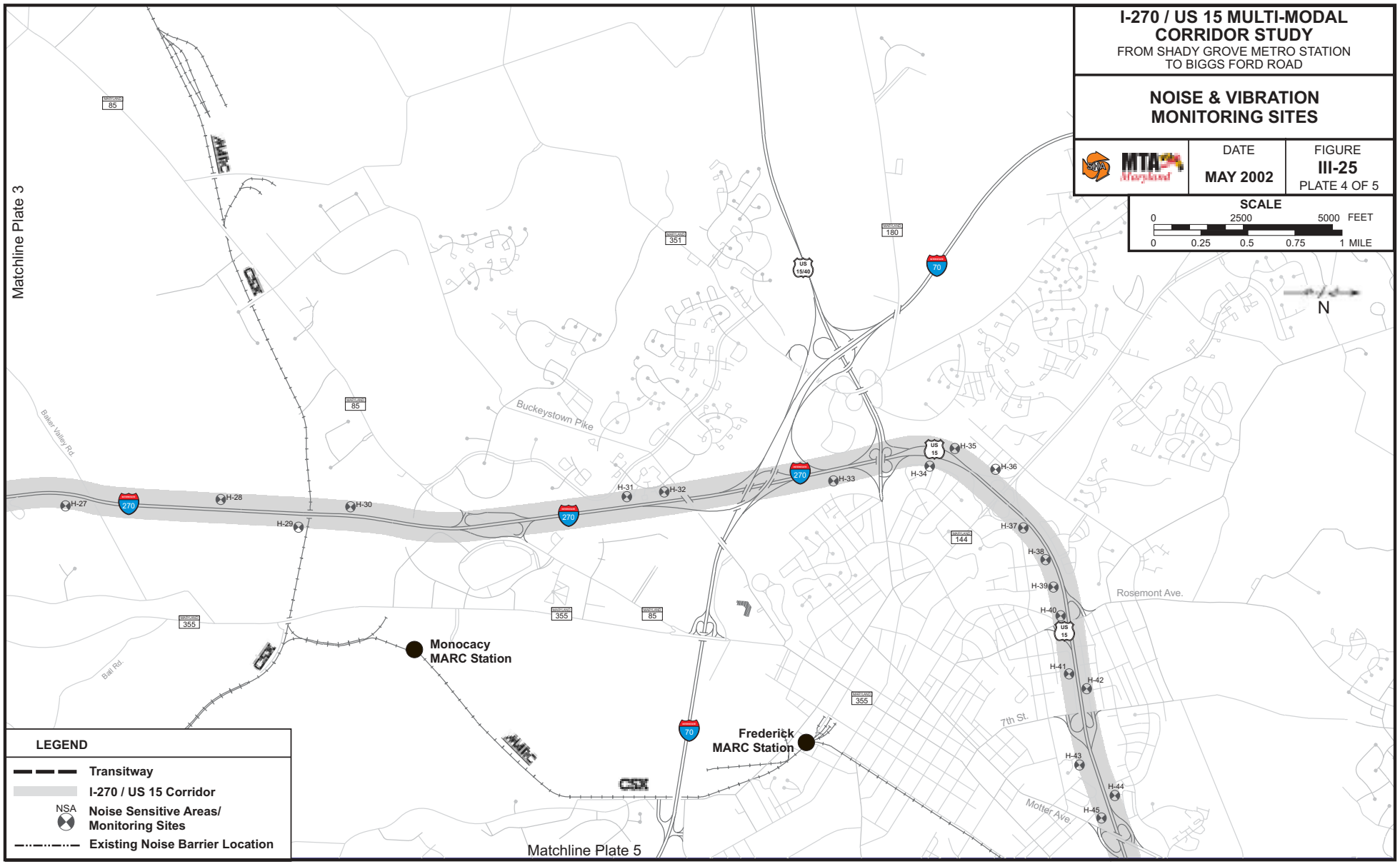
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

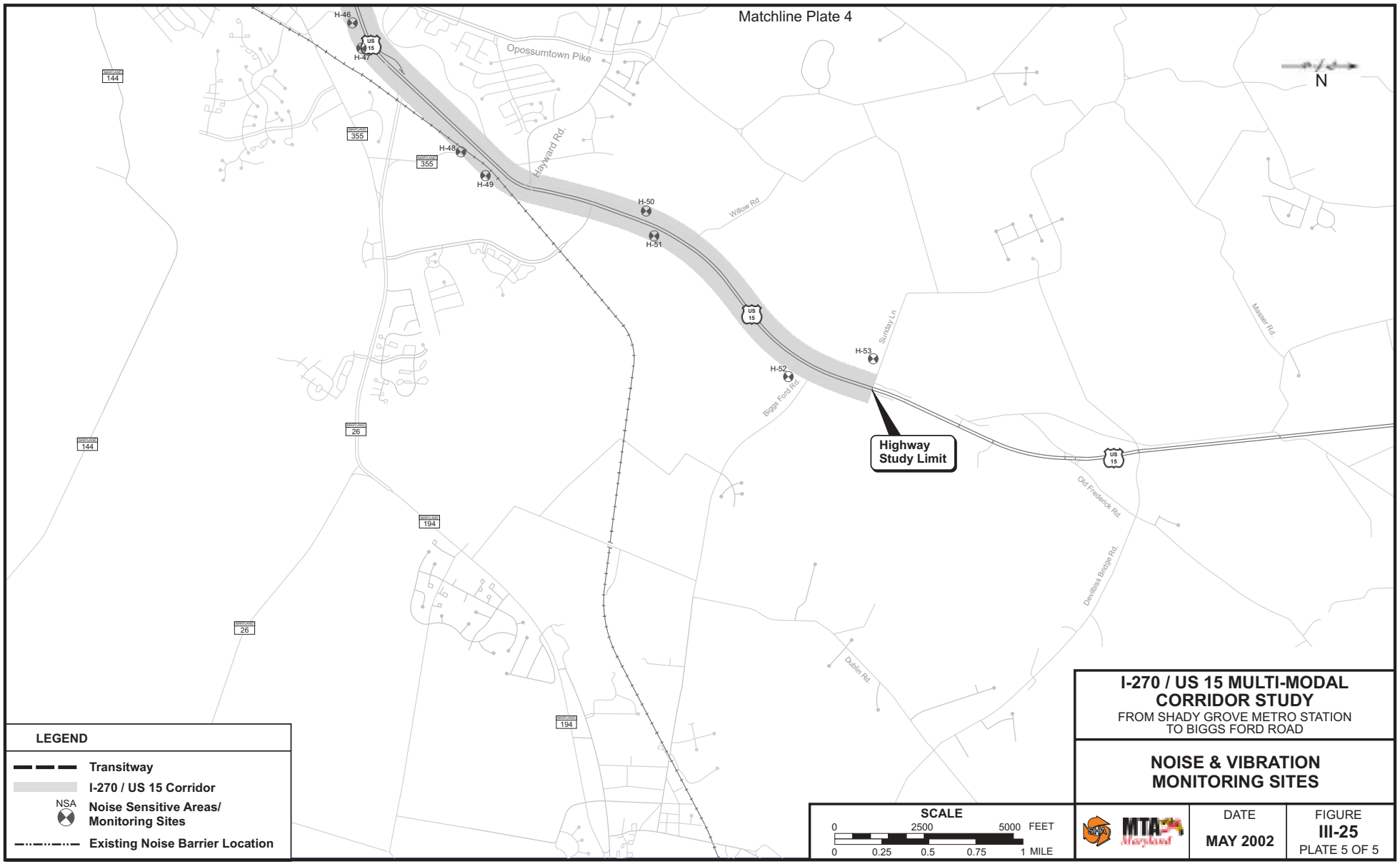
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

NOISE & VIBRATION MONITORING SITES

DATE	FIGURE
MAY 2002	III-25
	PLATE 2 OF 5


Matchline Plate 2
Frederick County
Montgomery County
Thurston Rd.
Old Hundred Rd.
Park Mills Rd
Roderick Rd
Fingerboard Rd.
Weigh Station
Weigh Station
Dr. Perry Rd.
Reels Mill Rd.
Tabler Rd
Big Woods Rd
Matchline Plate 4
N
H-17
H-18
H-19
H-20
H-21
H-22
H-23
H-24
H-25
H-26
H-54
H-55
LEGEND
Transitway
I-270 / US 15 Corridor
NSA
Noise Sensitive Areas/ Monitoring Sites
Existing Noise Barrier Location
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
NOISE & VIBRATION MONITORING SITES
DATE
MAY 2002
FIGURE
III-25
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
NOISE & VIBRATION MONITORING SITES
DATE
MAY 2002
FIGURE
III-25
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Buckeystown Pike
Bauer Valley Rd.
Ball Rd.
Rosemont Ave.
7th St.
Motter Ave.
Monocacy MARC Station
Frederick MARC Station
H-27
H-28
H-29
H-30
H-31
H-32
H-33
H-34
H-35
H-36
H-37
H-38
H-39
H-40
H-41
H-42
H-43
H-44
H-45
LEGEND
Transitway
I-270 / US 15 Corridor
NSA Noise Sensitive Areas/ Monitoring Sites
Existing Noise Barrier Location


Matchline Plate 4
N
H-46
H-47
H-48
H-49
H-50
H-51
H-52
H-53
US 15
Opossumtown Pike
Hayward Rd.
Willow Rd
Sunday Ln
Biggs Ford Rd.
Massey Rd.
Old Frederick Rd.
Devilbiss Bridge Rd.
Dublin Rd.
MARYLAND 144
MARYLAND 355
MARYLAND 26
MARYLAND 194
Highway Study Limit
LEGEND
Transitway
I-270 / US 15 Corridor
NSA
Noise Sensitive Areas/ Monitoring Sites
Existing Noise Barrier Location
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
NOISE & VIBRATION MONITORING SITES
MTA Maryland
DATE
MAY 2002
FIGURE
III-25
PLATE 5 OF 5

conditions at all other sites within that land use category. This factor was considered during the selection of 24-hour transit noise (L_{dn}) noise monitoring sites by ensuring that parameters such as train speed, schedule and distance to track would produce the worst-case noise effects at a large number of residences or blocks of apartments. Typical situations where representative measurement sites were used to estimate noise levels at other sites occurred when both shared the following characteristics:

- Proximity to the same transportation sources such as highways and train tracks
- Similar type and density of housing such as single family homes and multi-family housing in apartment complexes

All of the field measurements were conducted according to procedures described in *Sound Procedures for Measuring Highway Noise* (Report Number FHWA-DP-45-1R) and in *Transit Noise and Vibration Impact Assessment* (April 1995). Concurrent with noise measurements, counts of vehicles by classification were also taken and notation was made of unusual noise events (sirens, pedestrian noises, barking dogs, aircraft, trains, etc.). In addition, all input parameters necessary to run the highway noise computer models were obtained. These include distance from center of near lane to receptor; width of roadway and lanes; height of receptor; barrier/buffer information, including trees, berms, and other possible intervening structures; variations in terrain between the receptor and the source; and grade, if any.

A calibrated set of Bruel and Kjaer (BandK) noise and vibration measuring equipment was used in the study, including a Type 2231 sound level meter fitted with a BandK Type 5155 condenser microphone and windshield for noise measurements. The BandK equipment was used for all short-term (20 minute) peak hour highway readings. For determining the existing noise levels to assess potential impact from the transit alternative noise instruments suited for long term 24-hour monitoring were used. These include a 01 dB digital noise analyzer with a calibrated condenser microphone, and a Larson Davis 814 Integrated Sound Level Meter and its accessories. All measurements were performed under acceptable climatic and street surface conditions (dry street surface and wind speed less than 20 km/hr).

b. Existing Noise Levels

The principal source of noise within most of the corridor is motor vehicles. This applies to all of the alternates. Where the proposed transit alignment would be near existing major or secondary transportation routes most of the community areas directly adjacent to the proposed alignment are already exposed to at least moderate levels of road traffic noise.

Existing Road Traffic Noise

Noise measurements taken within the highway portion of the proposed project are summarized in **Table III-71**. AM and PM period peak noise levels were recorded during several trips to the study area during September 1998. The measurements were repeated during June and July 2001 at which time the project corridor was better defined. FHWA noise descriptor L_{eq} was recorded for a 20-minute duration during the measurements. Fifty-five highway sites were chosen for existing traffic noise measurement. All noise measurement locations were reviewed and

approved by SHA prior to undertaking field survey. Existing noise levels range from a high level of 77 dBA at site H-33 to a low level of 52 dBA at sites H-20 and H-30. Measured noise levels approach or exceed the NAC at 24 monitoring sites. At several locations adjacent to existing noise walls in the southern portion of the study area (in Gaithersburg and Germantown), existing noise levels were recorded for only one time period.

To assess how closely the FHWA Traffic Noise Model (TNM) estimated noise levels, existing noise levels at all 55 sites were estimated using the model with existing (1998) traffic data. A comparison of measured versus modeled existing noise levels is presented in **Table III-72**. In general, the TNM estimated noise levels were higher than measured noise levels, but were within 3 dBA of the measured levels. Existing noise level predictions within plus or minus 2 to 3 dBA of existing measured levels is considered acceptable.

Existing Noise along the Proposed Transit Corridor

Within the proposed transit corridor, existing noise levels were recorded for a 24-hour period at 18 FTA "Category 2" sites. All "Category 2" sites selected for noise impact evaluation for this study were residential properties. Fifteen sites were selected adjacent to the proposed transit alignment and three sites were selected near proposed transit yard locations. The transit alignment sites are identified as "T-1" through "T-15" and transit yard sites are identified as "Y-1" through "Y-3". As required by the FTA, L_{dn} descriptor was determined at each of the 18 surveyed sites. A summary of L_{dn} levels is presented in **Table III-73**.

In general, L_{dn} levels show less variability than short-term noise readings because the L_{dn} levels are time averaged over a 24-hour period. Within the proposed transit corridor, several existing measurement sites are located in isolated areas far removed from existing road traffic routes and consequently they recorded low noise levels. These sites are represented by T-1, T-5, T-9, and T-12 through T-15 and Y-3 where measured L_{dn} levels are below 63 dBA. All other locations were influenced by road traffic noise. Along the proposed alignment L_{dn} levels range from a low noise level of 57 dBA at site T-12 to a high noise level of 69 dBA at location T-7.

TABLE III-71
SUMMARY OF I-270/US 15 MONITORED PEAK HOUR TRAFFIC NOISE DATA

Site #	Location	Land Use	AM Peak Period			PM Peak Period		
			Date	Time	Leq	Date	Time	Leq
H-1	103 Bralan Court, Gaithersburg	Residential	6/26/01	8:17	60			
H-2	704 West Side Drive, Gaithersburg	Residential	6/26/01	7:45	63			
H-3	18 Autumn Hill Way, Gaithersburg	Residential	6/26/01	8:10	60			
H-4	17000 Downing Street, London Derry	Residential	9/30/98	8:45	74	9/23/98	6:05	74
H-5	419 Perry Parkway, London Derry	Residential	6/26/01	8:52	67	6/26/01	5:20	64
H-6	11200 Game Preserve Road, Caulfield	Residential	6/26/01	9:27	69	6/26/01	5:57	68
H-7	11535 Summer Oak Drive, Gunners Lake Village.	Residential	6/28/01	6:40	63	6/28/01	6:00	63
H-8	19056 Staleybridge Road, Middlebrook Mill	Residential	6/26/01	10:00	58			
H-9	11902 Rustic Farm Court, Gunners Lake Village	Residential	9/24/98	6:40	60	9/24/98	6:00	60
H-10	19300 Elderberry Terrace, Middlebrook Com.	Residential	6/26/01	10:00	58			
H-11	12450 Milestone Center Drive Germantown	Hotel	6/26/01	9:00	60	6/26/01	4:05	63
H-12	13000 Woodcutter Circle, Germantown	Residential	6/27/01	7:20	60	6/26/01	4:37	60
H-13	Black Hill Regional Park	Park	6/27/01	7:22	68	6/26/01	4:15	69
H-14	14220B Comus Road, Clarksburg	Residential	9/22/98	7:32	63	9/22/98	5:28	66
H-15	14300 Comus Road, Clarksburg	Residential	9/22/98	7:30	73	9/22/98	5:30	72
H-16	24320 Frederick Road, Clarksburg	Residential	9/22/98	8:00	63	9/22/98	6:00	64
H-17	15300 Groghan Lane, Clarksburg	Residential	6/27/01	8:07	59	6/27/01	4:17	59
H-18	9401 Dr Perry Road, Ijamsville	Residential	9/22/98	8:17	63	9/22/98	4:10	64
H-19	9812B Dr Perry Road, Ijamsville	Residential	6/27/01	9:40	53	6/27/01	5:18	53
H-20	8731 Fingerboard Road, Urbana	Residential	9/22/98	9:20	52	9/22/98	3:25	56
H-21	8994 Urbana Church Road, Urbana	Residential/ Historic District	9/22/98	9:00	57	9/22/98	3:30	57
H-22	Urbana Community Park, Urbana	Park	6/27/01	10:13	54	7/12/01	6:25	55
H-23	8546 Fingerboard Road, Urbana	Residential	9/23/98	6:25	63	9/22/98	4:42	64
H-24	8358 Fingerboard Road, Urbana	Residential	6/28/01	7:38	66	6/28/01	4:26	64

TABLE III-71 (CONTINUED)
SUMMARY OF I-270/US 15 MONITORED PEAK HOUR TRAFFIC NOISE DATA

Site #	Location	Land Use	AM Peak Period			PM Peak Period		
			Date	Time	Leq	Date	Time	Leq
H-25	4110 Abby Church Road, Frederick	Residential	6/28/01	8:09	57	6/28/01	4:40	57
H-26	Monocacy National Battlefield	National Park	6/28/01	8:40	67	6/28/01	5:08	68
H-27	SE Corner Baker Valley Road and I-270	National Park	9/23/98	7:00	66	9/23/98	5:20	66
H-28	Monocacy National Battlefield	National Park	6/28/01	8:40	67	6/28/01	5:08	63
H-29	Monocacy National Battlefield	National Park	6/28/01	8:20	66	6/28/01	4:30	66
H-30	Monocacy National Battlefield	Historic District	6/28/01	9:13	54	6/28/01	5:44	52
H-31	7178 Canterbury Court, Frederick	Residential	7/10/01	7:10	71	7/10/01	5:38	60
H-32	5819 Farmgate Court	Residential	9/23/98	7:25	69	9/23/98	4:50	66
H-33	420 Prospect Avenue, Frederick	Hotel	9/23/98	8:15	76	9/23/98	4:05	77
H-34	225 Wyngate Drive, Frederick	Residential	9/23/98	8:25	70	9/23/98	4:13	69
H-35	Frederick Memorial Park, Frederick	Cemetery	7/10/01	8:15	61	7/12/01	5:02	60
H-36	901 Walnut Street, Frederick	Residential	9/23/98	9:00	66	9/23/98	3:40	64
H-37	103 Fairview Avenue, Frederick	Residential	9/24/98	7:30	67	9/24/98	4:35	65
H-38	Play Area on Mercer Court, Frederick	Park	7/10/01	8:47	67	7/12/01	4:30	68
H-39	Apartment Building at end of Carrol Parkway	Residential	9/24/98	8:00	69	9/24/98	5:09	67
H-40	Schifferstadt Museum and Gallery	Museum	9/24/98	7:27	64	9/24/98	4:42	62
H-41	600 Apple Avenue	Residential	9/24/98	6:45	73	9/24/98	4:10	76
H-42	616 Briggs Avenue	Residential	9/24/98	6:49	73	9/24/98	4:12	71
H-43	1015 Columbind Drive, Unit 1A	Residential	9/24/98	8:31	65	9/24/98	3:42	63
H-44	1418L Taney Avenue, Frederick	Residential	7/10/01	9:25	70	7/11/01	4:50	70
H-45	1307 Pinewood Drive	Residential	9/24/98	8:30	70	9/24/98	3:40	70
H-46	Rose Hill Manor Museum and Park, Frederick	Museum	7/11/01	6:22	68	7/11/01	4:07	70
H-47	Rose Hill Manor Park, Frederick	Park	7/11/01	6:25	64	7/11/01	4:10	65

TABLE III-71 (CONTINUED)
SUMMARY OF I-270/US 15 MONITORED PEAK HOUR TRAFFIC NOISE DATA

Site #	Location	Land Use	AM Peak Period			PM Peak Period		
			Date	Time	Leq	Date	Time	Leq
H-48	7936 Wormans Mill Road	Residential	9/29/98	7:54	66	9/29/98	3:40	63
H-49	7945 Wormans Mill Road, Frederick	Residential/ Historic District	7/11/01	7:50	65	7/12/01	3:58	66
H-50	7611D Route. 15, Frederick	Residential	9/29/98	6:56	70	9/30/98	4:35	67
H-51	Rte. 15 northbound side, Fredrick	Residential	9/29/98	7:11	65	9/29/98	4:08	58
H-52	Middle Hedge Farm, Frederick	Residential/ Historic District	9/25/98	7:07	54	9/29/98	4:30	58
H-53	Sunday Lane, Catoctin Manor Estates	Residential	9/25/98	7:38	59	9/30/98	4:10	57
H-54	10006 Lewisdale Road, Clarksburg	Residential	6/27/01	8:38	61	6/27/01	4:46	61
H-55	10196 Lewisdale Road, Clarksburg	Residential	6/27/01	8:35	53	6/27/01	4:45	54

TABLE III-72
SUMMARY OF I-270/US 15 PEAK HOUR EXISTING MEASURED VS MODELED NOISE LEVELS

Site #	Location	Land Use	AM Peak Period Leq		PM Peak Period Leq	
			Measured	Modeled	Measured	Modeled
H-1	103 Bralan Court, Gaithersburg	Residential	60	61		62
H-2	704 West Side Drive, Gaithersburg	Residential	63	64		65
H-3	18 Autumn Hill Way, Gaithersburg	Residential	60	63		64
H-4	17000 Downing Street, London Derry	Residential	74	73	74	75
H-5	419 Perry Parkway, London Derry	Residential	67	70	64	70
H-6	11200 Game Preserve Road, Caulfield	Residential	69	72	68	70
H-7	11535 Summer Oak Drive, Gunners Lake Village.	Residential	63	62	63	61
H-8	19056 Staleybridge Road, Middlebrook Mill	Residential	58	61		61
H-9	11902 Rustic Farm Court, Gunners Lake Village	Residential	60	63	60	62
H-10	19300 Elderberry Terrace, Middlebrook Com.	Residential	58	60		59
H-11	12450 Milestone Center Drive, Germantown	Hotel	60	59	63	57
H-12	13000 Woodcutter Circle, Germantown	Residential	60	59	60	58
H-13	Black Hill Regional Park	Park	68	69	69	70
H-14	14220B Comus Road, Clarksburg	Residential	63	66	66	68
H-15	14300 Comus Road, Clarksburg	Residential	73	74	72	74
H-16	24320 Frederick Road, Clarksburg	Residential	63	61	64	61
H-17	15300 Groghan Lane, Clarksburg	Residential	59	61	59	60
H-18	9401 Dr Perry Road, Ijamsville	Residential	63	66	64	65
H-19	9812B Dr Perry Road, Ijamsville	Residential	53	56	53	55
H-20	8731 Fingerboard Road, Urbana	Residential	52	55	56	56
H-21	8994 Urbana Church Road, Urbana	Residential/ Historic District	57	61	57	60
H-22	Urbana Community Park, Urbana	Park	54	57	55	58
H-23	8546 Fingerboard Rod, Urbana	Residential	63	65	64	66
H-24	8358 Fingerboard Road, Urbana	Residential	66	66	64	65

TABLE III-72 (CONTINUED)
SUMMARY OF I-270/US 15 PEAK HOUR EXISTING MEASURED VS MODELED NOISE LEVELS

Site #	Location	Land Use	AM Peak Period Leq		PM Peak Period Leq	
			Measured	Modeled	Measured	Modeled
H-25	4110 Abby Church Road, Frederick	Residential	57	60	57	59
H-26	Monocacy National Battlefield	Historic Park	67	70	68	71
H-27	SE Corner Baker Valley Road and I-270	Historic Park	66	68	66	68
H-28	Monocacy National Battlefield	Historic Park	67	69	63	68
H-29	Monocacy National Battlefield	Historic Park	66	68	66	67
H-30	Monocacy National Battlefield	Historic District	54	57	52	55
H-31	7178 Canterbury Court, Frederick	Residential	71	71	60	70
H-32	5819 Farmgate Court	Residential	69	70	66	70
H-33	420 Prospect Avenue, Frederick	Hotel	76	74	77	74
H-34	225 Wyngate Drive, Frederick	Residential	70	69	69	69
H-35	Frederick Memorial Park, Frederick	Cemetery	61	62	60	61
H-36	901 Walnut Street, Frederick	Residential	66	69	64	67
H-37	103 Fairview Avenue, Frederick	Residential	67	69	65	69
H-38	Play Area on Mercer Court, Frederick	Park	67	70	68	71
H-39	Apartment Building at end of Carrol Parkway	Residential	69	67	67	66
H-40	Schifferstadt Museum and Gallery	Museum	64	65	62	64
H-41	600 Apple Avenue	Residential	73	72	76	71
H-42	616 Briggs Avenue	Residential	73	71	71	70
H-43	1015 Columbind Drive, Unit 1A	Residential	65	66	63	66
H-44	1418L Taney Avenue, Frederick	Residential	70	70	70	69
H-45	1307 Pinewood Drive	Residential	70	70	70	70
H-46	Rose Hill Manor Museum and Park, Frederick	Museum	68	69	70	69
H-47	Rose Hill Manor Park, Frederick	Park	64	67	65	68
H-48	7936 Wormans Mill Road	Residential	66	66	63	66

TABLE III-72 (CONTINUED)
SUMMARY OF I-270/US 15 PEAK HOUR EXISTING MEASURED VS MODELED NOISE LEVELS

Site #	Location	Land Use	AM Peak Period Leq		PM Peak Period Leq	
			Measured	Modeled	Measured	Modeled
H-49	7945 Wormans Mill Road, Frederick	Residential/ Historic District	65	64	66	64
H-50	7611D Route. 15, Frederick	Residential	70	72	67	68
H-51	Rte. 15 NB Side, Fredrick	Residential	65	62	58	61
H-52	Middle Hedge Farm, Frederick	Residential/ Historic District	54	55	58	55
H-53	Sunday Lane, Catoctin Manor Estates	Residential	59	60	57	58
H-54	10006 Lewisdale Road, Clarksburg	Residential	61	58	61	57
H-55	10196 Lewisdale Road, Clarksburg	Residential	53	60	54	60

TABLE III-73
SUMMARY OF NOISE MEASUREMENTS (Ldn) AT RESIDENTIAL LAND USES
FTA "CATEGORY 2" SITES ADJACENT TO TRANSIT CORRIDOR

Site #	Location	Land Use	Distance to Receptor from Tracks (feet)	Date	L_{dn} (dBA)
T-1	9963 Foxborough Circle, Gaithersburg	Residential	170	9-22-98	60
T-2	141 Mission Drive, Gaithersburg	Residential	130	10-07-98	64
T-3	67 Pontiac Way, Gaithersburg	Residential	200	7-12-01	64
T-4	309 Leafcup Road, Gaithersburg	Residential	120	9-29-98	66
T-5	427 Upshire Circle, Gaithersburg	Residential	220	10-19-98	62
T-6	2 Purchase Street, Gaithersburg	Residential	150	10-1-98	64
T-7	869 Clopper Road, Gaithersburg	Residential	90	6-25-01	69
T-8	11210 Game Preserve Road, Caulfield	Residential	160	7-11-01	65
T-9	11535 Summer Oak Drove, Gunners Lake Village	Residential	340	6-27-01	60
T-10	11902 Rustic Farm Court, Gunners Lake Village	Residential	100	9-23-98	62
T-11	19353 Hottinger Circle, Germantown	Residential	250	7-9-01	66
T-12	19645 White Saddle Drive, The Colony	Residential	100	6-27-01	57
T-13	21161 Dorsey Mill Road, Germantown	Residential	120	10-5-98	60
T-14	6 Village Green Court, Germantown	Residential	130	6-27-01	62
T-15	13100 W. Old Baltimore Road, Beaj Estates	Residential	110	7-11-01	59
Y-1	101 Redland Boulevard, Rockville	Residential	250	8-7-01	65
Y-2	9 Wicker Boulevard, Caulfield	Residential	150	8-6-01	68
Y-3	11150 Game Preserve Road, Gaithersburg	Residential	350	8-7-01	63

5. Noise Impacts and Mitigation Measures

a. Traffic Noise Impacts

According to FHWA and SHA impact assessment procedures, traffic noise impacts occur when L_{eq} (1 hour) noise levels "approach" or "exceed" the NAC. The "approach" noise level is defined by SHA as occurring at outdoor traffic noise level (hourly L_{eq} in dBA) of 66 dBA at the noisiest traffic hour.

Though FHWA regulations provide no specific criteria for determining when predicted noise levels "substantially" exceed existing levels, some quantitative guidelines are necessary. An increase of 10 dBA or more over existing noise levels is considered as a substantial increase. SHA also considers substantial increase as an increase in the future build noise levels of 10 dBA or more above low existing noise levels, where the modeled levels will be greater than 51 decibels but less than 66 decibels. Locations with substantial increase in noise levels warrant abatement considerations.

Table III-74 summarizes Year 2025 future traffic noise levels, which were estimated at all of the 55 highway sites along the proposed highway improvement corridor. Except at one site, site H-35, the future build noise levels at all of the other sites do not increase by 10 dBA or more over existing levels. **Table III-75** shows a comparison of predicted noise levels between the studied alternatives.

Future predicted 2025 build noise levels under both highway alternates 3B and 5A exceed the 66 dBA SHA Noise Abatement Criteria at 36 and 35 monitoring locations, respectively. Future No-Build and build noise levels exceed 66 dBA at 26 residential noise monitoring properties scattered throughout the study area. These residential impacts occur at sites H-2 through H-6, H-8, H-14, H-15, H-18, H-19, H-23, H-24, H-31, H-32, H-34, H-36, H-37, H-39, H-41 through H-45 and H-48 through H-50.

Museums (H-40 and H-46) do not fall under the SHA and FHWA Category "B" exterior noise criteria since they largely involve indoor activities. They fall under the FHWA Category "E" designation for noise sensitive activities that occur in interior spaces. For Category "E" sites noise impact occurs when interior noise levels exceed 51 dBA. Assuming that the building is centrally air conditioned and is used under closed window conditions, an average of 25 dBA noise reduction is expected to occur as traffic noise transmits through inoperable double glazed windows. Under these conditions interior noise levels at the two museums would not approach impact levels.

b. Transit Noise Impacts

In assessing the environmental impact of a proposed rail alignment, it is sufficient to assume a level terrain for the surrounding community. Shielding offered by intervening buildings between the rail alignment and noise sensitive receptors was dismissed to provide a conservative analysis.

Noise impacts were determined at the 18 sites, by applying the FTA guidelines contained in *Transit Noise and Vibration Impact Assessment* (FTA, April 1995).

Light Rail Transit

The results of the noise analysis show noise impacts that were identified for the LRT alternate under two different scenarios: a) without the train horn and b) with the train horn. The results of the analysis are summarized below (**Table III-76** and **Table III-77**). Impact assessment was also performed by applying the APTA guidelines and WMATA criteria, both of which specify

maximum allowable limits for single pass-by train noise levels (L max) at sensitive land uses along the corridor.

Under the build alternate, 10 sites would be affected without the train horn and 16 sites would be affected with the train horn. Of the 10 sites under the "without train horn" category nine sites would be categorized as "impacts" and one site would be categorized as "severe impact". Of the 16 sites under the "with train horn" category four sites would be categorized as "impacts" and 12 sites would be categorized as "severe impacts". For purposes of comparison, the results of the impact analysis performed by applying the APTA guidelines and WMATA criteria show noise impacts at five sites (T-2, T-8, T-10, T-11, and T-14) and no impacts at the remaining 13 sites (**Table III-78**).

TABLE III-74
SUMMARY OF PEAK HOUR NOISE PREDICTIONS ADJACENT TO HIGHWAY ALTERNATES 5A and 3B

Site #	Location	Land Use	*Predicted Noise Levels Leq (1 hr.) dBA							
			AM Peak Period				PM Peak Period			
			Existing	No- Build	Alternate 5A	Alternate 3B	Existing	No-Build	Alternate 5A	Alternate 3B
H-1	103 Bralan Court, Gaithersburg	Residential	61	62	61	62	62	62	60	62
H-2	704 West Side Drive, Gaithersburg	Residential	64	62	66	66	65	66	67	67
H-3	18 Autumn Hill Way, Gaithersburg	Residential	63	65	65	65	64	66	65	66
H-4	17000 Downing Street, London Derry	Residential	73	74	75	76	75	76	74	77
H-5	419 Perry Parkway, London Derry	Residential	69	70	71	71	68	70	71	72
H-6	11200 Game Preserve Road, Caulfield	Residential	70	71	72	72	70	72	75	75
H-7	11535 Summer Oak Drive, Gunners Lake Village.	Residential	62	63	62	62	61	61	64	64
H-8	19056 Staleybridge Road, Middlebrook Mill	Residential	61	62	64	64	61	62	64	66
H-9	11902 Rustic Farm Court, Gunners Lake Village	Residential	62	62	61	61	62	61	64	64
H-10	19300 Elderberry Terrace, Middlebrook	Residential	60	63	64	64	59	62	64	65
H-11	12450 Milestone Center Drive, Germantown	Hotel	59	59	62	62	57	58	61	61
H-12	13000 Woodcutter Circle, Germantown	Residential	59	60	63	63	58	59	53	53
H-13	Black Hill Regional Park	Park	69	71	73	73	70	71	73	73
H-14	14220B Comus Road, Clarksburg	Residential	66	69	72	70	68	69	72	70
H-15	14300 Comus Road, Clarksburg	Residential	74	73	75	73	74	75	76	74
H-16	24320 Frederick Road, Clarksburg	Residential	61	61	64	62	61	60	62	61
H-17	15300 Groghan Lane, Clarksburg	Residential	61	62	63	61	60	62	65	64
H-18	9401 Dr Perry Road, Ijamsville	Residential	66	67	71	69	65	67	71	69
H-19	9812B Dr Perry Road, Ijamsville	Residential	62	62	66	63	61	60	65	63
H-20	8731 Fingerboard Road, Urbana	Residential	55	58	62	60	56	57	62	60
H-21	8994 Urbana Church Road, Urbana	Residential/ Historic District	61	62	65	63	60	61	64	62

TABLE III-74 (CONTINUED)
SUMMARY OF PEAK HOUR NOISE PREDICTIONS ADJACENT TO HIGHWAY ALTERNATES 5A and 3B

Site #	Location	Land Use	*Predicted Noise Levels Leq (1 hr.) dBA							
			AM Peak Period				PM Peak Period			
			Existing	No-Build	Alternate 5A	Alternate 3B	Existing	No-Build	Alternate 5A	Alternate 3B
H-22	Urbana Community Park, Urbana	Park	57	60	62	61	58	61	64	62
H-23	8546 Fingerboard Road, Urbana	Residential	65	68	72	70	66	70	73	72
H-24	8358 Fingerboard Road, Urbana	Residential	66	69	74	73	65	68	74	72
H-25	4110 Abby Church Road, Frederick	Residential	60	60	63	61	59	58	63	61
H-26	Monocacy National Battlefield	Park	72	70	73	71	71	70	74	71
H-27	SE Corner Baker Valley Road and I-270	Historic Park	68	70	73	72	68	67	71	73
H-28	Monocacy National Battlefield	Historic Park	69	68	72	70	68	67	71	70
H-29	Monocacy National Battlefield	Historic Park	68	71	73	72	67	69	71	70
H-30	Monocacy National Battlefield	Historic District	55	59	62	62	54	57	62	61
H-31	7178 Canterbury Court, Frederick	Residential	71	70	74	72	70	70	75	74
H-32	5819 Farmgate Court	Residential	70	68	73	71	70	69	74	74
H-33	420 Prospect Avenue, Frederick	Hotel	74	74	74	71	74	74	73	72
H-34	225 Wyngate Drive, Frederick	Residential	69	70	70	70	69	69	69	69
H-35	Frederick Memorial Park, Frederick	Cemetery	62	65	73	73	61	64	71	71
H-36	901 Walnut Street, Frederick	Residential	69	69	71	69	67	67	68	68
H-37	103 Fairview Avenue, Frederick	Residential	69	70	72	72	69	69	71	71
H-38	Play Area on Mercer Court, Frederick	Park	70	73	75	75	71	73	74	74
H-39	Apartment Building at end of Carrol Parkway	Residential	67	67	69	69	66	66	68	68
H-40	Schifferstadt Museum and Gallery	Museum	65(40)*	68(43)*	70(45)*	70(45)*	64(39)*	67(42)*	69(44)*	69(44)*
H-41	600 Apple Avenue	Residential	72	72	74	74	71	71	74	74

TABLE III-74 (CONTINUED)
SUMMARY OF PEAK HOUR NOISE PREDICTIONS ADJACENT TO HIGHWAY ALTERNATES 5A and 3B

Site #	Location	Land Use	*Predicted Noise Levels Leq (1 hr.) dBA							
			AM Peak Period				PM Peak Period			
			Existing	No-Build	Alternate 5A	Alternate 3B	Existing	No-Build	Alternate 5A	Alternate 3B
H-42	616 Briggs Avenue	Residential	71	71	73	73	70	70	72	72
H-43	1015 Columbind Drive. Unit 1A	Residential	66	67	68	69	66	66	68	67
H-44	1418L Taney Avenue, Frederick	Residential	70	70	73	73	69	70	71	71
H-45	1307 Pinewood Drive	Residential	70	71	73	73	70	70	72	72
H-46	Rose Hill Manor Museum and Park, Frederick	Museum	69(44)*	69(44)*	71(46)*	71(46)*	69(44)*	70(45)*	70(45)*	70(45)*
H-47	Rose Hill Manor Park, Frederick	Park	67	69	71	71	68	70	70	70
H-48	7936 Wormans Mill Road	Residential	66	69	69	69	66	66	69	68
H-49	7945 Wormans Mill Road, Frederick	Residential/Historic District	64	67	67	67	64	65	66	66
H-50	7611D Rte. 15, Frederick	Residential	72	71	73	73	68	69	71	71
H-51	US 15 northbound Side, Fredrick	Residential	62	63	65	65	61	62	64	64
H-52	Middle Hedge Farm, Frederick	Residential/Historic District	55	56	61	60	55	56	60	60
H-53	Sunday Lane, Catoctin Manor Estates	Residential	60	60	63	63	58	59	60	60
H-54	10006 Lewisdale Road, Clarksburg	Residential	58	62	62	61	57	61	62	62
H-55	10196 Lewisdale Road, Clarksburg	Residential	60	63	63	62	60	63	63	63

* *Numbers shown in parenthesis are interior noise levels.*

TABLE III-75
COMPARISON OF NOISE PREDICTION LEVELS BETWEEN EXISTING CONDITIONS, NO-BUILD AND BUILD ALTERNATES

Site #	Location	Land Use	Predicted Noise Levels Leq (1-hr), dBA														
			AM Peak Period							PM Peak Period							
			Existing	No-Build	No-Build minus Existing.	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing	Existing	No-Build	No-Build minus Existing	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing
H-1	103 Bralan Court, Gaithersburg	Residential	61	62	1	61	0	62	1	62	62	0	60	-2	62	0
H-2	704 West Side Drive, Gaithersburg	Residential	64	62	-2	66	2	66	2	65	66	1	67	2	67	2
H-3	18 Autumn Hill Way, Gaithersburg	Residential	63	65	2	65	2	65	2	64	66	2	65	1	66	2
H-4	17000 Downing Street, London Derry	Residential	73	74	1	75	2	76	3	75	76	1	74	-1	77	2
H-5	419 Perry Parkway, London Derry	Residential	69	70	1	71	2	71	2	68	70	2	71	3	72	4
H-6	11200 Game Preserve Road, Caulfield	Residential	70	71	1	72	2	72	2	70	72	2	75	5	75	5
H-7	11535 Summer Oak Drive, Gunners Lake Village.	Residential	62	63	1	62	0	62	0	61	61	0	64	3	64	3
H-8	19056 Staleybridge Road, Middlebrook Mill	Residential	61	62	1	64	3	64	3	61	62	1	64	3	66	5
H-9	11902 Rustic Farm Court, Gunners Lake Village	Residential	62	62	0	61	-1	61	-1	62	61	-1	64	2	64	2
H-10	19300 Elderberry Terrace, Middlebrook	Residential	60	63	3	64	4	64	4	59	62	3	64	5	65	6
H-11	12450 Milestone Center Drive, Germantown	Hotel	59	59	0	62	3	62	3	57	58	1	61	4	61	4
H-12	13000 Woodcutter Circle, Germantown	Residential	59	60	1	63	4	63	4	58	59	1	53	-5	53	-5
H-13	Black Hill Regional Park	Park	69	71	2	73	4	73	4	70	71	1	73	3	73	3

TABLE III-75 (CONTINUED)
COMPARISON OF NOISE PREDICTION LEVELS BETWEEN EXISTING CONDITIONS, NO-BUILD AND BUILD ALTERNATES

Site #	Location	Land Use	Predicted Noise Levels Leq (1-hr), dBA													
			AM Peak Period							PM Peak Period						
			Existing	No-Build	No-Build minus Existing.	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing	Existing	No-Build	No-Build minus Existing	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing
H-14	14220B Comus Road, Clarksburg	Residential	66	69	3	72	6	70	4	68	69	1	72	4	70	2
H-15	14300 Comus Road, Clarksburg	Residential	74	73	-1	75	1	73	-1	74	75	1	76	2	74	0
H-16	24320 Frederick Road, Clarksburg	Residential	61	61	0	64	3	62	1	61	60	-1	62	1	61	0
H-17	15300 Groghan Lane, Clarksburg	Residential	61	62	1	63	2	61	0	60	62	2	65	5	64	4
H-18	9401 Dr Perry Road, Ijamsville	Residential	66	67	1	71	5	69	3	65	67	2	71	6	69	4
H-19	9812B Dr Perry Road, Ijamsville	Residential	62	62	0	66	4	63	1	61	60	-1	65	4	63	2
H-20	8731 Fingerboard Road, Urbana	Residential	55	58	3	62	7	60	5	56	57	1	62	6	60	4
H-21	8994 Urbana Church Road, Urbana	Residential/ Historic District	61	62	1	65	4	63	2	60	61	1	64	4	62	2
H-22	Urbana Community Park, Urbana	Park	57	60	3	62	5	61	4	58	61	3	64	6	62	4
H-23	8546 Fingerboard Road, Urbana	Residential	65	68	3	72	7	70	5	66	70	4	73	7	72	6
H-24	8358 Fingerboard Road, Urbana	Residential	66	69	3	74	8	73	7	65	68	3	74	9	72	7
H-25	4110 Abby Church Road, Frederick	Residential	60	60	0	63	3	61	1	59	58	-1	63	4	61	2

TABLE III-75 (CONTINUED)
COMPARISON OF NOISE PREDICTION LEVELS BETWEEN EXISTING CONDITIONS, NO-BUILD AND BUILD ALTERNATES

Site #	Location	Land Use	Predicted Noise Levels Leq (1-hr), dBA														
			AM Peak Period							PM Peak Period							
			Existing	No-Build	No-Build minus Existing.	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing	Existing	No-Build	No-Build minus Existing	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing
H-26	Monocacy National Battlefield	Park	72	70	-2	73	1	71	-1	71	70	-1	74	3	71	0
H-27	SE Corner Baker Valley Road and I-270	Historic Park	68	70	2	73	5	72	4	68	67	-1	71	3	73	5
H-28	Monocacy National Battlefield	Historic Park	69	68	-1	72	3	70	1	68	67	-1	71	3	70	2
H-29	Monocacy National Battlefield	Historic Park	68	71	3	73	5	72	4	67	69	2	71	4	70	3
H-30	Monocacy National Battlefield	Historic District	55	59	4	62	7	62	7	54	57	3	62	8	61	7
H-31	7178 Canterbury Court, Frederick	Residential	71	70	-1	74	3	72	1	70	70	0	75	5	74	4
H-32	5819 Farmgate Court	Residential	70	68	-2	73	3	71	1	70	69	-1	74	4	74	4
H-33	420 Prospect Avenue, Frederick	Hotel	74	74	0	74	0	71	-3	74	74	0	73	-1	72	-2
H-34	225 Wyngate Drive, Frederick	Residential	69	70	1	70	1	70	1	69	69	0	69	0	69	0
H-35	Frederick Memorial Park, Frederick	Cemetery	62	65	3	73	11	73	11	61	64	3	71	10	71	10
H-36	901 Walnut Street, Frederick	Residential	69	69	0	71	2	69	0	67	67	0	68	1	68	1
H-37	103 Fairview Avenue, Frederick	Residential	69	70	1	72	3	72	3	69	69	0	71	2	71	2
H-38	Play Area on Mercer Court, Frederick	Park	70	73	3	75	5	75	5	71	73	2	74	3	74	3

TABLE III-75 (CONTINUED)
COMPARISON OF NOISE PREDICTION LEVELS BETWEEN EXISTING CONDITIONS, NO-BUILD AND BUILD ALTERNATES

Site #	Location	Land Use	Predicted Noise Levels Leq (1-hr), dBA													
			AM Peak Period							PM Peak Period						
			Existing	No-Build	No-Build minus Existing.	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing	Existing	No-Build	No-Build minus Existing	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing
H-39	Apartment Building at end of Carrol Parkway	Residential	67	67	0	69	2	69	2	66	66	0	68	2	68	2
H-40	Schifferstadt Museum and Gallery	Museum	65(40)*	68(43)*	3(3)	70(45)*	5(5)	70(45)*	5(5)	64(39)*	67(42)*	3(3)	69(44)*	5(5)	69(44)*	5(5)
H-41	600 Apple Avenue	Residential	72	72	0	74	2	74	2	71	71	0	74	3	74	3
H-42	616 Briggs Avenue	Residential	71	71	0	73	2	73	2	70	70	0	72	2	72	2
H-43	1015 Columbind Drive, Unit 1A	Residential	66	67	1	68	2	69	3	66	66	0	68	2	67	1
H-44	1418L Taney Avenue, Frederick	Residential	70	70	0	73	3	73	3	69	70	1	71	2	71	2
H-45	1307 Pinewood Drive	Residential	70	71	1	73	3	73	3	70	70	0	72	2	72	2
H-46	Rose Hill Manor Museum and Park, Frederick	Museum	69(44)*	69(44)*	0(0)	71(46)*	2(2)	71(46)*	2(2)	69(44)*	70(45)*	1(1)	70(45)*	1(1)	70(45)*	1(1)
H-47	Rose Hill Manor Park, Frederick	Park	67	69	2	71	4	71	4	68	70	2	70	2	70	2
H-48	7936 Wormans Mill Road	Residential	66	69	3	69	3	69	3	66	66	0	69	3	68	2
H-49	7945 Wormans Mill Road, Frederick	Residential/ Historic District	64	67	3	67	3	67	3	64	65	1	66	2	66	2
H-50	7611D Route. 15, Frederick	Residential	72	71	-1	73	1	73	1	68	69	1	71	3	71	3
H-51	US 15 northbound side, Fredrick	Residential	62	63	1	65	3	65	3	61	62	1	64	3	64	3

TABLE III-75 (CONTINUED)
COMPARISON OF NOISE PREDICTION LEVELS BETWEEN EXISTING CONDITIONS, NO-BUILD AND BUILD ALTERNATES

Site #	Location	Land Use	Predicted Noise Levels Leq (1-hr), dBA													
			AM Peak Period							PM Peak Period						
			Existing	No-Build	No-Build minus Existing.	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing	Existing	No-Build	No-Build minus Existing	Alternate 5A	Alternate 5A minus Existing	Alternate 3B	Alternate 3B minus Existing
H-52	Middle Hedge Farm, Frederick	Residential/ Historic District	55	56	1	61	6	60	5	55	56	1	60	5	60	5
H-53	Sunday Lane, Catoctin Manor Estates	Residential	60	60	0	63	3	63	3	58	59	1	60	2	60	2
H-54	10006 Lewisdale Road, Clarksburg	Residential	58	62	4	62	4	61	3	57	61	4	62	5	62	5
H-55	10196 Lewisdale Road, Clarksburg	Residential	60	63	3	63	3	62	2	60	63	3	63	3	63	3

TABLE III-76
ESTIMATED FUTURE BUILD NOISE LEVELS (LDN) WITH THE TRAIN OPERATIONS WITH HORN NOISE

Site	Description	Land Use	Train Speed	Distance to Receptor From Tracks	Measured Noise Levels (L_{dn})	Estimated LRT Noise Levels (*) (L_{dn})	FTA Criteria Impact Onset		FTA Predicted Level of Impact
							Impact (L_{dn})	Severe Impact (L_{dn})	
			mph	feet	dBA	dBA	dBA	dBA	
T-1	9963 Foxborough Circle, Gaithersburg	Residential	14	170	60	75	58	64	Severe Impact
T-2	141 Mission Drive, Gaithersburg	Residential	19	130	64	77	61	66	Severe Impact
T-3	67 Pontiac Way, Gaithersburg	Residential	19	200	64	73	61	66	Severe Impact
T-4	309 Leafcup Road, Gaithersburg	Residential	19	120	66	77	62	68	Severe Impact
T-5	427 Upshire Circle, Gaithersburg	Residential	19	220	62	56	59	65	No Impact
T-6	2 Purchase Street, Gaithersburg	Residential	14	150	64	76	61	66	Severe Impact
T-7	869 Clopper Road, Gaithersburg	Residential	13	90	69	81	64	70	Severe Impact
T-8	11210 Game Preserve Road, Caulfield	Residential	33	160	65	62	61	66	Impact
T-9	11535 Summer Oak Drive, Gunners Lake Village	Residential	33	340	60	57	58	64	No Impact
T-10	11902 Rustic Farm Court, Gunners Lake Village	Residential	33	100	62	65	59	65	Severe Impact
T-11	19353 Hottinger Circle, Germantown	Residential	33	250	66	69	62	68	Severe Impact
T-12	19645 White Saddle Drive, The Colony	Residential	33	100	57	65	57	63	Severe Impact
T-13	21161 Dorsey Mill Road, Germantown	Residential	27	120	60	76	58	64	Severe Impact
T-14	6 Village Green Court, Germantown	Residential	27	130	62	75	59	65	Severe Impact
T-15	13100 W. Old Baltimore Road, Beaj Estates	Residential	27	110	59	76	58	64	Severe Impact
Y-1	101 Redland Boulevard, Rockville	Residential	15	250	65	67	61	67	Severe Impact*
Y-2	9 Wicker Boulevard, Caulfield	Residential	15	150	68	70	63	69	Severe Impact*
Y-3	11150 Game Preserve Road, Gaithersburg	Residential	15	350	63	65	60	66	Impact*

Note: **Due to train maintenance operations in yard areas.*

TABLE III-77
ESTIMATED FUTURE BUILD NOISE LEVELS (Ldn) WITH the TRAIN OPERATIONS WITHOUT HORN NOISE

Site	Description	Land Use	Train Speed	Distance to Receptor From Tracks	Measured Noise Levels (L_{dn})	Estimated LRT Noise Levels (*) (L_{dn})	FTA Criteria Impact Onset		FTA Predicted Level of Impact
							Impact (L_{dn})	Severe Impact (L_{dn})	
			mph	feet	dBA	dBA	dBA	dBA	
T-1	9963 Foxborough Circle, Gaithersburg	Residential	14	170	60	58	58	64	Impact
T-2	141 Mission Drive, Gaithersburg	Residential	19	130	64	58	61	66	No Impact
T-3	67 Pontiac Way, Gaithersburg	Residential	19	200	64	55	61	66	No Impact
T-4	309 Leafcup Road, Gaithersburg	Residential	19	120	66	58	62	68	No Impact
T-5	427 Upshire Circle, Gaithersburg	Residential	19	220	62	54	59	65	No Impact
T-6	2 Purchase Street, Gaithersburg	Residential	14	150	64	55	61	66	No Impact
T-7	869 Clopper Road, Gaithersburg	Residential	13	90	69	57	64	70	No Impact
T-8	11210 Game Preserve Road, Caulfield	Residential	33	160	65	62	61	66	Impact
T-9	11535 Summer Oak Drive, Gunners Lake Village	Residential	33	340	60	57	58	64	No Impact
T-10	11902 Rustic Farm Court, Gunners Lake Village	Residential	33	100	62	65	59	65	Severe Impact
T-11	19353 Hottinger Circle, Germantown	Residential	33	250	66	59	62	68	No Impact
T-12	19645 White Saddle Drive, The Colony	Residential	33	100	57	65	57	63	Severe Impact
T-13	21161 Dorsey Mill Road, Germantown	Residential	27	120	60	62	58	64	Impact
T-14	6 Village Green Court, Germantown	Residential	27	130	62	61	59	65	Impact
T-15	13100 W. Old Baltimore Road, Beaj Estates.	Residential	27	110	59	62	58	64	Impact
Y-1	101 Redland Boulevard, Rockville	Residential	15	250	65	67	61	67	Severe Impact**
Y-2	9 Wicker Boulevard, Caulfield	Residential	15	150	68	70	63	69	Severe Impact**
Y-3	11150 Game Preserve Road, Gaithersburg	Residential	15	350	63	65	60	66	Impact**

Notes: ** Estimated noise levels do not include the effects of horn whistler. **Due to train maintenance operations in yard areas*

TABLE III-78
ESTIMATED FUTURE BUILD NOISE LEVELS (L_{max}) WITH TRAIN OPERATIONS

Site	Description	Land Use	Community Area Category	Train Speed	Distance to Receptor From Tracks	Estimated LRT Noise L_{max} Levels	WMATA Impact	APTA Impact
							Yes/No	Yes/No
				mph	feet	dBA		
T-1	9963 Foxborough Circle, Gaithersburg	Residential	High Density Multi-Family	14	170	70	No Impact	No Impact
T-2	141 Mission Drive, Gaithersburg	Residential	Low Density Single Family	19	130	72	Impact	Impact
T-3	67 Pontiac Way, Gaithersburg	Residential	High Density Multi-Family	19	200	71	No Impact	No Impact
T-4	309 Leafcup Road, Gaithersburg	Residential	High Density Multi-Family	19	120	72	No Impact	No Impact
T-5	427 Upshire Circle, Gaithersburg	Residential	Average Single Family	19	220	71	No Impact	No Impact
T-6	2 Purchase Street, Gaithersburg	Residential	Average Multi-Family	14	150	71	No Impact	No Impact
T-7	869 Clopper Road, Gaithersburg	Residential	Average Multi-Family	13	90	71	No Impact	No Impact
T-8	11210 Game Preserve Road, Caulfield	Residential	Low Density Single Family	33	160	74	Impact	Impact
T-9	11535 Summer Oak Drive, Gunners Lake Village	Residential	High Density Multi-Family	33	340	71	No Impact	No Impact
T-10	11902 Rustic Farm Court., Gunners Lake Village	Residential	Average Single Family	33	100	75	Impact	Impact
T-11	19353 Hottinger Circle, Germantown	Residential	High Density Multi-Family	33	250	73	No Impact	No Impact
T-12	19645 White Saddle Drive, The Colony	Residential	Average Multi-Family	33	100	75	Impact	Impact
T-13	21161 Dorsey Mill Road, Germantown	Residential	Average Single Family	27	120	74	No Impact	No Impact
T-14	6 Village Green Court, Germantown	Residential	High Density Single-Family	27	130	74	No Impact	No Impact
T-15	13100 W. Old Baltimore Road, Beaj Estates	Residential	Low Density Single Family	27	110	74	Impact	Impact
Y-1	101 Redland Boulevard, Rockville	Residential	Average Multi-Family	15	250	69	No Impact	No Impact
Y-2	9 Wicker Boulevard, Caulfield	Residential	High Density Multi-Family	15	150	71	No Impact	No Impact
Y-3	11150 Game Preserve Road., Gaithersburg	Residential	Low Density Single Family	15	350	68	No Impact	No Impact

Noise From Train Movements

Of the many locations that were considered for locating a train yard, three locations are found to be potentially sensitive to noise from yard/shop operations. The three locations are: Y-1 Redland Boulevard in the vicinity of Shady Grove Site #1 in Rockville; Y-2 Wicker Boulevard in the area of Metropolitan Grove Site #1 in Caulfield; and Y-3 Game Preserve Road in the neighborhood of Metropolitan Grove Site #4 in Gaithersburg. All three of the sites are within 350 feet of residential land uses. The nearest residence in each potential yard site was also a 24-hour continuous noise-monitoring site. Measured L_{dn} noise levels at the closest sensitive monitoring sites are the following: at site Y-1 at a distance of 250 feet from the yard boundary the measured noise level was 65 L_{dn}, at site Y-2 at a distance of 150 feet from the site boundary the measured noise level was 68 L_{dn}, and at site Y-3 at a distance of 359 feet from the site boundary the measured noise level was 63 L_{dn}. The measured noise levels are typical of outdoor noise levels near moderate to heavy traffic on nearby roads.

The principal sources of noise that are likely to generate annoyance in residences near transit system yards include moving transit cars with auxiliary equipment, trains negotiating tight curves (wheel squeal noise), car wash facilities, pings, clicks and bangs which occur as the wheels pass through switches and over frogs and joints in the special track work included in the yard, train car coupling impacts, maintenance and storage operations and public address system. These sources produce randomly occurring noises that are of considerably different character than typical community background noise and therefore, if higher than the background noise level they can be noticeable and intrusive. Most of the noises produced by the transit vehicles are controlled to a level that would avoid impact on adjacent areas unless the separation distance from the yard and the residential area is small.

Auxiliary equipment on modern transit cars are required to meet specified noise levels for individual equipment. With all of the equipment operating the maximum noise level is generally found to be 60 dBA at 50 feet from the center of the vehicle. Train speeds in yards are generally limited to the range of 15 to 20 mph maximum so that noise from the moving trains is generally a maximum of 70 dBA at 50 feet and usually is considerably less – in the range of 60 to 65 dBA at 50 feet. Because of the noise limit specifications on vehicle auxiliary and propulsion equipment and because of low train speeds in yards, the general rolling noise due to train operations on tangent track does not result in noise impact in adjacent communities and is comparable with and compatible with typical community background noise.

Table III-79 indicates typical noise levels expected at 50, 100, 300, and 600 feet from 2-car trains stopping or moving on tangent yard tracks within the yard area. Noise levels from longer trains will be somewhat higher. Included are the expected noise levels with train noise is shielded by a wall. At receptors Y-1, Y-2, and Y-3 even without a noise wall train noise levels in the yard will be considerably reduced and in all cases they will satisfy the allowable maximum noise limits in residential areas. Estimated maximum levels at the nearest residential receptors Y-1, Y-2 and Y-3 are 64 dBA, 61 dBA and 60 dBA. At all of the residential sites, the train movement noise levels will be masked by the existing noise from traffic and other community sources.

TABLE III-79
NOISE LEVELS FROM 2-CAR TRAINS OPERATING ON YARD TRACKS

Noise Source	Distance from Track Centerline			
	50 feet	100 feet	300 feet	600 feet
Car Stationary Auxiliaries Operating	61	57	47	41
Train Moving at 20 mph Aerial Structure ---No Shielding ---With Sound Barrier Wall	 73 68	 69 64	 60 55	 54 49
Ballast and Tie ---No Shielding ---With Sound Barrier Wall ---Deep cut	 70 62 55	 66 58 51	 57 49 42	 51 43 36

Yard Noise From Maintenance Operations

Maintenance activities will be performed inside enclosed buildings and noise from the maintenance activities is not expected result in impact at the residential receptors. However, there are many other high level intermittent noises and noise from wheel squeal associated with trains negotiating tight curves. These activities are expected to take place during 24 hours of the day. After applying distance correction from the site boundary total noise from all of the yard activities is estimated at 67 L_{dn} at Y-1, 70 L_{dn} at Y-2, and 65 L_{dn} at Y-3. With existing noise levels of 65 L_{dn} at Y-1, 68 L_{dn} at Y-2 and 63 L_{dn} at Y-3 the round the clock yard activities are expected to result in noise impacts at all of the three sites. Though the yard noise levels from moving trains and from other sources would generally be acceptable during the daytime at most of the residential sites it would be unacceptable at the nighttime. It is recommended that noise producing yard activities be limited to daytime hours. However, some of the yard noise such as wheel squeal and switch frog noise are known to generate high levels of pure tone and impulse noise with distinguishable audible characteristics could be annoying to residents within 350 feet. Mitigation methods are available to reduce noise from wheel squeal and from switch frogs and these measures include wheel and rail lubrication, and spring frogs or moveable point frogs. Mitigation measures should be implemented to avoid nuisance from nighttime outdoor yard activities.

c. Traffic Noise Mitigation

Sites at which traffic noise impacts were identified were considered for mitigation. The procedures for abating traffic noise impacts are based on the following considerations:

- Primary consideration is to be given to exterior areas (abatement will usually be necessary only where frequent human use occurs and a lowered noise level would be of benefit);
- Reasonable effort should be made to obtain substantial noise reductions.

d. Evaluation of Alternative Abatement Measures

Alternative abatement measures were evaluated to determine their effectiveness in substantially reducing the predicted design year noise levels in exposed segments of the project corridor. Alternative abatement measures include:

- Traffic management procedures
- Alteration of roadway horizontal or vertical alignments
- Acquisition of undeveloped property for use as buffer zones
- Constructing noise barriers within the right-of-way

Traffic management measures include enforcing lower speed limits and/or limiting the highway to automobiles and medium trucks. Speeds would have to be lowered 15 to 20 mph from operating speeds to achieve a noticeable (5 dBA) reduction. For interstate highways such restrictions would not be practical.

Alteration of roadway alignment is not practical because the project involves improvements to an existing alignment. Acquisition of property for buffer zones can reduce noise impacts, where unimproved property exists between noise sensitive receptors and the corridor. No such opportunity exists along the affected segments of the project corridor.

Consequently, the only reasonable available abatement measure for the I-270 project consists of erecting noise barriers within the right-of-way. Noise abatement measures should be feasible and reasonable in that they provide a substantial reduction in noise levels and can be implemented at a reasonable cost.

e. SHA Noise Barrier Policy

It is the Maryland State Highway Administration's (SHA) policy that decision to provide sound barriers will be made after an evaluation of feasibility and reasonableness of constructing such barriers.

The SHA's policy is applicable to all projects funded with Federal and/or State funds. This project is classified as a "Type I" projects, which may involve the construction of a highway on new location or in this case the physical alteration of an existing highway by significantly changing either the horizontal or vertical alignment or by increasing the number of through-traffic lanes. Details of SHA's policy are provided below.

f. Sound Barrier Feasibility and Reasonableness

The determination of feasibility and reasonableness of providing sound barriers considers the following factors:

Feasibility

Sound barrier feasibility is defined as the engineering and acoustical ability to provide effective noise reduction. Sound barrier feasibility will be based upon the following considerations:

1. If noise levels cannot be reduced by at least 3 decibels at impacted receptors, a noise barrier will not be considered feasible. The noise reduction goal for receptors with the highest noise levels (first row receptors) is 7-10 decibels. If a noise reduction of 7-10 decibels cannot be achieved, the barrier will be considered not to be feasible.

   Noise sensitive receptors include residences, schools, churches, historical areas, cultural resources, and other places which people use that can be adversely affected by highway noise.

2. If the placement of a sound barrier will restrict pedestrian or vehicular access or would cause a safety problem, such as limiting sight distance or reduction of a vehicle recovery area, the barrier will not be considered feasible.

3. If the construction of a sound barrier will result in significant utility impacts, the barrier will not be considered feasible. Significant utility adjustments can have a major impact on barrier design options and construction costs.

4. If the construction of a sound barrier will have an impact upon existing drainage, it could be considered not to be feasible. Drainage is an important element in the location and design of a sound barrier. The potential for impact to drainage patterns and systems and flooding will be considered in the overall decision on whether construction is feasible and reasonable.

Only barriers that are determined to be feasible will be approved.

Reasonableness

Each individual impact area will also be evaluated to determine if construction of a sound barrier is reasonable. Reasonableness will be based upon the following:

1. If 75% of the impacted residents do not approve the proposed sound barrier, the barrier could be considered not to be reasonable.

2. For Type I projects, if existing noise levels are expected to increase by 10 decibels or more, but will be less than 57 decibels, a sound barrier will be considered not to be reasonable.

3. For Type I projects, if a change over no-build levels of less than 3 decibels would result from a build conditions, a sound barrier could be considered not to be reasonable. In the assessment of the no-build to build noise level change, consideration will be given to the cumulative effects of highway improvements made after the original highway construction. If the cumulative increase in design year build noise levels at noise sensitive receivers that existed when prior improvements were made is equal to or greater than 3 decibels, noise abatement could be considered reasonable.

   If noise levels equal or exceed 72 decibels at impacted noise sensitive receivers, SHA will consider a sound barrier reasonable for any proposed highway expansion that will increase noise levels provided that other feasibility and reasonableness criteria are met.

4. If the cost of a sound barrier will exceed $50,000 per benefited residence, the barrier will be considered not to be reasonable. The cost/residence is determined by the dividing the cost of a sound barrier by the total number of benefited residences. The total number of benefited residences will be the sum of the following:

   a. The number of impacted residences that would receive a 3 decibel or greater noise reduction.

   b. The number of non-impacted residences (noise levels below 66 dBA Leq) that would receive a 5 decibel or greater noise reduction.

   c. The number of impacted and non-impacted non-residential noise sensitive receivers (schools, churches, etc.) that would benefit from a sound barrier.

   All benefited receptors will be included in the cost/residence calculation. Non-residential receptors such as schools, churches, historic areas, etc. will be considered as equivalent residences for cost/residence calculations, based upon 10 equivalent residences for each use.

   Sound barrier cost is based upon the estimated cost of the barrier system, i.e., posts, panels, foundations and retaining walls required solely to support the sound barrier. The most recent five years of bidding experience will be used to calculate the square foot factor used to estimate barrier cost. If the cost of a barrier exceeds the $50,000 maximum, SHA will fund up the maximum, if the balance is available from another source or sources. SHA will work with the local jurisdiction on options fore alternative funding.

   For Type I projects, SHA will work at both cost/residence for individual noise sensitive areas and the average cost/residence for the entire project in determining reasonableness. Noise sensitive areas with a cost/residence of less than $100,000 would be included in the project cost averaging. If the average cost/residence for the project is less than $50,000, sound barriers will be considered reasonable.

5. If a very tall sound barrier would have to be located close to the impacted receptors, and would have a negative visual impact, construction of the barrier could be considered not to be feasible. The relationship of the location of a sound barrier to the receptors to be protected will be considered in making a reasonableness determination.

6. If the construction of a sound barrier will result in an impact to a Section 4(f) resource, it could be determined not to be reasonable. Section 4(f) resources include publicly owned recreation areas and parks, wildlife areas, conservation areas and historic sites that are either on or considered eligible for the National Register of Historic Places.

   Reasonableness will consider the significance of impact and the feasibility of avoidance. A Section 4(f) evaluation will be prepared as required by federal regulations and consultation and coordination with those responsible for the resource will be carried out and documented.

7. The control of a new development adjacent to state highways in high noise zones at the local level is critical to the overall abatement of highway noise. Sound barrier reasonableness will consider the local priority on approving new development adjacent to state highways in the determination of providing noise abatement for highway construction or reconstruction projects.

A feasibility and reasonableness worksheet (see **Table III-80**) will be completed for each noise sensitive area. The worksheet for Type I projects will be initially completed during the environmental clearance phase of project development and finalized during and prior to the completion of final project engineering.

It is SHA's policy to make final decision on the construction of Type I sound barriers during the final design phase of project development, after final horizontal and vertical alignments are determined and a detail engineering analysis of the feasibility and reasonability of noise abatement can be made. Barriers that meet the SHA criteria as accepted by FHWA will be constructed.

SHA will consider non sound barrier options for areas which meet the eligibility date criterion for consideration of a barrier but do not meet all of the remaining criteria for a barrier, including:

- Soundproofing of publicly owned noise sensitive structures, if interior noise levels equal to or exceed 52 dBA, on a case-by-case basis consistent with Federal guidelines (SHA criterion is 51 dBA).

- Purchase of impacted residences on a case-by-case basis consistent with Federal guidelines.

SHA will consider the installation of landscape screening or privacy fencing for areas that meet the eligibility date criterion, but do not meet all of the remaining criteria for a barrier.

TABLE III-80
CRITERIA FOR DETERMINATION FEASIBILITY AND REASONABLENESS OF NOISE ABATEMENT NOISE SENSITIVE AREA

Feasibility Criteria	**Yes**	**No**
1. Noise levels can be reduced by 7 dBA or more at impacted receptors		
2. Placement of a barrier will restrict pedestrian or vehicular access		
3. Construction of a barrier will cause safety or maintenance problems		
4. Noise barrier can be constructed given topography, drainage, utilities, etc.		
5. Noise barrier will have significant adverse impact on Section 4(f) resource		
6. There are non-highway noise sources that would reduce barrier effectiveness		
Reasonableness Criteria	**Yes**	**No**
1. Majority of impacted receptors will receive a 7 dBA or greater noise reduction		
2. 75% or more of impacted and benefited residents approve of the proposed noise abatement		
3. A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effects of highway improvements in the design year build noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA		
3a. Noise levels equal or exceed 72 dBA at impacted receptors		
4. Noise barriers will have significant negative visual impact at impacted receptors		
5. The cost of noise abatement is equal to or less than $50,000 per residence		
6. There is special circumstances, i.e., historical/cultural significance at this NSA		
Feasibility Criteria	**Yes**	**No**
1. Noise levels can be reduced by 7 dBA or more at impacted receptors		
2. Placement of a barrier will restrict pedestrian or vehicular access		
3. Construction of a barrier will cause safety or maintenance problems		
4. Noise barrier can be constructed given topography, drainage, utilities, etc.		
5. Noise barrier will have significant adverse impact on Section 4(f) resource		
6. There are non-highway noise sources that would reduce barrier effectiveness		
Reasonableness Criteria	**Yes**	**No**
1. Majority of impacted receptors will receive a 7 dBA or greater noise reduction		
2. 75% or more of impacted and benefited residents approve of the proposed noise abatement		
3. A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effects of highway improvements in the design year build noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA		
3a. Noise levels equal or exceed 72 dBA at impacted receptors		
4. Noise barriers will have significant negative visual impact at impacted receptors		
5. The cost of noise abatement is equal to or less than $50,000 per residence		
6. There is special circumstances, i.e., historical/cultural significance at this NSA		

Results of Traffic Noise Abatement

A summary of noise abatement analysis for the highway alternates to satisfy the FHWA and SHA Noise Abatement Criteria is provided in **Table III-81** including the required barrier length and approximate cost to build noise barriers for both of the highway alternates. In order to satisfy both criteria, construction of 13 noise barriers involving 20 receptor locations appear to be feasible and reasonable. The noise barriers are expected to provide 5 to 12 dBA noise reduction at the identified sensitive properties adjacent to alternates 3B and 5A.

g. Transit Noise Mitigation

This section provides a brief overview of rail noise mitigation with appropriate reference to the I-270/US 15 project. In conjunction with the FHWA, the FTA has issued a regulation implementing NEPA's general policy on environmental mitigation, which states, that measures necessary to mitigate adverse impacts are to be incorporated into the project and further, that such measures are eligible for Federal funding, when FTA determines that "...the proposed mitigation represents a reasonable public expenditure after considering the impacts of the action and the benefits of the proposed mitigation measures." While NEPA provides broad direction, a more explicit statutory basis for mitigating adverse noise impacts is contained in the federal transit laws. Before approving a construction grant under Section 5309, FTA must make a finding that "...the preservation and enhancement of the environment, and the interest of the community in which a project is located, were considered; and no adverse environmental effect is likely to result from the project, or no feasible or prudent alternative to the effect exists and all reasonable steps have been taken to minimize the effect."

Mitigation of noise impacts from rail projects may involve treatments at three fundamental components of the noise problem: (1) at the noise source, (2) along the source-to-receiver propagation path, or (3) at the receiver. Generally, the transit agency has the authority to treat the source and some elements of the propagation path, but may have little or no authority to modify anything at the receiver end.

Practical noise mitigation measures that are employed in reducing noise from train operations are summarized in the FTA guidance manual *Transit Noise and Vibration Impact Assessment* (April 1995). Mitigation options include the following:

- Select quieter system wide components (e.g., continuous welded rail, tie and ballast track work, resilient wheels, skirts on the vehicle to reduce equipment noise, etc.)
- Tailor operation plans to provide reduction in noise and vibration levels (e.g., reducing vehicle speed, eliminate bells at grade crossings, proper vehicle maintenance, etc.)
- Add design features (e.g., noise barriers if adequate space is available, lubricate track at curves track-bed isolation, moveable point switch frogs, etc.)

TABLE III-81
SUMMARY OF NOISE ABATEMENT ANALYSIS TO SATISFY FHWA CRITERIA FOR SITES ADJACENT TO HIGHWAY ALTERNATIVES 3B and 5A

Barrier #	Nearest Monitoring Receptor Location	Noise Reduction Required by FHWA	Achieved Noise Reduction (1)	Barrier Length	Alignment Station Numbers	Barrier Height	Estimated Barrier Cost (2)	Number of Properties Protected	Estimated Cost Per Property Protected	Barrier Effectiveness		FHWA Criteria Satisfied
										Acoustic (3)	Cost (4)	
		(dBA)	(dBA)	(Ft)		(Ft)	($)		($)	(Yes/No)	(Yes/No)	(Yes/No)
B1	H-4, H-5	12	12	3150	160+00 - 191+50	16	833,616	23	36,244	Yes	Yes	Yes
B2	H-23, H-24	7	8	3500	1008+00 - 1043+00	15	868,350	18	48,242	Yes	Yes	Yes
B3	H-31, H-32	9	10	1700	1296+00 -1313+00	16	449,888	20	22,494	Yes	Yes	Yes
B4	H-33	9	11	300	1353+00 - 1357+00	12	59,544	14	4,253	Yes	Yes	Yes
B5	H-34	5	9	2900	1371+00 - 1400+00	16	767,456	30	25,582	Yes	Yes	Yes
B6	H-36	6	11	930	1400+00 - 1409+30	16	246,115	9	27,346	Yes	Yes	Yes
B7	H-37, H-38, H-	10	11	3300	1411+00 - 1444+00	16	873,312	32	27,291	Yes	Yes	Yes
B8	H-41	9	11	2100	1453+00 - 1474+00	16	555,744	26	21,375	Yes	Yes	Yes
B9	H-42	8	11	2400	1450+00 - 1474+00	16	635,136	31	20,488	Yes	Yes	Yes
B10	H-43, H-45	8	10	3400	1475+00 - 1509+00	16	899,776	41	21,946	Yes	Yes	Yes
B11	H-44	8	9	1500	1498+00 - 1513+00	12	297,720	32	9,304	Yes	Yes	Yes
B12	H-48, H-49	4	5	1650	1568+50 - 1585+00	10	272,910	12	22,743	Yes	Yes	Yes
B13	H-50	8	10	1050	1630+50 - 1641+00	12	208,404	25	8,336	Yes	Yes	Yes

Notes:

1. Insertion loss shown is maximum value at the most protected property.

2. Estimated cost of the barriers is based on averaged cost of $16.54 per square foot, as recommended by SHA.

3. Acoustic effectiveness of a barrier was judged by satisfying the required insertion loss necessary to reduce future road traffic noise levels by at least 5 dB.

4. Cost effectiveness was based on barrier cost of a maximum of $50,000 per property.

Noise Abatement Analysis

Based on the impact analysis, mitigation was considered for all of the affected sites under the LRT alternate. Potential mitigation options include reducing horn noise at grade crossings and wheel/rail noise at other locations. The noise abatement strategies to accomplish these goals are discussed in the following paragraphs.

Train Horn Noise Mitigation at Grade Crossings:

Under the LRT alternates sounding of train horns at grade crossings results in "severe impact" at many sensitive receptor sites. Train horn noise will affect the quality of life for residents near grade crossings unless some form of mitigation is implemented.

Existing regulations require that train horns be used at grade crossings to warn motorists and pedestrians of approaching trains. It has been the policy that safety considerations necessitating sounding of train horns take precedence over the nuisance effects of such noise. The USDOT will no longer allow communities to ban trains from sounding horns at road crossings unless they put other safety measures in place to protect drivers. "This rule, when adopted, will help prevent crashes involving trains, motor vehicles and pedestrians at highway-rail grade crossings and yet enable communities to maintain quiet zones that need to be protected from noise".

A variety of approaches are available for reducing noise due to train horns near roadway/rail at-grade crossings. Communities wanting to set up a quiet zone will, at a minimum, have to equip crossings with flashing warning lights and automatic gates, and if gates are used they must cover all lanes. Other permissible measures include median barriers, paired one-way streets and enforcement cameras similar to those used to ticket red-light runners. Both four-quadrant gates and median barriers would allow significant noise reduction because trains could pass without sounding horns. Depending on actual design requirements, median barriers may be expensive to install at some locations. A four-quadrant gate system would generally be more expensive than a median barrier. The final determination of cost-effectiveness for this project will depend on whether or not a substantial number of homes would be protected by the elimination of horn soundings and if there would be other benefits, such as safety improvements to reduce the potential occurrence of a train-vehicle accident.

Noise Barriers to Control Wheel/Rail Noise

The amount of wheel rail noise is dependent on vehicle speed, as well as wheel-rail condition. The overall noise reduction achieved by wheel-rail maintenance programs depends on the volume and speed of rail traffic in a particular area, and the relative change in wheel-rail conditions before and after maintenance (the severity of the defects removed).

An effective method to control wheel-rail noise is to construct noise barriers along the track at close distance to the track. Noise barriers are walls designed to interrupt the path of sound between the source (wheel/rail interface) and noise sensitive areas. The performance of noise barriers depends on the relative heights of the noise source, the barrier type, and the sensitive area. Barriers are better for shielding wheel-rail noise (which originates near the height of the rail) than horn noise (which originates from the top of the train). The typical wheel-rail noise

reduction ranges from 5 to 15 dBA. Barriers typically perform better in higher speed operating areas, where wheel/rail noise dominates.

Barrier construction costs vary according to wall material, required length of wall, required footings, and site accessibility. SHA's recommended barrier cost is $16.54 per square foot. The required length of the wall is determined by the size of the sensitive area to be protected. Noise barrier service life varies with the barrier material. Extensive use of highway noise barriers over the last few decades indicates that wooden barriers can last 20 to 15 years, and that concrete or masonry walls should last more than 30 years. In some areas graffiti removal is a maintenance issue.

Continuous noise barriers can provide the added safety feature of restricting unauthorized access to the rail right-of-way. Noise barriers near a highway/rail at-grade crossing are not practical because they may interfere with a motorist's ability to see approaching trains. Aesthetics are often a factor in public acceptance of noise barriers. Noise barriers also may restrict access of maintenance crews to the railroad right-of-way.

The reasonableness of installation cost depends upon the quantity, and distance between noise-sensitive locations. Because mitigation costs are often expressed in terms of cost per protected unit (or dwelling), the more protected units there are, the lower the cost per unit. If protected units are close together, wall length can be reduced, and the overall cost per dwelling unit reduced as well. Therefore, noise barriers are considered to be the most appropriate mitigation measure when a large number of affected dwellings are close together along high-speed segments of the rail lines where wheel/rail noise is predominant.

At the affected sites the noise reduction that would be required to reduce future wheel/rail noise levels to bring them within the allowable noise exposure to satisfy the FTA guidelines ranged from 2 to 9 dBA for the LRT Alternate (see **Table III-82**). At the nine locations where wheel/rail impacts were identified the required noise barrier heights ranged from 3 to 5.5 feet and the cost per protected property ranged from $2,757 to $43,004. Although high noise walls are commonly utilized in highway projects they have limitations in the railroad environment and therefore, the generally preferred wall height is 3 foot 6 inches to 6 feet for both at-grade and elevated tracks. This requirement was considered while proposing noise walls at the affected locations. Higher noise walls generally interfere with sight lines for railroad signaling systems, and impair access for track maintenance, snow removal and emergency response. High noise walls affect the visual quality of the protected properties. Negative reactions to noise walls include a restriction of view, a feeling of confinement, a loss of air circulation, and a loss of sunlight. Graffiti on noise walls also is a potential problem.

TABLE III-82
SUMMARY OF TRANSIT NOISE ABATEMENT ANALYSIS TO SATISFY FTA CRITERIA FOR SITES ADJACENT TO LRT ALTERNATES

Barrier #	Nearest Monitoring Receptor Location	Noise Reduction Required by FTA	Achieved Noise Reduction [1]	Barrier Length	Alignment Station Numbers	Barrier Height	Estimated Barrier Cost [2]	Number of Properties Protected	Estimated Cost Per Property Protected	Barrier Effectiveness		FHWA Criteria Satisfied
										Acoustic [3]	Cost [4]	
		(dBA)	(dBA)	(Ft)		(Ft)	($)		($)	(Yes/No)	(Yes/No)	(Yes/No)
TB001A	T-1	2	4	500	150+50 to 155+50	3	$24,810	9	$2,757	Yes	Yes	Yes
TB001B	T-1	2	4	1,350	158+50 to 172+00	3	$66,987	12	$5,582	Yes	Yes	Yes
TB002	T-8	2	4	650	433+50 to 427+00	3	$32,253	1	$32,253	Yes	Yes	Yes
TB003	T-10	7	8	2,150	503+50 to 482+00	4.5	$160,025	16	$10,002	Yes	Yes	Yes
TB004	T-12	9	9	1,000	537+00 to 527+00	5.5	$90,970	4	$22,743	Yes	Yes	Yes
TB005A	T-13	5	6	260	646+20 to 648+80	4	$17,202	1	$17,202	Yes	Yes	Yes
TB005B	T-13	5	6	450	651+50 to 656+00	4	$29,772	9	$3,308	Yes	Yes	Yes
TB006	T-14	3	5	1,600	657+50 to 673+00	3.5	$92,624	6	$15,437	Yes	Yes	Yes
TB007	T-15	5	6	650	695+00 to 701+50	4	$43,004	1	$43,004	Yes	Yes	Yes

Notes:

1. Insertion loss shown is maximum value at the most protected property.
2. Estimated cost of the barriers is based on averaged cost of $16.54 per square foot, as recommended by SHA.
3. Acoustic effectiveness of a barrier was judged by satisfying the required by FTA insertion loss necessary to reduce future road traffic noise levels.
4. Cost effectiveness was based on barrier cost of a maximum of $50,000 per property.
5. Noise barriers to be located ten feet from the centerline of the closest track.

6. WMATA Construction Noise Specifications

WMATA specifications establish different limits for continuous and intermittent construction noise at the affected structure or area. For stationary sources, parked mobile sources or any sources or combination of sources producing repetitive or long-term noise lasting more than two hours the maximum allowable noise levels are shown in **Table III-83.**

TABLE III-83
WMATA CONSTRUCTION NOISE SPECIFICATIONS

Affected Structure or Area	Maximum Allowable Continuous Noise Level (dBA)	
	Day-time	Night-time
Single Family Residential	60	50
Multifamily residential including hospitals or residential along an arterial	65	55
In semi-residential/commercial areas including hotels	70	60
In semi-residential/commercial areas including schools	70	65
In commercial areas with no nighttime residency	75	70
Industrial – All locations	80	80

Intermittent Noise: Limits shown in **Table III-84** are applicable to noise from non-stationary mobile equipment operated by a driver or from any source of non-scheduled, intermittent, and non-repetitive, short-term noises not lasting more than two hours.

TABLE III-84
INTERMITTENT NOISE

Affected Structure or Area	Maximum Allowable Continuous Noise Level (dBA)	
	Day-time	Night-time
Single Family Residential	75	60
Multifamily residential including hospitals or residential along an arterial	75	65
In semi-residential/commercial areas including hotels	80	70
In semi-residential/commercial areas including schools	80	60
In commercial areas with no nighttime residency	85	85
Industrial – All locations	90	90

Special Zones or Special Construction Site: In areas outside of Construction Limits but for which the Contractor has obtained designation as a Special Zone or Special Construction Site from agency having jurisdiction, the noise limitations for buildings in industrial areas apply. In zones designated by the local agency having jurisdiction as a special zone or special premise or special facilities, such as hospital zones, the noise level and working time restrictions imposed by the agency shall apply. The Contractor shall obtain these zones and work hour restrictions from the local agency.

More than one limit applicable: Where more than one noise limit is applicable, use the more restrictive requirement for determining compliance.

Noise Emission Restrictions: Use only equipment meeting the allowed maximum noise emission limits as measured at a distance of 50 ft from the equipment in substantial conformity with the provisions of the latest revisions of SAEJ366b, SAEJ88, and SAEJ952b or in accordance with the measurement procedures specified herein (**Table III-85**).

TABLE III-85
NOISE EMISSION LIMITS ON CONSTRUCTION NOISE

	Maximum Noise Limit Date Equipment Acquired	
Type of Equipment	Before 1/1/90	On or after 1/1/90
All equipment other than highway trucks, including hand tools and heavy equipment	90 dBA	85 dBA
Highway Trucks in any operating mode or location	83 dBA	80 dBA

Note: *Peak levels due to impact pile drivers may exceed the above noise emission limits by 10 dBA.*

7. Noise Control Requirements

Notwithstanding the specific noise levels specified herein, utilize the noise control measures listed below to minimize to the greatest extent feasible the noise levels in all areas outside the construction limits.

- Utilize shields, impervious fences or other physical sound barriers to inhibit transmission of noise.
- Utilize sound retardant housings or enclosures around noise producing equipment.
- Utilize effective intake and exhaust mufflers on internal combustion engines and compressors.
- Line or cover hoppers, storage bins and chutes with sound absorbing material.
- Do not use air or gasoline driven saws.
- Conduct truck loading, unloading and hauling operations so that noise is kept to a minimum.
- Route construction equipment and vehicles carrying spill, concrete or other materials over streets and routes that will cause the least disturbance to residents in the vicinity of the work. Advise the Engineer in writing of the proposed haul routes prior to securing a permit from the local government.
- Site stationary equipment to minimize noise impact on the community, subject to approval of the Engineer.

L. VIBRATION ANALYSIS

1. Ground-borne Vibration

There is much less consensus about the scales and indices used in the measurement of ground-borne vibration. For some fields of interest, the range of vibration intensities is extremely wide and, as in the case of noise, a decibel scale is used. In other fields, vibration levels are usually restricted to narrow and direct measurement units (called engineering units). The frequency range of interest may be very small or very large. Further, the desired parameter for assessment purposes could be either displacement, velocity, or acceleration caused by vibration.

In order to accommodate a wide range of data needs, a spectral analysis of vibration velocity and acceleration levels is usually needed to assess human perception. Velocity, a measure of the energy carried by vibration, is the preferred unit for assessing any potential risk of damage to buildings. A number of studies have indicated that sensitivity to vibration is relatively independent of frequency above approximately 12 Hz (cycles per second). Because of the general preference for velocity as a measure of both annoyance and building damage, vibration criteria and measured vibration data are presented in terms of overall un-weighted vibration velocity levels. **Figure III-26** shows common sources of vibration and their maximum velocity levels.

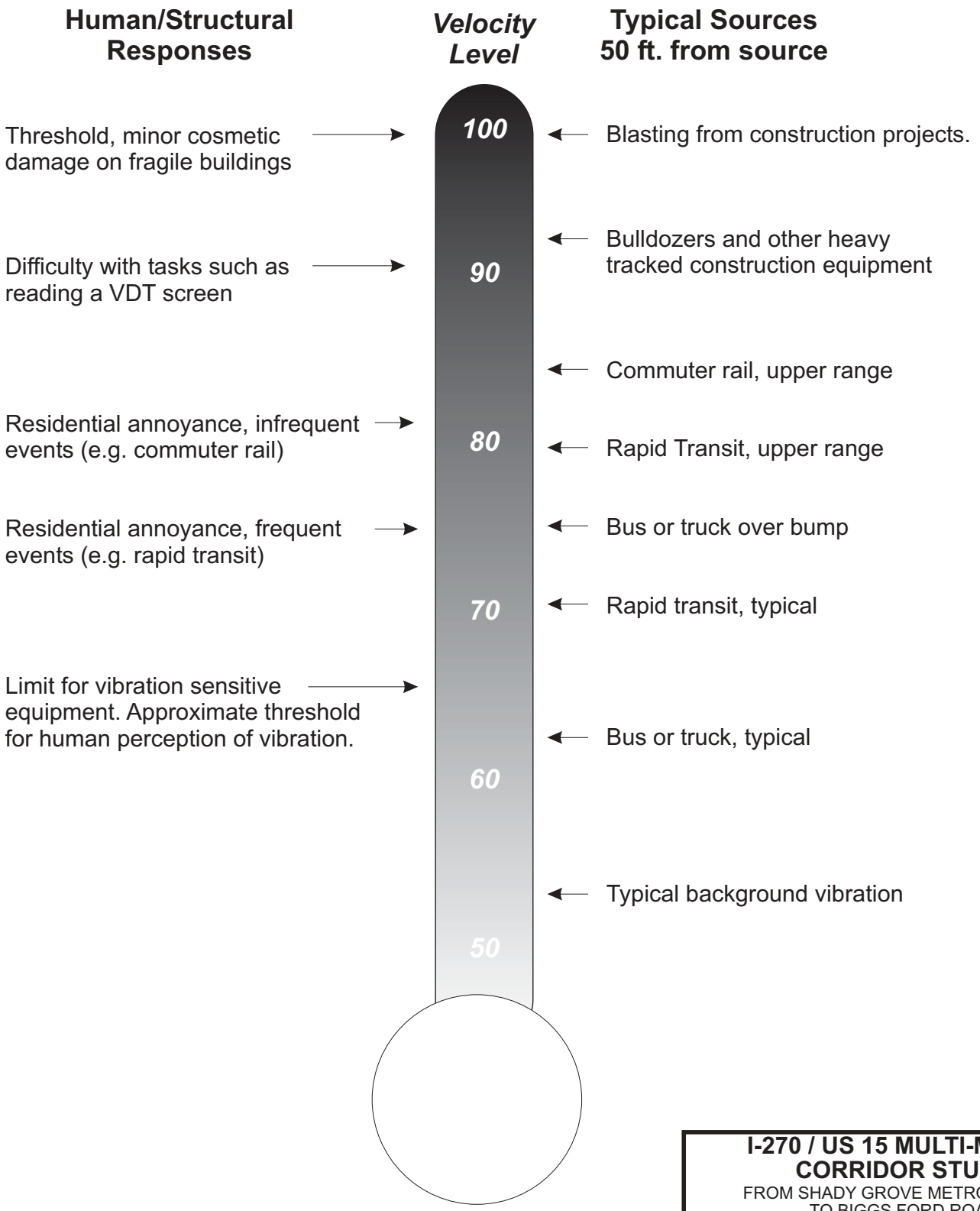
Vibration Criteria

Table III-86 presents ground-borne vibration criteria from train operations governed by APTA and WMATA criteria. The criteria apply to measurements of vertical vibration of floor surfaces within the buildings. FTA guidelines are presented in **Table III-87.**

TABLE III-86
APTA GUIDELINES FOR MAXIMUM GROUND-BORNE VIBRATION VELOCITY LEVEL (DB RE 10 ^-6 IN/SEC) FROM TRAIN OPERATIONS

A. Residences and Buildings with Sleeping Areas

Community Area Category	Single-Family Dwellings	Multi-Family Dwellings	Hotel/Motel Buildings
I. Low Density Residential	70	70	70
II. Average Residential	70	70	75
III. High Density Residential	70	75	75
IV. Commercial	70	75	75
V. Industrial/Highway	75	75	75



Source: *Transit Noise and Vibration Impact Assessment, FTA, April 1995.*

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

COMMON VIBRATION SOURCES & LEVELS

DATE: **MAY 2002**

FIGURE: **III-26**

B. Special Function Buildings

Type of Building or Room	Maximum Pass-by Vibration Velocity Level (dB re 10^-6 in/sec)
Vibration Sensitive Industrial or Research Laboratory	60-70
Concert Halls and TV Studios	65
Auditoriums and Music Rooms	70
Churches and Theaters	70-75
Hospital Sleeping Rooms	70-75
Court Rooms	75
Schools and Libraries	75
University Buildings	75-80
Offices	75-80
Commercial and Industrial Buildings	75-85

Note: *APTA and WMATA criteria for maximum ground-borne vibration velocity level from train operations are the same.*

TABLE III-87
FTA GROUND-BORNE VIBRATION CRITERIA (IN VdB RE 1 MICRO INCH/SEC)

Land Use Category	Vibration Velocity Impact Levels for Frequent [1] Events	Vibration Velocity Impact Levels for Infrequent [2] Events
Category 1: Buildings where low ambient vibration is essential for interior operations	65 VdB [3]	65 VdB [3]
Category 2: Residences and Buildings where people normally sleep	72 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use	75 VdB	83 VdB

Notes:

1 "Frequent Events" is defined as more than 70 vibrations per day. Most rapid transit projects fall into this category.

2 "Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.

3 This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

2. Existing Vibration Environment

The major sources of vibration in the corridor include automobiles, trucks, and buses. Typical velocity levels generated by these types of vehicles range from 50 to 60 VdB and are below the threshold of perception. FTA vibration criteria do not require measurement of existing vibration levels to access potential impacts of the transit vibration impact. APTA and WMATA criteria for maximum ground-borne vibration velocity level from train operations are the same.

3. Vibration Impacts and Mitigation Measures

The estimated vibration noise levels at the transit sites are presented in **Table III-88**. Projected velocity levels throughout the transit corridor stay below impact threshold. Since vibration levels are below the FTA acceptability criteria levels vibration mitigation is not required for any of the sensitive site investigated for the project.

4. WMATA Construction Vibration Specifications

Damage risk criteria would be developed during the construction phase of the project after which they would be applicable to the project. Generally, annoyance effects may be expected during construction near sensitive sites within approximately 61 meters (200 feet) of the construction activity. Actual distances at which effects would occur will depend on the type of construction equipment used and soil characteristics in the area.

TABLE III-88
ESTIMATED VIBRATION LEVELS FROM THE TRAIN

Site	Description	Station Location	Land Use	Train Speed	Distance to Receptor from Tracks	Estimated Vibration Levels	FTA Vibration Criteria	Impact Yes/No
				mph	feet	dBA	dBA	
T-1	9963 Foxborough Circle, Gaithersburg	160+00	Residential	14	170	52	72	NO
T-2	141 Mission Drive, Gaithersburg	186+00	Residential	19	130	57	72	NO
T-3	67 Pontiac Way, Gaithersburg	201+00	Residential	19	200	52	72	NO
T-4	309 Leafcup Road, Gaithersburg	216+20	Residential	19	120	59	72	NO
T-5	427 Upshire Circle, Gaithersburg	224+40	Residential	19	220	52	72	NO
T-6	2 Purchase Street, Gaithersburg	301+00	Residential	14	150	53	72	NO
T-7	869 Clopper Road, Gaithersburg	353+00	Residential	13	90	57	72	NO
T-8	11210 Game Preserve Road, Caulfield	431+00	Residential	33	160	51	72	NO
T-9	11535 Summer Oak Drive, Gunners Lake Village	458+50	Residential	33	340	46	72	NO
T-10	11902 Rustic Farm Court, Gunners Lake Village	487+30	Residential	33	100	65	72	NO
T-11	19353 Hottinger Circle, Germantown	510+00	Residential	33	250	54	72	NO
T-12	19645 White Saddle Drive, The Colony	532+50	Residential	33	100	61	72	NO
T-13	21161 Dorsey Mill Road, Germantown	649+20	Residential	27	120	61	72	NO
T-14	6 Village Green Court, Germantown	657+60	Residential	27	130	60	72	NO
T-15	13100 W. Old Baltimore Road, Beaj Estates	697+00	Residential	27	110	62	72	NO
Y-1	101 Redland Boulevard, Rockville		Residential	15	250	48	72	NO
Y-2	9 Wicker Boulevard, Caulfield		Residential	15	150	54	72	NO
Y-3	11150 Game Preserve Road, Gaithersburg		Residential	15	350	40	72	NO

5. Vibration Limits in All Areas

In order to minimize the annoyance or interference to occupants of affected buildings, the contractor shall conduct construction activities in such a manner that ground vibration at the nearest occupied building do not exceed the following peak particle velocity (PPV) magnitudes in any direction.

6. Vibration Velocity Magnitude – in/sec (PPV)

Sustained	(greater than or equal to 1 hr/day)	0.03
Intermittent	(less than or equal to 1 hr/day)	0.07
Intermittent	(less than 10 min/day)	0.10

To avoid physical damage to buildings, the contractor shall conduct construction activities in such a manner that the maximum ground-borne vibration at all times does not exceed 0.2 in/sec (PPV) in any direction for buildings which are in generally sound condition. For historical monuments, the contractor shall conduct construction activities in such a manner that the ground vibration magnitude at all times does not exceed 0.12 in/sec (PPV) in any direction.

7. Vibration Control Requirements

Notwithstanding the specific vibration levels specified herein, utilize vibration control measures listed below to minimize to the greatest extent feasible the vibration levels in all areas outside the construction limits.

- Use vibratory pile drivers or augering for setting piles in lieu of impact pile drivers. If impact pile drivers must be used, their use is restricted to the hours from 8 a.m. to 5 p.m. weekdays in residential and in semi-residential/commercial areas.
- Specify realistic vibration limits in contract documents.
- Monitor vibrations at nearest sensitive locations throughout the construction period.
- Inform people living and working in the vicinity about construction method, possible effects, quality control measures and precautions to be used and the channels of communication available to them

M. VISUAL AND AESTHETIC QUALITY

1. Existing Visual Environment

The existing visual character of the CCT alignment and I-270/US 15 Corridor from Clarksburg to Frederick are described in more detail in the sections below. The descriptions below also make note of locations where future residential or commercial development is proposed within the project timeframe.

The assessment of the existing visual character of the proposed transitway alignment was based on a field assessment completed on August 1, 2001. The I-270/US 15 Corridor highway alignment existing visual character was based on a field assessment completed on August 16, 2001. The visual assessment addresses the visual quality of landforms and land cover, the visual

character of the built environment and a description of visual resources within the proposed transitway alignment and the proposed I-270/US 15 Corridor highway improvements.

a. Highway Alignment

Overview

The highway alignment has different characteristics in sections along its route as it passes through Montgomery and Frederick Counties. Some sections have six lanes in each direction and closer to Frederick, there are only two lanes in each direction reflecting traffic volumes and the different levels of development and use as well as the extent of the visual amenity potentially impacted upon by the proposed highway upgrades. The highway alignment passes through a mix of open fields, wooded mature trees, low density, large lot residential areas, apartment homes, and some areas of low-density commercial uses. The route is visually pleasing and has several locations with scenic vistas of rolling hills and Frederick Town Center. In particular, there is a scenic overlook prior to the Monocacy River crossing that has very open views of Frederick and beyond. In other areas the landscape is very flat with industrial and commercial uses surrounding the roadway.

The visual character of the highway alignment focuses on the sections where there are proposed changes as part of the project. The assessment is based on eight identifiable landscape units determined according to the landform, land uses, scale, vegetation and character of the area.

Shady Grove Road to MD 124 Quince Orchard Road and Montgomery Village Avenue

The first landscape unit identified on I-270 is between Shady Grove Road exit to MD 124 (Quince Orchard Road and Montgomery Village Avenue). Along this section, I-270 has four lanes in each direction plus a two-lane northbound service road.

Between Shady Grove Road and I-370/Sam Eig Highway there are low-density industrial and commercial areas visible on both sides of the highway. These areas are not well landscaped and the dominant view is of three story buildings surrounded by car parking. The roadway is very wide and straight with direct views ahead.

There are residential areas backing onto I-270 on either side north of the I-370/Sam Eig Highway exit. In this section, the roadway is very wide with large mature trees visible on either side. To the west, there is the Brighton Village community and to the east, Cedar Village, Londonderry, Stratford Mews and Willows residential communities.

The Brighton Village Community has large wooded setbacks from the highway. The residential area is not visible from the highway, neither is the highway visible from the residential area. There may be some views of the highway during the fall and winter months when the deciduous trees lose their leaves. However, the setback is large, the highway lower than the setback and the tree coverage thick such that there would only be some minor views.

Brighton East/Deer Park Place is a community of townhouses approximately 10 years old. The rear of the community has large noise walls that block the view of the highway at the edge of the

community. These noise walls are visible from the community pool (**Figure III-27**), however, are not visible from the main residential areas.

Londonderry, a community of apartments and townhomes with large established trees, has open views of the highway in the parking area in Downing Street. The highway is visible from a number of townhomes near to the rear of the community (see **Figure III-28**). Stratford Mews and Willows communities are also located adjacent to I-270, however setbacks with established large trees shelter the communities from having direct views of the highway.

To the west of I-270 north of Muddy Branch Road, the NIST property backs onto I-270. The NIST property has very large open space between the main building, car parking area and the I-270 Corridor as shown in **Figure III-29**.

MD 124 (Quince Orchard Road and Montgomery Village Avenue) to Middlebrook Road

North of MD 124, the visual character of the Corridor changes. The first section to the west contains Browns Station Park and open grassed fields at the rear of the Waters Landing Golf Driving Range. This area is the planned "Parklands" community and Watkins Mill Road Extended interchange. To the east, the IBM/Lockheed Martin site has large grassed setbacks in front of a low-density office and business park. Seneca Creek State Park lies on both sides of I-270. This is a visually pleasing area with views of large wooded areas and thick tree coverage.

North of Seneca Creek State Park and south of Middlebrook Road, there are sloped grassed and treed setbacks down to I-270. Traveling along the highway there are limited views of the residential communities on either side. To the west, the New Covenant Fellowship Church is clearly visible, set back on the high land above the highway. The community of Crawford Farm is not visible from the highway. To the east, the Fox Chapel neighborhood contains noise walls directly behind single family homes that restrict any views of the highway (see **Figure III-30)**. **Figure III-31** shows the view from Archdale Road in the Fox Chapel neighborhood towards the highway. The area is very open at this point, however, there is a raised planted setback that blocks immediate views of the highway.

Middlebrook Road to MD 121

North of Middlebrook Road, the visual character of I-270 changes to one that is much more open and contains some commercial uses rather than residential communities. Through this section, I-270 has three lanes in each direction separated by a small, grassed median as shown in **Figure III-32**. The landscape is relatively flat and there are long views ahead and to each side of the wide roadway.

North of Father Hurley Boulevard, there is significant planned development for the eastern side of the highway near to the COMSAT site. To the west, Black Hill Regional Park dominates the landscape. It is a visually pleasing section of highway with views of large green wooded areas. During the fall and winter it would be expected that this area would take on a very different but visually pleasing characteristics, with much less greenery.

FIGURE III-27
EXISTING NOISE WALLS IN BRIGHTON EAST/DEER PARK PLACE COMMUNITY

Deer Park Place
in community called
Brighton East II - existing
noise wall located behind
swimming pool.

FIGURE III-28
VIEW OF I-270 FROM LONDON DERRY APARTMENTS

View of I-270 from London Derry Apartments looking south at I-270

NOTE: View and proximity of townhomes to highway.

FIGURE III-29
VIEW FROM NIST PROPERTY TOWARDS I-270

NIST Property looking towards I-270 from North Road. Quince Orchard Road to the left of photo. Interchange upgrade proposed for intersection of I-270 and Diamond Ave.

FIGURE III-30
NOISE WALLS BEHIND FOX CHAPEL NEIGHBORHOOD

Residential homes along Staleybridge Road in the community of Fox Chapel. Noise walls in the back of residences.

FIGURE III-31
VIEW OF I-270 FROM ARCHDALE ROAD

Terrace Stanleybridge Road looking towards I-270 highway is depressed.

FIGURE III-32
VIEW OF I-270 SOUTH OF CLARKSBURG ROAD

I-270 Northbound between Old Baltimore Road and Clarksburg Road (3 Lane Section). COMSAT is located on the right side of the photo.

Between where I-270 crosses over Old Baltimore Road and it reaches MD 121, the landscape is a mix of wooded areas and open fields. There are a few small commercial business parks that can be seen from the highway to the east, however the highway has steep slopes on either side and its lower position limits the views to the surrounding areas.

MD 121 to MD 80 at Urbana

The intensity of land use in this section of the Corridor is much lower than that described in the preceding sections. There are a few single-family homes on large properties that can be seen from some sections of the highway. These homes have relatively large setbacks from the roadway and are contained in areas with surrounding tree coverage. North of the MD 121 exit, the highway is not as flat and starts to have more undulating changes as it continues north to Urbana, as can be seen in **Figure III-33**.

North of Comus Road and east of I-270, there are some commercial and industrial buildings visible from the roadway. The roadway separates at this point where there is a larger treed median between the northbound and southbound lanes. There are two lanes in each direction during this section as shown in **Figure III-34**. The median contains Wildcat Branch stream and wetland areas that add significantly to the visual quality of the Corridor. There are truck weigh stations on either side of the roadway surrounded by wooded areas.

The MD 109 exit (Old Hundred Road) is just south of the Montgomery/Frederick county line. From here to the MD 80 interchange the visual quality of the area is very high. The surrounding area is relatively undeveloped with a mix of open areas and wooded, hilly surrounds.

MD 80 at Urbana to MD 85 Monocacy River

Through this section of the Corridor, the visual quality is very high. The highway alignment passes through a mix of open fields, wooded mature trees, low density, large lot residential areas and some areas of low density, commercial uses that are well set back from the roadway. The route is visually pleasing and has several locations with scenic vistas of rolling hills and Frederick Town Center. In particular, there is a scenic overlook prior to the Monocacy River crossing that has very open views of Frederick and beyond. There are also pleasant views of the Monocacy National Battlefield.

MD 85 Monocacy River to I-70 (Francis Scott Key Mall)

After the CSX old main line railway crossing and the intersection of I-270 with MD 85, the visual characteristics of the Corridor changes significantly. The section of roadway and view is very flat and does not have significant views into the distance. The land uses after the interchange become much more intense with industrial and commercial uses at higher densities, many more car parks and the Francis Scott Key Mall to the east.

FIGURE III-33
VIEW OF I-270 NORTH TOWARDS URBANA

I-270 Northbound (2 Lane Section) towards Urbana.

FIGURE III-34
VIEW OF I-270 NORTH OF COMUS ROAD

I-270 north of Comus Road with a two lane section and wooded median.

I-70 (Francis Scott Key Mall) to MD 26

The I-270 highway ends at I-70, however, US 15 continues north through the City of Frederick. The dominant land uses are single dwelling private residences and apartments. Through this section, there are two lanes in each direction with a small, grassed median separating the northbound and southbound lanes.

The landscape is relatively flat, so there are distinct views of the residential communities from the highways as can be seen in **Figure III-35**. At some locations, the houses face directly onto the highway and there is wire fencing with very little vegetation or coverage to block noise or views from the highway.

There are also some commercial uses and strip malls through this section of roadway with large car parking areas visible from the highway as shown in **Figure III-36**.

MD 26 to Biggs Ford Road

From MD 26 to the end of the project area at Biggs Ford Road, the landscape changes again to be one that is dominantly open fields and historic district farmland (see **Figure III-37**). The roadway remains only two lanes in each direction with a larger grassed median. There are some small produce markets and antique stores along the Corridor that are visible from the highway. The landscape remains flat through this area and there are views of mountains in the far distance but there are very few mature trees. The majority of the farmland has been cleared for cornfields that are still in use today providing a very attractive, historic landscape.

b. Transitway Alignment

Overview

The proposed CCT alignment from Shady Grove Metro Station to COMSAT Station passes alongside several distinctive neighborhoods and diverse land uses within Montgomery County. The CCT alignment passes by highways, interchanges, major and minor roads; low, medium and high-density residential areas; office and industrial parks; commercial areas; and open space. The CCT alignment has experienced significant levels of residential and employment growth over the past 10-years and there are several areas planned for further development.

A number of suburban neighborhoods and communities, serviced by commercial centers and employment locations exist along the CCT alignment. Apart from the Shady Grove Metro Station and the Metropolitan Grove Station MARC Station, there are no other major transit facilities through the Corridor. The area is predominantly an automobile dominated suburban region with clear distinctions between the main roadways, residential areas and shopping and commercial districts.

The visual character of the project area varies along the alignment and is described in more detail below according to eight identifiable landscape units. These landscape units vary in length and were determined according to landform, land uses, scale, vegetation and character. In the

FIGURE III-35
VIEW OF US 15 NORTH OF I-70

US 15 northbound. Views of new residential development north of I-70 in Frederick, MD.

FIGURE III-36
VIEW OF COMMERCIAL AREAS ALONG US 15 NORTH OF I-70

US 15 northbound. Frederick Shopping Center to the west. Spring Valley housing development to the east.

FIGURE III-37
US 15 AT BIGGS FORD ROAD

US 15 at Biggs Ford Road (end of the study area).

FIGURE III-38
VIEW OF KING FARM (RESIDENTIAL DEVELOPMENT IN BACKGROUND)

View of King Farm
(Residential development
in background)

majority of cases, the changeover between these landscape units is transitional and boundaries described should be considered as arbitrary and indicative only.

Shady Grove Metro Station to I-270/Shady Grove Road Interchange

The proposed CCT alignment begins at the Shady Grove Metro Station and heads west across MD 355 and parallel to Redland Road before crossing I-270 at the Shady Grove Road interchange.

At the southern end of the Corridor, between Shady Grove Metro Station and MD 355, the alignment passes around an existing park and ride lot and between two large commercial developments. The dominant visual character from MD 355 to Shady Grove Road is that of the Kings Farm mixed residential development. This community began development in 1997 and there are still a number of sections that are currently being developed or are planned for future development. The community contains apartments, condominiums, town homes and some single detached dwellings that are well landscaped with high quality vistas along main streets. There are still some large tracts of farmland that dominate the landscape in this region; however, there are plans for future residential and office development at these locations (see **Figure III-38** and **Figure III-39**).

I-270/Shady Grove Road Interchange to Great Seneca Highway

From the I-270/Shady Grove Road interchange, the alignment continues west across Omega Drive and through Decoverly Industrial Park. It then turns to the northwest on reaching Great Seneca Highway. Through this section of the CCT alignment, the land uses are industrial and commercial and the dominant surrounding landscape is open farmland.

Where the alignment runs parallel to Decoverly Drive, to the south there are industrial uses and a large office development is under construction; to the north there is the Avalon at Decoverly residential development. There is a landscaped buffer and sidewalk between the residential development and the roadway and there is a large grassed setback and wooded coverage on the southern side adjacent to the industrial uses (**Figure III-40**). The visual quality of this section is high; the area is open with views of trees and wooded areas in the distance.

Great Seneca Highway to Quince Orchard Road (MD 124)

Great Seneca Highway is a major road with three lanes in each direction with a grassed median. The Corridor is visually open and has a high visual quality. Trees buffer the residential area from the highway to the east and there is a large grassy setback to the west.

The CCT alignment travels along the west side of Great Seneca Highway until it reaches Muddy Branch Road, where it crosses to the east side either at grade or above grade (**Figure III-41**). Prior to the Great Seneca Highway/Quince Orchard Road intersection, the alignment turns to the north to go through Quince Orchard Park/Sioux Lane.

FIGURE III-39
VIEW OF KING FARM (OFFICE DEVELOPMENT UNDER CONSTRUCTION)

King Farm view from Choke Cherry Road. (Office development under construction).

FIGURE III-40
DECOVERLY DRIVE WEST TOWARDS GREAT SENECA HIGHWAY

Decoverly Drive looking west towards Great Seneca Highway. Transit corridor is to the left of the photo.

FIGURE III-41
GREAT SENECA HIGHWAY NORTH FROM MUDDY BRANCH ROAD

Great Seneca Highway north from Muddy Branch Road. Transitway alignment proposed along right set back. Development is Washington Woods.

FIGURE III-42
VIEW FROM ORCHARD RIDGE DRIVE TO GREAT SENECA HIGHWAY

View from Orchard Ridge Drive looking towards Great Seneca Highway. Transit alignment approaches Orchard Ridge Drive through this area. This site proposed for office and residential development.

The western side of Great Seneca Highway to Sam Eig Highway is an undeveloped open area. From Sam Eig Highway to 2,500 feet from Muddy Branch Road, there is medium density residential development on both sides of the highway buffered by large grassy setbacks.

The alignment through Quince Orchard Corporate Park is in a very visually pleasing area of low-density office development set within a landscaped park complex and surrounded by a largely undeveloped wooded area. **Figure III-42** shows the character of the wooded and open areas at the intersection of Orchard Ridge Drive and Twin Lakes Drive. Stage II of the Corporate Park and residential development is proposed for this site. There are some areas of Quince Orchard Park that are currently being developed.

Figure III-43 shows the intersection of Orchard Ridge Drive and Twin Lakes Drive. This is a very visually open area and the roadway rises to the east along Twin Lakes Drive. The CCT alignment runs parallel to Twin Lakes Drive then runs parallel to Quince Orchard Road (MD 124).

Quince Orchard Road (MD 124) to CSX Railroad

Along the western edge of Quince Orchard Road to the CSX tracks the road has two lanes in each direction with mature trees lining each side. The roadway is hilly and therefore there are not long views down the Corridor. The National Institute of Standards and Technology (NIST) property extends to the east side of Quince Orchard Road from the Quince Orchard Corporate Park on MD 117. This site is very open and has large setbacks to the highway. **Figure III-44** shows the view north along Quince Orchard Road from the entry to the NIST site.

Beyond the NIST property, the land use and visual quality along Quince Orchard Road changes and there are more commercial uses including Diamond Square Shopping Center and Orchard Plaza. There is a residential community adjacent to Firstfield Road, the rear of the community backs onto Quince Orchard Road adjacent to where the proposed alignment would cross over the intersection with MD 117 either at grade or in an elevated structure to the eastern side of the roadway. There is a parking area between the residential community and the alignment, which makes the view very open.

CSX Railroad to Middlebrook Road

The CCT alignment runs parallel to the CSX tracks from Quince Orchard Road to the Metropolitan Grove Station MARC Station. The visual character of the CCT alignment changes significantly as it parallels the existing CSX tracks to a point just beyond the Metropolitan Grove Station MARC station and then heads north again until it reaches I-270. The alignment runs parallel to the west side of I-270 until it reaches Middlebrook Road.

Along the CSX tracks, the visual landscape is wooded forest land (see **Figure III-45** and **Figure III-46**). At Metropolitan Grove Station Road, there are industrial and institutional land uses. These uses continue to the north of the alignment until it turns to meet I-270. This section of the alignment, traveling parallel to I-270, is through a relatively well-preserved wooded section of Seneca Creek State Park.

FIGURE III-43
INTERSECTION OF ORCHARD RIDGE DRIVE AND TWIN LAKES DRIVE

Intersection of Orchard Ridge Drive and Twin Lakes Drive. Looking west from this intersection. Transit alignment to cross over road near grassy area.

FIGURE III-44
VIEW NORTH ALONG QUINCE ORCHARD ROAD FROM NIST SITE

Quince Orchard Road looking north. Photo taken from South Drive entrance to NIST.

FIGURE III-45
CSX RAILROAD TRACKS FROM METROPOLITAN GROVE RD. (EAST)

CSX Railroads tracks from Metropolitan Grove Road looking east.

FIGURE III-46
CSX RAILROAD TRACKS FROM METROPOLITAN GROVE RD. (WEST)

CSX Railroad tracks from Metropolitan Grove Road looking west.

From here, the reserve largely has grassy cover and tall pine tree coverage to separate the New Covenant Fellowship Church and residential areas in Gunners Lake Village and Crawford Farm from the highway (see **Figure III-47**). The visual quality along this section of the alignment is very open with views on either side of adjacent land uses. The visual quality changes along I-270 from being a densely wooded area near Game Preserve Road to views of surrounding residential developments closer towards Middlebrook Road.

Middlebrook Road to MD 118

At Middlebrook Road, the visual character of the CCT alignment changes where it crosses over Middlebrook Road and crosses in front of Amaranth Drive to the Department of Energy site. The alignment curves slightly to the west to serve the Middlebrook Tech Park and the Department of Energy. This area is visually very open. **Figure III-48** shows the view from the Department of Energy site looking towards Middlebrook Road. The boundary of the Department of Energy site is largely wooded providing a buffer between the proposed alignment, the Department of Energy parking areas that surround the main buildings, and the residential uses that are around the site boundary closer to MD 118. The site also has a number of large, open space areas. During the fall and winter months, these deciduous trees would not provide as much of a buffer as they do during the summer and spring.

MD 118 to Father Hurley Boulevard

The CCT alignment crosses MD 118 before making a sharp turn to the northeast along Century Boulevard. MD 118 has three lanes in each direction with commercial uses on the northern side. The area is very visually open; there are few trees and there are clear views of the MD 118 interchange with I-270. The alignment would operate in the median of Century Boulevard a short distance before turning sharply back to the northwest and continuing across Father Hurley Boulevard.

Century Boulevard passes through a low-density commercial office building and industrial area. Century Boulevard is very open and has large grassed setbacks from the roadway as shown in **Figure III-49**. Large parking areas surround the buildings and there are very few trees and no major landscaping.

Father Hurley Boulevard to COMSAT Station

The last visual unit identified along the CCT alignment is that from Father Hurley Boulevard to the COMSAT. The CCT alignment travels along Father Hurley Boulevard then to the rear of the Waters Landing residential community. This section of the alignment contains open fields between the residential area to the interchange of Father Hurley Boulevard and I-270 and there is a large setback from the residential area that establishes an open view.

The CCT alignment crosses I-270 to run in the median of Observation Drive. The CCT alignment remains in the median of Observation Drive, which turns back to the northwest, and continues until it reaches its terminus at the existing COMSAT facility located northeast of West Old Baltimore Road.

FIGURE III-47
VIEW OF I-270 FROM NEW COVENANT FELLOWSHIP CHURCH

View of I-270 from parking lot at rear of New Covenant Fellowship Church on Waring Station Road.

FIGURE III-48
VIEW FROM DOE SITE TOWARDS MIDDLEBROOK ROAD

View from Department of Energy (DOE) looking towards Middlebrook Road.

FIGURE III-49
CENTURY BOULEVARD

View northwest along Century Boulevard into I-270 Corporate Center.

On the eastern side of I-270, there are relatively new residential developments adjacent to Black Hill Regional Park. The CCT alignment does not cross through the park. The COMSAT site is situated within a large open corporate park where there are a number of other low-density commercial and industrial uses. The general visual quality of this area is open fields with scattered woodland areas.

2. Visual Impacts and Mitigation Measures

The visual impact of a transportation project varies considerably depending on the existing character of the natural and built environment and the proposed alignment, urban design and modal technologies. The assessment of impacts of the project on the existing visual character were based on the proposed Corridor alignment and the modal options under consideration. The visual effects of the Corridor will be greater where the alignment is adjacent to areas that are predominantly residential, wooded parks or open space.

The visual impacts of the proposal can be separated into short-term construction impacts and longer term impacts as a result of the operation of the project. The project will introduce new elements into the visual landscape such as additional lanes, structures, at-grade alignments, park and ride lots and station facilities. The extent of the visual impacts of these new elements will depend on the existing visual character of each specific area and surrounding land uses.

Visual impacts are likely to be greater where the Corridor passes by residential communities or wooded areas. Positive outcomes may be achieved for the affected communities through the visibility of the proposed transit facility and the improved transportation choices that the facility will provide. Positive visual impacts would also occur in areas where the new facilities are well integrated with the surrounding communities or where the project results in an upgrading of a deteriorated area.

Where residential properties front a new alignment – no matter whether highway or rail – they can suffer loss of value due to adverse visual and noise impacts. The visual impact assessment for the I-270/US 15 Corridor project indicates that some negative visual impacts would need to be mitigated. However, after mitigation, no significantly negative visual impacts on residential land uses are expected to exist, neither along the new alignments nor at their major facilities.

Negative impacts would occur in places where the proposed facilities would detract from or obstruct the view of existing visually sensitive built up or natural areas. In areas where negative visual impacts are anticipated, mitigative measures would be developed in consultation with the affected communities. Examples of possible mitigative measures to minimize the visual impacts of the Corridor are also described in this section.

The anticipated visual impacts of each of the project alternates are discussed below.

The No-Build Alternate would not introduce any new visual elements into the landscape, therefore there would not be any visual impacts.

Alternate 2, the TSM/TDM Alternate, would not introduce any major new infrastructure into the project area. Some visual changes would occur as a result of the introduction of the following

elements: interactive transit information at major employment centers, additional park and ride lots/spaces, improved pedestrian access to existing transit stations and improved bicycle connections. The visual changes are considered to be minor and would be planned taking into consideration urban design and landscaping elements sensitive to existing environments.

Alternates 3A/B, 4A/B and 5A/B/C all include different combinations of highway upgrades, light rapid transit or bus rapid transit options. The main differences between the options are the use of the additional infrastructure, that is, for high occupancy vehicle lanes or general-purpose lanes. Therefore, the visual impact would be similar regardless of the highway alternate adopted. The visual impacts of the highway options and LRT versus BRT are discussed in more detail in the following sections.

The stations and other facilities proposed as part of the project would be designed to be compatible and integrated with the environmental context of their locations. The stations and other facilities will be integrated, as much as feasible, with existing and proposed developments.

Visual impacts to cultural resources, including appropriate parklands in the project area, are addressed through Section 106 coordination.

Table III-89 contains a summary of the visual assessment along the I-270/US 15 Corridor. The specific visual character and visual impacts of the highway project and the transitway project are discussed in more detail in the following sections.

TABLE III-89
VISUAL ASSESSMENT SUMMARY

Location	Visual Character	Visually Sensitive
Highway Alignment		
Shady Grove Road to Exit 11 Quince Orchard Road and Montgomery Village Avenue	Wide roadway, mature trees visible on both sides, some residential Communities backing onto roadway	2
Exit 11 Quince Orchard Road and Montgomery Village Avenue to Exit 13 Middlebrook Road	Open grassed fields Large greased setbacks Visually pleasing area with views of large wooded areas and thick tree coverage	3
Exit 13 Middlebrook Road to Exit 18 Clarksburg Road	Open, commercial uses Views of large green wooded areas	2
Exit 18 Clarksburg Road to Exit 26 Fingerboard Road at Urbana	Low density land uses Undeveloped areas with a mix of open areas and wooded areas with hilly surrounds	3
Exit 26 Fingerboard Road at Urbana to MD 85 Buckeystown Pike	Very high visual quality along Corridor Open fields, wooded mature trees, low density large lot residential areas and some commercial uses well setback from roadway	2
MD 85 Buckeystown Pike to Francis Scott Key Mall	Very flat, no significant views with higher density land uses	1
Francis Scott Key Mall to MD 26 Liberty Road	Single dwelling private residences and apartments backing onto the highway Some commercial uses and strip malls	3
MD 26 Liberty Road to Biggs Ford Road	Dominantly open fields and historic farmland Relatively flat with views of the mountains into the distance, very few mature trees Cornfields provide an attractive, historic landscape	2
Transitway Alignment		
Shady Grove Metro Station to I-270/Shady Grove Road Interchange	Commercial Existing new and future mixed residential development	1
I-270/Shady Grove Road Interchange to Great Seneca Highway	Industrial, commercial surrounded by open farmland	1
Great Seneca Highway to Quince Orchard Road	Visually open area Grassy setbacks	2

TABLE III-89 (CONTINUED)
VISUAL ASSESSMENT SUMMARY

Location	Visual Character	Visually Sensitive
Transitway Alignment (Continued)		
Quince Orchard Road to CSX Tracks	Mature trees, roadway is hilly, no long views	2
CSX Tracks to Middlebrook Road	Existing rail tracks Wooded land Industrial and institutional land	2
Middlebrook Road to Germantown Road	Visually open area Open space, residential uses in surrounding area	3
Germantown Road to Father Hurley Boulevard	Visually open, few trees, no landscaping and clear views Low density commercial and office area	1
Father Hurley Boulevard to COMSAT station	Open fields and scattered woodland Along I-270 Corridor Residential areas with large setbacks and open views	3

Notes: *Visually Sensitive:*
1. Built up area
2. Built up area with high visual quality
3. Non built up area

a. Highway Alignment

The project proposes a number of highway component upgrades along the I-270 alignment. These include adding general-purpose lanes, highway occupancy vehicle lanes, auxiliary lanes and direct access ramps along I-270 and US 15 in Montgomery and Frederick Counties as well as new interchanges and improvements to existing interchanges.

The visual impacts of these changes differ depending on the proximity of surrounding land uses to the Corridor. In most cases, the upgrades are proposed in areas where there is already significant existing infrastructure therefore the project does not lead to a major change in the visual character of the landscape. The main changes would be a wider road with the addition of lanes.

There are a few locations where residential communities have direct views of the highway and mitigative visual screening measures are recommended. These include sections of US 15 in Frederick County and sections of I-270 near to the Londonderry community.

Mitigative measures may also be required in the section of the alignment through Black Hill Regional Park and the open space area within the NIST property.

b. Transitway Alignment

The visual impacts of the proposed transitway alignment will be site specific and influenced by a number of factors including the:

- surrounding land uses
- adjacent natural screening
- preferred mode, LRT or BRT
- treatment of intersection crossings, whether they are constructed at grade or in structure
- urban design of stations and park and ride lot locations.

A large proportion of the Corridor follows existing roadways or rail right of ways that are in largely built up areas or have significant vegetation screening the development. Other sections run adjacent to existing residential and commercial development on roadways in areas that are highly visible to community residents. It is recommended that all structures and sections of the Corridor that are highly visible from residential areas and community open space be designed at an appropriate visual scale for the area, color and texture. It is important to develop a system that is both visually sensitive to the surrounding environment and immediately recognizable as a part of a comprehensive public transit system.

The LRT option would introduce more elements into the landscape than the Bus Rapid Transit option. The LRT option would be along the same transitway with a double track alignment width, although it would also include an overhead catenary system and aerial structures.

The BRT option will add a two-lane pavement along the Corridor. This pavement would be separated from the main roadway to ensure a high priority bus alignment.

Stations

There are a total of 18 stations proposed along the transitway corridor. The stations would be designed so as to be sensitive to the environmental and existing built up areas surrounding each locations. Typically each station would have a shelter, lighting, trash can, bicycle racks or lockers, ticketing facilities and a public telephone. **Table III-90** notes the dominant land uses around each of the proposed stations and if the station is in a built up area, in an area that is not built up, or one that is proposed for future development. The table also notes the stations that are visible from residential areas. The stations marked with an asterisk are those that are considered to have the largest impact on the visual character of the areas.

TABLE III-90
PROPOSED STATION LOCATIONS AND POTENTIAL VISUAL IMPACTS

Station Name	Dominant Surrounding Land Use	Built Up Area	Visible from Residential Areas	Proposed Park and Ride Lots
Shady Grove Metro Station	Commercial	Existing	Y	7,800 spaces
East Gaither (King Farm) Station	Residential	Future	Y	
West Gaither (King Farm) Station	Future residential	Future	Y	
Washingtonian Station*	Within historic district boundary	Not built up	Y	
Crown Farm Station	Future residential	Future	Y	
DANAC Station	Buffered from residential, adjacent to commercial uses	Future	N	
Decoverly Station*	Wooded area (within right of way)	Not built up	N	7 bus bays 250 spaces
School Drive Station*	Wooded area	Not built up	N	
Quince Orchard Park/Sioux Lane Station*	Wooded	Not built up	N	6 bus bays 540 spaces
NIST Station	Opposite commercial uses	Existing	N	
First Field Station* (Above grade-LRT/BRT At-grade-BRT)	Adjacent to residential	Existing	Y	
Metropolitan Grove Station	Opposite Commercial uses and wooded/open space	Existing	N	
Middlebrook Station	Commercial uses	Existing	N	
Germantown Center Station	Residential and commercial	Existing	Y	600 spaces
Cloverleaf Station	Commercial	Existing	N	2 bus bays 50 spaces
Manekin Station	Residential area near I-270 interchange	Future	Y	2 bus bays 500 spaces
Dorsey Mill Station	Commercial and residential	Future	Y	
COMSAT Station	Low density commercial	Future	N	4 bus bays 1,000 spaces

Note: **Stations considered to have the largest impact on visual character, given information known at this stage of design*

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Park and Ride Sites

There are seven park and ride locations proposed along the Transitway alignment. The design and number of parking spaces proposed for each of these locations has not been finalized at this stage of the study. The visual impacts would also depend on whether the park and ride lots were at grade or in structure.

The proposed park and ride lots are in locations where there is ample space available and that have good access to main road networks – therefore they are typically locations that are not visually sensitive. Two station locations with proposed park and ride lots, Washingtonian and Quince Orchard Park/Sioux Lane, are considered to be in visually sensitive areas.

Parking areas could be landscaped in a manner to create an overall visually cohesive image complementary to the surrounding area at the same time as being conscious of the importance of surveillance and safety and security issues at park and ride lots.

Bicycle and Pedestrian Facilities

The proposed bicycle and pedestrian improvements along the Corridor are of a scale such that they would not have a significant impact on the visual character of the surrounding areas. The paths would be designed to complement the existing character of the area and it is very likely that the landscaping that would be completed as part of the project would actually act to enhance the visual quality along the Corridor.

The actual mitigative measures adopted for each specific area within the project area would be determined in more detail once the comprehensive noise assessment is completed, options selected and in consultation with adjacent communities and property owners.

c. Noise Walls

The assessments in **Section III-K**, Noise Analysis and **Section III-L**, Vibration Analysis, describe the existing noise and vibration conditions in the study area and presents applicable standards and criteria in order to assess the future environmental noise and vibration impacts from construction and operation of the project. As a result of the assessment, noise walls have been considered for a number of locations alongside the highway corridor and the transitway corridor. Noise walls were considered in locations that were both feasible and reasonable according to SHA criteria.

The noise walls add another visual element to the landscape as part of the project. Along the transitway route, there are nine potential noise walls that protect a total of 59 residential properties from the noise impacts of the proposed corridor. Along the highway corridor, there are 13 potential noise wall locations that protect a total of 282 properties from noise impacts of the proposed corridor.

In addition to mitigating the estimated noise impacts of the proposal, the noise walls also act to mitigate the potential visual impacts discussed in the previous sections. Some of the potential noise walls are recommended for locations where potential visual impacts were identified. The

potential noise walls will be designed and constructed in close consultation with the local communities to ensure that they are compatible with the context of the surrounding built and natural environments.

d. Short-Term Construction Visual Impacts

The actual staging and timing of construction of the project is yet to be finalized. The visual impacts of the construction period would be impacted upon by the nature and management practices during the construction period.

The visual impacts of the construction activities would include the existence of construction equipment, machinery and materials, temporary signs and fencing. The level of impact of these temporary construction periods would depend on the duration and visibility of activities and the sensitivity of surrounding land uses.

The majority of these impacts would be short term and mitigated through construction management techniques such as defined boundary areas and screening the construction areas. Timing of the construction and completing sections of the Corridor at one time would also work towards minimizing any negative visual impacts during construction.

e. Mitigation Measures

Mitigation measures to lessen the visual effects of the project would be planned in consultation with adjacent communities and property owners. The measures would be developed for both short term temporary construction impacts and the longer term impacts, associated with the new facilities themselves.

The mitigation measures to lessen any negative visual impacts of the project may include:

- environmentally sensitive design of roadway facilities;
- sensitive design of station facilities;
- noise mitigation barriers;
- privacy fencing;
- urban design elements;
- dense planting along property lines;
- preserving existing vegetation;
- replanting;
- landscaping;
- timing of construction activities; and
- construction fencing.

N. CONSTRUCTION AND OPERATIONAL ISSUES

1. Construction Issues

Identifying potential construction impacts of the alternates considered is important in understanding potential impacts to resources and to minimize impacts during construction activities. This section describes initial investigations into these matters as they pertain to the I-270/US 15 Multi-Modal Corridor study. Construction activities for the build alternates would have temporary impacts to resources, residences, businesses, and travelers within the immediate vicinity of the project. These would include traffic detours, potential air and fugitive dust emissions, increased noise levels, impacts to socioeconomic and natural resources, and impacts to visual quality. Potential impacts to these resources are discussed in their respective sections of this chapter.

Construction of the transportation alternates will not involve any unusual or dangerous construction methods or procedures that would pose any significant threat to public safety. Public safety, involving design and engineering of the transit facilities and the type of materials used, is addressed by state and local building codes and design standards used by MTA and WMATA in the development of transit facilities.

Impacts to the general public which may affect the transportation system and its ability to serve the mobility needs of the study area include maintenance of traffic/traffic detours through the construction areas, temporary facility shutdowns to accommodate heavy structural lifts to place bridge girders over roadways, temporary utility shutdowns to facilitate reconnections, and some increase in vehicular conflicts by the movement of construction machinery and equipment as the result of normal construction activity.

It is anticipated that as construction activities are conducted for the proposed alternates that impacts to adjacent roadways will be constructed and work planned to minimize the disruption and lane closures during peak travel times. In order to keep the public informed, SHA and the MTA will hold community meetings to inform nearby residents and businesses of the work progress, when and where construction activities will occur. It is anticipated that these meetings will occur prior to construction work commencing and throughout the construction process.

2. Operational Issues

a. Highway Alignment

Detours and road closures during construction would create temporary inconveniences for residents, business owners, and travelers. Maintenance and protection of traffic plans would be developed during final design to mitigate access impacts and to minimize delays throughout the project area. These plans would include appropriate signs, pavement markings, and media announcements. Access to all businesses and residences would be maintained through construction scheduling. An important construction activity is proposed at the I-270/CSX Railroad bridge in Gaithersburg. Widening of the southbound roadway to add the C-D lanes would require a lengthening of the railroad structure. Close coordination with CSX would be

required to minimize disruption, to schedule appropriate work shifts for construction crews to complete their activities and to maintain railroad service for the duration of construction activities.

Other potential highway construction impacts to transportation system operations include construction of bridges over existing facilities such as the direct access ramp structures to I-370, I-270/Newcut Road interchange, I-270/MD 75 Extended interchange, I-270 northbound access to I-70 over MD 85, US 15/US 340 northbound flyover to northbound US 15, US 15/Trading Lane interchange and the US 15/Biggs Ford Road interchange. Close coordination with SHA, Montgomery County and Frederick County will be required to notify the public of potential nighttime closures during heavy lifts.

b. Transitway Alignment

The primary operational issues associated with the construction of the transitway occur at the interface with the Shady Grove Metro Station and CSX Railroad near the Metropolitan Grove station areas. As construction occurs for the transitway, the existing Shady Grove Metro Station would continue to operate under normal operating conditions. Potential disruptions or patron inconveniences may occur in the vicinity of the transitway terminus alongside of the existing station entrance, bus drop-off/bus bay area, kiss-and-ride passenger drop-off area and the access roadway to the Shady Grove Metro Maintenance Facility. Temporary connections and/or relocation of these facilities may occur to facilitate the construction.

Transitway construction will affect operations along the CSX Metropolitan Branch railroad tracks in the Metropolitan Grove area. The proposed transitway would cross underneath the railroad adjacent to the SHA Maintenance Facility located on MD 124. Similar to the I-270/CSX Railroad bridge located nearby, close coordination with CSX would be required to eliminate or minimize disruption, schedule appropriate work shifts for construction crews to complete their activities and to maintain railroad service for the duration of construction design construction activities.

Other potential transitway construction impacts to transportation system operations include construction of bridges over existing facilities such as, MD 355, I-270, Shady Grove Road, Great Seneca Highway (near the Decoverly Station), the Great Seneca Highway/Muddy Branch Road intersection (aerial crossing option), the MD 124/MD 117 intersection (aerial crossing option), Middlebrook Road (just west of the I-270/Middlebrook Road interchange), and I-270 north of Father Hurley Boulevard. In addition there are several at-grade intersection crossings, including the Great Seneca Highway/Muddy Branch Road and MD 124/MD 117 at-grade crossing options.

3. Utility Issues

a. Highway Alignment

The proposed highway improvements associated with Alternates 3A/B, 4A/B and 5A/B/C encompass several public and private utility facilities. Utility providers in the study area include, but are not limited to, Montgomery County, City of Gaithersburg, City of Rockville, Frederick

County, City of Frederick, Frederick Gas, Potomac Electric Power Company, Verizon and Comcast. It should be noted that public utilities (water and sewer) do not serve the entire study area. Public utilities are primarily found along I-270 in Montgomery County as far north as MD 121. In Frederick County, public utilities serve the Urbana community, and Frederick from the I-270/CSX Railroad bridge north to near the proposed US 15/Trading Lane interchange.

Utilities of concern in the study area were limited to major utility systems only and include sanitary sewers (12" or larger), storm drains (30" or larger), water mains (16" or larger), gas mains (8" or larger) and electric, telephone and cable television cables and conductors. Preliminary review of the potential utility impacts to these sized utilities from the proposed highway improvements are highlighted in **Table III-91**.

TABLE III-91
UTILITY IMPACTS FROM PROPOSED HIGHWAY IMPROVEMENTS

Utility Type	Size	Highway Station Location (approx.)	Location
Sanitary Sewer	18"	Sta. 123	Montgomery County
Water Main	20"	Sta. 123	Montgomery County
Water Main	20"	Sta. 149+50	Montgomery County
Sanitary Sewer	10"/18"	Sta. 150	Montgomery County
Telephone Duct		Sta. 154+50	Montgomery County
Gas Main	8"	Sta. 155	Montgomery County
Sanitary Sewer	18"	Sta. 159	Montgomery County
Water Main	36"	Sta. 160 to Sta. 185	Montgomery County
Water Main	48"	Sta. 160 to Sta. 185	Montgomery County
Water Main	36"	Sta. 190	Montgomery County
Telephone Duct		Sta. 193	Montgomery County
Overhead Electric		Sta. 345 to Sta. 357	Montgomery County
Water Main	48"	Sta. 350	Montgomery County
Sanitary Sewer	15"/18"	Sta. 358	Montgomery County
Water Main	16"/20"	Sta. 395	Montgomery County
Sanitary Sewer	18"	Sta. 436	Montgomery County
Gas Main	30"	Sta. 486	Montgomery County
Sanitary Sewer	33"	Sta. 495	Montgomery County
Overhead/Underground Elec.		Sta. 483 to Sta. 583	Montgomery County
Gas Main	8"	Sta. 500 to Sta. 580	Montgomery County
Gas Main	8"/8"	Sta. 857	Frederick County
Gas Main	8"	Sta. 867	Frederick County
Sanitary Sewer	12"/15"	Sta. 1525 to 1534	Frederick County
Sanitary Sewer	12"/15"	Sta. 1547	Frederick County

b. Transitway Alignment

The proposed transitway alignment has varying impacts on existing utilities located throughout the project area. Overall, the project area has recently experienced rapid development that has encouraged coordination between various state and local planning and regulatory groups. However, in older established areas, the proposed transitway alignment could have substantial

impacts. Below is a summary of possible impacts as well as associated issues for sites along the Corridor.

The existing utilities situated within the Shady Grove Metro area appear to have little conflict with the proposed alignment. The relocation of streetlights and parking meters and the reconfiguration of traffic signals are needed along Frederick Road near the west parking lot. The reconfiguration is needed to accommodate the construction of a transit bridge. The King Farm Boulevard area has few visible indications of potential impacts. The traffic signal in the area has been constructed outside the reserved transitway alignment. Along Gaither Road, the suspension traffic signal will have to be replaced with one that does not interfere with the operations of overhead catenaries, if the light rail option is selected. In most cases, developers preserved the master plan dedication for the transitway.

The proposed transitway crossing of I-270 must incorporate the complexities associated with the numerous power lines, towers and utility poles on both sides of the Shady Grove Road bridge. Next, the alignment crosses over Omega Drive and travels though the currently undeveloped, open lot situated on the England-Crown Farm property. Afterwards, the transitway approaches, than turns to run adjacent to Decoverly Road. Along this section, there are indications of possible gas-lines at the Diamond Back Drive crossing. As the transitway approaches Great Seneca Highway, a grade separated crossing has already been developed and there are occasional streetlights and a sidewalk that runs the length of the segment. Presently, construction is underway that may involve the implementation of future utility installation in the area. After crossing Great Seneca, the transitway is situated in a wooded area, which is currently under consideration for development. The transitway then travels north where it slightly encroaches on what appears to be a storm water management facility.

Next, as the transitway traverses under the proposed fly-over ramp to the eastbound I-370 approach, potential impacts to an adjacent drainage ditch/pipe/culvert may occur on the southeast side of the Muddy Branch/Great Seneca Highway intersection. Traffic signals at this intersection may need to be modified to accommodate the transitway. A series of light poles and well as a sidewalk are on Great Seneca Highway throughout this section of the Corridor. Near Quince-Orchard Road, the transitway veers to cross Sioux Lane, than runs parallel to Twin Lakes Drive for a short while before turning north to parallel Quince Orchard Road on the east. Field visits indicate that no utilities were noticed along Sioux Lane other than a sidewalk. In contrast, numerous light poles, power and phone lines exist on both sides of Quince Orchard Road within the Corridor.

The traffic signals at the Quince Orchard/Clopper Road intersection as well as the Firstfield Road area will have to be re-configured to accommodate the future transitway bridge that crosses west of Quince Orchard. Additional utility lines and poles are located along both sides of Quince Orchard as the transitway nears its westward turn to the proposed Metropolitan Grove Station. The only impacts to the transitway are from a SHA parcel that is currently being utilized for parking. After crossing under the CSX rail line, impacts to all utilities located within this section are likely. The transitway alignment heading into the Metropolitan Grove area may have impacts to unseen utilities paralleling the CSX line on the railroad's north side.

Currently, no impacts are anticipated on the undeveloped, hilly land near the PEPCO power lines/utilities as the alignment crosses this property. The transitway parallels I-270 and may impact buried fiber-optic cable that is located on the west side. Utility poles and lines are within or near the proposed transitway alignment as it approaches the bridge along Middlebrook Road. The alignment is primarily near the fenced boundary of the Department of Energy property where very few utility impacts are expected.

The transitway crosses under Darnstown-Germantown Road (MD 118) and will impact a newly constructed restaurant that is located within the reserved alignment. From the proposed Germantown Center Station, it transitions into an in-median alignment with few apparent impacts. If the length of the Century Boulevard portion stays within the median, both of the northbound lanes must be removed and relocated outside the proposed transitway reservation width. Although this alternate requires no additional right-of-way than the previous proposal, this option would require the removal and relocation of the roadway and associated utilities currently under it. Only sidewalks and streetlights are visible within transitway reservation corridor along Century Boulevard. Finally, the remaining sections of the proposed transitway alignment are located on either undeveloped open land, or within the master plan preservation area.

4. Energy Issues

a. Existing Environment

This section provides a quantitative assessment of the project's impact on transportation related energy consumption in the study area. The methodology used to assess the energy consumption impacts of the project is based on the FHWA report entitled "Energy and Transportation Systems" published in July 1983 by the Caltrans Transportation Laboratory, California and the report entitled "Urban Transportation and Energy: The Potential Savings of Different Modes" issued by the Congress of the United States, Congressional Budget Office in December of 1977. This analysis was conducted to assess the likelihood of significant increases in energy consumption due to the project.

Transportation accounts for a major portion of both direct and indirect energy consumption in America. Direct energy involves all energy consumed by vehicle propulsion and is presented in British Thermal Units (Btus) and Barrels of Fuel (Bbls). This energy is a function of volume, speed, distance traveled, vehicle mix, type of rail vehicle and thermal value of the fuel being utilized. Indirect energy consumption involves the non-recoverable, one time energy expenditure involved in constructing the physical infrastructure associated with the project.

b. Impacts

This section provides a quantitative assessment of the project's impact on transportation related energy consumption in the study area. The methodology used to assess the energy consumption impacts of the project is based on the FHWA report entitled "Energy and Transportation Systems" published in July 1983 by the Caltrans Transportation Laboratory, California and the report entitled "Urban Transportation and Energy: The Potential Savings of Different Modes"

issued by the Congress of the United States, Congressional Budget Office in December of 1977. This analysis was conducted to assess the likelihood of significant increases in energy consumption due to the project.

Transportation accounts for a major portion of both direct and indirect energy consumption in America. Direct energy involves all energy consumed by vehicle propulsion and is presented in British Thermal Units (Btus) and Barrels of Fuel (Bbls). This energy is a function of volume, speed, distance traveled, vehicle mix, type of rail vehicle and thermal value of the fuel being utilized. Indirect energy consumption involves the non-recoverable, one time energy expenditure involved in constructing the physical infrastructure associated with the project.

Direct Energy Analysis

Vehicular fuel consumption estimates for the direct energy analysis were calculated based on Vehicular fuel consumption estimates for the direct energy analysis were calculated based on Vehicles miles traveled (VMT) and average travel speeds. Vehicle mix information was derived from information obtained through the MWCOG. The estimated fuel consumption figures take into account expected future fuel efficiency improvements

As shown in **Table III-92,** the TSM/TDM Alternate is predicted to consume approximately 933,688 million Btus daily of direct energy. Alternates 3A and 4A are predicted to consume approximately 935,647 million Btus daily of direct energy. Alternates 3B and 4B are predicted to consume approximately 934,120 million Btus daily of direct energy. Alternate 5A is predicted to consume approximately 936,031 million Btus of direct energy. Alternate 5B is predicted to consume approximately 936,215 million Btus. Alternate 5C is predicted to consume approximately 935,631 million Btus daily of direct energy. Alternate 5B is predicted to consume the most direct energy of all the alternates. The change in direct energy consumption for all the alternates as compared to the no build alternate is less than 1%. There is not a significant difference in direct energy consumption among the alternates.

Indirect Energy Analysis

The indirect energy estimate reflects one-time, non-recoverable energy costs associated with the construction of new roadways. The indirect energy analysis was based on the number of additional lane or track miles proposed for each alternate. The miles are separated in to construction of surface and elevated highway or track segments. These figures were then multiplied by construction energy factors which estimate the amount of energy necessary to extract raw materials, manufacture and fabricate construction materials, transport materials to the work site and complete construction activities.

Table III-93 summarizes the results of the 2025 indirect energy analysis. The construction of Alternate 3A and 4A is predicted to consume 1,898,525.0 million Btus of indirect energy. The construction of Alternates 3B and 4B is predicted to consume 2,150.060.8 million Btus of indirect energy. The construction of Alternates 5A is predicted to consume 2,301,190 million Btus. The construction of Alternates 5B is predicted to consume 2,552,725.8 million Btus. The construction of Alternates 5C is predicted to consume 1,805,050 million Btus. Alternate 5C is

predicted to consume the least Btus for construction. Alternate 5B is predicted to consume the most Btus for construction.

c. Mitigation Measures

Conservation of energy could be achieved in facility planning, construction, operation and maintenance. Conservation could also be applied to recycling pavements, hardware items (guardrails, signals, tires, etc.), using indigenous plants for landscaping, and applying Best Management Practices in roadway maintenance. Other measures that could be applied include using high-pressure sodium vapor lamps for light, promoting carpools, vanpools, buses and bicycle projects.

TABLE III-92
2025 DIRECT ENERGY CONSUMPTION

Mode	Alternate 1 (No-Build)	Alternate 2 (TSM/TDM)	Alternates 3A and 4A	Alternates 3B and 4B	Alternate 5A	Alternate 5B	Alternate 5C
Roadways							
Daily VMT	193,384,470	193,385,499	193,536,898	193,362,004	193,616,382	193,589,896	193,504,776
Daily Average Speed	40.8	40.8	40.9	40.8	40.9	40.9	40.9
Fuel Consumption							
Gasoline (gallons)	5,738,661	5,738,691	5,750,129	5,737,994	5,752,490	5,751,694	5,749,174
Diesel (gallons)	738,735	738,739	739,303	738,649	739,606	739,504	739,180
Total Gallons	6,477,396	6,477,430	6,489,431	6,476,643	6,492,096	6,491,198	6,488,354
Total Roadway Btus (millions)	933,683	933,688	935,415	933,574	935,799	935,669	935,259
LRT							
Daily VMT	0	0	2,990	0	2,990	0	0
Total Electric Propulsion Btus (millions)	0	0	232	0	232	0	0
BRT							
Daily VMT	0	0	0	13,110	0	13,110	8,913
Total BRT Btus (millions)	0	0	0	546	0	546	371
Annual Direct Energy Consumed Btus (millions)	**933,683**	**933,688**	**935,647**	**934,120**	**936,031**	**936,215**	**935,631**
Annual Direct Energy Consumed (Bbl)	**160,979.8**	**160,980.66**	**161,318.45**	**161,055.25**	**161,384.68**	**161,416.44**	**161,315.62**
% Change from No-Build	**-**	**0.0%**	**0.21%**	**0.05%**	**0.25%**	**0.27%**	**0.21%**

TABLE III-93
2025 INDIRECT CONSTRUCTION ENERGY CONSUMPTION

Type of Construction	Number of Track or Lane Miles	Btus Consumed (Millions)	Barrels of Crude Oil Consumed
Alternate 3A			
Roadways			
Surface Roadways	101.0	1,402,385.0	241,790.5
Elevated Roadways	0	0	0
Roadway Total	**101.0**	**1,402,385.0**	**241,790.5**
Track			
Track at Grade	23.5	288,815.0	49,795.7
Track on Elevated Structures	3.2	177,4720.0	30,598.6
Track below Grade	0.3	29,853.0	5,147.1
Track Total	**27.0**	**496,140.0**	**85,541.4**
Total Alternate 3A	**128**	**1,898,525.0**	**327,331.9**
Alternate 3B			
Roadways			
Surface Roadways	124.8	1,732,848.0	298,766.9
Elevated Roadways	3.2	417,212.8	71,933.2
Roadway Total	**128.0**	**2,150,060.8**	**370,700.1**
Track			
Track at Grade	0	0	0
Track on Elevated Structures	0	0	0
Track below Grade	0	0	0
Track Total	**0**	**0**	**0**
Total Alternate 3B	**128**	**2,150,060.8**	**370,700.1**
Alternate 4A			
Roadways			
Surface Roadways	101.0	1,402,385.0	241,790.5
Elevated Roadways	0	0	0
Roadway Total	**101.0**	**1,402,385.0**	**241,790.5**
Track			
Track at Grade	23.5	288,815.0	49,795.7
Track on Elevated Structures	3.2	177,4720.0	30,598.6
Track below Grade	0.3	29,853.0	5,147.1
Track Total	**27.0**	**496,140.0**	**85,541.4**
Total Alternate 4A	**128**	**1,898,525.0**	**327,331.9**
Alternate 4B			
Roadways			
Surface Roadways	124.8	1,732,848.0	298,766.9
Elevated Roadways	3.2	417,212.8	71,933.2
Roadway Total	**128.0**	**2,150,060.8**	**370,700.1**
Track			
Track at Grade	0	0	0
Track on Elevated Structures	0	0	0
Track below Grade	0	0	0
Track Total	**0**	**0**	**0**

TABLE III-93 (CONTINUED)
2025 INDIRECT CONSTRUCTION ENERGY CONSUMPTION

Type of Construction	Number of Track or Lane Miles	Btus Consumed (Millions)	Barrels of Crude Oil Consumed
Total Alternate 4B	**128**	**2,150,060.8**	**370,700.1**
Alternate 5A			
Roadways			
Surface Roadways	130.0	1,805,050.0	311,215.5
Elevated Roadways	0.0	0	0
Roadway Total	**130.0**	**1,805,050.0**	**311,215.5**
Track			
Track at Grade	23.5	288,815.0	49,795.7
Track on Elevated Structures	3.2	177,4720.0	30,598.6
Track below Grade	0.3	29,853.0	5,147.1
Track Total	**27.0**	**496,140.0**	**85,541.4**
Total Alternate 5A	**157**	**2,301,190.0**	**396,756.9**
Alternate 5B			
Roadways			
Surface Roadways	153.8	2,135,513.0	368,191.9
Elevated Roadways	3.2	417,212.8	71,933.2
Roadway Total	**157.0**	**2,552,725.8**	**440,125.1**
Track			
Track at Grade	0	0	0
Track on Elevated Structures	0	0	0
Track below Grade	0	0	0
Track Total	**0**	**0**	**0**
Total Alternate 5B	**157**	**2,552,725.8**	**440,125.10**
Alternate 5C			
Roadways			
Surface Roadways	130.0	1,805,050.0	311,215.5
Elevated Roadways	0.0	0	0
Roadway Total	**130.0**	**1,805,050.0**	**311,215.5**
Track			
Track at Grade	0	0	0
Track on Elevated Structures	0	0	0
Track below Grade	0	0	0
Track Total	**0**	**0**	**0**
Total Alternate 5C	**130**	**1,805,050.0**	**311,215.5**

Notes: *Urban Transportation and Energy, US Senate Committee on Environmental and Public Works, December 1977.*
Surface highway construction = 13,885 million Btus/lane mile
Elevated highway construction = 130.739 million Btus/lane mile
Surface track construction = 12,290 million Btus/track mile
Elevated track construction = 55,460 million Btus/track mile
Subway track construction = 99,510 million Btus/track mile

O. SECONDARY AND CUMULATIVE EFFECTS ANALYSIS (SCEA)

A secondary and cumulative effects analysis (SCEA) was conducted to evaluate secondary impacts and cumulative effects on the environment which may result from the I-270/US 15 project and other past, present, and reasonably foreseeable future actions regardless of the agency (Federal or non-federal) or organization which may undertake such actions. Guidance for this analysis was obtained from the following publications:

- Council on Environmental Quality's (CEQ) regulations (40 CFR Sections 1500 – 1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC Sections 4321 et seq.).
- Council on Environmental Quality 1997 guidelines, Considering Cumulative Effects Under the National Environmental Policy Act.
- Maryland State Highway Administration's Internal Secondary and Cumulative Effects Analysis Guidelines, Revised June 28, 2000.
- Federal Highway Administration Position Paper: Secondary and Cumulative Impact Assessment in the Highway Project Development Process, April 1992.

Secondary or indirect impacts are described in the CEQ's regulation (40 CFR § 1508.8(b)) as:"…caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."

The CEQ regulations for implementing the NEPA define cumulative effects as: "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal, or non-Federal) or person undertakes such other actions." (40 CFR § 1580.7, 1997).

The results of the SCEA are addressed in the following sections.

1. SCEA Scoping

Scoping for secondary and cumulative effects consisted of identifying the geographic area to be studied (geographic boundary) and the time frame (temporal boundary) for which the analysis is to be conducted. In addition, direct impacts of other projects in the region to be considered with the I-270/US 15 project are identified. Based upon the format of available data, analysis methodologies were selected. Both the scope and the methodologies for the secondary and cumulative effects analysis of the I-270/US 15 Multi-Modal Corridor Study are described below.

a. <u>Geographic Boundary</u>

The geographic boundary for secondary and cumulative effects analyses (referred to as the SCEA boundary) was determined by overlaying a series of mapping. Overlays of the project area, areas of traffic influence, Transportation Analysis Zones (TAZ's), census tract boundaries, watersheds and subwatersheds, parks, county planning area boundaries, water and sewer service limits, and Priority Funding Areas were created. These overlay maps were set atop a base map of the region,

including Montgomery and Frederick counties in Maryland, and encompassing all of the alternates.

A synthesis of these overlays defines the SCEA boundary, an area of approximately 531 square miles as shown in **Figure III-50**. The SCEA boundary is being used for data collection and for mapping of the socioeconomic, natural and cultural resources studied.

Essentially, the SCEA boundary encompasses the following subwatersheds of the Potomac River Basin:

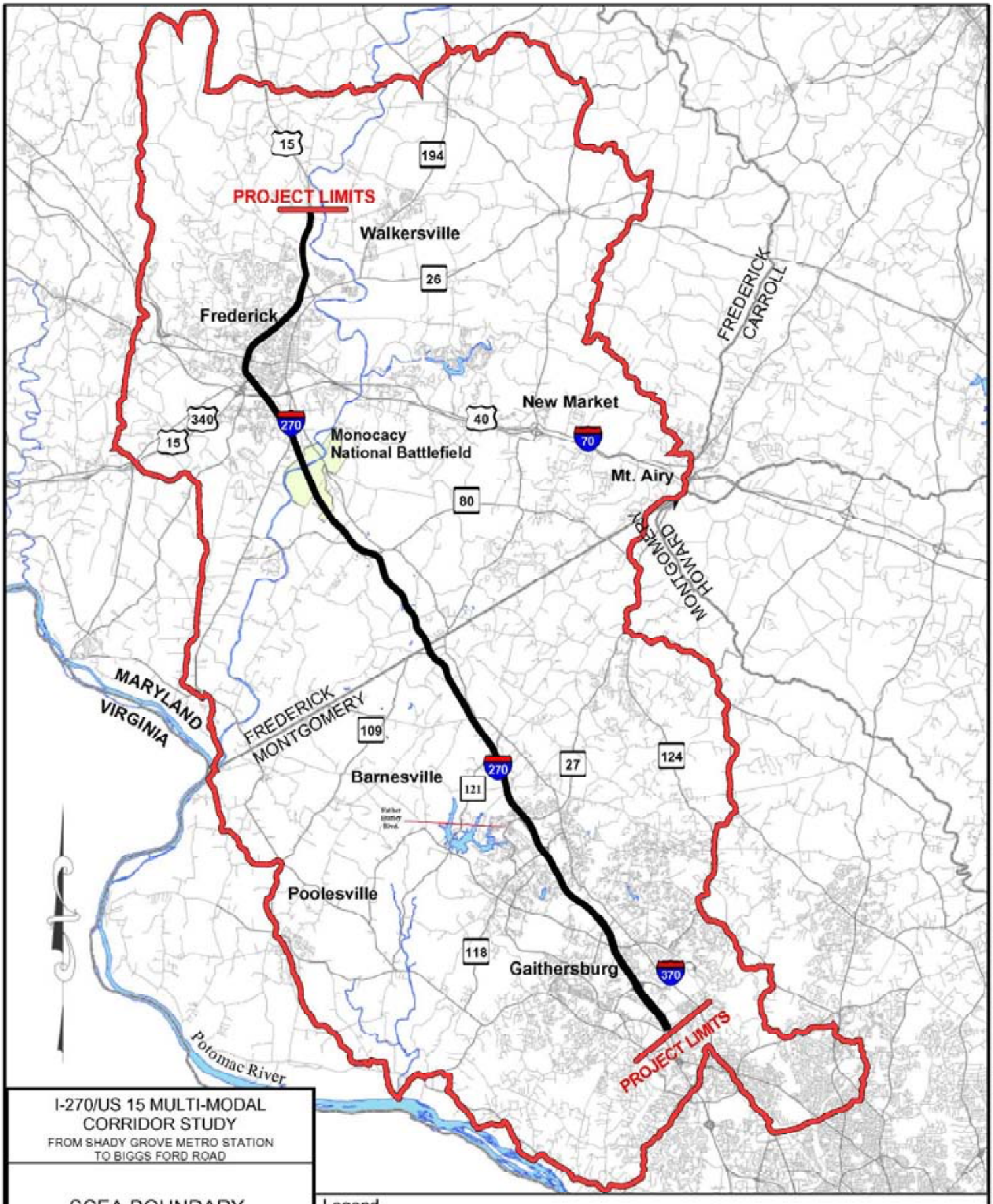
- Sub-subwatersheds 0240, 0243, 0241, 0242 of the Upper Monocacy River,
- All sub-subwatersheds except 0235 and 0238 of the Lower Monocacy River,
- All of Seneca Creek,
- Sub-subwatersheds 0837 and 0839 of the Rock Creek subwatershed, and
- Sub-subwatersheds number 0848, 0846, and 0853 of the Middle Potomac River.

Following the attached SCEA boundary map, beginning in Frederick County at the northwestern corner of the SCEA boundary, moving clockwise, the boundary roughly follows Gambrill Park Drive east and south to approximately parallel to and north of Fish Hatchery Road. The northern boundary does not follow any roadway, but extends in an easterly direction north of Fish Hatchery Road, Lewistown Road, Bridge Road, Gravel Hill Road, Dublin Road, and Renner Road to a point where it intersects Van Buren Road at Green Valley Road. The boundary continues south along Green Valley Road, then easterly on Coppermine Road to the Town of Deerfield.

The eastern SCEA boundary moves in a southerly direction toward MD 26, continues southward west of Mapleville Road, and turns southeasterly onto Annapolis Road until it reaches near the center of Mount Airy. The boundary continues south through the town of Mount Airy and into Montgomery County to Damascus, approximating the alignment of Ridge Road. In Damascus, the boundary follows MD 108 (Damascus Road, Laytonsville Road) to the town of Laytonsville, where it follows Woodfield Road (MD 124) in a southerly direction almost to Gaithersburg (Washington Grove vicinity). At the intersection of Woodfield and Muncaster Mill Road, the boundary changes direction to follow a southeasterly direction along Muncaster Mill Road and the eastern boundary of Rock Creek Park. South of Lake Bernard Frank, the boundary encircles Aspen Hill in a clockwise direction to MD 355. The boundary follows MD 355 and the METRO rail alignment up to the northern city limits of Rockville.

The southern SCEA boundary follows Falls Road in a southwestern direction of Democracy Boulevard, where it follows a northwestern direction along the shoreline of the Potomac River to the eastern boundary of Seneca Creek State Park.

The western boundary follows a roughly northern direction from the Potomac River to bisect the town of Poolesville, emerging from Poolesville along the Beallsville Road. At Beallsville, the boundary follows West Hunter Road before traversing through the Dickerson Conservation Area at the southern edge of the C&O Canal National Park to the Montgomery/Frederick County line. The boundary follows an approximately northern course from the county line, jogging west of



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

SCEA BOUNDARY

MTA Maryland

DATE: MAY 2002

FIGURE: III-50

Legend

SCEA

I-270

County

Roads

Water

Monocacy National Battlefield

Scale:

0 15,500 31,000 Feet

MD 85 and roughly following New Design Road to Buckeystown Road. The boundary crosses the MARC (CSX/AMTRAK) line west of New Design Road, turns westerly after crossing Ballenger Creek Pike, and crosses just north of the US 15/US 40 intersection. The boundary roughly follows Jefferson Boulevard, Ridge Road, and Gambrill Park Road to the northwestern corner.

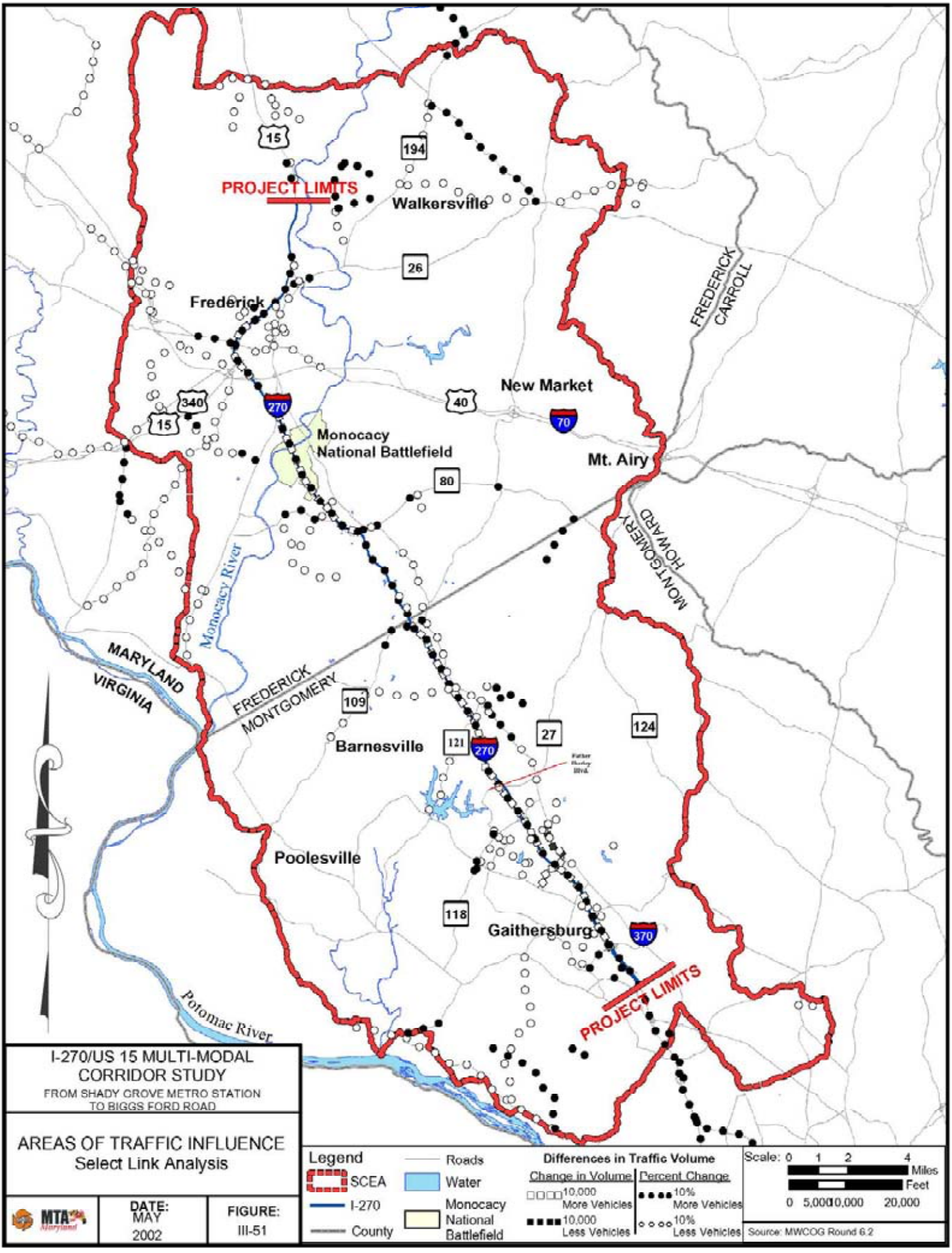
Each of the subjects studied and mapped to determine the geographic boundary for SCEA are explained below.

Areas of Traffic Influence -- The area of traffic influence is the geographic extent to which a project would affect traffic levels on roadways. For the I-270/US 15 project the areas of traffic influence were identified using two separate methods, select link analysis and regional screenline analysis; however, land use assumptions were the same for both analysis methods. The methods used indicate a similar area of influence and indicate the geographic extent to which the I-270/US 15 project would affect traffic volumes and travel patterns.

Select Link Analysis -- A select link analysis was completed by MWCOG to identify 2020 traffic volumes using projections for the No-Build Alternate and Alternate 5A. Alternate 5A was chosen for the analysis as it is anticipated to have the greatest difference in impact from the No-Build on future traffic operations. This analysis was conducted on the MWCOG Cooperative Forecast Round 6.1 land use assumptions for the region. The differences in traffic volumes (equal to or greater than 10,000 vehicles/± 10% difference in average weekday daily traffic (AWDT)) and travel patterns identified show the anticipated geographic extent of the traffic influenced by the project (**Figure III-51**). The area of traffic influence associated with the project is defined as those areas exhibiting a projected difference equal to or greater than 10,000 vehicles AWDT and is concentrated adjacent to the project limits and along the Corridor.

Regional Screenline Analysis -- Using a system of regional screenlines, a confirmation of the area of traffic influence was obtained by SHA. Three screenlines were established and evaluated for changes in traffic volumes: (1) north of the City of Frederick on US 15, (2) north of MD 118 on I-270, and (3) north of I-370 on I-270 (**Figure III-52**). A 1% difference in traffic volumes was observed north of the City of Frederick (screenline 1) and north of I-370 (screenline 3); a 5% difference was observed at the screenline 2 north of MD 118. Based on these observations, an area of traffic influence was established as the affected Transportation Analysis Zones (TAZs) (MWCOG Round 6.2 – 2161 zone system) adjacent to the I-270/US 15 Corridor.

Transportation Analysis Zones (TAZs) -- Transportation analysis zones are subdivisions of geographical areas that are delineated for land use and travel analysis purposes. TAZs are used by the MWCOG in their planning and analysis efforts. MWCOG uses the data for each TAZ to develop population and employment data and for future land use and development planning. Information on population and employment within Frederick and Montgomery counties was obtained from MWCOG by TAZ for use by the Land Use Expert Panel in their deliberations.



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

AREAS OF TRAFFIC INFLUENCE
Select Link Analysis

DATE:	FIGURE:
MAY 2002	III-51

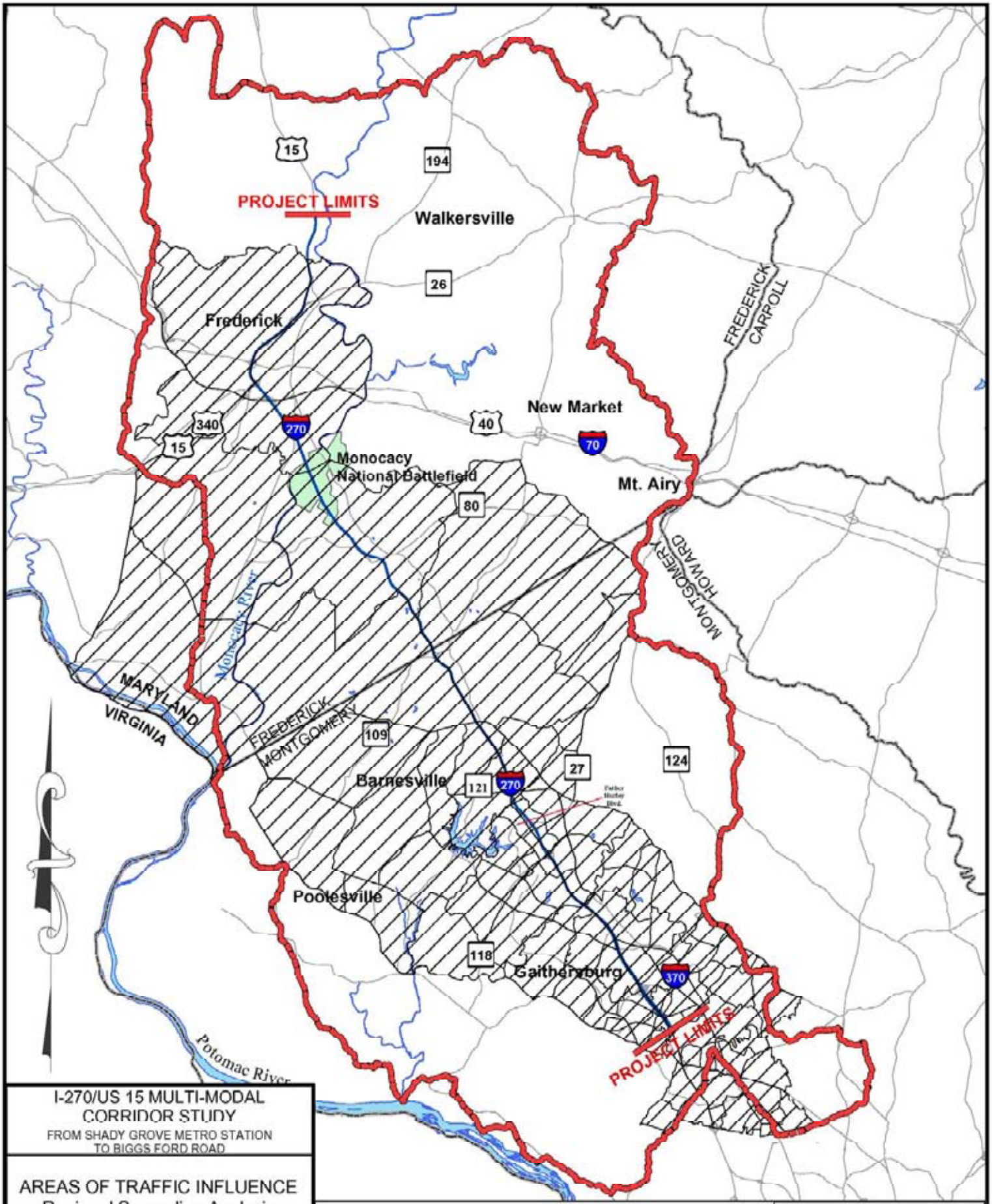
Legend
- SCEA
- I-270
- County
- Roads
- Water
- Monocacy National Battlefield

Differences in Traffic Volume

Change in Volume	Percent Change
10,000 More Vehicles	10% More Vehicles
10,000 Less Vehicles	10% Less Vehicles

Scale: 0 1 2 4 Miles
0 5,000 10,000 20,000 Feet

Source: MWCOG Round 6.2


15
194
PROJECT LIMITS
Walkersville
26
Frederick
FREDERICK
CARROLL
New Market
340
15
270
40
70
Monocacy
National Battlefield
Mt. Airy
80
MONTGOMERY
HOWARD
Monocacy River
MARYLAND
VIRGINIA
FREDERICK
MONTGOMERY
109
124
Barnesville
121
270
27
Poolesville
118
Gaithersburg
370
PROJECT LIMITS
Potomac River
I-270/US 15 MULTI-MODAL
CORRIDOR STUDY
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD
AREAS OF TRAFFIC INFLUENCE
Regional Screenline Analysis
DATE:
MAY
2002
FIGURE:
III-52
Legend
SCEA
I-270
County
Roads
Water
Monocacy
National Battlefield
Effected
Transportation
Analysis Zones
Scale:
0 1 2 3
Miles
Feet
0 9,500 19,000 28,500
Source: Mona Sutton, SHA

Census Tract Boundaries -- Census tracts within the SCEA area are shown on **Figure III-53** Census tract boundaries were reviewed during the boundary determination efforts, however they did not influence the SCEA boundary. Information regarding historic and projected changes in population, housing, employment and land use can be obtained based on US Census Bureau data.

Watersheds/Subwatersheds -- The I-270/US 15 Multi-Modal Corridor lies within the Potomac River Basin. The Basin is a watershed of approximately 12,000 square miles reaching into Virginia, Maryland, the District of Columbia, Pennsylvania, and West Virginia. Within the Potomac River Basin, the areas of traffic influence lie within the Middle Potomac Watershed and the Washington Metropolitan Watershed. Subwatersheds directly or potentially impacted by the project include: the Upper Monocacy River, the Lower Monocacy River, Seneca Creek, Rock Creek, and the Middle Potomac River (see **Figure III-54**). The Seneca Creek watershed is included in its entirety within the SCEA boundary. The Upper Monocacy, Lower Monocacy, Rock Creek and Middle Potomac watersheds were further subdivided. Selected sub-subwatersheds from these areas were included (Upper Monocacy numbers 0240, 0243, 0241, and 0242; all sub-subwatersheds in the Lower Monocacy except numbers 0235 and 0358; Rock Creek numbers 0837 and 0839; and Middle Potomac numbers 0848, 0846, and 0853).

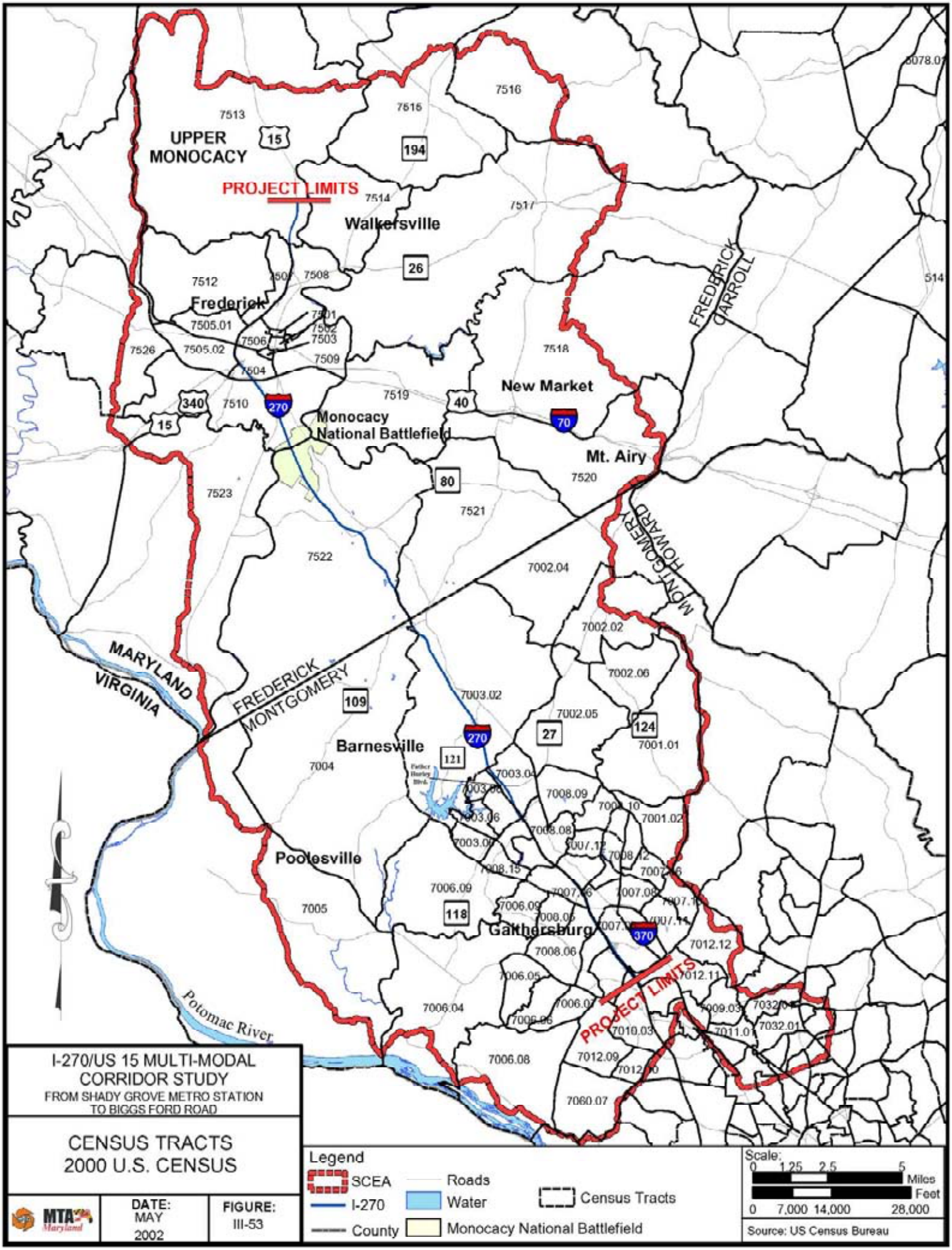
Parks -- Parks in the region of the project were identified and their boundaries were considered during the process of setting the SCEA boundary. No parks specifically influenced the SCEA boundary area. In the northwestern corner of the SCEA area, the areas of City of Frederick Municipal Farms and Gambrill State Park, although included within the boundary, are not anticipated to be affected by secondary or cumulative effects. Portions of the Dickerson Conservation Area and the C&O Canal National Historic Park, likewise included in the SCEA boundary, are not anticipated to be affected. Parklands within the SCEA boundary are shown on **Figure III-55**.

County Planning Area Boundaries -- The I-270/US 15 Multi-Modal Corridor project lies within the Urbana Region and the Frederick Region planning areas in Frederick County. In Montgomery County, the project lies in the I-270 Corridor Planning Area, and includes the community planning areas of Gaithersburg and Vicinity/Shady Grove, Germantown, and Clarksburg and Vicinity (including the Hyattstown Special Study Area). These planning areas are shown on **Figure III-56**.

Water and Sewer Service Locations -- The locations of current and planned public water and sewer service are shown in **Figure III-57**. Existing water and sewer service covers a total of 107.53 square miles within the SCEA boundary; future planned coverage will add an additional 43.73 square miles.

In Montgomery County, water and sewer service exists in the greater Gaithersburg, Germantown and Clarksburg areas. No new planned extensions of the existing service have been identified.

In Frederick County, existing service is found in greater Frederick City and environs, east of Frederick City in the Lake Linganore area, and in New Market and Mount Airy. North of the city, service is existing in Walkersville, Woodsboro and Libertytown. Water and sewer service area expansions are planned for each of these areas except Woodsboro and Mount Airy. New



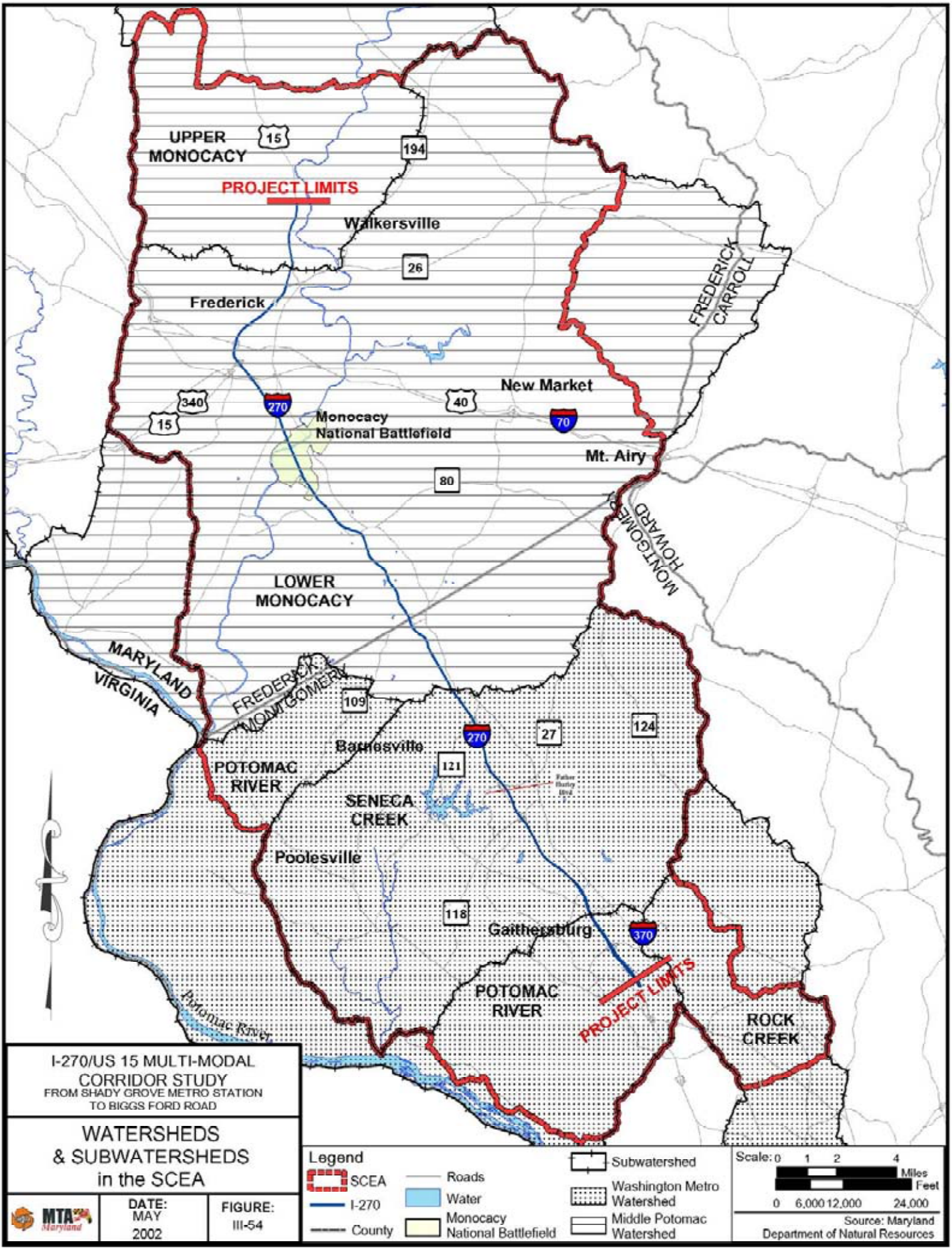
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

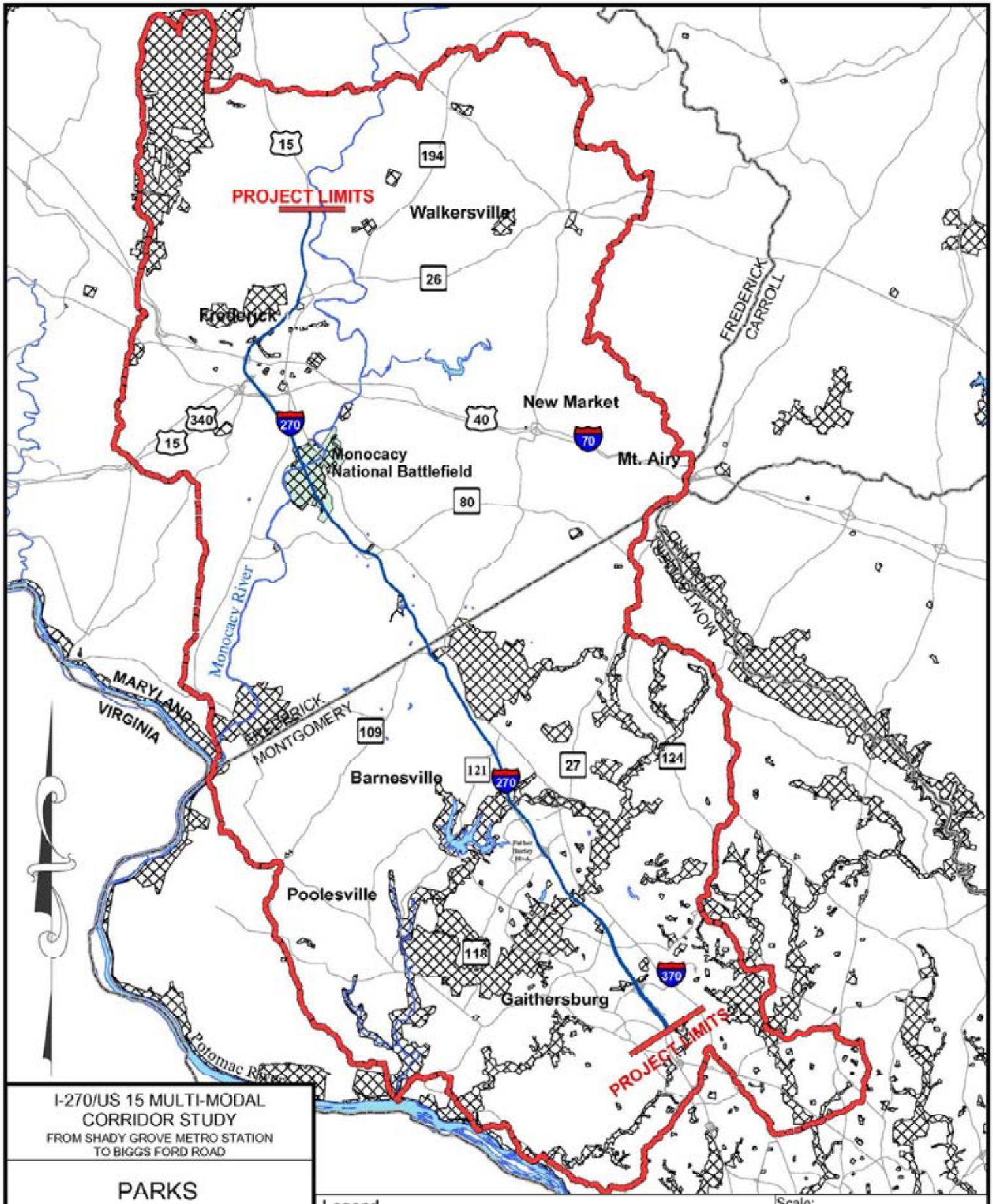
CENSUS TRACTS
2000 U.S. CENSUS

MTA Maryland

DATE: MAY 2002

FIGURE: III-53


UPPER MONOCACY
15
194
PROJECT LIMITS
Walkersville
26
Frederick
FREDERICK
CARROLL
New Market
340
15
270
Monocacy National Battlefield
40
70
Mt. Airy
80
MONTGOMERY
HOWARD
LOWER MONOCACY
MARYLAND
VIRGINIA
FREDERICK
MONTGOMERY
109
Barnesville
270
27
124
POTOMAC RIVER
121
SENECA CREEK
Poolesville
118
Gaithersburg
370
POTOMAC RIVER
PROJECT LIMITS
ROCK CREEK
Potomac River
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
WATERSHEDS & SUBWATERSHEDS in the SCEA
MTA Maryland
DATE: MAY 2002
FIGURE: III-54
Legend
SCEA
I-270
County
Roads
Water
Monocacy National Battlefield
Subwatershed
Washington Metro Watershed
Middle Potomac Watershed
Scale: 0 1 2 4 Miles
0 6,000 12,000 24,000 Feet
Source: Maryland Department of Natural Resources



I-270/US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

PARKS

Federal, State, County & Local

MTA Maryland

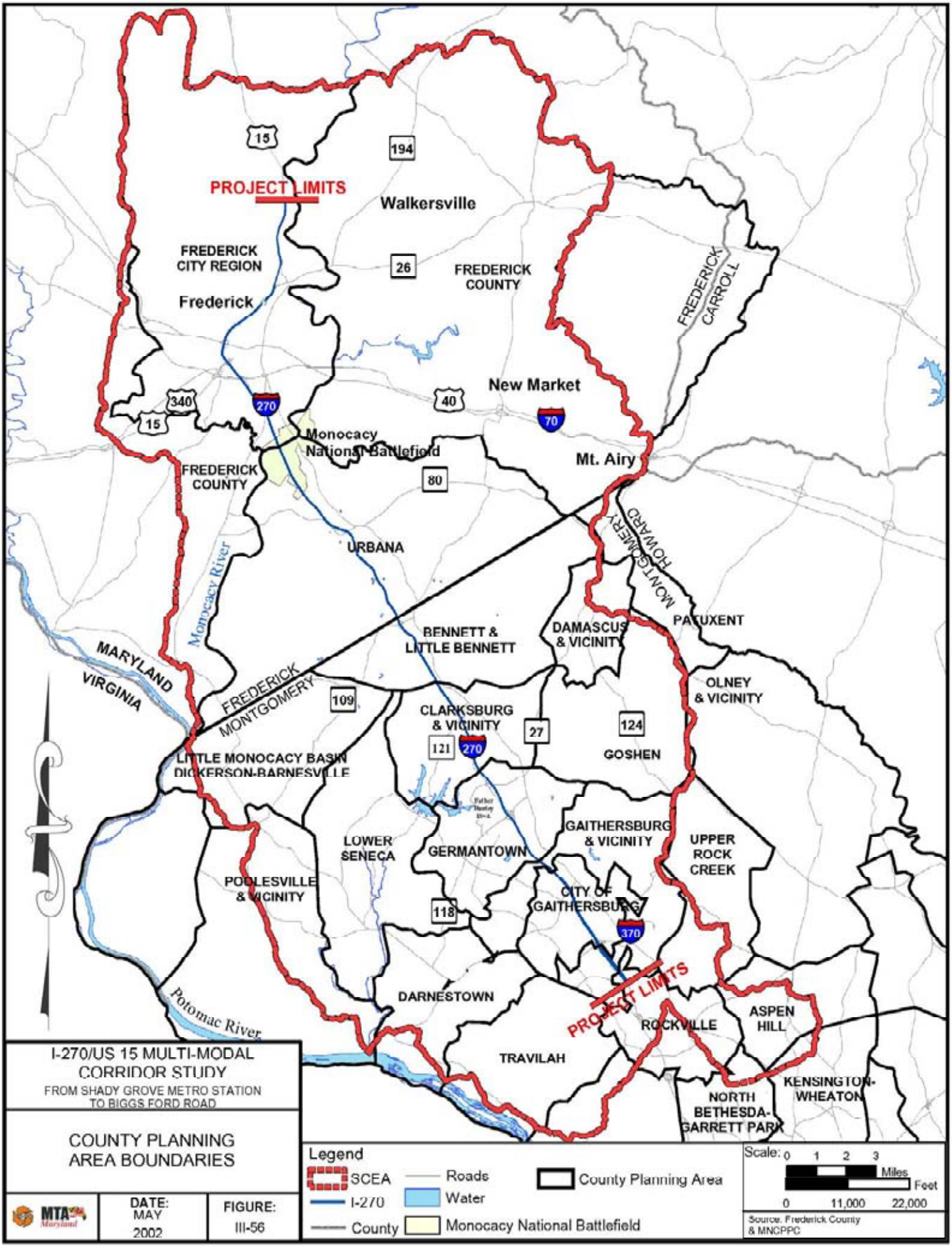
DATE: MAY 2002

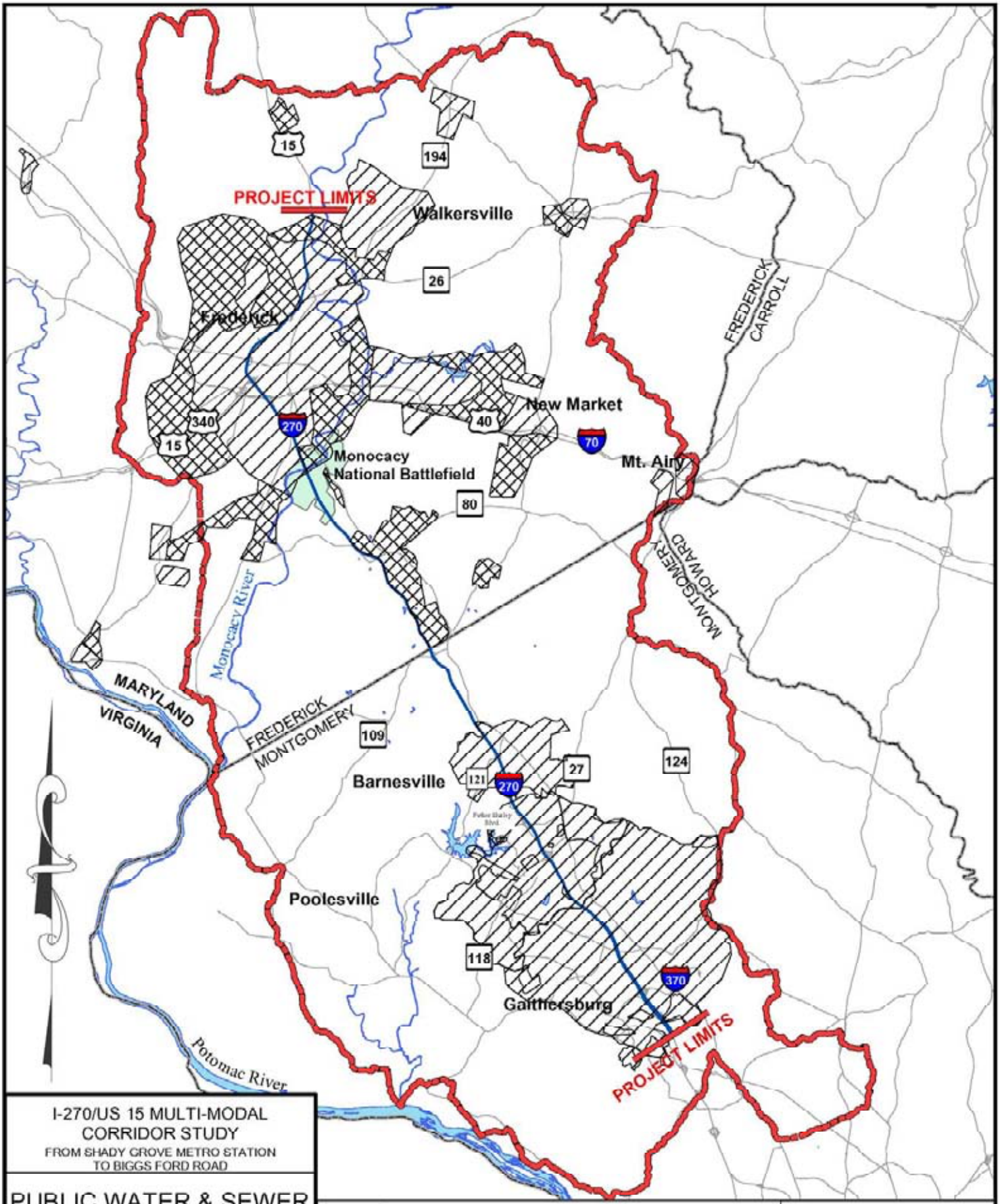
FIGURE: III-55

Legend
- SCEA
- I-270
- County
- Roads
- Water
- Monocacy National Battlefield
- PARKS Federal, State, County & Local

Scale:
0 1.25 2.5 5 Miles
0 7,000 14,000 28,000 Feet

Source: Maryland Department of Natural Resources


PROJECT LIMITS
Walkersville
FREDERICK CITY REGION
Frederick
FREDERICK COUNTY
FREDERICK
CARROLL
New Market
Monocacy National Battlefield
Mt. Airy
FREDERICK COUNTY
URBANA
Monocacy River
MONTGOMERY
HOWARD
PATUXENT
MARYLAND
VIRGINIA
BENNETT & LITTLE BENNETT
DAMASCUS & VICINITY
OLNEY & VICINITY
FREDERICK
MONTGOMERY
CLARKSBURG & VICINITY
GOSHEN
LITTLE MONOCACY BASIN DICKERSON-BARNESVILLE
GAITHERSBURG & VICINITY
UPPER ROCK CREEK
LOWER SENECA
GERMANTOWN
POOLESVILLE & VICINITY
CITY OF GAITHERSBURG
DARNESTOWN
PROJECT LIMITS
ROCKVILLE
ASPEN HILL
TRAVILAH
KENSINGTON-WHEATON
NORTH BETHESDA-GARRETT PARK
Potomac River
15
194
26
340
270
40
70
80
109
27
124
121
118
370
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
COUNTY PLANNING AREA BOUNDARIES
DATE: MAY 2002
FIGURE: III-56
Legend
SCEA
I-270
County
Roads
Water
Monocacy National Battlefield
County Planning Area
Scale: 0 1 2 3 Miles
0 11,000 22,000 Feet
Source: Frederick County & MNCPPC



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

PUBLIC WATER & SEWER SERVICE AREAS

MTA Maryland

DATE:	FIGURE:
MAY 2002	III-57

Legend

- SCEA
- I-270
- County
- Roads
- Water
- Monocacy National Battlefield
- Existing Service
- Planned Service

Scale: Miles 0 1.25 2.5 5; Feet 0 6,000 12,000 24,000

Source: Montgomery & Frederick County Master Plan

water and sewer service is planned along the I-270 Corridor on the east side only from Urbana/Centerville south to the Montgomery County line, in the Pleasant Grove area, along the MD 85 and Ballinger Creek areas southwest of Frederick City, and in Lewistown in the north.

Priority Funding Areas -- Several areas within Montgomery and Frederick counties have been identified as Priority Funding Areas (PFAs). These areas are sites within the counties where development is planned and focused on using existing infrastructure in an effort to reduce urban sprawl and thus preserve areas of primary agricultural farmlands or open space. The Maryland General Assembly's Policy on PFAs is discussed in previous sections. PFAs in Montgomery and Frederick counties are shown on **Figure III-58**.

Priority Funding Areas included in the SCEA boundary in Frederick County include portions of Frederick City and its immediate suburbs. Walkersville, Woodsboro, Libertytown, Lake Linganore, New Market and Mount Airy are on the I-70 Corridor to the east of Frederick City; Green Valley, Pleasant Grove, and Urbana are south of Frederick City. Adamstown, Buckeystown, and Church Hill are southwest of Frederick City. The Middletown area PFA lies west of Frederick City along the I-70 Corridor.

In Montgomery County, PFAs within the SCEA boundary include portions of the towns/cities of Rockville, Gaithersburg, and Germantown. The Hyattstown PFA is adjacent to and east of the project area. Barnesville, Dickerson, Beallsville and Poolesville are west of the Corridor, and Damascus/Kings Valley and Laytonsville lie to the east.

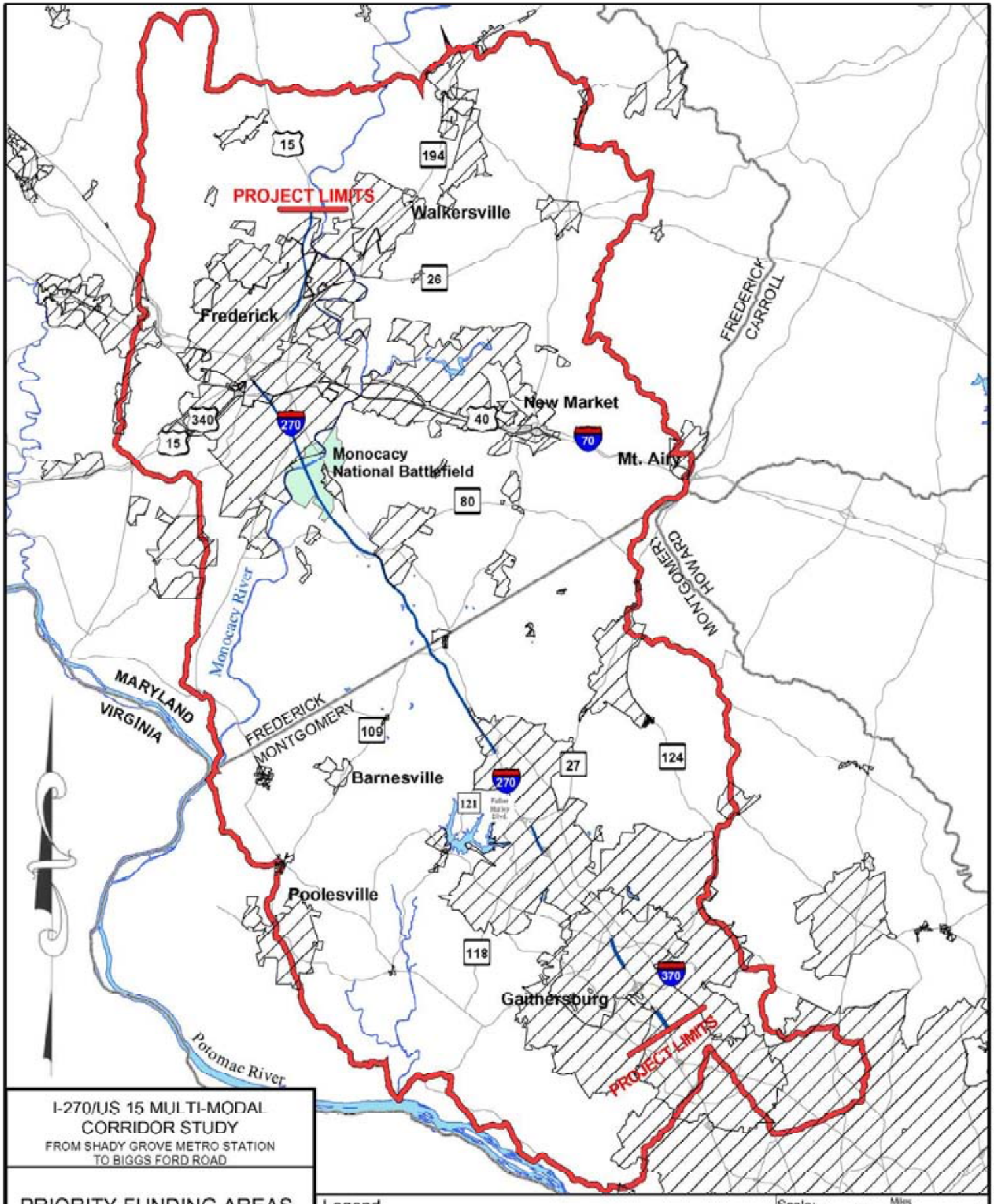
The SCEA boundary divides the Poolesville, Buckeystown, Adamstown, Middletown, Woodsboro, Mount Airy, Laytonsville, Gaithersburg and Shady Grove PFAs, including only portions of those areas. Although PFA boundaries were not utilized in determining the SCEA boundary, divided PFAs were considered in the analyses.

b. Temporal Boundary (Time Frame)

A review of historic population trends and employment data was undertaken to define the temporal boundary of the SCEA. The history of the interstate highway system generally and the I-70/I-270 highways in particular was examined to understand the role of the highway on the area. Population and employment data for Frederick and Montgomery counties and the cities of Frederick, Gaithersburg, and Germantown were compiled and reviewed.

History of I-270

The Interstate Highway System was created by the Federal Highway Act of 1954 and signed into law by President Eisenhower on May 6, 1954. Many existing roads were re-aligned and/or renamed as part of the Interstate system. The original four-lane road from Frederick to near Chevy Chase, US 240 (Washington National Pike) was completed in the late 1950s. The four-lane US 40 bypass of Frederick City was also completed and opened at that time. I-70 S followed the original alignment of US 240; the interstate opened around 1961 and the US 240 became MD 355). The Frederick by-pass, upgraded to six lanes, became I-70 in 1975. In 1973, I-70 S was renamed I-270.



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

PRIORITY FUNDING AREAS

Legend

- SCEA
- I-270
- County
- Roads
- Water
- Monocacy National Battlefield
- Priority Funding Areas

Scale: 0 1.25 2.5 5 Miles; 0 6,000 12,000 24,000 Feet

Source: Maryland Department of Planning

MTA Maryland

DATE: MAY 2002

FIGURE: III-58

I-270 was widened to six lanes from the y-split near Tuckerman Lane (south of the project area) to MD 118 in 1972. Six lanes were widened to twelve in 1989 from the y-split to I-370 and widened to eight lanes from I-370 to MD 118. Major reconstruction in the late 1980s widened I-270 to 14 lanes near I-495 (Capital Beltway). In the early 1990s, new interchanges were constructed at MD 124, Middlebrook Road and I-370; interchanges were added at I-70/MD 340/US 15 and at Father Hurley Boulevard in 1997. In 1997, widening to six lanes was completed from MD 118 to MD 121 and on the Y-split with I-70.

Historic and Projected Population Growth in the Region

Population data for Frederick County, Montgomery County and the State of Maryland was collected from the US Census Bureau files and reviewed for the decades of 1940 through 2020 (see **Table III-94**). The data for Frederick County shows increases in population fewer than 20% per decade through 1970. The decade from 1970 to 1980 saw an increase in population of 35%. This was followed by increases of 31% and 30% for the following two decades, more than doubling the county's population in 30 years. Estimates of future population growth for the county project a steadily declining but still substantial rate of increase.

In Montgomery County, the greatest increases in population were prior to 1970 (96% in the 1940-1950 decade, 107% in the 10 years from 1950 to 1960, and over 50% from 1960 to 1970). The county's population has continued to increase since 1970, but growth has not equaled the previous decades' rates. Estimates of future population growth for Montgomery County project a steadily declining moderate rate of increase.

Employment data, available from 1970 to 1990, was collected and reviewed (see **Table III-95**). The data shows substantial increases in employment in Frederick County and Montgomery County above that for the State of Maryland as a whole.

While the data does not point to a specific decade or event that influenced growth in the project area, a historic temporal boundary of 1970 is suggested to ensure that any influence of the establishment of I-270 (1973) would be captured and addressed.

The future temporal boundary for analysis was identified as the year 2025, the design year for the I-270/US 15 project. The ultimate goal of the SCEA was to identify the secondary and cumulative effects of the proposed project so that adverse impacts could be avoided or mitigated. The 55-year time span (1970 through 2025) identified is adequate to understand any issues associated with the project so that an analysis of the effects of the project can be studied.

TABLE III-94
REGIONAL POPULATION DATA, 1940 THROUGH 2020

Jurisdiction	1940	1950	1960	1970	1980
State of Maryland	1,821,244	2,343,001	3,100,689	3,922,399	4,216,975
Percent Change		*28.6*	*32.3*	*26.5*	*7.5*
Frederick County	57,312	62,287	71,930	84,927	114,792
Percent Change		*8.7*	*15.5*	*18.1*	*35.2*
Montgomery County	83,912	164,401	340,928	522,809	579,053
Percent Change		*95.9*	*107.4*	*53.3*	*10.8*
	1990	**2000**	**2010**	**2020**	
State of Maryland	4,781,468	5,296,486	Not available	6,274,000	
Percent Change	*13.4*	*10.8*	Not available	*18.9*	
Frederick County	150,208	195,277	238,300	281,700	
Percent Change	*30.9*	*30.0*	*23.1*	*18.2*	
Montgomery County	757,027	873,341	945,000	1,000,000	
Percent Change	*30.7*	*15.4*	*9.9*	*5.8*	

Source: *US Census Bureau website.*

TABLE III-95
REGIONAL EMPLOYMENT DATA, 1970 THROUGH 1990

Jurisdiction	1970	1980	1990
State of Maryland			
Total employment	1,702,301	2,074,539	2,760,811
Percent Change		21.9	33.1
Frederick County			
Total employment	33,438	44,176	72,622
Percent Change		32.1	64.4
Montgomery County			
Total employment	235,415	349,952	517,188
Percent Change		48.7	47.8

Source*: Fisher Library (Virginia) website. Regional Economic Information Services (REIS) database, prepared by the Bureau of Economic Analysis. Employment figures include both part-time and full-time employment.*

c. Other Projects

Planned or programmed projects that are located within the SCEA boundary have been identified for their consideration in cumulative effects on resources. This information is largely based on the Maryland Constrained Long Range Plan (CLRP), the Consolidated Transportation Plan (CTP), and development information provided to the Land Use Expert Panel. Some projects had more information readily available than others. Direct impacts from these projects in combination with the impacts from the I-270/US 15 Multi-Modal Corridor project add to cumulative effects within the SCEA boundary.

Developments Projects

Development projects considered were highlighted in the Land Use Expert Panel briefing book and are presented in **Table III-96** (Montgomery County) and **Table III-97** (Frederick County). The combined direct impacts of each of the projects may indicate cumulative effect within the SCEA boundary.

TABLE III-96
MONTGOMERY COUNTY DEVELOPMENT ACTIVITY

Location	Project Name	Size and Description
Shady Grove	Life Sciences Center expansion	130 acres, 156,000 sq. ft. remaining to be built; re-subdivision may allow an additional 1.3 million sq. ft. of research and development
	Belward Research Campus of the Johns Hopkins University	138 acres, 1.8 million sq. ft. office and research and development
	Traville	192 acres, 1.3 million sq. ft. of office, retail and related uses
	DANAC Station	25 acres, approximately 700,000 sq. ft.
	Decoverly Hall Station (NASDAQ)	10 acres, approximately 130,000 sq. ft. of non-residential use
Germantown	North Germantown Office Park	6.27 acres, 125,000 sq. ft. of office and restaurant
	Orbital Fairchild redevelopment site	Approximately 23 acres, redevelopment mixed use potential
	Milestone Business Park (ACTERNA)	98.9 acres, 874,750 sq. ft. office and manufacturing
	Seneca Meadows	156.5 acres, under construction
	Martens property	67 acres, potential 500 housing units, commercial and retail
	Far North Village	110.2 acres, 1,300,000 sq. ft.
	Germantown Town Center	44.7 acres, 555 housing units, 160,300 sq. ft. retail, hotel, theatre
	South Germantown Recreational Park	559 acres, soccerplex and regional recreation facilities
Clarksburg	Clarksburg Town Center	267.5 acres, 1,300 housing units, 250,000 sq. ft. commercial
	COMSAT/Lockheed Martin	154.3 acres, potential 4 million sq. ft. office
	DiMaio Property	373.33 acres, 1,200 housing units, 26,060 sq. ft. commercial
	Highlands at Clarksburg	16.1 acres, 75 housing units, 31,460 sq. ft. commercial
	Clarksburg Village	689.5 acres, 2,493 housing units, 33,000 sq. ft. commercial
	Clarksburg Triangle	22.86 acres (limited sewer availability, no plans submitted)
	Clarksburg Detention Center	300 acres, under construction

Source: *SHA I-270 Land Use Expert Panel, June 2001*

TABLE III-97
RESIDENTIAL DEVELOPMENT ACTIVITY IN FREDERICK COUNTY
(JANUARY 2000)

Location	Development Name	Description of Housing Units
Emmitsburg	Brookfield	141 single family units
	Emmit Ridge	88 housing units (80 single family, 8 townhouses)
	Pembroke	97 single family units
	Silo Hill	125 housing units (22 single family, 51 townhouses, 52 duplex)
	Southgate	36 single family units
Thurmont	Albert Courts	100 housing units (50 townhouses, 48 multi-family, 2 duplex)
	Bennet Estates	80 housing units
	Orchard Hills	102 single family units
	Parkview Manor	44 townhouses
	Woodland Park	136 single family units
Walkersville	Creekside	78 single family units
	Deerfield	285 single family units
	Sun Meadow	265 single family units
Liberty Town	Chestnut Ridge	99 single family units
	Liberty Village PUD	39 housing units (4 single family, 35 duplex)
Myersville	Canada Hill	90 single family units
	Deerwoods	30 single family units
Middletown	Brookridge South	90 single family units
	Foxfield	136 single family units
	Glenbrook	350 housing units (210 single family, 140 townhouses)
	North Pointe	64 single family units
MD 180 west of Frederick	Copperfield	125 single family units
Brunswick	Canal Run PUD	580 housing units (293 single family, 167 townhouses, 120 multi-family)
Point of Rocks	Sunrise	56 single family units
South of Frederick, west of I-270	Ballinger Crossing PUD	473 housing units (126 single family, 347 townhouses)
	Buckingham Hills	115 single family units
	Crestwood Village (includes Mountain Village)	1,040 housing units (439 single family, 267 townhouses, 296 multi-family, 30 duplex)
	Greenhill Manor	300 single family units

TABLE III-97 (CONTINUED)
RESIDENTIAL DEVELOPMENT ACTIVITY IN FREDERICK COUNTY

(JANUARY 2000)

Location	Development Name	Description of Housing Units
Urbana	Hanover	676 housing units (66 single family, 237 townhouses, 373 multi-family)
	Stonebridge	191 townhouses
	Wellington Trace	800 housing units (213 single family, 347 townhouses, 240 multi-family)
	Westview Park Urbana PUD	125 townhouses 3,421 housing units (1,457 single family, 1,419 townhouses, 545 multi-family)
Pleasant Grove	Ashley Acres	89 single family units
	Windsor Knolls	243 single family units
East of Frederick, I-70 Corridor	Eaglehead PUD at Lake Linganore	4,183 housing units (2,988 single family, 928 townhouses, 188 multi-family, 79 duplex)
	Fairways at Holly Hills	226 single family units
	Fairwinds	47 single family units
	Greenview PUD	449 housing units (296 single family, 153 townhouses)
	Preston	109 single family units
	River Oaks	90 single family units
	Spring Ridge PUD	1,852 housing units (827 single family, 571 townhouses, 454 multi-family)
	Winding Ridge	243 single family units
New Market/ Monrovia	Frederick Properties	100 single family units
	75-80 Dragway, Inc.	125 units (22 single family, 61 townhouses, 52 duplex)
	Stonelake	72 single family units
	West Oak Fields	118 single family units
	Worthington	46 single family units
	Meadows at New Market	212 single family units
	New Market West PUD	389 housing units (212 single family, 177 townhouses)
	Royal Oaks	120 single family units
Mount Airy	Harvest Ridge	214 single family units
	Manorwood	148 single family units
	Samhill Estates	141 single family units
	Twin Ridge	307 single family units
City of Frederick	Various	11,672 housing units (4,001 single family, 4,721 townhouses, 2,950 multi-family)

Source: *SHA I-270 Land Use Expert Panel, June 2001*

Existing non-residential development in Frederick County is located generally south of Frederick City. Non-residential business and industrial parks line MD 85, I-270/MD 355, MD 351, and US 15. Additional non-residential development located within or close to the SCEA boundary includes:

Kline-Weinberg Site and Mount Saint Mary's Tech Park in Emmitsburg

Thurmont Industrial Park in Thurmont
Bidle Industrial Park south of Myersville
Twin Ridge Professional Park in Mount Airy
Intercoastal Industrial Center in New Market
Woodsboro Industrial Park in Woodsboro

Non-residential development areas are identified in the Land Use Expert Panel briefing book as northeast of Frederick City (south of MD 26), the MD 85 area, and Urbana PUD in Frederick County.

Programmed Transit and Roadway Improvements within and adjacent to the Project Area

Planned roadway and rail transportation improvements within and adjacent to the project area are included in the No-Build Alternate. **Table III-98 and Table III-99** present the programmed transportation projects identified in Montgomery and Frederick counties, respectively. These projects are listed in the Maryland Consolidated Transportation Plan FY 2000 – 2005 (CTP) and in the MWCOG 2000 Constrained Long Range Plan (CLRP).

TABLE III-98
PROGRAMMED TRANSPORTATION PROJECTS IN MONTGOMERY COUNTY

I-270 (West Spur) - Reconstruct and upgrade the I-270 Spur Interchange at Democracy Boulevard and construct a new interchange at Fernwood Road. South of the immediate project area, interchange modifications at Democracy Boulevard will improve traffic operations. A partial interchange will be provided with Fernwood Road and the I-270 Spur to improve access to this developing area. Final engineering and right-of-way are underway, and construction is scheduled to begin during the state's budget fiscal year. Projected daily traffic is anticipated to increase to 177,000 vehicles in 2000 from the current (1998) 108,125. *Status: Under construction; anticipated completion Fall 2003*	CTP
Interchange Improvements at I-270/MD 124 – Construction is underway to close the I-270 southbound to MD 124 eastbound loop ramp and modify the I-270 southbound at MD 124 westbound ramp. A park and ride lot is included in the improvements to will eliminate a hazardous weave on I-270 and provide needed park and ride spaces in the Gaithersburg Area. *Status: Construction completed June 2001*	CTP
I-270/MD 117 Interchange Improvements are also currently in final engineering and right-of-way stage. This improvement to I-270 will construct a new northbound to eastbound ramp and park and ride lot at the interchange and widen MD 117. The project will provide park and ride spaces in the area and provide access to Olde Towne Gaithersburg. *Status: Issuing Notice to Proceed for Construction May 6, 2002; anticipated completion Summer 2004*	CTP
MD 355, currently under construction, will reconstruct MD 355 to a 6-lane divided highway from MD 124/Montgomery Village Avenue to Middlebrook Road. Included in the project are sidewalks and a separate bicycle/pedestrian facility on the west side of MD 355. (*MD CTP*) *Status: Construction completed August 2000*	CTP
I-270/Watkins Mill Road Extended Interchange – Construction of a new interchange is in the project planning stage. The project will support economic development and relieve existing congestion at the I-270/MD 124 interchange and the MD 355/MD 124 intersection. *Status: Finding of No Significant Impact (FONSI) signed December 10, 2001; Interstate Access Point Approval (IAPA) pending as of April 2002*	CTP
I-270 (East Spur) - South of the project area, final engineering and right-of-way are underway to construct a new interchange on I-270 at the Rockledge Drive Connector and upgrade the interchange at MD 187. Interchange construction is scheduled to begin during year 2000; reconstruction of MD 187 interchange is scheduled to begin in year 2001. *Status: Under construction; anticipated completion Fall 2003*	CTP

Note: *CTP – Maryland Consolidated Transportation Plan 2000-2005.*
Source: *Maryland State Highway Administration.*

TABLE III-99
PROGRAMMED TRANSPORTATION PROJECTS IN FREDERICK COUNTY

Interchange improvements to I-70 at MD 85 extended and MD 355 and intersection improvements at MD 914 and New Design Road will provide short term improvements in safety and congestion in the area east of the I-270/I-70 interchange.	CTP
Relocations of MD 355 and MD 80 north and south of Urbana includes reconstruction to 4 lanes to serve the development in Urbana. Construction is underway on MD 80; preliminary engineering is being performed on MD 355.	CTP, CLRP
MD 475, East Street Extended, opened in 2001. The construction of a 4-lane undivided roadway from East Patrick Street to South Street in Frederick City provides MARC station access for commuters and eventually is planned to extend to an I-70 interchange east of the project area.	CTP
MD 475, East Street Extended will continue the above project, extending East Street from South Street to the proposed Walser Drive and I-70. The project is in final engineering with right-of-way to begin during the current fiscal year. This project is east of the I-270/US 15 project area.	CTP
I-70 from Mt. Phillip Road to MD 144 is a 5.3-mile study to upgrade this portion of I-70. Improvements include widening of the 4-lane section and reconstruction of interchanges to improve safety. The project is in final engineering and partial right-of-way phases.	CTP, CLRP
I-70 and I-270 Interchange is programmed to provide missing movements and upgrade acceleration and deceleration lanes. The programmed improvements are under construction.	CTP
MD 85, Buckeystown Pike is under study to upgrade to a 4-lane divided highway from English Muffin Way to Spectrum Drive to relieve congestion and provide capacity for the planned commercial development in the Corridor.	CTP, CLRP
Widening of New Design Road from 2 to 4 lanes is under construction on 2.2 miles of roadway between Elmer Derr Road and Adventist Drive; an additional one mile of roadway is being upgraded with a completion date of 2002. Bicycle and pedestrian accommodations are included.	CLRP
MARC Commuter Rail Service to Frederick will provide for new 13.5-mile service from Point of Rocks to City of Frederick, including a downtown Frederick and suburban station. The service extension will connect to the Brunswick Line providing access to Washington, DC.	CLRP

Note: *CLRP – MWCOG 2000 Constrained Long Range.*
CTP – Maryland Consolidated Transportation Plan 2000-2005.

I-70 from Mt. Phillip Road to MD 144 – This project upgrades existing I-70 in several phases. The segment of the roadway from MD 144 to I-270 included widening by one lane in each direction adjacent to the outside lanes. Between I-270 and Mt. Phillip Road, the widening (one lane in each direction, will be within the existing median. NEPA approval for the project was granted prior to April 6, 1992. Phase I provided for missing movements at the US 15/US 340 interchange and was completed in 1997. Environmental Documentation not indicated in CLRP. Phase I A includes construction of some missing movements at the interchanges, a third lane on westbound I-70, dualization of ramps, construction of five new bridges and widening and/or redecking four bridges, reconstruction of the New Design Road overpass, construction of MD 914 (relocated), and improvement of the MD 914/New Design Road intersection. A FONSI was approved for this phase of the project. Construction in under way and is scheduled to be completed in 2003. Phase II A will include the construction of relocated MD 85 at the MD 355 intersection and includes the MD 85 Extended bridge over I-70, ramps, and widening of MD 355 from south of I-70 approximately 2,000 feet. A FONSI was approved for this phase, scheduled for completion in 2006. Phases II through IV would complete the project and a FONSI was approved. Phases II – IV are scheduled for completion in 2010.

Certain design improvements were submitted. An August 4, 2000 reevaluation for consistency of the Current Design improvements with those approved in the various FONSI documents shows a change in impacted wetlands from 3.5 acres to 0.86 acre, the acquisition of one additional business property (for a total of three businesses), one residential acquisition, no adverse effects to cultural resources, and an increase to 2.53 acres of temporary parkland impacts and 0.3 acre of revertible parkland impacts.

I-270 at Watkins Mill Road Extended – The I-270 project at Watkins Mill Road Extended investigated various alternates to improve access between I-270 and the existing transportation network in northern Gaithersburg. In the project planning phase, the project provides needed improved access to accommodate economic development planned in designated growth areas (PFAs) of northern Gaithersburg. In addition, it addresses improved access (multi-modal) to the Metropolitan Grove MARC station to facilitate increased transit use. The Environmental Assessment/Section 4(f) Evaluation evaluated alternate methods to improve traffic operations for locally oriented traffic in the project area. Improvements addressed safety and capacity requirements to alleviate existing deficiencies and accommodate projected traffic increases.

Social and economic environments would be improved. Approximately 68 acres of additional right of way will be required. No residential or business displacements are anticipated. Up to 6 acres of Seneca Creek State Park and Middlebrook Park may be impacted. Between 9 and 10 stream crossings would be required; 30 acres of woodlands, less than 1 acre of non-tidal palustrine wetlands, and up to 6 acres of the 100-year floodplain will be impacted. Noise levels will approach or exceed FHWA 67 dBA under both Build and No-Build conditions at two noise-sensitive areas.

I-270 at MD 117 Interchange – This project, to improve traffic flow on the I-270 mainline and at the interchange of I-270/MD 117 and will provide a new park and ride lot at the interchange. A Categorical Exclusion (CE) was approved for the project.

MD 117 Corridor Study – This planning study addresses short- and long-term safety and capacity issues along a 1¾-mile portion of the MD 117 corridor between I-270 and east of Game Preserve Road. The three proposed build alternatives have the potential for impacts to 75 to 125 linear feet of Waters of the US, 0.1 acre of wetlands, 1.9 acres of 100-year floodplain and 4 significant trees. There is also the potential to impact 56 properties with between 3.9 and 4.9 acres of right-of-way impacts. Interim improvements are funded for construction in 2003.

MD 28, Darnestown Road from Riffle Ford Road to MD 119 – This improvement of Darnestown Road will widen the two-lane minor arterial to 4 lanes between Riffle Ford and Muddy Branch Roads and to 6 lanes between Muddy Branch Road and MD 119. The widening will accommodate existing high traffic volumes and provide better access to planned residential development projects in the area. The project includes, along selected portions of the widening, a hiker/biker trail on the north side of the roadway and sidewalks. An FEIS was approved prior to April 6, 1992; the project is scheduled to be completed in 2004.

MD 118 Extended – This project, from Scenery Drive to M-83/Watkins Mill Road will provide capacity and safety improvements for residents east of I-270, and provides an important

connection to I-270 and MD 355. A bike path and sidewalks are included in the project. A portion of the project, from Scenery Drive to MD 355, was completed in 1996; no environmental review was completed. The completion of the project as a 6-lane roadway is scheduled for completion in 2020. No resource impacts analysis is completed at this time.

MD 355 from MD 124/Montgomery Village Avenue to Middlebrook Road – This project widened the existing roadway to a 6-lane divided highway to serve the developing area and relieve congestion. A FONSI was approved prior to April 6, 1992. The impacts were re-evaluated and the FONSI reapproved on November 24, 1995. Environmental effects include impacts to 2 acres of floodplain, less than 1 acre of wetlands, and approximately 8 acres of woodland. There will be three residential displacements and a total of 17 acres of right-of way acquisition with the completion of the project.

New Design Road from Elmer Derr Road to Adventist Drive – This Frederick County project will widen 2.2 miles of roadway from 2 lanes to 4 lanes and upgrade additional roadway. No environmental documentation is available. This project is not included in the TIP.

Father Hurley Boulevard/Ridge Road – This project provides for widening Father Hurley Boulevard/Ridge Road to a 6 lane divided highway from the eastern gore of the I-270 interchange to north of MD 355; a second link from Wisteria Road to MD 118 Relocated is included in the project. The second link is currently funded for planning. Environmental documentation has been completed at this time.

MD 80/MD 355 Relocated – This project east of I-270 and north and south of Urbana will serve the rapid development of the Urbana area and provide needed capacity on MD 80 and MD 355. The MD 355 project, to construct a 4-lane roadway, has an EA proposed for preparation. For the project for MD 80, relocation to east of MD 255 and as a 4-lane highway with bicycle and pedestrian accommodation, a FONSI has been approved.

MD 85 (Buckeystown Pike) from English Muffin Way to Spectrum Drive – An Environmental Assessment has been proposed for the widening of MD 85 to 4-lanes in this area. The project is scheduled for completion in 2025. The two proposed build alternatives have the potential for impacts to 1,490 to 1,500 linear feet of Waters of the US, 0.1 acre of wetlands, 2.4 acres of 100-year floodplain and between 2.6 and 2.9 acres of woodland. There is also the potential for right-of-way impacts to a total of 14.9 to 17.5 acres, affecting 67 properties and requiring 5 commercial and 0 to 2 residential displacements.

MARC Service Extension to Frederick Maryland – Extension of the MARC Commuter Rail Service from Point of Rocks to the City of Frederick will provide new commuter service along this 13.5-mile corridor. The project includes a downtown Frederick station and a suburban station. The service extension will connect to the Brunswick Line providing access to Washington, D.C. An Environmental Assessment was completed in October 1994. The service is scheduled to open for use in mid-December, 2001.

According to the EA, social and economic environments would generally be improved with either of the build alternates. Approximately 42 acres of additional right of way will be required;

there are no displacements of businesses or residences. The new service will operate on an existing active freight line (CSXT). Four noise sensitive receptors would not be impacted substantially differently (58 to 72 dBA) from levels already experienced (62 to 70 dBA). The EA determined that at several locations in suburban Frederick, traffic will be adversely affected. At other locations, traffic would be improved.

Only temporary impacts to Waters of the US are anticipated as the existing culverts carrying intermittent streams are modified. Some track bed reconstruction will require the removal of adjacent trees and shrubs; new alignments will require the mitigation of "several acres of wooded areas".

MD 475, East Street Extended – This project for construction of a 4-lane roadway from East Patrick Street to the proposed I-70/Walser Drive Interchange is in final engineering and right of way procurement stages (the section from East Patrick Street to South Street opened in 2001). An Environmental Assessment/Section 4(f) Evaluation was submitted in July 1998; FONSI approval was granted on 12/3/98. The project provides access to the proposed MARC rail station (see MARC Service Extension to Frederick Maryland, above) and provides a "Gateway" from I-70 to the City of Frederick.

Socioeconomic impacts associated with the project included the relocation of one business and removal of one "outbuilding"; total right of way acquisition is between 8.3 and 8.7 acres. Effects to the natural environment are limited to the removal of 1.8 to 2.1 acres of wooded area. A portion of the project lies within the Frederick Historic District as expanded in 1987. Of the required right of way acquisition, 3.73 to 3.77 acres lie within the historic district boundary and the "outbuilding" is listed as a contributing resource. The SHPO has concurred with the impact and potential mitigations.

An August 4, 2000 reevaluation of the project in light of new design improvements indicate that the Current Design will affect 3.45 acres of forest habitat when compared to the previous alternates; no additional changes in impacts was identified to the historic district.

Montgomery County Development Activity – The various projects listed in **Table III-95** will impact a total of approximately 3,400 acres.

Frederick County Residential Development Activity – The various housing projects listed in **Table III-96** are private development enterprises and represent a total of 31,572 housing units.

d. Analysis Methodology

A combination of analysis methodologies was employed to fully assess and qualify secondary and cumulative effects. Analysis of historic effects included research and review of published literature on the region and census information at the census tract level. Geographic Information Systems (GIS) mapping was obtained or created for the SCEA boundary area and was used to understand and document conditions. Potential changes in land use were studied with the aid of local and regional plans. MWCOG has recently undertaken an extensive study of future land use in the region for its air conformity analyses. This study was a team effort involving MWCOG

and local jurisdictions. The MWCOG land use projections were the basis of the current analysis. Land use experts, professionals familiar with the region and experienced in historical land use and changes in the Corridor, were empanelled to provide their opinions about future growth in the region. The land use experts were further charged to provide an understanding of potential development outside of that which was planned or programmed.

The secondary and cumulative effects analyses were based on data that was readily available and not necessarily based on a comprehensive data set. Therefore, some conclusions drawn from this analysis are qualitative. Below is a review of the methods used for this analysis.

Trend analysis

Trend analysis was used to identify effects over time and to project future cumulative effects. Historic data was collected and compiled to understand past effects and the rate at which these effects occurred. This information was used to project future effects.

Interviews

Information from Federal, state, regional and local agency staff not readily available in published documents was collected for use during the Expert Land Use Panel's deliberations. This was especially helpful in critically reviewing potential and forecasted development. In addition, the entire Land Use Expert Panel effort is considered a critical component of the information upon which the analysis was built.

Overlays

Overlays were used to combine land use projections with land use controls such as zoning, critical areas, and natural environmental constraints to create a reasonable, foreseeable, future scenario to analyze.

2. Past, Present and Future Land Use Conditions

a. <u>Land Use</u>

Secondary and cumulative effects most often occur as a result of changes in land use. In order to identify potential future land use in the region SHA established a panel of land use experts to address this issue. The Expert Land Use Panel (the Panel) was composed of knowledgeable local and national experts who used their expertise as well as a comprehensive set of background materials to evaluate the changes that could result from alternate highway and transit improvements proposed along the I-270/US 15 Corridor in Upper Montgomery and Frederick counties. The Panel is described in detail in their Final Report a copy of which appears in **Appendix G.** The Panel was asked to allocate future employment and population growth (for the year 2025) to 19 Forecast Zones for four specific transportation alternates that have been developed as part of the Corridor Study.

The project team took the population and employment forecasts developed by the panel and used them to identify potential changes in future land use. The differences in population and

employment resulting from the build alternates may indicate changes in land use that could result in secondary and cumulative impacts to resources.

Land Use Expert Panel Study Area

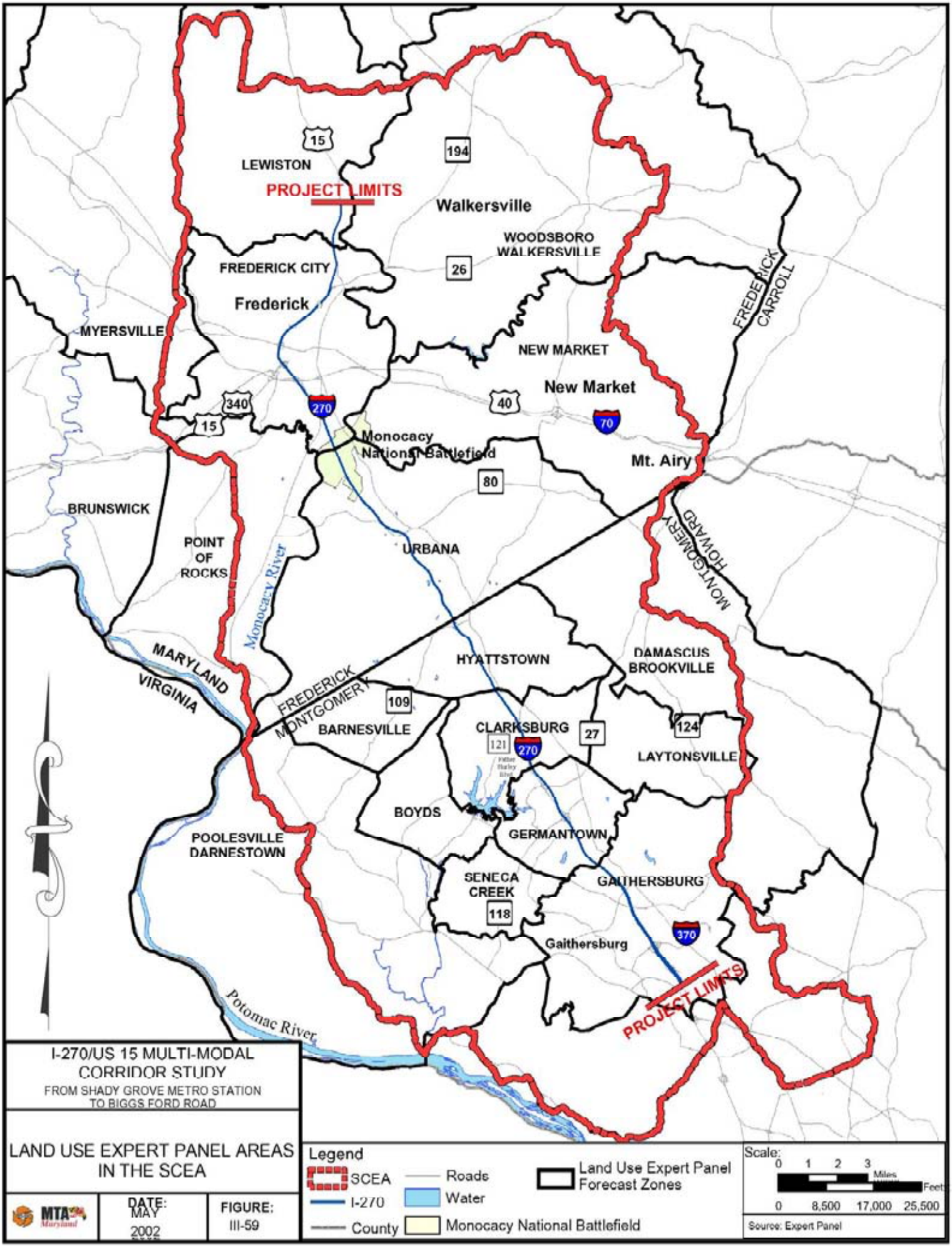
The area of study for secondary and cumulative effects and the rationale for selecting the included area has been described above. The Land Use Expert Panel study area for determining the potential future land use was not identical to that area encompassed within the SCEA boundary. The panel's study area was delineated with the objective to consider likely locations and intensities of future development within 19 Forecast Zones selected by the panel development team. These forecast zones were built upon the MWCOG's Transportation Analysis Zones (TAZs) and provided the opportunity to allocate growth without being restricted to a specific boundary area.

The panel study area included all of Frederick County and a significant portion of upper Montgomery County. The SCEA boundary encompasses a smaller portion of Frederick County and differs in the extent of coverage in upper Montgomery County. An overlay comparison of the two study areas showing the 19 forecast zones is included as **Figure III-59**.

The SCEA boundary did not include forecast zone 1 (Thurmont) in its entirety. Zones 2 (Myersville-Burkittsville) and 6 (Brunswick) in Frederick County are outside of the SCEA boundary except for small portions of the zones. Zone 14 (Laytonsville) in Montgomery County was included within the SCEA boundary except for a small area. Forecast Zones 5, 8, 11, 12, 15, 16, 17, 18, and 19 are included in their entirety within the SCEA boundary as are portions of Forecast Zones 3 (Lewistown), 4 (Woodsboro-Walkersville), 7 (Point of Rocks), 9 (New Market), 10 (Damascus-Brookville), and 13 (Poolesville-Darnestown). The SCEA boundary also covers a small portion of Montgomery County to the south of the panel's study area in Potomac and Rockville. The panel made no allocations for growth of either population or employment outside of their forecast zones.

Alternates Considered

The Land Use Expert Panel was provided with four transportation alternates to consider which relate to, though not exactly, the alternates proposed for the I-270/US 15 Multi-Modal Corridor Study. The differences between alternates considered are presented below. Based on the relatively small differences in population and employment forecasts by the panel for the No-Build and build alternates for the study area as a whole, the project team determined that the differences between the alternates the panel studied and the specific project alternates proposed would not create substantial differences in land use. Therefore, additional refinement of the panel's findings based on the differences in alternates was not deemed necessary in order to analyze the potential secondary and cumulative effects on resources. A description and comparison of the alternates is provided below.



I-270/US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

LAND USE EXPERT PANEL AREAS IN THE SCEA

Legend

SCEA
I-270
County
Roads
Water
Monocacy National Battlefield
Land Use Expert Panel Forecast Zones

Scale:

0 1 2 3 Miles

0 8,500 17,000 25,500 Feet

Source: Expert Panel

MTA Maryland

DATE: MAY 2002

FIGURE: III-59

b. Land Use Expert Panel Alternates Considered

Base Case Master Plan: This alternate (BCMP) is based on the transportation improvements described in the Montgomery and Frederick County Master Plans. It includes some additional road construction and transit that is not included in the No-Build.

Alternate 1 (No-Build): This alternate envisions no new construction beyond minor improvements already programmed. An example of a minor improvement is the extension of Shockley Drive to Spectrum Drive in the I-270 Technology Park. The extension would provide a more direct connection between two office parks located on either side of I-270 and would relieve traffic congestion in the vicinity of the MD 85/I-270 interchange.

Alternate 2 (LRT and Highway): This alternate calls for highway improvements in both counties and the construction of LRT from the southern end of the Corridor north to MD 121 in Montgomery County.

Alternate 3 (Bus, HOV, and Highway): Under this alternate, additional bus service on the HOV lanes is proposed for both counties. The highway improvements will be the same as those in Alternate 2.

Proposed Alternates

Transportation improvement alternates developed to address the project needs are described in **Chapter II, Alternates Considered**. Alternates include:

Alternate 1 (No-Build Alternate)
Alternate 2 (TSM/TDM Alternate)
Alternate 3A (Master Plan HOV/LRT Alternate)
Alternate 3B (Master Plan HOV/BRT Alternate)
Alternate 4A (Master Plan General-purpose/LRT Alternate)
Alternate 4B (Master Plan General-purpose/BRT Alternate)
Alternate 5A (Enhanced Master Plan General-purpose/LRT Alternate)
Alternate 5B (Enhanced Master Plan General-purpose/BRT Alternate)
Alternate 5C (Enhanced Master Plan General-purpose/Premium Bus Alternate)

Detailed descriptions of each alternate are presented in **Section II.C**, Alternates Retained for Detailed Study.

Comparison of Alternates

The differences in the alternates considered by the panel and those proposed for the project are best described geographically. Note that Bus Rapid Transit on the CCT was not considered by the panel, and therefore Alternates 3B, 4B and 5B are not represented in their findings. Additionally, TSM/TDM Alternate measures were not considered by the panel and therefore are also not reflected in their findings.

Shady Grove Road to MD 124: The Base Case Master Plan considered by the panel (three general-purpose lanes, an HOV lane, two C-D lanes and LRT northbound, and four general-purpose lanes, an HOV lane and LRT southbound) is not a proposed alternate for this project. Alternate 1 considered by the panel is virtually the same as Alternate 1 proposed in the I-270/US 15 study. Alternate 2 considered by the panel (three general-purpose lanes, an HOV lane, two C-D lanes and LRT in each direction) is virtually the same as Alternates 3A, 4A and 5A proposed. Alternate 3 considered by the panel (three general-purpose lanes, an HOV lane, two C-D lanes and bus in HOV lane in each direction) is virtually the same as Alternate 5C proposed.

MD 124 to Father Hurley Boulevard: The Base Case Master Plan considered by the panel, (three general-purpose lanes, an HOV lane and LRT in each direction) is not a proposed alternate for this project. Alternate 1 considered by the panel is virtually the same as Alternate 1 proposed. Alternate 2 considered by the panel (three general-purpose lanes, an HOV lane, two C-D lanes and LRT in each direction) is virtually the same as Alternates 3A, 4A and 5A proposed. Alternate 3 considered by the panel (three general-purpose lanes, an HOV lane, two C-D lanes and bus in HOV lane in each direction) is virtually the same as Alternate 5C proposed.

Father Hurley Boulevard to MD 121: The Base Case Master Plan considered by the panel (three general-purpose lanes, an HOV lane and LRT in each direction) is not a proposed alternate for this project. Alternate 1 considered by the panel is virtually the same as Alternate 1 proposed. Alternate 2 considered by the panel (three general-purpose lanes, an HOV lane and LRT in each direction) is similar to Alternates 3A, 4A and 5A proposed, however the proposed alternates include an additional general-purpose lane in each direction. Alternate 3 considered by the panel (three general-purpose lanes, an HOV lane and bus in HOV in each direction) is similar to Alternate 5C proposed, however, the proposed alternate includes an additional general-purpose lane in each direction.

MD 121 to I-70: The Base Case Master Plan considered by the panel (two general-purpose lanes and an HOV lane in each direction) is virtually the same as Alternate 3A proposed. Alternate 4A proposed is similar to the Base Case Master Plan alternate considered by the panel, except that the HOV lane shown in the BCMP alternate is proposed as a general-purpose lane in Alternate 4A. Alternate 1 considered by the panel is virtually the same as Alternate 1 proposed. Alternate 2 considered by the panel (three general-purpose lanes and an HOV lane in each direction) is virtually the same as Alternates 5A and 5B proposed. Alternate 3 considered by the panel (three general-purpose lanes, an HOV lane and bus in HOV in each direction) is virtually the same as Alternate 5C proposed.

I-70 to Jefferson Street: The existing roadway in this location provides an auxiliary lane in each direction, this auxiliary lane is not reflected in Alternate 1 considered by the panel though is included in Alternate 1 proposed. The Base Case Master Plan, Alternate 2 and Alternate 3 all provide 3 general-purpose lanes in each direction, Alternates 3A, 4A, 5A and 5C are similar, except that they provide an additional auxiliary lane in each direction as well.

Jefferson Street to Biggs Ford Road: Alternate 1 considered by the panel is virtually the same as Alternate 1 proposed. The Base Case Master Plan, Alternate 2 and Alternate 3 considered by

the panel provide 3 general-purpose lanes in each direction and an auxiliary lane in each direction between Jefferson Street and MD 26, and are virtually the same as Alternates 3A, 4A, 5A and 5C proposed.

Land Use Expert Panel Forecasts of Population and Employment

The panel's analysis consisted of forecasting future population and employment in the study area and allocating this future population and employment to 19 forecast zones. The differences in population and employment resulting from the build alternates may indicate changes in land use that could result in secondary and cumulative impacts to resources.

Study Area Forecasts

Looking at the study area as a whole, population and employment allocations follow similar trends as shown in **Figure III-60** and **Figure III-61**. Population and employment allocations between the No-Build Alternate and the BCMP forecast for the study area were virtually the same. Differences between the two build options used by the panel were negligible.

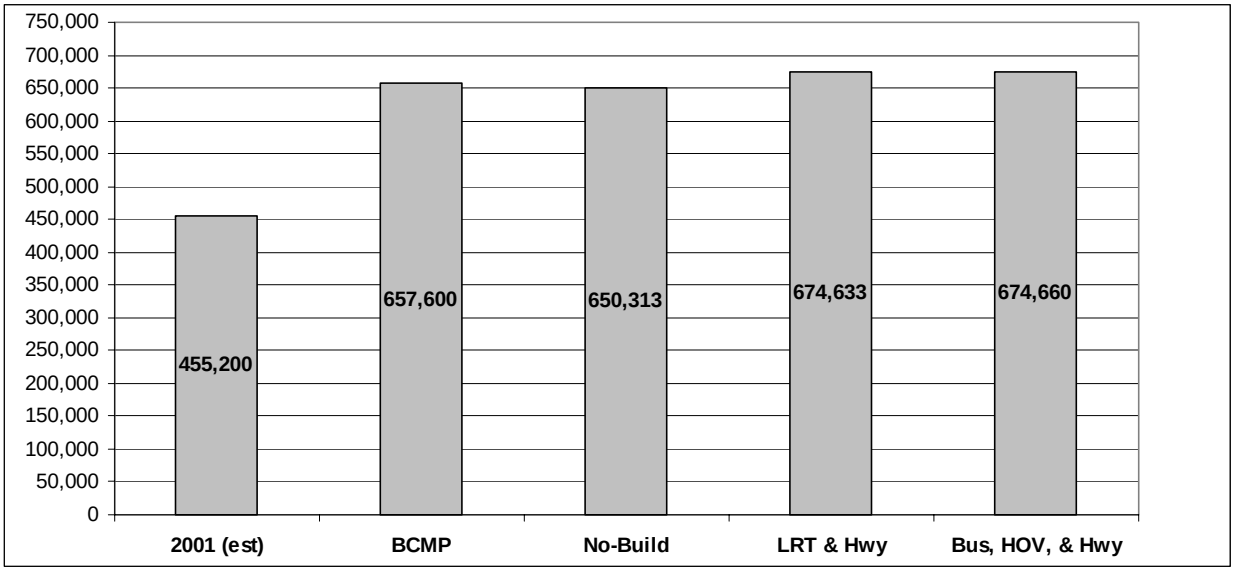
The build alternates have higher panel allocations than the No-Build Alternate. The difference in population estimates between the build alternates and the No-Build is about 24,000 more people, an increase of about 4%. Employment projections for the build alternates represent an increase over the No-Build of about 12,000 jobs, or an increase of 3%.

c. Forecast Zone Allocations

Table III-100 indicates differences in Panel Allocations between build alternates. According to the report of the Land Use Expert Panel's work, the build alternates have the greatest impact to population, when compared to the No-Build Alternate, in three zones that straddle I-270. The Clarksburg zone (#15), Germantown (#17) and Urbana (#8) zones each straddle I-270 and are forecast to have some of the highest absolute increases in population with the two build alternates. The Lewistown zone (#3) to the north of Frederick City, was projected to have an increase in absolute population as well. The four zones showing the greatest impact to employment with the two build alternates, when compared to the No-Build Alternate, were the Germantown (#17), Clarksburg (#15) and Urbana (#8) zones.

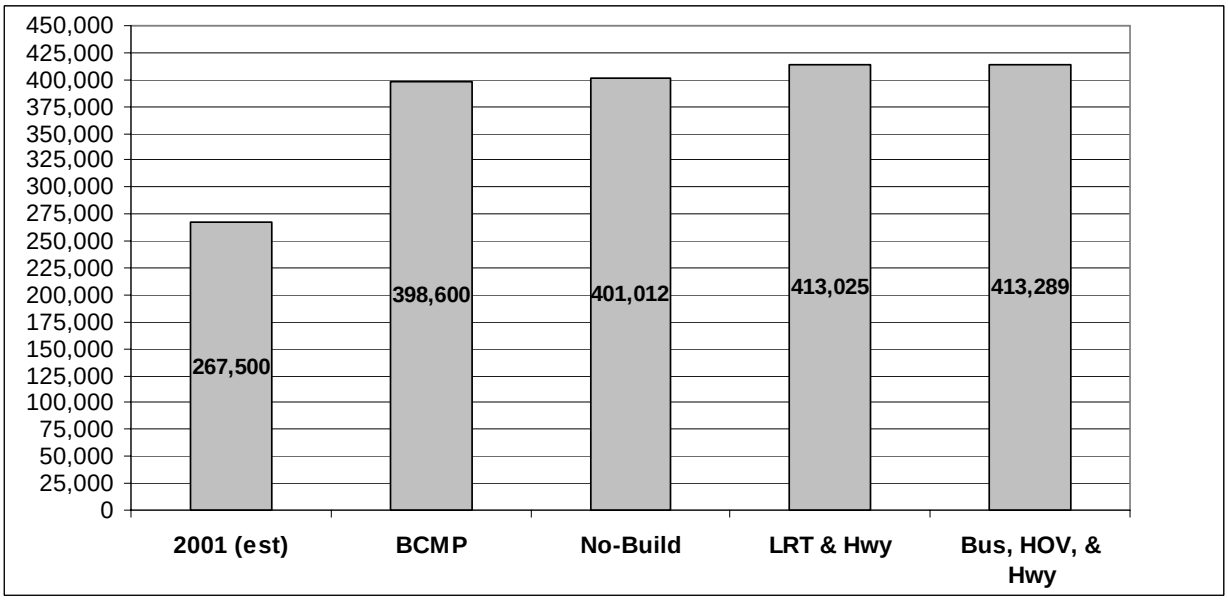
In the three largest (by current population estimates) zones (Gaithersburg (#19), Frederick City (#5), and Germantown (#17)), the panel's growth allocations for the No-Build scenario are larger than the BCMP forecasts.

FIGURE III-60
STUDY AREA POPULATION ALLOCATIONS



***Note**: 2001 (est.) data was provided by MWCOG Cooperative Forecast (Round 6.2) Socioeconomic Data.*

FIGURE III-61
STUDY AREA EMPLOYMENT ALLOCATIONS



***Note**: 2001 (est.) data was provided by MWCOG Cooperative Forecast (Round 6.2) Socioeconomic Data.*

Population

In most of the zones, allocation patterns are similar to the pattern seen in the study area as a whole. That is, the differences between the two build alternatives are negligible, the two build alternatives tend to have greater population allocations than the No-Build, and the No-Build is similar to the BCMP. Zones where differences in allocations can be considered measurable (defined by the panel analysts as differences over 2,000 people in terms of absolute numbers) are noted in the following paragraphs.

The Seneca Creek zone (#18) is the only one in which the BCMP forecast is notably greater than the Panel Allocation for the two build alternates. In this zone, the BCMP estimate is about 1,500 to 1,700 more people than the panel's estimates for the two build alternates (or differences of about 8%). This zone is located in upper Montgomery County, to the southwest of the Corridor, and has no major access to the Corridor.

The panel's greatest absolute projected increases in population for build alternates above the BCMP forecasts are in the Frederick City zone (#5) and the Damascus-Brookeville zone (#10). The Frederick City zone has panel allocations that assign an increase in population of about 4,000 (LRT & Highway), 5,400 (No-Build), and almost 7,000 (Bus, HOV & Highway) over the BCMP forecast. These are increases of about 4% to 6%. For the Damascus-Brookeville zone, the panel allocations represent increases of about 1,100 (No-Build) and about 2,000 for the two build alternates, or 4% to 7%.

TABLE III-100
DIFFERENCES IN PANEL ALLOCATIONS OF POPULATION BETWEEN ALTERNATES STUDIES BY THE LAND USE EXPERT PANEL

Forecast Zone	BCMP vs. No Build	BCMP vs. Alternative 2	BCMP vs. Alternative 3	No Build vs. Alternative 2	No Build vs. Alternative 3	Alternative 2 vs. Alternative 3
Frederick City	5,380	4,200	6,925	*	*	(2,725)
Damascus-Brookeville	1,065	2,050	1,800	*	*	*
Clarksburg	*	*	*	5,185	4,485	*
Germantown	*	*	*	4,435	1,985	2,450
Lewistown	*	*	*	2,030	2,060	*
Urbana	*	*	*	2,255	2,880	*
Seneca Creek	*	*	*	2,428	2,178	*
Gaithersburg	*	*	*	3,638	*	3,500
Myersville	*	*	*	*	2,655	*
Woodsboro-Walkersville	*	*	*	*	*	2,050

Panel allocations for the greatest absolute increases in population over the No-Build Alternate for the two build alternates are in the Clarksburg zone (#15), which has a 4,500 to 5,000 increase, and the Germantown zone (#17), with about a 4,400 increase for the LRT & Highway alternate. These zones are contiguous and straddle the I-270 Corridor in Montgomery County. Following these three zones, Lewistown zone (#3) Urbana zone (#8) and Seneca Creek zone (#18) have the

next greatest increases for the build alternates over the No-Build, with about 2,000 to 3,000 more people. The Lewistown zone is located just north of the Frederick City zone.[14] The Urbana zone, which I-270 divides, is located in Frederick County, just north of the Montgomery County line.

The Gaithersburg (#19) zone had a measurably greater allocation for the LRT and Highway Alternative 2 over the No-Build (about 3,600 more people), while the Myersville (#2) zone had a measurably greater allocation for the bus, HOV and Highway Alternative 3 over the No Build (about 2,700 more people).

In terms of differences between the two build alternates, the Germantown (#17) and Gaithersburg (#19) zones each had panel allocations that assigned about 2,400 to 3,500 more people for the LRT and Highway Alternate 2 over the Bus, HOV and Highway Alternate. These differences are approximately 2% to 3%. The Frederick City zone (#5) and Woodsboro/Walkerson zone (#4) had panel allocations of 2,700 more people for the Bus, HOV and Highway Alternative 3 over the LRT and Highway Alternative 2, differences of about 2 to 5%.

Employment

As with population, the forecast zones in which there are meaningful differences between alternates for employment include Frederick City (#5), Urbana (#8), Clarksburg (#15), Gaithersburg (#19) and Germantown (#17). Although there were several zones for which the BCMP forecast was greater than the panel allocation, the differences were small enough to be considered negligible.

The greatest absolute increases over the BCMP are in the Frederick City zone (#5), as was the case for population as well. The panel allocations represent increases in employment of about 8,300 (Bus, HOV & Highway), 8,600 (LRT & Highway), and 11,000 (No-Build) jobs over the BCMP forecast. These are increases of 8% to 11%. This zone also had the greatest difference in the number of jobs allocated for the No-Build Alternate relative to the two build alternates. In this zone, the No-Build Alternate allocation was about 3,000 more jobs than the allocations for the two build alternates (about a 3% difference).

The greatest employment increases from the No-Build to the two build alternates are in the Gaithersburg zone (#19) and Germantown zone (#17), both of which straddle I-270 in Montgomery County. In the Germantown zone, which straddles I-270 in Montgomery County, the build alternates have allocations of about 5,600 to 5,700 more jobs than the No-Build Alternate (a 15% difference). In the Gaithersburg zone, which is located just south of the Germantown zone, the build alternates have 5,000 to 6,700 more jobs allocated than in the No-Build Alternate (representing 3% to 4% differences). Following these two zones, Urbana (#8) and Clarksburg (#15) have the next greatest increases in employment allocations for the build alternates over the No-Build, on the order of 2,000 to 3,000. These represent increases of 15% to 20% in the Urbana zone and almost 50% in the Clarksburg zone.

[14] During the May 30 meeting, several panelists noted that their allocations to the Lewistown zone represented growth that was associated with Frederick City.

Although there were several zones for which the LRT and Highway (Alternate 2) had a greater panel allocation for employment than the Bus, HOV and Highway (Alternate 3), the differences were small enough to be considered negligible.

d. Population Growth and Employment Growth in the SCEA Boundary

Following is a discussion of future land use changes resulting from the population and employment forecasts developed by the panel. Changes in existing land use can be anticipated based upon:

- existing and future land use plans and demographics for each county,
- household occupancy determinations based on current and approved development densities, and
- estimates of employment per acre of developable land.

According to the SHA Guidelines, *"If an "expert land use panel" results in future land use scenarios substantially different from those shown on local land use plans, document those effects."* The following discussion details differences in population and employment allocations between the BCMP and the Land Use Expert Panel on a zone-by-zone basis and provides some rationale for using the county future zoning plans as a basis for land use changes in the SCEA analysis.

Overall, the Land Use Expert Panel did not find substantial difference for development between the alternates studied. For the most part, anticipated development matches that planned for by the counties. In eight zones, (Lewistown Zone #3, Frederick City Zone #5, Urbana Zone #8, Damascus-Brookeville Zone #10, Clarksburg Zone #15, Germantown Zone #17, Seneca Creek Zone #18, and Gaithersburg Zone #19) development under either the BCMP or the No-Build Alternative was found to be measurably different than that of the Build Alternates. Of these, three zones (Frederick City Zone #5, Damascus-Brookeville Zone #10, and Clarksburg Zone #15) potentially will experience land use changes not accounted for in the Frederick and Montgomery County Master Plans.

- **Lewistown Zone #3** -- The panel anticipates this zone to have about 1,500 less people under the No-Build Alternative than that anticipated under Frederick County Master Plan. They found however, that both build alternates would result in growth similar to that in the BCMP but measurable greater than the No-Build Alternative. Therefore, the County future land use plans were used for the analysis.
- **Frederick City Zone #5** -- According to the panel, increases in both population and employment are predicted to be higher than that identified in the Master Plan. It can be anticipated that land use changes would be greater than anticipated.

- **Urbana Zone #8** -- The panel anticipates somewhat more residential development under the build alternates than the Master Plan calls for and employment growth to be in line with the Master Plan. Therefore, potential secondary and cumulative effects could be expected to be not substantially greater than that would result from planned land use development for the area.

- **Damascus-Brookeville Zone #10** -- According to the panel, increases in population are predicted to be higher that that identified in the BCMP. It can be anticipated that land use changes would be greater than anticipated.

- **Clarksburg Zone #15** -- In terms of population, the panel anticipates somewhat less residential development and somewhat more employment than that identified in the No-Build Alternative. It can be anticipated that land use changes would be greater than anticipated.

- **Germantown Zone #17** -- In terms of employment the panel anticipates less growth under than No-Build Alternative and more growth than under the build alternates than that planned for by the county in the BCMP. However, the difference between the future land use plan and the alternates is such that use of the Master Plan as the future land use scenario was considered adequate for the analysis of secondary and cumulative effects.

- **Seneca Creek Zone #18** -- The panel anticipates this zone to have measurably less growth under any alternate (including No-Build) than that anticipated under Frederick County Master Plan. Therefore, potential secondary and cumulative effects could be expected to be not greater than that would result from the planned land use development for the area.

- **Gaithersburg Zone #19** -- In terms of employment the panel anticipates less growth under the No-Build Alternative and more growth than under the build alternates than that planned for by the county. However, the difference between the future land use plan and the alternates is such that use of the Master Plan as the future land use scenario was considered adequate for the analysis of secondary and cumulative effects.

Zone 1 Thurmont – is located outside of the SCEA boundary, with 77,589 acres. According to Frederick County land use information, this zone currently includes 4,027 acres of residential development and 927 acres of commercial, industrial and institutional development. **Table III-100** indicates existing and future land use for the Thurmont zone.

The current population is estimated at 18,000 and is projected to increase to 23,000 under the BCMP. Employment, currently estimated at 4,000 jobs, is projected to increase to 5,000 jobs in 2025. **Table III-101** indicates population and employment for the Thurmont zone.

Although the panel projections for population increases in this zone were slightly higher for the two build alternates analyzed, employment projections were lower than forecast by the BCMP. Based on differences in projections from the BCMP and the panel, no substantial differences in land use are anticipated. The Thurmont zone was excluded from the SCEA analysis.

Zone 2 Myersville-Burkettsville – is almost completely outside of the SCEA boundary. Only approximately 3,000 acres of this 54,565-acre zone fall within the SCEA boundary to the west of Frederick City. According to Frederick County land use information, this zone currently includes 6,233 acres of residential development and 282 acres of commercial, industrial and institutional development. A large part of the zone outside of the SCEA boundary is identified as a rural legacy area and includes considerable agricultural easements; the portion of the zone within the SCEA boundary is not. **Table III-100** presents existing and future land use for the Myersville-Burkettsville zone.

The current population is estimated as 18,000 and is projected to increase to 29,000 by 2025 under the BCMP. Employment estimates of 2,000 jobs are projected to increase to 3,000 jobs by 2025. **Table III-101** presents population and employment projections for this zone.

Close to the City of Frederick, historic growth patterns indicate increased development along the US 40 west of the City of Frederick. It is anticipated that this trend for development will continue. Based on allowable densities of development in this area, these differences would not result in land use changes different from those projected in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 3 Lewistown – is partially included within the SCEA boundary. According to Frederick County land use information, this zone currently includes 2,364 acres of residential development and 111 acres of commercial, industrial, and institutional development. The County Master Plan anticipates an increase in these land uses by the year 2025. **Table III-100** presents existing and future land use for this zone.

The current 2001 population is estimated at 6,000 and is estimated under the BCMP to increase to 11,000 by 2025. The current number of jobs is projected to double. **Table III-101** presents population and employment projections for this zone.

Although the existing population and jobs are scattered throughout the zone, the majority (89% of the residences, 92% of the employment) are located within the SCEA boundary. Existing population and employment densities are estimated at 2.5 persons per acre and 9 jobs per acre. The BCMP anticipates a future population density of 2.7 persons per acre and a decrease in employment density to 1.8 jobs per acre in 2025. This slight increase in population density is not anticipated to result in land use changes different from those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 4 Woodsboro-Walkersville – is partially included within the SCEA boundary and contains a total of 75,772 acres. According to Frederick County land use information, total

residential land uses cover 1,346 acres and 1,143 acres are covered by employment land uses including commercial, industrial, mining, and institutional development. Only 63% of this zone is included within the SCEA boundary, of which 3,748 acres are considered residential uses and 935 acres are designated for employment uses. The County Master Plan predicts an increase in both of these land uses by the year 2025. **Table III-100** presents existing and future land use for this zone.

The zone's 2001 population is estimated at 26,000, and the current number of jobs is estimated at 5,000. Increases in population for the No-Build Alternate and Alternate 2 scenarios are anticipated to be less than the BCMP, while the increase expected by the panel for Alternate 3 is greater than the BCMP. Estimates of employment increases by the panel were less than the BCMP projection under all three alternates considered. **Table III-101** presents population and employment projections for this zone.

The panel's projections are not substantially different from those in the Master Plan; therefore, the county's future land use plans (*Frederick County Comprehensive Development Plan*) were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 5 Frederick City – lies completely within the SCEA boundary, with 23,761 acres. According to Frederick County land use information, this zone consists of 4,422 acres of residential development, and 4,924 acres of commercial, industrial, mining, and institutional development. The County Master Plan predicts an increase in these land uses by the year 2025. **Table III-100** presents existing and future land use for this zone.

The current 2001 population is estimated at 75,000 and is estimated under the BCMP to increase by 53% by 2025. The current employment is estimated at 71,000 jobs and is projected to increase by 52%. **Table III-101** presents population and employment projections for this zone.

Increases in the population and in employment identified by the panel were greater than those forecast by the BCMP for both the No-Build and two build alternates. With a current estimated population density of 17 persons per acre and a future anticipated density of 6.3 persons per acre, panel predictions of population density up to 6.6 persons per acre with Build Alternate 3 would be easily accommodated by future land use plans. Similar estimates can be developed for future employment in the zone. Current employment density is estimated at 14.4 jobs per acre in existing uses and is projected to reach 30 jobs per acre in 2025, according to the BCMP. Under the worst case scenario (No-Build), the panel's projections for future employment provide an employment density of 33 jobs per acre. The majority of the Frederick zone (#5) is designated as a PFA and targeted by the county for growth and development.

Zone 6) Brunswick – lies completely outside of the SCEA boundary, except for 614 acres (less than 2%) near the junction of US 340 and US 15 near Jefferson. Of the zone's 43,528 acres, 3,657 acres are currently supporting residential land use and 732 acres carry commercial, industrial and institutional uses. **Table III-100** presents existing and future land use for this zone. **Table III-101** presents population and employment projections.

The current 2001 population is estimated at 15,000 and is projected to increase to 22,000 by 2025; the current estimate for employment is 3,000 jobs, anticipated to increase to 4,000 by 2025. Historic growth patterns indicate a concentration of growth in the vicinity of the city of Brunswick on the Potomac River, outside of the SCEA boundary. Therefore, the Brunswick Zone #6 was excluded from the SCEA analysis.

Zone 7) Point of Rocks – lies partially within the SCEA boundary on the eastern half of its 29,093 acres. According to Frederick County land use information, this zone currently includes 1,449 acres of residential development and 988 acres of commercial, industrial, mining, and institutional development. The County Master Plan anticipates an increase in these land uses by the year 2025. **Table III-101** presents existing and future land use for this zone.

Historic growth in this zone has taken place along the MD 351 and MD 85 (within the SCEA boundary) and outside of the SCEA boundary in the town of Point of Rocks on the Potomac River. Development projects include the MD 85 employment area (within the SCEA), accounting for growth in employment land uses. Outside of the SCEA boundary, the town of Point of Rocks, the southern terminus of a new MARC extension from Frederick City, has been the site of growth in the 1990s and is anticipated to continue to develop. **Table III-101** presents population and employment for this zone.

The panel's projections for future population growth and future employment were lower for the three alternates than the BCMP projections. Therefore, based on allowable densities in the future land use plan, the I-270/US 15 Corridor project would likely provide less pressure on resources in this zone than are anticipated in the Master Plan. Thus, the county's future land use plan can be used in evaluating secondary and cumulative effects in this zone.

Zone 8) Urbana – is included in its entirety within the SCEA boundary and occupies essentially the same geographic area as Frederick County's Urbana Planning Region. The existing land use data provided to the Land Use Expert Panel was used for this analysis. **Table III-100** presents existing and future land use for this zone.

Current population in this zone is estimated at 11,000 and is anticipated to increase to 21,000 according to the BCMP. Employment, currently estimated at 5,000 jobs, is projected to increase to 14, 000 jobs. **Table III-102** presents existing and future population and employment for the Urbana forecast zone.

Existing residential density in this forecast zone is 2.6 people per acre of residential land and the density of employment is 8.5 jobs per acre of commercial, institutional and industrial land. The county's future land use plan and the 2025 forecasts of population under both the No-Build and the BCMP scenarios support a similar density of residential development. Population forecasts for the build alternates, providing no changes in future land use, would require higher residential densities (3.2 people per acre) than under the No-Build and BCMP scenarios.

Review of the Urbana Region Plan (1993) identified a number of zoning districts that will support this anticipated development. According to the Plan, the adopted 20-Year Land Use Plan provided for a potential additional population of 19,279 on 4,113 then undeveloped acres,

producing a future regional population density of 4.7. The Plan forecast 3,700 potential dwellings on 1,074 acres in the Urbana PUD (3.4 dwelling units per acre) alone. Given this potential, it is believed that the higher densities forecast under the two build alternates could be readily accommodated and the higher population would not create pressure to develop outside of the land currently targeted for residential development.

Therefore, the Frederick County future land use plan was used for the analysis of secondary and cumulative effects on resources in this area.

Zone 9) New Market - is partially located within the SCEA boundary except for approximately 12,000 acres in its eastern portion, and it occupies 44,042 acres. According to Frederick County land use information, this zone currently includes 7,328 acres of residential and 363 acres of commercial, industrial, and institutional development. The County Master Plan anticipates an increase in both these land uses by the year 2025. The primary feature of this forecast zone is the I-70 Corridor. **Table III-101** presents existing and future land use for this zone.

The New Market zone's current 2001 population is estimated to be 24,000 and the employment estimate is 4,000 jobs. Under the BCMP, population and employment are anticipated to increase in 2025 to 35,000 persons and 6,000 jobs, respectively. **Table III-102** presents population and employment projections for this zone.

The panel's projections for the three alternates predict a 2.6 to 4.3 % greater increase in population over the BCMP projection for the zone. Current population density is 3.2 persons per acre; under the worst-case growth scenario, the future population density would decrease to 2.3 persons per acre. The County's future land use plans could easily accommodate any of the future population growth scenarios.

Under the BCMP, the number of jobs is expected to increase by 50% in the New Market zone (#9) and the number of acres designated for employment uses are expected to increase by over 300%. Current employment density in this zone is 11.0 jobs per acre; the future employment density under the No-Build Alternative is 4.3 jobs per acre. Under the reviewed alternates, however, the panel indicated increases in employment above the BCMP of between 3% (Alternate 3) and 18% (No-build Alternate). Therefore, land use changes are not anticipated to be different from those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 10) Damascus-Brookeville – includes 43,647 acres. Approximately 16,000 acres (37%) of this zone are located within the SCEA boundary. Not included in the SCEA boundary, the eastern portion of this zone is development constrained by rural legacy areas and Rock Creek Park along the border of Montgomery and Howard counties. To the south and west, development in the zone may be influenced by the growth of Germantown to the west and Rockville and Wheaton to the south. According to Montgomery County land use information, this zone currently includes 7,686 acres of residential and 1,010 acres of commercial, industrial, and institutional development. The County Master Plan anticipates an increase in both these land uses by the year 2025. **Table III-101** presents existing and future land use for this zone.

Panel predictions for the zone indicated a greater population increase and a greater increase in the number of new jobs under both the No-Build and build alternates considered than projected in the BCMP. **Table III-102** presents population and employment projections for the Damascus-Brookeville forecast zone.

The panel's projections may indicate possible increased pressures on the resources in this zone. Three areas in the zone have been certified as PFAs: southwest of the Town of Damascus, the Town of Laytonsville, and the Brookeville/Olney area. Data were not readily available about the future land use densities planned for these areas.

Zone 11) Hyattstown - is included in its entirety within the SCEA boundary, covering 11,906 acres. According to Montgomery County land use information, this zone currently includes 711 acres of residential land use and 64 acres of employment land uses (commercial, industrial, and institutional). The Hyattstown forecast zone includes the Hyattstown Special Study Area identified in the Clarksburg Master Plan, an area to the east of I-270 and west of Little Bennett Regional Park rezoned for future residential development. Much of the balance of this zone is restrained for future development by rural legacy classification and areas of sensitive species (within and around Little Bennett Park). **Table III-101** presents existing and future land use for this zone.

The Hyattstown zone's current 2001 population is estimated at 2,000 and employment is estimated at 400 jobs. Future population in 2025 is anticipated to grow to 3,000 under the BCMP, and employment is expected to remain the same. **Table III-102** presents population and employment projections for this zone.

The panel's projections for the build alternates indicate a 2% to 4% greater increase in population over the BCMP estimate, and a 27% to 37% increase in employment in this zone for Alternates 2 and 3.

The current population density in the zone is 2.8 persons per acre of residential land use. The County's future land use plan would produce a future population density of 2.3 persons per acre (BCMP projections of population increase). The panel's worst case scenario would produce a future population density of 2.4 persons per acre of residential land use. Zoning district designations under the Clarksburg Master Plan in the Hyattstown Special Study Area support rural (1 unit/5 acres), RE-2 (1 units per 2.5 acres) and R-200 (2 units per acre) densities of development.

Under the BCMP, no change is anticipated in the number of jobs within the Hyattstown zone. No zoning changes to employment uses are identified in the future land use plans of Montgomery County. Under the build alternates, however, the panel indicated substantial increases in employment in this zone, perhaps indicating increased pressures on resources in this area.

The County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 12) Barnesville - is located entirely within the SCEA boundary, with 6,669 acres. According to Montgomery County land use information, this zone currently includes 212 acres of residential development and 37 acres of commercial, industrial and institutional development. The zone is entirely within a Rural Legacy Area and the agricultural wedge of the county-wide "Wedges and Corridors" plan; the balance (6,420 acres) of current land use is open space, forest and agricultural. The County Master Plan anticipates an increase in residential but not commercial/ industrial/institutional land uses by the year 2025. **Table III-101** presents existing and future land use for this zone.

The current 2001 population is estimated at 600, and is estimated under the BCMP to increase by 17% by 2025. The current employment is estimated at 300 jobs, and is not projected to increase.

Panel projections for this zone's population are not substantially greater than those of the BCMP; estimates for employment increases were minor. Therefore, the County's future land use plans were utilized in the SCEA analysis. **Table III-102** presents population and employment for the Barnesville forecast zone.

Zone 13) Poolesville – Darnestown - is partially included within the SCEA boundary and contains 57,988 acres. Over half of the zone (approximately 31,000 acres) is outside of the SCEA boundary. A fair portion of the zone is constrained by Rural Legacy, parks and historic sites, agricultural easements, and other land protections. According to the Montgomery County land use information, this zone consists of 3,263 acres of residential development and 1,453 acres in use as commercial, industrial, mining, and institutional development. **Table III-101** presents existing and future land use for this zone.

The current population is estimated at 8,000 and is projected (BCMP) to increase to 9,000 by 2025. Current employment is estimated at 2,000 jobs and is not projected to increase under the BCMP. **Table III-102** presents population and employment projections for the Poolsville-Darnestown zone.

The panel projects an 8.5% greater increase in population (765 people) for the No-Build Alternate over the BCMP projection for the zone, and lesser increases over the BCMP projection for the build alternates (2.8% to 3.4% greater). The town of Poolesville is a designated PFA under the Maryland Smart Growth initiative.

Under the BCMP, no change is anticipated in the number of jobs within the Poolesville-Darnestown zone. Under the build alternates, however, the panel indicated substantial increases in employment in this zone, ranging from 20% under the No-Build Alternate to 9% under the build alternates.

Based on existing land uses, and utilizing projections for the worst case future scenario, residential density in the zone could increase from 2.5 persons per acre to 3.0 persons per acre, and the employment density could increase from 1.4 jobs per acre to 1.7 jobs per acre. These differences in the projections proffered by the panel versus those indicated in the BCMP may indicate increased pressure on resources in the zone.

The County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 14) Laytonsville – (9,972 acres) is included within the SCEA boundary except for one small (approximately 140 acres) portion on the east edge (less than 1% of the total area). According to Montgomery County land use information, this zone currently includes 3,059 acres of residential development and 70 acres of commercial and institutional development. There is no current industrial land use in the zone. The County Master Plan anticipates an increase in - residential land use by the year 2025. **Table III-101** presents existing and future land use for this zone.

The Laytonsville zone's current 2001 population is estimated at 6,000 and employment is estimated at 700 jobs. Future population in 2025 is anticipated to grow to 9,000 under the BCMP, and employment is expected to remain the same. **Table III-102** presents population and employment for this zone.

The panel's projections for build Alternate 2, LRT and Highway, indicate a 6% greater increase in population over the BCMP estimate, and a 6% increase in employment in this zone for the build Alternates 2 and 3. The panel's differences are less than 2,000 jobs.

Historic development in this zone has occurred in the southeastern portion, near Gaithersburg and Germantown. The town of Laytonsville, on the east edge of the zone, is a designated PFA.

Current population density in this zone is 2.0 persons per acre; future population density under the BCMP is not anticipated to change (remains at 2.0 persons per acre). Under build Alternate 2 (worst case scenario), the expected population density would only increase to 2.1 persons per acre. This small increase would be easily accommodated by the county's future land use plan. Therefore, based on allowable densities of development in this area, differences indicated by the panel would not result in land use changes different from those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 15) Clarksburg - is located entirely within the SCEA boundary, with 9,905 acres. The Clarksburg zone is almost identical to the Clarksburg planning area but does not include the Hyattstown Special Study Area (see forecast zone 11). According to information used by the panel, this zone currently includes 898 acres of residential development and 186 acres of commercial, industrial and institutional development. The balance of current land use is open space, forest and agricultural.

The Clarksburg zone's current 2001 population is estimated at 2,000 and is projected under the BCMP to increase to 30,000 by 2025. The current employment, estimated at 2,000 jobs, is projected to increase to 9,000 jobs by 2025. **Table III-101** presents existing and future land use for this zone. **Table III-102** presents population and employment projections.

The Clarksburg zone is a designated growth area. In this major growth area, the M-NCPPC anticipates a 400% increase in residential land use and a 500% increase in employment land uses

by the year 2025 along with a concurrent loss of open space, parkland, forest and agricultural lands.

Existing residential density in this forecast zone is 2.2 people per acre of residential land, and the density of employment is 10.8 people per acre of industrial, commercial and institutional land. The county's future land use plan supports a regional residential density of 6.5 persons per acre and a projected employment density of almost 8 jobs per acre. These projected densities are indicative of intense regional development at the Gateway 270 Business Center and COMSAT employment sites and the Site 30 planned detention center.

Based on allowable densities of development in this area, the differences projected by the panel are not anticipated to result in land use changes different from those in the Master Plan. However, development commitments and future residential densities do indicate pressures for development in this zone that may prove to have a detrimental effect on resources.

Zone 16) Boyds - is located entirely within the SCEA boundary, with 7,578 acres. According to Montgomery County land use information, this zone currently includes 246 acres of residential development and 21 acres of commercial and institutional development. The balance (7,311 acres) of current land use is forest and agricultural. **Table III-101** presents existing and future land use for this zone.

The current 2001 population is estimated at 600, and is estimated under the BCMP to increase to 900 by 2025. The current employment is estimated at 200 jobs and is not projected to increase. **Table III-102** presents existing and future population and employment for the Boyds zone.

Panel projections for this zone's population growth are slightly different from the BCMP estimate. Current residential population density in this forecast zone is 2.4 persons per acre. It is difficult to determine future land use acreage, as most of the land so designated is included under agricultural zoning (agricultural estates). Based on the existing acres of land use, the future residential density is expected to be 3.7 persons per acre.

The Land Use Expert Panel's estimates for employment increases (8 jobs for each alternate) indicated only a minor change. Current employment density is 9.5 jobs per acre on land determined for employment uses. The acres designated for employment uses is anticipated to double by 2025, supporting an increase in the number of jobs in the zone.

Based on the slight differences in projections, land use changes are not expected to be different from those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 17) Germantown - is located entirely within the SCEA boundary, with 8,117 acres. According to Montgomery County land use information, this zone currently includes 3,309 acres of residential development and 1,196 acres of commercial, industrial and institutional development. The balance (3,612 acres) of current land use is open space, forest and agricultural. The forecast zone straddles the I-270 Corridor. The Germantown zone, most of which is designated as a PFA, is similar to the county's Germantown Planning Area, which contains

approximately 11,000 acres. The Master Plan anticipates an increase in residential and commercial/ industrial/institutional land uses by the year 2025. **Table III-101** presents existing and future land use for this zone.

The current 2001 population is estimated at 58,000 and is projected under the BCMP to increase to 70,000 by 2025. The current employment is estimated at 21,000 jobs and is anticipated to double by 2025. **Table III-102** presents population and employment for the Germantown zone.

The panel's projections for this zone's population under both of the build alternates considered are higher than the BCMP projection by between 4% and 7%. The panel's estimates for employment increases were also somewhat greater for the build alternates than the BCMP projection by about 5%.

Based on "theoretical maximum" allowances within the Germantown Master Plan (Appendix 3, July 1989), current projections of population growth could be accommodated within the Master Plan's planned residential land use areas. Germantown also committed 840 acres adjacent to I-270 to new employment uses in their 1989 Master Plan. This development was projected to provide a total of 78,000 jobs at full build out. Differences would not result in land use changes different from those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 18) Seneca Creek - is located entirely within the SCEA boundary, with 6,006 acres. According to Montgomery County land use information, this zone currently includes 655 acres of residential development and 106 acres of commercial and institutional development. The County Master Plan anticipates an increase in residential and employment land uses by the year 2025. The balance of the zone's current land use, 5,245 acres, is open space, forest and agricultural. Development in this zone is constrained by parks and historic sites and other protection mechanisms. **Table III-101** presents existing and future land use for this zone.

The current 2001 population is estimated at 9,000 and is projected under the BCMP to increase to 20,000 by 2025, while employment is estimated to increase from 2001's 900 jobs to 1,000 jobs by 2025. **Table III-102** presents population and employment projections for the Seneca Creek zone.

The zone's current population density is 13.7 persons per acre, while the projected 2025 population density is anticipated to fall to 10.8 persons per acre. The current employment density of 8.5 jobs per acre is expected to decrease to 6.0 jobs per acre. In both population and employment considerations, lower densities are anticipated.

The panel's projections for this zone's population growth are lower than that projected by the BCMP. The panel's estimate of employment increases are not substantially greater than those of the BCMP. Differences between the panel's projections and those indicated in the county's master plan are would result in land use changes less than those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

Zone 19) Gaithersburg - is located entirely within the SCEA boundary, with 24,983 acres. According to Montgomery County land use information, this zone currently includes 11,215 acres of residential development and 5,349 acres of commercial, industrial and institutional development. The County Master Plan anticipates an increase in these land uses by the year 2025. **Table III-101** presents existing and future land use.

The current 2001 population is estimated at 145,000 and is projected under the BCMP to increase to 178,000 by 2025. The current employment is estimated at 131,000 jobs and anticipated to increase to 173,000.

The current population density is calculated at 12.9 persons per acre; future residential density is expected to increase slightly to 13.3 persons per acre. The current employment density is 24.4 jobs per acre of land in employment uses; BCMP projections indicate the future density will be 25.7 jobs per acre. **Table III-102** indicates population and employment projections for the Gaithersburg zone.

The panel's projections for this zone are not substantially different from those of the BCMP (3% difference or less), and therefore are not anticipated to result in land use changes different from those in the Master Plan. Therefore, the County future land use plans were used for the analysis of secondary and cumulative effects on resources in this area.

TABLE III-101
EXISTING AND FUTURE LAND USE BY FORECAST ZONE

Land Use	Total Residential Acres	Total Employment Acres	Urban Open Space, Parkland, Conservation Agricultural	Zone Total Acres [3]
Thurmont Zone #1				
Existing [1]	4,027	935	72,627	77,589
Future [2]	5,030	2,327	70,493	77,850
Myersville-Burkettsville Zone #2				
Total Zone Acreage				
Existing [1]	6,233	282	48,051	54,566
Future [2]	7,032	484	47,636	55,152
Acres within the SCEA Boundary				
Existing [3]	896	48	2,079	3,023
Future [2]	1,911	0 [5]	1,009	2,920
Lewistown Zone #3				
Total Zone Acreage				
Existing [1]	2,364	111	30,578	33,053
Future [2]	4,113	1,126	27,879	33,118
Acres within the SCEA Boundary				
Existing [3]	2,111	102	22,154	24,367
Future [2]	3,792	1,126	19,502	24,420
Woodsboro-Walkersville Zone #4				
Total Zone Acres				
Existing [1]	1,346	1,143	73,283	75,772
Future [2]	7,342	4,113	68,363	79,818
Zone Acres within SCEA Boundary				
Existing [3]	3,748	935	43,096	47,779
Future [2]	7,148	3,069	37,619	47,572
Frederick City Zone #5				
Existing [1]	4,422	4,924	14,415	23,761
Future [2]	18,357	3,604	3,472	25,433
Brunswick Zone #6				
Total Zone Acreage				
Existing [1]	3,657	732	39,139	43,528
Future [2]	5,676	403	37,565	43,644
Acres within the SCEA Boundary				
Existing [3]	30	15	569	614
Future [2]	44	0 [5]	570	614

TABLE III-101 (CONTINUED)
EXISTING AND FUTURE LAND USE BY FORECAST ZONE

Land Use	Total Residential Acres	Total Employment Acres	Urban Open Space, Parkland, Conservation Agricultural	Zone Total Acres [3]
Point of Rocks Zone #7				
Total Zone Acreage				
Existing [1]	1,449	988	26,656	29,093
Future [2]	3,270	5,188	20,808	29,266
Acres within the SCEA Boundary				
Existing [3]	783	555	12,050	13,388
Future [2]	1,857	2,822	8,817	13,496
Urbana Zone #8				
Existing Land Use [1]	4,188	586	34,323	39,097
Future land Use [2]	7,406	2,061	29,625	39,092
New Market Zone #9				
Total Zone Acreage				
Existing [1]	7,328	363	36,351	44,042
Future	16,131	1,647	26,299	44,077
Acres within the SCEA Boundary				
Existing [3]	5,814	329	25,878	32,021
Future [2]	14,300	1,636	16,083	32,019
Damascus-Brookeville Zone #10				
Total Zone Acreage				
Existing [1]	7,686	1,010	34,951	43,647
Future [2]	11,894	257	32,913	45,064
Acres within the SCEA Boundary				
Existing [3]	3,205	250	12,125	15,580
Future [2]	3,997	91	11,499	15,587
Hyattstown Zone #11				
Existing [1]	711	64	11,131	11,906
Future [2]	1,288	49	10,578	11,915
Barnesville Zone #12				
Existing [1]	212	37	6,420	6,669
Future [2]	769	0 [4]	5,903	6,672

TABLE III-101 (CONTINUED)
EXISTING AND FUTURE LAND USE BY FORECAST ZONE

Land Use	Total Residential Acres	Total Employment Acres	Urban Open Space, Parkland, Conservation Agricultural	Zone Total Acres [3]
Poolesville - Darnestown Zone #13				
Total Zone Acreage				
Existing [1]	3,263	1,453	53,272	57,988
Future [2]	2,796	1,263	51,536	55,595
Acres within the SCEA Boundary				
Existing [3]	2,536	380	23,611	26,527
Future [2]	1,913	52	24,560	26,525
Laytonsville Zone #14				
Existing [1]	3,059	70	6,843	9,972
Future [2]	4,616	10	5,321	9,947
Clarksburg Zone #15				
Existing [1]	898	186	8,821	9,904
Future [2]	4,642	1,131	5,120	10,893
Boyds Zone #16				
Existing Land Use [1]	246	21	7,311	7,578
Future land Use [2]	61	82	7,437	7,580
Germantown Zone #17				
Existing [1]	3,309	1,196	3,612	8,117
Future [2]	4,163	1,718	2,184	8,065
Seneca Creek Zone #18				
Existing [1]	665	106	5,245	6,006
Future [2]	1,852	167	3,987	6,006
Gaithersburg Zone #19				
Existing [1]	11,215	5,349	8,419	24,983
Future [2]	13,266	6,753	4,734	24,753

Notes:

1 *Existing land use data source: I-270/US 15 Expert Panel Briefing Book, SHA, January 2001. Employment uses include industrial, commercial, mining and institutional.*

2 *Future land use data source: M-NCPPC General Plan, 1993.*

3 *Existing land use within the SCEA boundary from Maryland Department of Planning, Toolbox 1997.*

4 *Discrepancy in total acres due to inclusion/exclusion of land uses covered by water.*

5 *The apparent loss of employment acreage is an artifact of the mapping sources rather than an actual loss of acreage. Actual employment acreage remains essentially the same.*

TABLE III-102
POPULATION AND EMPLOYMENT PROJECTIONS BY FORECAST ZONE

Forecast Zone	Population	Employment
Thurmont Zone #1		
Estimates 2001	18,000	4,000
BCMP 2025	23,000	5,000
Alternate 1: No-Build, 2025	22,170	4,955
Alternate 2: LRT & Hwy, 2025	23,015	4,785
Alternate 3: Bus, HOV & Hwy, 2025	23,690	4,760
Myersville Burkettsville Zone #2		
Estimates 2001	18,000	2,000
BCMP 2025	29,000	3,000
Alternate 1: No-Build, 2025	26,385	2,900
Alternate 2: LRT & Hwy, 2025	28,240	2,850
Alternate 3: Bus, HOV & Hwy, 2025	29,040	2,850
Lewistown Zone #3		
Estimates 2001	6,000	1,000
BCMP 2025	11,000	2,000
Alternate 1: No-Build, 2025	9,470	1,685
Alternate 2: LRT & Hwy, 2025	11,500	1,970
Alternate 3: Bus, HOV & Hwy, 2025	11,530	1,920
Woodsboro-Walkersville Zone #4		
Estimates 2001	26,000	5,000
BCMP 2025	40,000	9,000
Alternate 1: No-Build, 2025	38,115	8,670
Alternate 2: LRT & Hwy, 2025	39,430	8,280
Alternate 3: Bus, HOV & Hwy, 2025	41,480	8,280
Frederick City Zone #5		
Estimates 2001	75,000	71,000
BCMP 2025	115,000	108,000
Alternate 1: No-Build, 2025	120,380	119,490
Alternate 2: LRT & Hwy, 2025	119,200	116,595
Alternate 3: Bus, HOV & Hwy, 2025	121,925	116,295
Brunswick Zone #6		
Estimates 2001	15,000	3,000
BCMP 2025	22,000	4,000
Alternate 1: No-Build, 2025	22,590	4,325
Alternate 2: LRT & Hwy, 2025	22,300	3,990
Alternate 3: Bus, HOV & Hwy, 2025	22,400	3,995

TABLE III-102 (CONTINUED)
POPULATION AND EMPLOYMENT PROJECTIONS

Forecast Zone	Population	Employment
Point of Rocks Zone #7		
Estimates 2001	7,000	8,000
BCMP 2025	12,000	12,000
Alternate 1: No-Build, 2025	11,315	11,690
Alternate 2: LRT & Hwy, 2025	11,750	11,525
Alternate 3: Bus, HOV & Hwy, 2025	11,800	11,475
Urbana Zone #8		
Estimated 2001	11,000	5,000
BCMP, 2025	21,000	14,000
Alternate 1: No-Build, 2025	21,145	11,650
Alternate 2: LRT & Hwy, 2025	23, 400	14,095
Alternate 3: Bus, HOV & Hwy, 2025	24,025	13,445
New Market Zone # 9		
Estimates 2001	24,000	4,000
BCMP 2025	35,000	6,000
Alternate 1: No-Build, 2025	36,175	7,075
Alternate 2: LRT & Hwy, 2025	35,900	6,428
Alternate 3: Bus, HOV & Hwy, 2025	36,500	6,190
Damascus-Brookeville Zone #10		
Estimates 2001	24,000	6,000
BCMP 2025	29,000	7,000
Alternate 1: No-Build, 2025	30,065	7,360
Alternate 2: LRT & Hwy, 2025	31,050	7,443
Alternate 3: Bus, HOV & Hwy, 2025	30,800	7,460
Hyattstown Zone # 11		
Estimates 2001	2,000	400
BCMP 2025	3,000	400
Alternate 1: No-Build, 2025	2,730	442
Alternate 2: LRT & Hwy, 2025	3,125	562
Alternate 3: Bus, HOV & Hwy, 2025	3,050	515
Barnesville Zone #12		
Estimates 2001	600	300
BCMP 2025	700	300
Alternate 1: No-Build, 2025	785	314
Alternate 2: LRT & Hwy, 2025	725	306
Alternate 3: Bus, HOV & Hwy, 2025	743	306

TABLE III-102 (CONTINUED)
POPULATION AND EMPLOYMENT PROJECTIONS

Forecast Zone	Population	Employment
Poolsville-Darnestown Zone #13		
Estimates 2001	8,000	2,000
BCMP 2025	9,000	2,000
Alternate 1: No-Build, 2025	9,765	2,395
Alternate 2: LRT & Hwy, 2025	9,305	2,185
Alternate 3: Bus, HOV & Hwy, 2025	9,255	2,185
Laytonsville Zone #14		
Estimates 2001	6,000	700
BCMP 2025	9,000	700
Alternate 1: No-Build, 2025	8,800	719
Alternate 2: LRT & Hwy, 2025	9,575	745
Alternate 3: Bus, HOV & Hwy, 2025	9,200	743
Clarksburg Zone #15		
Estimates 2001	2,000	2,000
BCMP 2025	30,000	9,000
Alternate 1: No-Build, 2025	23,965	6,525
Alternate 2: LRT & Hwy, 2025	29,150	9,550
Alternate 3: Bus, HOV & Hwy, 2025	28,450	9,635
Boyds Zone #16		
Estimated 2001	600	200
BCMP 2025	900	200
Alternate 1: No-Build 2025	895	208
Alternate 2: LRT & Hwy 2025	905	208
Alternate 3: Bus, HOV & Hwy 2025	910	208
Germantown Zone #17		
Estimates 2001	58,000	21,000
BCMP 2025	70,000	42,000
Alternate 1: No-Build, 2025	70,790	38,550
Alternate 2: LRT & Hwy, 2025	75,225	44,250
Alternate 3: Bus, HOV & Hwy, 2025	75,775	44,175
Seneca Creek Zone #18		
Estimates 2001	9,000	900
BCMP 2025	20,000	1,000
Alternate 1: No-Build, 2025	16,110	1,000
Alternate 2: LRT & Hwy, 2025	18,538	1,035
Alternate 3: Bus, HOV & Hwy, 2025	18,288	1,079
Gaithersburg Zone #19		
Estimates 2001	145,000	131,000
BCMP 2025	178,000	173,000
Alternate 1: No-Build, 2025	178,663	171,060
Alternate 2: LRT & Hwy, 2025	182,300	176,225
Alternate 3: Bus, HOV & Hwy, 2025	178,800	177,775

e. Background

Frederick County

Frederick County was created in 1748; its original boundaries included all of Montgomery, Washington, Allegheny, and Garrett counties and parts of Carroll County and the District of Columbia. Frederick County today is the largest in the State of Maryland (425,047 acres). The county seat, Frederick Town (now the City of Frederick), was founded in 1745. The county's success has been due to its agricultural resources and its location on travel and trade routes.

Frederick County, initially an orchard and plantation style agriculture, flourished through the years with successive production of tobacco, wheat and animal feed, and later dairy products.

The "National Pike," running through Frederick County from Baltimore to Cumberland and the Ohio Valley, was an early important transportation route and one of the first roads built with national treasury funds. The Susquehanna Trail, the main north-south route, other "turnpikes", the railroads and the C&O Canal all added to the importance of the County as a transportation corridor. The growth of the county reflected this network of transportation corridors; small towns grew at rail supply points, along the Potomac River, and along the roadway network. Railroad, canal, and road networks brought the industrial revolution to the county. Frederick County was of strategic transportation importance in the Civil War, but suffered greatly from loss of crops and structures, animals and goods from farms, mills, warehouses, and rural stores during the conflict. Two major battles occurred in Frederick County – South Mountain (1862) and Monocacy (1864).

The Battle of South Mountain

After invading Maryland in September 1862, Gen. Robert E. Lee divided his army to march on and invade Harpers Ferry. The Army of the Potomac under Major General George B. McClellan pursued the Confederates to Frederick, Maryland, then advanced on South Mountain. On September 14, 1862 pitched battles were fought for possession of the South Mountain passes: Crampton's, Turner's, and Fox's Gaps. By dusk the Confederate defenders were driven back, suffering severe casualties, and McClellan was in position to destroy Lee's army before it could reconcentrate. McClellan's limited activity on September 15, 1862 after his victory at South Mountain, however, condemned the garrison at Harpers Ferry to capture and gave Lee time to unite his scattered divisions at Sharpsburg. Union general Jesse Reno and Confederate general Samuel Garland, Jr., were killed at South Mountain.

The Battle of Monocacy

If judged by its consequences rather than its size, the Battle of Monocacy ranks among the important battles of the American Civil War. Here, July 9, 1864, on a checkerboard of gold wheat fields and green cornfields just outside Frederick, Maryland, Confederate forces under General Jubal Early defeated Union forces under General Lew Wallace. The battle cost Early a day's march and his chance to capture Washington, DC. Thwarted in the attempt to take the capital, the Confederates turned back to Virginia, ending their last campaign to carry the war into the North.

Early's bold raid was part of a plan to divert Union forces away from Robert E. Lee's army at Petersburg, Virginia. Pushing northward through the Shenandoah Valley, Early arrived at Winchester, Virginia, on July 2. After plundering Federal stores at Harpers Ferry, West Virginia, Early's men crossed the Potomac into Maryland at Sharpsburg, near Antietam, where a previous Southern offensive had ended in bloody battle two years before. Early's cavalry collected $20,000 from Hagerstown residents to spare their town. But at Frederick, where the main body of troops headed, General Early himself demanded, and received, $200,000 ransom.

Meanwhile, the Confederate actions were having the desired effect on Washington. Responding to alarm caused by Early's advances, General U.S. Grant dispatched a 5,000-man division under James B. Ricketts on July 6, and a few days later sent the full corps under H.G. Wright. Until those troops arrived, however, the only Federal army between Early and the capital city was a ragtag group of 2,300 men commanded by Major General Lew Wallace. At the time, Wallace, who would become best known for his book Ben Hur, was headquartered in Baltimore. Away from the battlefront, the district was used for training recruits. Most of Wallace's men had never seen battle. Wallace learned that a large enemy force was advancing. Uncertain whether Baltimore or Washington was the Confederate's objective, he knew he had to delay their approach until reinforcements could reach either city.

Transportation Network

The Federal Government's modern highway construction program began in the 1930s. The Civilian Conservation Corps established a watershed and conservation area for Frederick City on Catoctin Mountain, helping to emphasize the natural environment and spurring resort area development. Detrick Field National Guard emergency landing field and summer training post was established in 1929; this post became Fort Detrick and later the Army Chemical Warfare Service post in 1943.

The end of WW II is considered to be the beginning of the Modern Period in Frederick County, marking a shift from agricultural development to burgeoning cities. From 1945 to today, development is marked by the increasing dependence on the automobile as a primary transportation mode. Private building, influenced by the "prefab" technology, created sprawling residential communities. The county's population grew from little more than 57,000 in 1940 to almost 85,000 persons by 1970. Subdivisions began to appear at the edges of Frederick City, and the city began a series of annexations in the late 1960s to incorporate over 4,200 acres into the city's area. Historically open agricultural fields underwent a metamorphosis as development concentrated around population centers.

In the late 1970s, Frederick County's Department of Public Works was formed from its predecessor, the Metropolitan District and Sanitary Commission (MSC). The DPW incorporated public and privately owned systems, and began providing public water and sewer to unincorporated growth areas.

Transportation networks changed in response to economic and population trends beginning after 1945. Frederick Shopping Center, the first of the new trend in regional shopping centers, was built in the 1950s. A 4-lane divided highway, now US 15, was built adjacent to the shopping

center, drawing consumers from the historic shopping district in the city center. Small, rural general stores continued to decline in numbers. The interstate highway system, begun in the 1970s, with I-70 following generally the same route as US 40 and I-270 extending through the county from the Washington metropolitan area. The I-270 Corridor reflected the movement of population outward from the urban area of the nation's capital. The magnet of employment centers based in Frederick County was a factor in the continuing outward growth trend. This trend has had an effect on future land use planning. The Francis Scott Key Mall was built in the 1980s at the edge of Frederick along I-270; office and light industrial parks have proliferated along the historical routes of Buckeystown Pike (MD 85) and Urbana Pike (MD 355).

Frederick County has become a part of a "… dynamic regional economy transportation network, agricultural land base, and natural resource system. Regional trends and conditions create impacts which do not heed political boundaries."[1] Although Frederick County's growth was slower paced than other counties in the Baltimore or Washington prior to 1990, there has been an approximately 30% increase in population per decade between 1970 and 2000. The County is projected to grow at a faster rate than any of the other counties in the future.

Montgomery County

Montgomery County's early colonial settlement pattern was characteristic of plantation farming, with its major crop tobacco. The soils, rocky and thinner than those in Frederick County, did not support tobacco well, and the crops changed to wheat, dairy, orchard and garden. The transportation network included roads and waterways (the Potomac River and C&O Canal). Railroads, a great part of the transportation history of Frederick County, came later to Montgomery County in 1873. The lack of a vital transportation network spared the county much of the devastation that struck Frederick County during the Civil War.

Following the building of the Metropolitan Branch of the B&O Railroad in 1873, Montgomery County was transformed. Incoming fertilizers transformed the poor soils and transported crops to new markets. The railroad also opened the county to summer vacationers and the products of the Industrial Revolution.

Development in Montgomery County is marked by the beginnings of towns emerging close to Washington, DC, along roads that led like spokes from the Capital. Larger scale development followed with the development of more modes of transportation such as trolley, bicycle, and automobile. Washington D.C. grew following World War I, spilling over even more into Montgomery County, diffusing with the proliferation of the automobile.

The introduction of a water supply and sewer/sanitation system in 1916, under what became the Washington Suburban Sanitary Commission, aided development. Land use planning began to take hold formally in 1927.

Significant suburban residential development was followed closely by urban employment centers, including the National Institutes of Health and private industrial centers clustered and

[1] Frederick County Department of Planning and Zoning, Frederick County Comprehensive Plan. Volume I, Chapter 2 www.co.frederick.md.us/govt/planning, September, 2000.

spread along transportation routes. Single-story research and development complexes in spacious landscaped settings, surrounded by large areas for automobile parking, became characteristic of the county's continually spreading non-residential growth with its supporting infrastructure of commercial development. By 1980, the county had the potential to become "… an almost uninterrupted stretch of suburbia."2

The initial expansion into suburban areas adjacent to the District of Columbia had been followed by extensions of development along radial corridors and transportation routes, specifically I-270. The county's first substantial growth began just prior to World War II. The county's population doubled from 1940 to 1950 and again between 1950 and 1960. The county officially adopted the "… On Wedges and Corridors" General Plan in 1964, with its goals to reinforce the existing patterns of corridor development separated by wedges of less intensive use. In general, the plan has achieved success by containing the county's greatest growth along the corridors. From 1970 to 1980, 35% of all housing units and 50% of total population growth occurred in the I-270 Corridor.

Since its inception in 1964, the "… On Wedges and Corridors" General Plan has undergone refinement and revision (in 1969 and most recently in 1993). The original concepts, however, have remained successful in directing changes in land use and development of residential and employment areas centered along the transportation corridors. The county's population doubled between 1960 and 1990, reaffirming the goals of the plan. Less dense residential and agricultural "wedges" remain, providing low density and rural housing and protecting natural habitats and agricultural areas.

County and Regional Trends

Population trends in the Metropolitan Washington region have shown rapid growth in the 1960s, modest growth in the 1970s and early 1980s, and rapid growth in the late 1980s to reach approximately 3.9 million persons in 1990. Population is forecast is to increase by 43% between 1990 and 2020 and to reach 5.6 million by 2020. Growth is expected to be steady, adding about 56,000 persons per year. Continuing high rates of in-migration, internal immigration and level birth rates will contribute to the growing numbers of persons in the region. The number of persons 65 and older is expected to double; the number of children expected to increase by about 30%; and average household sizes are expected to decline.

Frederick County's population has seen significant growth in recent years. Annual population has risen on average 1,300 per year in the 1960s, 3,000 per year in the 1970s, 3,500 per year in the 1980s and 4,700 per year in the 1990s. Most of the recent increases are due to in-migration from surrounding counties. Annual recorded births in the county have increased steadily over the last 20 years from 1,279 in 1975 to 2,660 in 1996. The expected increase in older (45 years and up) persons is from 27.3% to 40% of the total population in the county.

Montgomery County is Maryland's most populous jurisdiction and its most affluent. Located next to the nation's capital, much of its growth has been and continues to be a function of its

2 Advisory Committee on Historic Sites and Districts, "Preliminary Draft Master Plan and Ordinance for Historic Preservation in Montgomery County, Maryland". The Maryland-National Capital Park and Planning Commission, April 1979.

location close to Washington, DC. The population, which doubled in the 1940s and again in the 1950s, increased by another 50% in the 1960s. The county saw another almost 50% increase in the two decades between 1970 and 1990 to about 757,000 persons. Although the percent growth has slowed, Montgomery County's population is expected to continue to increase.

3. Secondary and Cumulative Effects Analysis of Resources

a. Parklands

Background/Trends

The 11 parks directly impacted by the project alternates are identified and discussed in detail in the Section 4(f) Evaluation. More than 200 parks are located within the SCEA boundary. The parks are administered by a number of entities including the National Park Service, M-NCPPC and Frederick and Montgomery county's local or municipal jurisdictions. Each county is committed to the preservation and expansion of their parks as stated in their respective master plans. Montgomery County elaborates on their commitment to parklands in their Park Recreation and Open Space Plan and Frederick County's equivalent is their Land Preservation and Recreation Plan. Specific information on the historic growth of parklands within the SCEA boundary was not readily available.

Analysis and Effects

Section 4(f) of the US Department of Transportation Act of 1966, 49 USC. 303(c), requires that the proposed use of land from a publicly-owned public park, recreation area, wildlife and/or waterfowl refuge, or any significant historic site, as part of a federally funded or approved transportation project, is permissible only if there is no feasible and prudent alternate to the use. Final action requiring the taking of such land must also document and demonstrate that the proposed action includes all possible planning to minimize harm to the property resulting from such use. Therefore, the direct parkland impacts resulting from the I-270/US 15 Corridor improvements will be mitigated. However, the Section 4(f) requirements apply only to transportation improvement projects and therefore parks that may be impacted by other land use changes would not be protected in the same manner.

Secondary Effects

The Land Use Expert Panel identified the potential for residential and business development in some of the forecast zones that straddle the Corridor that is in excess of what the Master Plans describe. In particular zones Lewistown Zone #3, Frederick City Zone #5, Urbana Zone #8, Damascus-Brookeville Zone #10, Clarksburg Zone #15, Germantown Zone #17, Seneca Creek Zone #18, and Gaithersburg Zone #19 may each develop differently than as planned for in the county Master Plans.

The panel found that most of the additional development would occur regardless of the alternate, including the No-Build. However, they did identify some development difference in Frederick City Zone #5, Germantown Zone #17, and Gaithersburg Zone #19 that they attribute to the LRT or BRT alternates. Given the counties' commitments to preservation of parklands, development

accounted for in the county Master Plans can be expected be occur in a manner that preserves these resources. Based on the land use forecasts for these zones by the M-NCPPC, a substantial amount of the existing open space, parkland, conservation and agricultural acreage will be developed by 2025. While it is assumed that much of the changes will affect agricultural lands, a strong stewardship of parklands will be required to protect these resources.

Cumulative Impacts

Impacts to parklands within the SCEA resulting from other future actions, including future development, are anticipated to be minimal as parklands are protected from development impacts, through the counties and the state. Impacts to public parks and recreation areas as a part of a federally funded or approved transportation project would require a Section 4(f) Evaluation to document that there are no feasible or prudent alternates to the use of land from the park, and that the project includes all possible planning to minimize harm to the park.

b. Cultural Resources

A total of 61 historic properties are listed in the National Register of Historic Places are located within the SCEA boundary. These historic properties are listed in **Table III-103** and their locations illustrated in **Figure III-62**. In addition to historic sites listed in the National Register, 1,312 sites (including historic roads, districts, and properties) within the SCEA are recognized by Maryland as being historic, and should therefore be preserved. There are also 413 archaeological sites within the SCEA boundary.

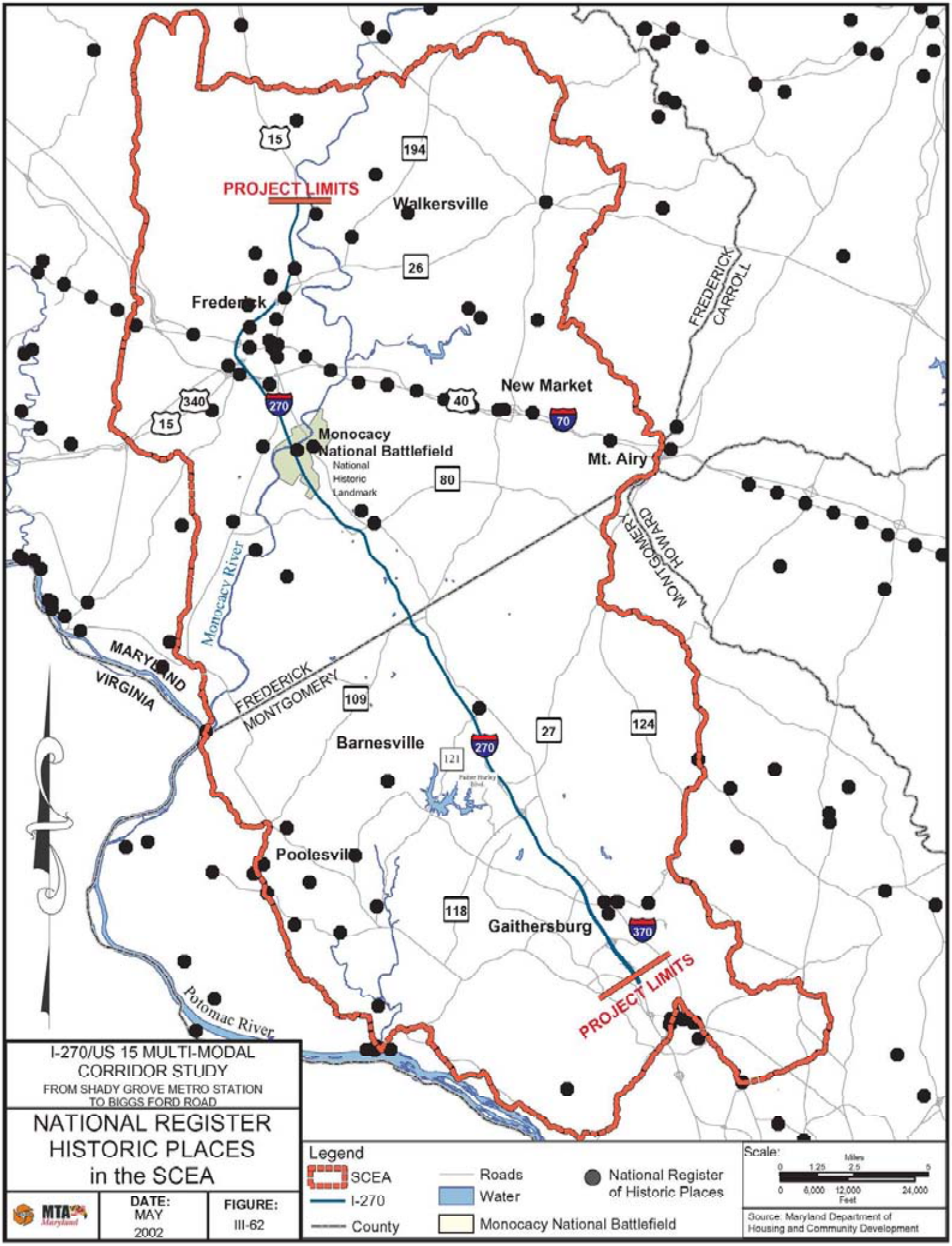

PROJECT LIMITS
Walkersville
Frederick
New Market
Monocacy National Battlefield
National Historic Landmark
Mt. Airy
Monocacy River
MARYLAND
VIRGINIA
FREDERICK
MONTGOMERY
FREDERICK
CARROLL
MONTGOMERY
HOWARD
Barnesville
Poolesville
Gaithersburg
Potomac River
PROJECT LIMITS
15
194
26
340
15
270
40
70
80
109
27
124
121
118
370
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
NATIONAL REGISTER HISTORIC PLACES in the SCEA
MTA Maryland
DATE: MAY 2002
FIGURE: III-62
Legend
SCEA
I-270
County
Roads
Water
Monocacy National Battlefield
National Register of Historic Places
Scale:
Miles
0 1.25 2.5 5
0 6,000 12,000 24,000
Feet
Source: Maryland Department of Housing and Community Development

TABLE III-103
HISTORIC PROPERTIES ON THE NATIONAL REGISTER
WITHIN THE SCEA BOUNDARY

Nat. Reg. Ref #	County	Forecast Zone	Name	Date Listed
71000373	Frederick	Frederick City, #5	Hessian Barracks	1/25/1971
71000374	Frederick	Frederick City, #5	Rose Hill Manor	12/14/1971
72000580	Frederick	Frederick City, #5	Loats Female Orphan Asylum of Frederick City	10/10/1972
73000919	Frederick	Urbana, #8	Amelung House and Glassworks	10/3/1973
88000713	Frederick	Frederick City, #5	Frederick Historic District	10/18/1973
66000908	Frederick	Frederick City, #5, New Market, #9 Point of Rocks, #7 Urbana, #8	Monocacy National Battlefield	11/12/1973
74000951	Frederick	Frederick City, #5	Nallin Farmhouse	5/23/1974
74000952	Frederick	Frederick City, #5	Schifferstadt	7/22/1974
73000917	Frederick	Woodsboro/ Walkersville, #4	Abraham Jones House	7/24/1974
75002107	Frederick	Frederick City, #5, Myersville, New Market, #9	Old National Pike Milestones	3/27/1975
75000896	Frederick	Urbana, #8	Stancioff House	4/23/1975
75000894	Frederick	Lewiston, #3 Woodsboro/ Walkersville, #4	Biggs Ford Site	6/10/1975
75000151	Frederick	Point of Rocks, #7	Monocacy Site	7/30/1975
75000895	Frederick	Frederick City, #5	Guilford	10/14/1975
75000897	Frederick	New Market, #9	New Market Historic District	12/6/1975
77000695	Frederick	Frederick City, #5	Nallin Farm Springhouse and Bank Barn	9/17/1977
77000696	Frederick	Frederick City, #5	One-Million-Liter Test Sphere	11/23/1977
7800317X	Frederick	Lewiston, #3 Thurmont, #1	Covered Bridges in Frederick County, Maryland	6/23/1978
78001455	Frederick	Frederick City, #5, Point of Rocks, #7	Arcadia	8/3/1978
78001463	Frederick	Woodsboro/ Walkersville, #4	Crum Road Bridge	12/28/1978
79001133	Frederick	Urbana, #8	Fat Oxen	5/21/1979
79001130	Frederick	New Market, #9	Thomas Maynard House	7/18/1979
79001129	Frederick	Frederick City, #5	Edgewood	8/29/1979

TABLE III-103 (CONTINUED)
HISTORIC PROPERTIES ON THE NATIONAL REGISTER
WITHIN THE SCEA BOUNDARY

Nat. Reg. Ref #	County	Forecast Zone	Name	Date Listed
79003276	Frederick	Woodsboro/ Walkersville, #4	Woodsborough & Frederick Turnpike Company Toll House	9/24/1979
80001810	Frederick	Frederick City, #5	Prospect Hall	9/8/1980
80001811	Frederick	Woodsboro/ Walkersville, #4	Henry Nelson House	12/4/1980
82002811	Frederick	Point of Rocks, #7	Buckeystown Historic District	4/6/1982
82002812	Frederick	Point of Rocks, #7	Buckingham House and Industrial School	5/20/1982
82001592	Frederick	Frederick City, #5	John C. Motter House	12/2/1982
84001772	Frederick	Frederick City, #5	Spring Bank Farm	9/7/1984
85002172	Frederick	Frederick City, #5	George Widrick House	9/12/1985
85002672	Frederick	Frederick City, #5	Frederick Armory	9/25/1985
85002902	Frederick	Urbana, #8	Gambrill House	11/18/1985
86003543	Frederick	New Market, #9	Drummine Farm	1/8/1987
87001570	Frederick	Frederick City, #5	Linden Grove	9/10/1987
94000799	Frederick	Woodsboro/ Walkersville, #4	Harris Farm	7/29/1994
N/A	Both	Brunswick, #6 Point of Rocks, #7 Poolesville/ Darnestown, , #13 Urbana, #8	Chesapeake & Ohio Canal National Park	10/15/1966
73000224	Montgomery	Poolesville/ Darnestown, #13	Seneca Quarry	4/24/1973
74000960	Montgomery	Poolesville/ Darnestown, #13	Chiswell's Inheritance	9/10/1974
75000909	Montgomery	Clarksburg, #15	The Clarksburg School	2/20/1975
75000913	Montgomery	Poolesville/ Darnestown, #13	Poolesville Historic District	5/29/1975
75000915	Montgomery	N/A	West Montgomery Avenue Historic District	5/29/1975
75000912	Montgomery	Poolesville/ Darnestown, #13	Old Chiswell Place	9/9/1975
75000911	Montgomery	Laytonsville, #14	Layton House	9/25/1975
78001473	Montgomery	Gaithersburg, #19	Gaithersburg B & O Railroad Station and Freight Shed	10/5/1978
78001475	Montgomery	N/A Poolesville/ Darnestown, #13	Seneca Historic District	11/15/1978
79001140	Montgomery	Poolesville/ Darnestown, #13	Darnall Place	8/13/1979
80001829	Montgomery	Gaithersburg, #19	Washington Grove Historic District	4/9/1980
80001823	Montgomery	Poolesville/ Darnestown, #13	Hanover Farm House	8/6/1980
80001828	Montgomery	N/A	Bingham-Brewer House	11/24/1980
82002818	Montgomery	Poolesville/ Darnestown, #13	Valhalla	3/15/1982

TABLE III-103 (CONTINUED)
HISTORIC PROPERTIES ON THE NATIONAL REGISTER
WITHIN THE SCEA BOUNDARY

Nat. Reg. Ref #	County	Forecast Zone	Name	Date Listed
83002956	Montgomery	N/A	Montrose Schoolhouse	1/24/1983
83002958	Montgomery	Poolesville/ Darnestown, #13	Susanna Farm	1/27/1983
84001845	Montgomery	Gaithersburg, #19	J.A. Belt Building	8/9/1984
85001578	Montgomery	Gaithersburg, #19	Gaithersburg Latitude Observatory	7/12/1985
86000371	Montgomery	Boyds, #16	Drury-Austin House	3/13/1986
88002143	Montgomery	Poolesville/ Darnestown, #13	Dowden's Luck	11/10/1988
90001025	Montgomery	Gaithersburg, #19	Thomas & Company Cannery	7/5/1990
92001383	Montgomery	Poolesville/ Darnestown, #13	Friends Advice	10/28/1992
96000902	Montgomery	N/A	Edward Beale House	8/16/1996

***Source**: Maryland Department of Housing and Community Development*
***Note**: N.A (not applicable) is a designation for those areas inside of the SCEA, but outside of a forecast zone.*

Background/Trends

On a state level, the Maryland State Historic Preservation Office (SHPO) maintains a state-based historic property registration program. Importantly, the SHPO routinely prepares a state historic preservation plan that provides information about trends affecting historic properties. This document provides data on proposed efforts to more fully identify, document, register, and enhance historic properties. The plan often includes information about historic property rate of loss data, and includes a description of efforts to partner with Federal, State, and local agencies and private non-profit organizations regarding preservation projects of importance.

At a local level, in both Montgomery and Frederick counties, an array of sophisticated historic preservation initiatives provide for ongoing study, identification, and protection of both historic standing structures and archaeological sites.

Montgomery and Frederick Counties Historic Preservation

In Montgomery County, the population has increased exponentially in the past several decades. Since then, the ever-increasing population has placed greater demands on development of open areas and redevelopment of already existing structures. As once important structures began to vanish, the need to preserve Montgomery County's historic sites and landmarks was realized. Thus, in 1979 a Historic Preservation Ordinance was passed. The law takes a pro-active stance in realizing that change needs to occur, but that there are some things worth preserving.

The enforcement authority of the Historic Preservation Ordinance is the Historic Preservation Commission. This group consists of 9 volunteers appointed by the County Executive for 3-year terms. Some of their duties include evaluating sites to be considered for preservation, reviewing

work permits concerning historic sites, informing the public and holding workshops on historic preservation techniques. In order to encourage preservation in Montgomery County, several benefits have been presented in order to minimize the restoration costs of historic sites. Such incentives include a county 10% tax credit, low-interest loans provided by the state, 25% state income tax credit on costs incurred on restoration, and a federal 20% tax credit on costs incurred when dealing with properties listed in the National Register of Historic Places.

Where Montgomery County borders Washington, DC, it serves as a separator between the city and Frederick County. Because of this, Frederick County's population increase was not as pronounced as Montgomery's in the same period of time. The pressure for increased development was lower, and fewer historic sites were cleared in order to make way for more modern development. Perhaps this is attributable to why the historically more rural Frederick County has identified more existing state and nationally recognized historical sites than Montgomery County (66 vs. 58 respectively). Where Montgomery County realized the need to save historic sites in the late 1970's, it was not until the 1990's when Frederick County began to face the same challenges. In 1997 Frederick County adopted a County Historical Preservation Plan and creation of a Historic Preservation Ordinance as well as a Commission to enforce it.

The Frederick County Historic Preservation Commission consists of 11 volunteers and two alternates who serve 1 to 3 year terms. If an owner of a property nominates their property for the Historic Register, the Commission reviews its eligibility and decides whether or not a property is historic. Once the property is listed, the Preservation Commission must review proposed changes to the exterior of their structures and their setting. The Commission also works towards educating the public about the importance of historic preservation.

For those who wish to improve and restore a historic site, the same incentives exist for those in Frederick County as they do in Montgomery County, including the local property tax credit, and an additional limited-time reimbursement of assessed rehabilitation costs.

Complementing these county-administered programs are a variety of private, non-profit historic preservation-related private, non-profit organizations.

Local agencies that work towards historic preservation for Frederick County include the Frederick City Historic District Commission, the New Market Historic District Commission, the Frederick County Landmarks Foundation, the Historical Society of Frederick County, the Frederick County Historic Trust, the Frederick Historic Sites Consortium, the Tourism Council of Frederick County, Inc., the Brunswick History Commission, the Brunswick-Potomac Foundation, the Frederick County Civil War Round Table, Friends of Monocacy Battlefield, the Central Maryland Heritage League, the Middletown Valley Historical Society, the Frederick County Covered Bridge Preservation Society, the Buckeystown Preservation Society, the South Mountain Heritage Society, the Emmitsburg Historical Society, the Urbana Historical Society, the Thurmont Historical Society, the Catoctin Furnace Historical Society, the Walkersville Heritage Farm Preservation Society, and the Woodsboro Historical Society.

In Montgomery County, local groups that work towards historic preservation are the Montgomery County Historical Preservation Commission, Rockville Historical Preservation

Commission, Gaithersburg Historical Preservation Commission, Washington Grove Historical Preservation Commission, Garret Parks Historical Preservation Commission, Laytonsville Historical Preservation Commission, and both Barnesville and Laytonsville have commissioners who work with historic preservation issues. Other groups involved are Peerless Rockville, Friends of Hyattstown, Historic Medley District, the Potomac Conservancy, Sugarloaf Countryside Conservancy, and Sandy Spring Green Space.

Analysis and Effects

Secondary Effects

Secondary impacts to cultural resources are addressed through the Section 106 coordination efforts, which include an investigation of noise and visual impacts and addresses the settings of resources as well as the resources themselves. However, cultural resources located in forecast zones that may be under more pressure for redevelopment than anticipated under the Master Plans should be given special attention. Additionally, historic resources affected by transportation projects are given extra consideration by Section 4(f) of the US Department of Transportation Act of 1966, 49 USC. 303(c), as described under the SCEA discussion of parklands, **Section III.O.3.a**.

Cumulative Impacts

Due to the unavailability of records showing trends in the elimination or protection of historic sites in the past to present time frame, a trends analysis was not conducted for these resources. However, for present and future time frames, it is assumed that development pressures associated with population and employment growth may effect existing historic resources or properties that may be determined historically significant in the future. Both Montgomery and Frederick and counties have responded to the loss of cultural resources resulting from development through their Historic Preservation Commissions. These commissions will work to ensure that planned future development protects these resources to the extent possible. However, the Land Use Expert Panel did identify some residential and business development in some of the forecast zones that is different from what the Master Plans describe. In particular the Lewistown Zone #3, Frederick City Zone #5, Urbana Zone #8, Damascus-Brookeville Zone #10, Clarksburg Zone #15, Germantown Zone #17, Seneca Creek Zone #18, and Gaithersburg Zone #19 can all be expected to develop to a different extent than the Master Plans call for. In three of these zones (Frederick City Zone #5, Germantown Zone #17, and Gaithersburg Zone #19) this difference in development may be a result of the project alternates. Cultural resources located in these forecast zones may be under more pressure for redevelopment than anticipated under the Master Plans. Special attention should be given to those resources for which the settings are contributing factors in the historic significance.

c. Surface Water

Surface waters within the SCEA boundary include 23 major streams. Twelve of these streams are within Montgomery County and include Gunners Branch, Wildcat Branch, Rock Creek, Little Monocacy River, Seneca Creek, Dry Seneca Creek, Great Seneca Creek, Little Seneca Creek,

Ten Mile Creek, Bennett Creek, Muddy Branch, and Little Bennett Creek. The remaining streams are located in the northern portion of the study area within Frederick County and include Bennett Creek, Little Bennett Creek, Linganore Creek, Urbana Branch, Monocacy River, Quarry Branch, Arundel Branch, Rock Creek, Carroll Creek, Tuscarora Creek, and Muddy Run. In addition, there are lakes within the SCEA boundary. Four of these lakes are within Montgomery County and include Little Seneca Lake, Gunners Lake, Lake Churchill and Clopper Lake. Two of these lakes are within Frederick County and include Lilypons fish hatchery and Lake Linganore.

The Monocacy is the largest Maryland tributary to the Potomac River and forms near the Maryland and Pennsylvania border west of Harney, Maryland, at the confluence of Marsh and Rock creeks. From its origin, the river flows south to Double Pipe Creek, marking the border between Frederick and Carroll counties. Continuing south solely within Frederick County, it flows east of Frederick City and empties into the Potomac River near Dickerson, Maryland, some 58 miles from its source. Throughout the 17th and 18th centuries, several Indian tribes periodically inhabited the Monocacy River valley. To this day, agriculture constitutes the economic mainstay of the Monocacy watershed. The river was not heavily navigated. Because the Monocacy flows north to south and not west to east like the majority of Piedmont waterways, it was inefficient for shipping goods to Baltimore or Washington.

The Monocacy watershed, a sub-basin of the Middle Potomac River basin, encompasses 774 square miles -- or 476,200 acres -- 75 % of which is in the State of Maryland and the rest, in Pennsylvania. Roughly three-quarters of the land in the watershed has been cleared for agriculture and currently supports about 3,500 farms, averaging 150 acres each. The remaining land supports forests, the City of Frederick, and ever-growing residential neighborhoods. Sediment continues to be a management problem for the basin. High levels of sediments suspended in surface waters periodically force the closure of drinking water supplies up river and the need for additional chemical treatment in drinking water from lower stretches and the Potomac. Agriculture practiced on highly erodible soils has the potential to degrade both surface and groundwater resources by contributing nutrients (such as nitrogen and phosphorus), agrichemicals, and sediment. Recognizing this, the Maryland Department of Agriculture has targeted the Monocacy watershed as a top water quality management priority.

Across the Monocacy watershed, crop land soil erosion ranges from two to 35 tons per acre (and more on intensively cultivated land) per year. Of the 3,500 farms in the watershed, most are commercial operations such as dairy, poultry, hogs, and horses. Together, these livestock operations produce nearly 1,119,400 tons of manure annually containing the equivalent of 4,400 tons of nitrogen and 900 tons of phosphorus. This animal waste, along with processed water from milking parlors that produces additional nutrients, organic material, and pathogens, eventually fouls the odor, taste, and appearance of surface waters. And fecal coliform, an indicator of disease-causing organisms, has been a persistent problem for a section of the river below the Frederick Sewage Treatment Plant. Failing septic systems also contribute to nutrient enrichment problems. National studies have shown that the use of inorganic nitrogen fertilizers increased four-fold from 1960 to 1980. Nitrogen is of particular concern because it readily dissolves in water and in high concentrations can cause illness in infants.

After passage of the SWRA, officials identified the Monocacy River as a significant state resource and prime candidate for scenic designation. Approval came on April 30,1974 and a management plan with recommendations to conserve, preserve, and manage the Monocacy and its tributaries is now in place.

Dry Seneca Creek is located just south of Route 107 near Poolesville and connects with Great Seneca Creek to the southeast. No detailed assessment information was available.

Little Bennett Creek is a stream valley greenway originating in Oak Ridge and traveling southwest through Clarksburg and into the Black Hill Regional Park. No detailed assessment information was available.

The Seneca Creek watershed covers 128 square miles, or 27% of Montgomery County, however, the drainage area in the Potomac Subregion is only about nine square miles or 5,776 acres. Seneca Creek is the largest watershed wholly within the County. Due in part to the size of its watershed, Seneca Creek takes on the character of a small river as it approaches its confluence with the Potomac. The Seneca watershed is the most rural of the watersheds in the Potomac Subregion. The rolling landscape is dominated by farm fields and woodlots and punctuated by large-lot developments. The stream valley, which is largely within Seneca Creek State Park, contains extensive areas of mature upland and floodplain forests. Imperviousness in the portion of the watershed in the Potomac Subregion ranges from 4 to 11%. Within the Potomac Subregion, the Seneca watershed contains approximately 2,500 acres of forest (EA 1997a).

The Countywide Stream Protection Strategy (CSPS) characterized the portion of Seneca Creek in the Potomac Subregion as fair to good for stream habitat conditions (MCDEP1997). Areas lower in the watershed are in better condition than the headwater sections draining urbanized areas of Shady Grove and the city of Gaithersburg.

In 1976, a concept plan containing a summary of water quality information for Seneca Creek for a period ending in 1972 presented an overview of water quality conditions in the Seneca Creek watershed (M-NCPPC, 1976). The report concluded that Seneca Creek generally did not have water quality problems related to dissolved oxygen, pH, turbidity, temperature, nutrients (nitrates and phosphates), and biochemical oxygen demand. However, the report indicated that none of the streams in the Seneca Creek watershed met the fecal coliform standard at all times. From 1977 to 1985, Seneca Creek experienced a statistically significant trend of degrading water quality on the basis of total suspended solids (TSS) and fecal coliform (MDE 1988). This trend appears to have stabilized, as the levels of TSS and fecal coliform decreased significantly between 1985 and 1987 (MDE 1988). Data for subsequent years indicate slightly elevated levels of TSS and fecal coliform (MDE 1991, 1994), but do not provide sufficient information to determine if the trend is increasing or decreasing. The improved water quality is evidenced by the reported health of the benthic macroinvertebrate community. Surveys completed over the years 1989-1993 indicate good, unimpaired habitat with a moderately impaired aquatic community (MDE 1991, 1994).

Water quality information available for the portion of Seneca Creek in the Potomac Subregion indicates that from 1977 through 1985, decreasing water quality was documented based on total

suspended sediment and fecal coliform (MDE 1988). Prior to this period, water quality was characterized as good even though all streams failed the fecal coliform standard at times (M-NCPPC 1976). There was insufficient data to evaluate trends in stream biological resource conditions. Great Seneca Creek is an existing stream valley greenway, which begins in Damascus and connects with the Potomac River. Additional linkages occur with Dry Seneca and Little Seneca Creeks.

Little Seneca Creek is a partially established greenway that originates south of Clarksburg and links with Great Seneca Creek to the southwest. No detailed assessment information was available.

Muddy Branch is an existing stream valley greenway beginning south of Gaithersburg and connecting to the Potomac River. No detailed assessment information was available.

Rock Creek is a stream valley greenway that originates south of Route 108, passes through Rockville, and enters the District of Columbia below Chevy Chase. The Rock Creek Greenway extends through Washington, DC, to the Lincoln Memorial. Data from the one CORE station in the lower mainstem creek at East-West Blvd shows elevated bacteria levels that are likely due to upstream nonpoint runoff from urban areas and natural sources. Data from nine biological sampling sites in three sub-watersheds were analyzed using draft biological criteria protocols. Because of poor fish and/or benthic communities at four stations, shallow (wadeable) streams in Rock Creek tributary and Mill Creek sub-watershed were listed as not supporting all/aquatic life uses. Biologists did not any site-specific habitat and water quality issues that might affect the aquatic community, although, in this setting, urban runoff and stream alterations should be considered as likely factors.

Ten Mile Creek is a stream valley greenway connecting the Little Bennett Greenway and the Little Seneca Greenway via Black Hill Regional Park. No detailed assessment information was available.

Little Seneca Lake - 505.0 acres and Clopper Lake - 90.0 acres are classified as mesotrophic (Herb, 1993).

Effects Analysis

The conversion of open-space and forested areas to impervious areas or manicured landscapes would be expected to increase surface runoff and peak storm flows as well as introduce sediment and other pollutants into waterways. These effects would be somewhat mitigated by required compliance with water quality protection regulations administered by the Maryland Department of the Environment (MDE). These regulations require reductions in runoff and pollutant loadings through the use of approved stormwater management and erosion and sediment control plans. Infill development is also likely to add to past and current water quality impacts, as it would further reduce the remaining natural areas in the project area available to filter and infiltrate runoff. Areas where redevelopment is expected would most likely have limited net impacts on water quality, as most of the conversion of impervious areas would have occurred

during the original development of the land. In addition, new projects would be required to comply with current regulations to reduce water quality impacts wherever possible.

Wild and Scenic Rivers

Under the Wild and Scenic Rivers Act, as amended in 1984, protects the rivers of Maryland or portions of them and their related adjacent land areas that possess outstanding scenic, geologic, ecologic, historic, recreational, agricultural, fish, wildlife, cultural, and other similar values. The policy of the State is to preserve and protect the natural values of these rivers, enhance their water quality, and fulfill vital conservation purposes by wise use of resources within their surrounding environment. Development of a Scenic and Wild Rivers Program fulfills these purposes.

The Monocacy River and its tributaries is the only river in the SCEA boundary that is included in the Wild and Scenic Rivers Program. In 1984, the Maryland Water Resources Administration conducted a rivers study that identified 250 miles of rivers and river segments, which possess significant natural, recreational, and cultural resources values. The Seneca Creek is the only stream in the SCEA boundary that is designated as highly significant.

Effects Analysis

Secondary Effects

Presently, the Monocacy River is directly impacted by I-270 in one location, where I-270 crosses over the Monocacy River in the Monocacy National Battlefield. In addition, the river's tributaries cross the I-270 corridor in numerous locations. The proposed improvements to I-270 will additionally impact the Monocacy River and its tributaries. Future development in this area may negatively impact the Monocacy River, as parkland buffers protect only a few areas. Some of the portions that are not protected by parkland serve as the border to 3 forecast zones (3, 5, 8), which the Land Use Expert Panel estimates will grow faster by than Frederick County's master plan's projections. However, all areas surrounding the Monocacy River and its tributaries are anticipated to experience a substantial increase in both population and employment over the next 25 years. The result of development in this area may therefore negatively impact the river aesthetically, physically, and biologically.

Except for the portion of Seneca Creek that will be impacted directly by the I-270 improvements, no other portion of this scenic body of water are anticipated to be impacted, as the entire portion of Seneca Creek is already protected as parkland area. From its mouth at the Potomac River up to MD 108, 100% of it falls within various parklands, though most of it lies within Seneca Creek State Park and Great Seneca Park. Although several segments of Seneca Creek (totaling approximately 3 miles), north of MD 124 may not be identified as parkland in the ADC Map, the same areas were identified as parkland in the Damascus-Brookeville Zone #10 of the Land Use Expert Panel. This is very important, because Zone #10 is expected to grow considerably by approximately 6,000 people (20%), and 1,500 jobs (20%). Note however, that this growth is anticipated to occur under all future scenarios, including the No-Build. This area of Seneca

Creek lies in an area that is mostly undeveloped, and may be under threat by future development, if the area is in fact not protected as parkland.

Cumulative Effects

Overall, these areas will face a great amount of development in the near future. As described above, unless these valuable resources are protected, future development may negatively impact the presence and usage of these bodies of water aesthetically and physically. If more of these areas were protected as parklands or conservation areas, then these areas would be guarded against impact from future residential and commercial development. Frederick County realizes the importance, as described in their Park an Recreation Plan, where it said "As land along the Monocacy River, particularly in areas adjacent to existing bride crossings, becomes available for development, Frederick County should obtain suitable property to provide public access points to the river." It also lists as on of its policies in the same document that "The county shall establish a 500-foot development setback/buffer are along the Monocacy Scenic River…"

d. Floodplains

Floodplains within the SCEA boundary are found along the Potomac and the Monocacy Rivers as well as their tributaries. These include Great Seneca Creek, Little Seneca Creek, Ten Mile Creek, Dry Seneca Creek, Little Monocacy River, Bennett Creek, Bush Creek, Ballenger Creek, Linganore Creek, Rock Creek, Israel Creek, Big Tuscarora Creek, Glade, Muddy Run, and Fishing Creek.

Analysis and Effects

Secondary Impacts

In Maryland, federal and local regulations discouraging development in floodplains would apply, and any floodplain encroachment would also require authorization by the Maryland Department of the Environment under a Waterways Construction Permit. Due to the current regulatory framework and future plans to set floodplain areas aside, effects to floodplains under the future land use scenarios within the project area are expected to be minimal. Secondary effects to floodplains from the project are not expected.

Cumulative Impacts

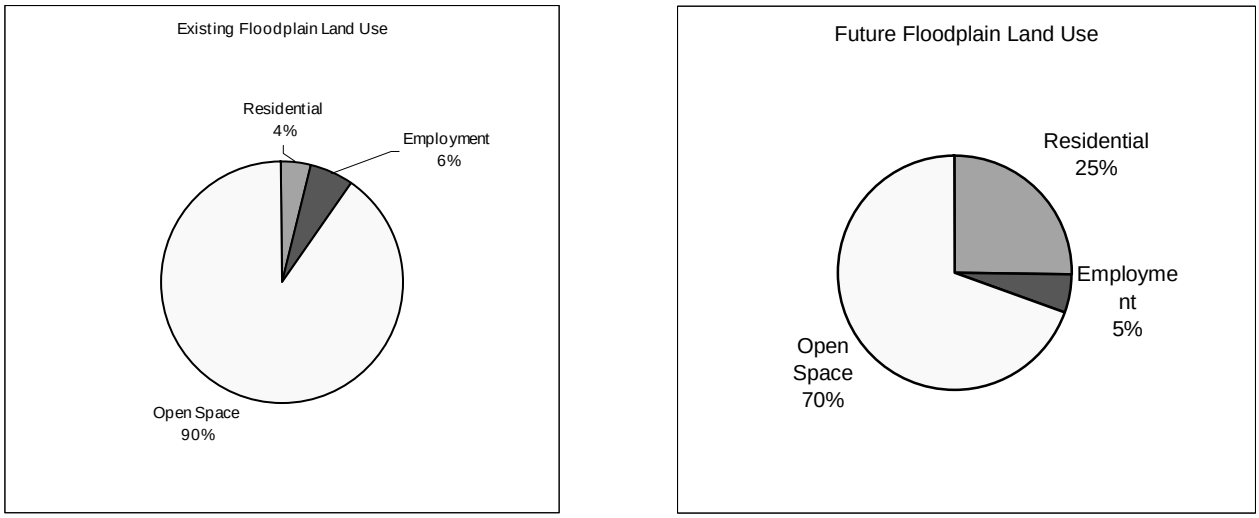
Recently, floodplains and riparian fringe wetlands have been altered to increase the stability of agricultural land in the area. Farmers sought to curb potential damages by flood pulses through the filling of floodplains, construction of earthen berms parallel to waterways, and other methods. Interestingly, the comprehensive urbanization of the SCEA study area in the mid-1900s only increased this trend, as residences, local roads, and other features of development were constructed within floodplains due to the rising value of land in the region.

According to MDE statistics, the percentage of land in Frederick County located within the floodplain is 6.5%. MDE does not currently have statistics for Montgomery County.

The project's 3 to 24 acres of impacts (depending on the alternate selected) may make an incremental contribution to cumulative floodplain effects in the SCEA boundary, given the successive loss of floodplain area over the SCEA time frame. This effect will be minimized to some extent within the study area through mitigation sites that would enhance local floodplain function. Known impacts from other projects may involve up to 10 acres of additional floodplain impacts within the SCEA boundary.

Within the SCEA boundary, 90% of floodplain area, which represents 17% of the SCEA boundary, consists of open space. According to future land use plans, further residential development will occur in these areas, thus increasing the area of impermeable land within the floodplains. As residential development increases, open space within the floodplain will decrease to 70% (see **Figure III-63**). As more homes are built in these areas, the risk of flooding and property damage will greatly increase. The floods themselves will also be worse because they will recede at a slower with more impermeable surfaces. Today, federal and state floodplain regulations and a wider appreciation for the valuable functions of floodplains and the dangers inherent in building on them, make it unlikely that historic rates of floodplain encroachment would continue.

Figure III-63: Floodplain Land Use Trends within the SCEA Boundary



Source: Maryland Department of Natural Resources

e. Waters of the United States

Nontidal Wetlands

The primary federal statutory protection for nontidal wetlands is found in Section 404 of the Clean Water Act, which requires that a permit be obtained from the US Army Corps of Engineers prior to the discharge of dredge or fill material into the navigable waters of the US. In 1989, the Maryland General Assembly passed the Non-tidal Wetlands Protection Act, establishing a statewide program for the conservation, enhancement, regulation, creation, and monitoring of non-tidal wetlands. The goal of this program is no net overall loss of non-tidal wetland acreage

and function. This Act is administered by the MDE as a permit program in coordination with MDE's Water Quality Certification (WQC) Program and the USACOE. Beginning in 1991, all regulated activities require a non-tidal wetlands permit except for agricultural and forestry operations (which must incorporate other, best management practices) and repair and maintenance activities that do not eliminate additional non-tidal wetlands.

According to Status and Recent Trends of Wetlands in Five Mid-Atlantic States, in 1978, Maryland possessed an estimated 438,000 acres of wetlands, which occupied about six% of the states land area. Eight percent (21,000 acres) of these wetlands were located in the Piedmont region. In the Wetland Status and Trends In Selected Areas of Maryland's Piedmont Region (1980 to1981 to 1988 to 1989), a portion of the SCEA boundary was studied (Walkersville, Libertytown, Buckeystown, Urbana, Rockville, and Kensington; USGS quad). Of this study it was determined that in 1988 to 1990 the study area had approximately 4,298 acres of wetlands, excluding linear fringe wetlands along narrow streams. The total amount is approximately 1.9% of the area's land surface. Between 1980 to 1981 and 1988 to 1989, the area lost 98 acres of vegetated wetlands.

Currently, 15,073 acres, or 3.9% of Frederick County's land area, are classified as wetlands soils and are therefore subject to development regulations.

Secondary Effects

Substantial secondary impacts to Waters of the US are not expected to occur as a result of any of the alternates considered. Direct (project-related) impacts to wetlands and Waters of the US will be offset by the proposed mitigation package. Most in-stream construction activities associated with the project will occur in areas previously disturbed by development in the project area. Since the project is not expected to dramatically increase development rates or densities in the SCEA boundary, and waterway protection regulations have been established at the federal, state, and local level in the SCEA boundary, no secondary impacts to Waters of the US are anticipated to occur as a result of this project. The use of Best Management Practices and adherence to established riparian buffer zones by future developers in the SCEA boundary will minimize overall impacts.

Cumulative Impacts

Vegetated wetlands within the SCEA boundary include emergent, scrub-shrub and forested nontidal wetlands of the Muddy Run, Tuscarora Creek, Carroll Creek , Rock Creek, Monocacy River, Bennett Creek, Little Bennett Creek, Wildcat Branch, Gunners Branch, Little Seneca Creek, and Great Seneca Creek. Nontidal wetlands in the SCEA boundary are mostly broad-leaved, deciduous, forested wetlands located in stream valleys, but some emergent and scrub-shrub wetlands are also present. Many of the wetlands have been greatly altered by human activity and land development leading to channelization, draining, removal of vegetation, and filling of these resources.

David Walbeck, Maryland Department of the Environment, provided nontidal wetland impact data by watershed segment. **Table III-104** illustrates the information obtained in the SCEA boundary.

TABLE III-104
NONTIDAL WETLAND IMPACT DATA (IN ACRES) 1/01/1991-12/31/2000

Basin	Permanent Impacts	Permitted Mitigation	Programmatic Gains	Other Gains	Net
Rock Creek	-2.20	2.96	0.00	0.00	0.75
Seneca Creek	-7.85	14.30	0.00	0.40	6.86
Potomac River Montgomery County	-3.53	1.34	6.00	0.59	4.40
Potomac River Frederick County	-0.29	0.00	0.00	0.00	-0.29
Lower Monocacy River	-5.21	4.57	37.50	0.11	37.16
Upper Monocacy River	-1.57	1.67	0.00	0.00	0.10
Total	**-20.65**	**24.84**	**43.5**	**1.1**	**48.98**

According to Wetlands of Maryland, the overall effect of wetlands in Maryland has been a loss and degradation of wetlands. This degradation can be attributed to both human and natural threats. Extensive conversion of wetlands to other uses has occurred since Maryland's settlement in the 1600's. It is estimated that Maryland's pre-settlement wetland acreage is 1.2 million acres. The Tiner and Finn study (1986) reported that Maryland's palustrine vegetated wetlands declined substantially between 1955 and 1978; roughly 15,000 acres. The Tiner and others study (1994), Maryland experienced a net loss of 4,324 acres of palustrine vegetated wetlands between 1982 and 1989.

Within the SCEA boundary over the last 20 years, many Waters of the US have been altered, compromised, or lost. This is primarily a result of urban and suburban development in the region, and an initial lack of enforcement of waterways protection regulations. The initial construction of I-270 played a role in this trend. However, Waters of the US are not expected to be impacted overall as a direct result of this project, based on two factors. First, many of the Waters of the US which will be affected by the project were previously culverted during the construction of I-270. The addition of culvert length is often not a significant factor to waterways impacts, once the waterway has already been placed in culvert. Second, the proposed mitigation package for wetlands and waterways impacts will help stabilize overall impact trends in the SCEA boundary, and effectively eliminate any potential contribution made by the project to long-term impacts to Waters of the US. Therefore, the project's 0.5 to 12.2 acres of impacts (depending on the alternate selected) are not anticipated to cause significant cumulative impacts on Waters of the US within the SCEA boundary, since its contribution to long-term regional

trends will be minimal. Known impacts from other projects may involve up to three acres of additional wetland impacts within the SCEA boundary.

Large commercial, industrial, and residential developments are planned for some parts of the SCEA boundary, particularly southern Frederick County. Management of this continued development and the construction activities associated with it will play an important part in stabilizing the quantity and quality of aquatic habitats within the SCEA boundary. These processes will operate independently of the project, and will not be accelerated or promoted as a result of the project.

f. Terrestrial and Aquatic Habitat/Species

Deforestation has historically occurred, and continues to occur, within the SCEA boundary. Soon after European settlement in the Washington, D.C. area began, the Montgomery County and Frederick County areas were established to provide agricultural goods to growing urban centers. Rockville, Frederick, and other towns within the SCEA boundary eventually established themselves as urban centers, and development continued outward from those new points as well.

Much of the SCEA area was deforested by 1900. In 1914, Frederick County contained approximately 433,717 acres of land, 91,117 of which was wooded (21%) (Besley, 1928). In the same year, Montgomery County was composed of roughly 313,136 acres of land, 68,821 of which were wooded (22%) (Besley, 1928). The demand for timber on the eastern shore grew through the two world wars, and accelerated in the 1950s. However, the reversion of unproductive farmland to forest accelerated at an even faster pace. In 1964, Frederick County contained 425,000 acres of land, 158,100 of which were wooded (37.2%) (Ferguson, 1967). Montgomery County contained roughly 315,500 acres, 102,300 of which were wooded (32.4%).

Increasing suburbanization and urbanization of Rockville, Gaithersburg, and Frederick and an increased acceptable commuting area to Washington D.C. finally outpaced afforestation in the 1970s. In 1976, Frederick County contained 425,000 acres of total land, and 130,700 acres of wooded area (30.7%) (Powell and Kingsley, 1980). Montgomery County contained approximately 317,000 acres of land, 87,400 acres of which was wooded (27.6%) (Powell and Kingsley, 1980).

By 1986, the amount of wooded land in Frederick County had been reduced to 116,800 acres (27.5%) (Frieswyk and DiGiovanni, 1988). Similar confirmed data is not available for Montgomery County (forest resource inventory combined Montgomery and Prince Georges counties for 153,000 wooded acres) (Frieswyk and DiGiovanni, 1988). Preliminary, unconfirmed data from the US Forest Service shows that in 1999, wooded areas in Frederick and Montgomery/Prince George counties increased to 127,300 acres and 235,200 acres, respectively (Frieswyk, 2000 - unpublished/unofficial). This may be attributed to cropland reversion to forest, in addition to a preference to develop graded, previously cleared areas such as agricultural lands, over undisturbed forest areas.

While forest area has remained generally stable in the SCEA study area, forest fragmentation has increased. Additionally, prime forests and old-growth forests have essentially been eliminated

from the area due to the patterns of timber harvest, agriculture, and urban/suburban development in the region over the last 300 years.

Maryland forest resources have been afforded protection through regulations of the Forest Conservation Act of 1991. Highway projects are exempt from the Forest Conservation Act provided there is compliance with the Reforestation Law, Natural Resource Article 5-103. The Reforestation Law requires replacement of the forest cleared by highway projects on an equal basis on public property. Wooded public properties include Seneca Creek, Seneca Lake, Greenfield Mills Stronghold Area, Little Bennett Regional Park, National Battlefield, and Cunningham Falls State Park.

There are 58 champion and potential champion trees in the SCEA boundary in Montgomery County. **Table III-105** lists these trees in the SCEA boundary. There are five State champion trees in the SCEA boundary in Frederick County. **Table III-106** lists the State Champion trees in the SCEA boundary.

Secondary Effects

The No-Build, TSM/TDM and build alternates considered for the project are not anticipated to have secondary impacts upon forest resources within the SCEA boundary. Most of the large forest tracts that historically existed in the SCEA boundary have been deforested for agricultural land or suburban development. Most remaining forest tracts are currently held in the public trust as local, state, or federal parklands and recreation areas.

Analysis and Effects

The project is not anticipated to change current trends in forest area or forest fragmentation within the SCEA boundary. While some areas of forest and forest edge will be directly impacted by the project, the project itself will not alter overall land use, zoning, and development trends in the SCEA boundary (which drive forest area and fragmentation). Direct impacts to forest resources in the project area will be offset by mitigation completed in accordance with the Maryland Forest Conservation Act of 1991, and the Reforestation Law as discussed in **Section III.H.1.c**. The mitigation package will help stabilize forest trends in the region.

Secondary impacts to forest-dependent wildlife are not anticipated to occur as a result of the project. Current deforestation and development trends in the SCEA boundary have favored edge-tolerant and disturbance-tolerant wildlife species, while discouraging disturbance-sensitive species like FIDBs. The forest resource mitigation package proposed by SHA and MTA will help in the retention of populations of disturbance-sensitive species).

Secondary impacts to State Champion Trees are not expected to occur. The majority of Champion Trees within the SCEA boundary occur on sites that are either already developed or protected from future development (i.e. parklands).

TABLE III-105
CHAMPION AND POTENTIAL CHAMPION TREES IN THE SCEA BOUNDARY
(MONTGOMERY COUNTY)

Common Name	Circum. (inches)	Height (feet)	Crown (feet)	Comments	Location
Alder Red	38	42	31	*NCC	Rockville
Aspen Big Tooth	48	69	123	*NCC	Washington Grove
Baldcypress	150	86	29	*	Darnestown
Beech American	177	115	106	*	Rockville
Beech Purple	149	67	69	*EA	Rockville Regional Library
Birch Sweet	30	47	38	*NCC	Washington Grove
Boxelder	168	66	96	*	Gaithersburg
Boxelder	139	95	67		Rockville
Butternut	166	62	70	*RC State Champion	Aspen Hill
Butternut	124	71	55		Darnestown
Casta Aralia	22	25	20	*	Clarksburg, Black Hill Regional Park
Catalpa Northern	217	76	79	State Champion; EA	Darnestown
Catalpa Southern	200	60	86	*	Gaithersburg
Cedar Blue Atlas	115	52	76	State Champion	Germantown
Cedar Eastern Red	95	75	25	RC, tag 27	Laytonsville, Brink Road
Chinese Chestnut	89	61	77	*	Gaithersburg
Cypress	120	100	40	*	Gaithersburg
Dawn Redwood	87	82	28	*NCC	Rockville
Devil's Walking Stick	14	18	16	* State Champion	Rockville
English Elm	213	93	89	*	Rockville
Elm English "Goshen"	232	97	94	State Champion; EA	Gaithersburg
Elm Scotch	201	90	78	* State Champ	Rockville
Fir Douglass	134	71	50	*State Champion; EA	Gaithersburg
Fir Nordmann	109	60	58	*EA	Derwood
Ginkgo	184	73	62	*NCC; EA	Poolesville, Historic Steven's House
Hackberry	216	87	83	*	Boyds
Hickory Mockernut	105	75	43	*RC	Weller Road Elementary School
Hickory Mockernut	72	75	44	*	Rockville
Hickory Pignut	121	108	52	*NCC	Matthew Henson State Park
Honeylocust	168	79	76	*	Gaithersburg, Great Seneca Stream Valley

TABLE III-105 (CONTINUED)
CHAMPION AND POTENTIAL CHAMPION TREES IN THE SCEA BOUNDARY
(MONTGOMERY COUNTY)

Common Name	Circum. (inches)	Height (feet)	Crown (feet)	Comments	Location
Horsechestnut	174	98	77	*	Dickerson
Katsura	140	66	62	*NCC	Rockville Cemetery
Kentucky Coffeetree	140	92	63		Darnestown
Linden Silver Pendant	172	85	77	*	Dickerson, Wibur Farm
Magnolia Saucer	102	35	48	*	Gaithersburg
Mimosa	123	36	71	*	Poolesville
Mulberry Red	46	35	47	*	Poolesville
Musclewood/Hornbeam	55	38	45	*	Gaithersburg
Oak Black	209	90	75		Seneca Creek State Park
Oak Blackjack	71	64	34	* New Champion	Gaithersburg
Oak Shingle	134	82	26	*	Gaithersburg
Oak Southern Red	176	91	99	*	Boyds
Oak White	247	88	93	*	Barnesville
Osage Orange	149	64	57	*	Gaithersburg
Paulownia	162	50	45		Gaithersburg
Pine Pitch	94	77	52	* RC	Washington Grove
Pine Ponderosa	38	37	25	*	Germantown
Pine Shortleaf	75	83	46	* NCC	Washington Grove
Pine Virginia	88	79	55	*	Germantown
Pine White	140	107	51	* State Champion EA	Damestown
Poplar Lombardy	54	72	24	* State Champion	Derwood
Poplar White	108	50	52	*	Rockville
Portorford Cedar	116	64	42	State Champion	Gaithersburg
Serviceberry	26	51	23		Boyds, Pleasant Springs Farm
Sycamore	250	123	125	*	Dickerson Conservation Park
Sweetgum	133	80	65		Gaithersburg
Willow Weeping	88	45	57	*	Derwood
Willow White	87	62	47	* NCC	Quince Orchard

Note: *SC-State Champion; NCC-New County Champion; EA-Easily Accessible; RC-Replacement Champion; * Current Champion; Italics County Champ for Specific Species*

TABLE III-106
STATE CHAMPION TREES IN THE SCEA BOUNDARY (FREDERICK COUNTY)

Common Name	Circum. (inches)	Height (feet)	Crown (feet)	Comments	Location
White Ash	191	115	66	State Champion	National Emergency Management Institute, Frederick
Honeylocust	226	100	88	State Champion	Frederick
Walnut English	159	105	99	State Champion	Frederick
Locust Black	223	60	37	State Champion	Frederick
Elm English	226	114	91	State Champion	Board of Education

Cumulative Impacts

Cumulative impacts to forest resources, forest habitats, and State Champion Trees may occur within the SCEA timeframe and study area. However, the project's role as a value-added contributor to these impacts should be minimal, given the amount of existing, planned, and forecasted urban development expected to occur within the SCEA boundary in the next 20 years. An increase in housing stock and housing density in the region is accounted for in the local mater plans, regardless of potential service improvement scenarios for I-270. Additionally, the fact remains that nearly all of the of the forests in the SCEA boundary have been harvested in the past, and most of the currently existing forest areas are under local, state, or federal protection from extensive degradation. Overall, the project's impact upon cumulative forest trends in the SCEA boundary will be minimal.

Aquatic Habitat/Species

Maryland's economy derives substantial benefits from the streams, rivers, and lakes of the Middle and Upper Potomac Watersheds. One cost associated with these benefits has been the deterioration of the ecological integrity and sustainability of aquatic ecosystems, as reflected in declines in the distribution and abundance of native aquatic and riparian organisms. Water determines the distribution and abundance of many species by shaping and providing habitat. Some streams, rivers, and tributaries within the SCEA boundary historically supported communities of native organisms in aquatic habitats. These bodies of water now support the water supply needs of cities, farms, and industries within the SCEA boundary, and the biological integrity of some aquatic systems has been affected.

Aquatic habitat within the SCEA boundary is found within the Monocacy River and the major and minor tributary streams that feed the Monocacy River. These habitats include open water, bottom areas, and wetlands. Open water includes deep pools and channels as well as shallow areas near stream banks. Benthic habitats include a range of substrates from rock, gravel, and sand in the headwater tributaries to silts, muds, and organic matter within the slower moving portions of the streams and rivers. The bottom is also composed of varying amounts of debris such as undercomposed leaves, branches, logs, and manmade trash.

Hydrologic processes within the SCEA boundary have been directly and indirectly modified by human development over the last two centuries. Water volume, sediment supply, nutrients and organic content, and water temperature have been indirectly altered through changes in land use and land cover. Direct impacts to surface waters, including the conversion of streams to lakes, have also affected aquatic ecosystems within the SCEA boundary. Stocks of native aquatic species have been lost, displaced, or severely depleted. Overall, many aquatic and riparian habitats have been severely altered and continue to deteriorate, leading to the loss of native species and failure of ecosystem functions.

Some of the best indicators of the health of the aquatic system are aquatic invertebrates. These small creatures are central to aquatic ecosystems because they consume algae and organic matter and become food for fish, birds, mammals, amphibians, and reptiles. This diverse community of organisms, especially benthic (bottom-dwelling) forms, are good indicators of localized water quality conditions because many macroinvertebrates have limited migration patterns and include species that have a broad range of trophic and pollution tolerances. Site-specific impacts and cumulative effects on surface water quality can be assessed through the changes in composition and structure of the macroinvertebrate community. When aquatic habitats are altered, their dependent invertebrates are likely to disappear.

Within the SCEA boundary, fishes are much better known than their invertebrate food supply, while they are also at risk from changes in water availability, water quality, habitat alteration, and introduction of exotic species. Long-term causes of declines in native fish populations include the construction of dams and diversions, alterations of stream channels, and the introduction of exotic species.

The most abundant fish species collected within warm water fish communities within the SCEA boundary are American eel (*Anguilla rostrata*), blacknose dace (*Rhinichthys atratulus*), bluntnose minnow (*Pimephales natatus*), creek chub (*Semotilus atromaculatus*), fantail darter (*Etheostoma flabellare*), greenside darter (*Etheostoma blennioides*), largemouth bass (*Micropterus salmoides*), Potomac sculpin (*Cottus girardi*), redbreast sunfish (*Lepomis auritus*), swallow-tail shiner (*Notropis procne*), white sucker (*Catostomus commersoni*), and yellow bullhead (*Ameiurus natalis*). These freshwater species spend most of the year in non-tidal freshwater areas, but many migrate downstream in winter months. The largemouth bass is the only semianadromous species that lives in estuarine waters and spawns in freshwater. Catadromous species such as the American eel inhabit freshwater during adult life stages but spawn in coastal waters of higher salinity.

The creek chub, white sucker, and yellow bullhead are pollution tolerant species found within the SCEA boundary. Several of these species were collected in the headwaters of Muddy Branch, Long Draught Branch, Gunners Branch, and along tributaries within the cleared right-of-way of I-270, where turbid, slow-moving conditions are prevalent due to the intensely developed and impervious areas that surround these stream systems within the City of Gaithersburg.

Some of the most diverse cold-water fish communities reside in Bennett Creek. Little Seneca Creek is designated as recreational trout waters in the vicinity of I-270, while Little Bennett and tributaries support wild trout populations above MD 355. An abundance of blacknose dace,

brown trout, mottled sculpin, Potomac sculpin, and rainbow trout were collected at monitoring stations located near I-270 within Soper's Branch and Little Seneca Creek. Brown and rainbow trout usually spawn upstream in areas where ample current and clean gravel substrates are available. Several of these cold-water species are sensitive to fluctuations in temperature and dissolved oxygen levels, which are heavily influenced by the surrounding land use. The riparian buffer of these stream systems is composed of large forested tracts, which have been preserved or protected through stream valley park acquisition.

Cold-water fish communities also exist within the northern portions of the highway alignment at the US 15 crossing of Carroll and Tuscarora Creeks. Carroll Creek is designated as a Put-and-Take Youth/Blind Trout Fishing Area, in which adult brown and rainbow trout are stocked during the spring and fall months. Sampling conducted by DNR within the portion of Carroll Creek that extends from US 15 upstream to Shookstown Road recovered 28 brown trout and 12 rainbow trout, indicating movement by both species out of the stocked areas. Native brook trout have also been located in portions of Tuscarora Creek located upstream of US 15. Maintaining cool water temperatures and protection from silt and sedimentation is crucial to native trout populations.

US 15 also crosses several warm-water streams that include a tributary to the Monocacy River, Quarry Branch, Arundel Branch, portions of Tuscarora Creek, and Muddy Run. Most of these streams were not sampled for fish, however sampling did occur in the Monocacy River in 1997. Many species that are found in the Monocacy would be expected to occur in these streams as well due to the short distance between where US 15 crosses these tributaries and their confluence with the Monocacy River. The types of species sampled included carp (Cyprinus carpio), common shiner (*Notropis amoenus*), spottail shiner (*Notropis hudsonius*), swallowtail shiner, rosyface shiner (*Notropis rubellus*), spotfin shiner (*Notropis spilopterus*), bluntnose minnow, white sucker, Northern hog sucker (*Hypentelium nigricans*), golden redhorse (*Moxostoma erythrurum*), rock bass (*Ambloplites rupestris*), bluegill (*Lepomis macrochirus*), smallmouth bass (*Micropterus dolomieui*), largemouth bass, and tesslated darter (*Etheostoma olmstedi*).

The Maryland Biological Stream Survey (MBSS) was developed to define the extent of acid deposition's effect on Maryland's fisheries. The surveyed quantified numerous variables concerning water chemistry, physical habitat, fish abundance, benthic macroinvertebrates, submerged aquatic vegetation, and other factors. The results of sampling fish populations in the streams and rivers within the SCEA boundary are shown below.

Monocacy River: banded killifish, blacknose dace, bluegill, bluntnose minnow, central stoneroller, creek chub, green sunfish, largemouth bass, white sucker, fathead minnow, golden shiner, and lepomis hybrid.

Carroll Creek: blacknose dace, bluegill, bluntnose minnow, checkered sculpin, fantail darter, largemouth bass, longnose dace, pearl dace, Potomac sculpin, redbreast sunfish, and white sucker.

Bennett Creek: bluegill, bluntnose minnow, common shiner, eastern silvery minnow, golden redhorse, green sunfish, largemouth bass, lepomis hybrid, longear sunfish, mosquitofish,

northern hogsucker, Potomac sculpin, pumpkinseed, redbreast sunfish, rosyface shiner, smallmouth bass, spotfin shiner, spottail shiner, tessellated darter, white sucker, and yellow bullhead.

Little Bennett Creek: blacknose dace, bluegill, central stoneroller, creek chub, fantail darter, largemouth bass, longnose dace, mottled sculpin, Potomac sculpin, pumpkinseed, rosyside dace, and white sucker.

Ten Mile Creek: blacknose dace, central stoneroller, creek chub, fantail darter, longnose dace, mottled sculpin, Potomac sculpin, rosyside dace, white sucker, and yellow bullhead.

Great Seneca Creek: American eel, blacknose dace, bluntnose minnow, central stoneroller, common shiner, creek chub, cutlips minnow, fallfish, fantail darter, green sunfish, greenside darter, longnose dace, mottled sculpin, Potomac sculpin, rock bass, rosyside dace, silverjaw minnow, and white sucker.

There is no data available for King Branch, Arundel Branch, Quarry Branch, Tabler Run, Urbana Branch, Urbana Lake Fish Management Area, Soper Branch, Little Seneca Lake and Clopper Lake.

Amphibians: Over the last two decades, the aquatic habitats of the Middle and Upper Potomac River Watersheds have begun to recover. This is due to the initiation of stricter controls on wastewater plant discharges, stormwater management, and the advent of habitat restoration actions. Improved stormwater management within the SCEA boundary has reduced the amount of sediment runoff into the system.

Analysis and Effects

Secondary Effects

Significant secondary impacts to aquatic habitats are not expected to occur as a result of any of the alternates considered. This is partially due to the fact that the project is not expected to create long-term direct impacts to aquatic habitat resources, since the No-Build, TSM/TDM, and build alternates do not involve the creation of a new road corridor to serve "new" vehicle traffic. When direct (project-related) impacts to wetlands and Waters of the US are considered with respect to the proposed aquatic resource mitigation package for the project, secondary effects to aquatic habitats should be viewed as negligible. In addition, construction is generally occurring in areas previously disturbed by development in the project area.

Opportunities for maintaining current aquatic habitats in a healthy status are based in the management of public lands, wetlands, and waters in the SCEA boundary. Large tracts of forested floodplains, riparian buffers, and wetlands are present within the SCEA boundary, and many occur within park boundaries, including the Monocacy National Battlefield. As stated in **Section III.H.2.b** no long-term (non-construction related) direct impacts are expected for aquatic resources, and as such, the existence of relatively uncompromised aquatic resources on public property may offset some of the impacts created by continued development in the area.

Cumulative Impacts

Most of the relevant constraints and opportunities facing aquatic habitats in the study area are well-entrenched and functioning independently of the project, and exist as a result of well-established federal and state regulations and local ordinances. As a result, no cumulative impacts to aquatic species or aquatic habitats are anticipated as a result of the project.

Within the SCEA boundary over the last 30 years, aquatic habitats have been significantly compromised. Loss of and damage to habitats has occurred by way of pollutants originating from mining areas outside the SCEA boundary, sediment loads from deforestation within the SCEA boundary, and other human-related activities, including development.

Aquatic habitats within the SCEA boundary may be described in various level of ecological distress due to locally high development densities. Large areas of impervious material, such as parking lots and commercial areas, do not allow the area's wetlands and waters to effectively perform natural functions like sediment trapping and the filtration of waterborne solvents and pollutants. This functional overload impacts the habitat value of these wetlands and waters. Large commercial, industrial, and residential developments are planned for some parts of the SCEA boundary, particularly southern Frederick County. Management of this continued development and the construction activities associated with it will play an important part in stabilizing the quantity and quality of aquatic habitats within the SCEA boundary. These processes will operate independently of the project, and will not be accelerated or promoted as a result of the project.

g. Farmland

The amount of land used for farming in Maryland has been declining. The 1997 Agricultural Census reports that 2,154,875 acres were being farmed at that time, which signified, a decline of more than 415,000 acres in fifteen years. According to the Agricultural Census, agricultural land use in Montgomery County dropped from 105,000 acres in 1982 to 78,000 acres in 1997, and Frederick County dropped from 243,000 acres to 218,000 acres in the same time period. The Atlas of Agricultural Land Preservation in Maryland indicates that many large areas of Maryland's prime and productive agricultural land are being fragmented by development.

The general trend of agricultural change in both Montgomery and Frederick counties indicates that this historical industry and way of life has been declining. Where Frederick County was almost entirely farmland 40 years ago, this way of life gave way to future development. **Figure III-64** indicates the decline in the number of farms and acres of farmland. As the nation's population grows, more housing resources are needed. Very often, farms are the first targets of development, because of their comparatively low cost of acquisition. Furthermore, farmland is more attractive than other types of land, because it poses fewer constraints when converting the area into residential development. Where development in a forest requires the clearance of trees, a fallow cornfield does not require any clearance.

Analysis and Effects

Secondary Effects

The areas that will be under the most threat of future development in particular will be Lewistown Zone #3, Frederick City Zone #5, Urbana Zone #8, Damascus-Brookeville Zone #10, Clarksburg Zone #15, Germantown Zone #17, and Gaithersburg Zone #19. For these zones, the Land Use Expert Panel anticipates that the I-270 improvements will increase development above what the BCMP calls for. Therefore, a greater threat would be placed upon farmland in this area because of this project, as pressure will increase to develop on open land.

Cumulative Impacts

The effect of widening I-270 would directly impact some properties by the additional of right-of-way. Still, the pressure for further acquisition, and development to support the growing population will impact all of the farms indirectly. As we see the cycle of development perpetuate, greater demands are placed on agricultural land to be developed for non-farm uses. The widening of I-270 will increase the potential for development, thereby perpetuating the decline in the number of farms, and acreage of land used for farming. The Fredrick County Park and Recreation Plan discusses its Land Preservation Policies, describing that "Development shall be minimized in areas of our best agricultural lands to preserve critical masses of farmland. A County wide target of 100,000 acres of agricultural land is established as the minimum acreage to be preserved through permanent easement agreements by the year 2020, with an overall goal of retaining 200,000 acres for agricultural use." It also discusses the use of Density Transfer Areas to help preserve agricultural areas.

4. Secondary and Cumulative Effects Analysis Conclusion

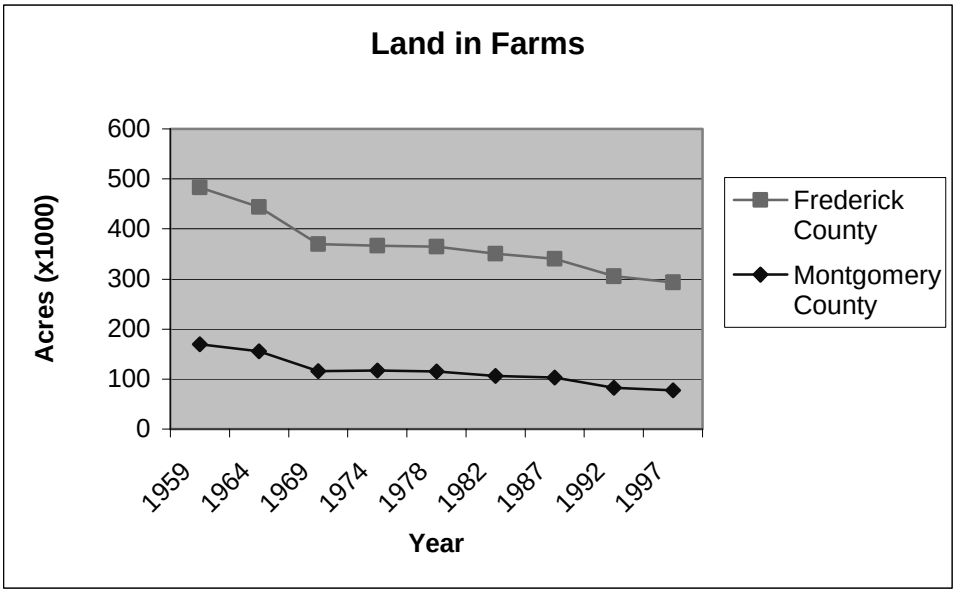
The secondary and Cumulative effects analysis relied on the land use projections of the Land Use Expert Panel, which found that in select locations the region would experience future development beyond that planned for by Montgomery and Frederick counties. They determined that this additional development would occur regardless of the alternate, including the No-Build. Therefore, resources in these locations may be under unanticipated stress. In addition, they identified some specific development differences that they attribute to the LRT or BRT alternates.

a. Secondary Effects

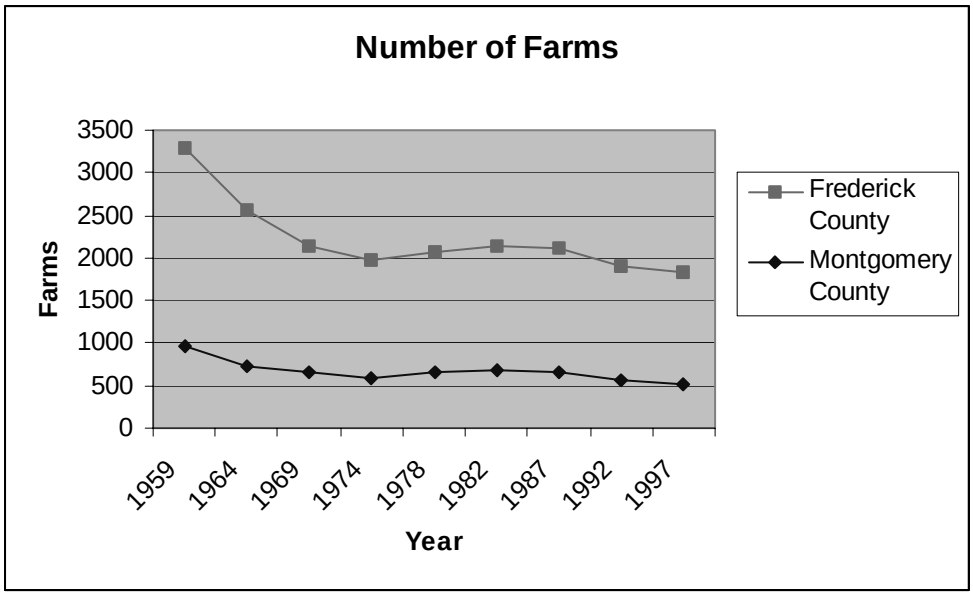
Secondary effects were considered for parklands, cultural resources, surface waters, wild and scenic rivers, floodplains, Waters of the US, terrestrial habitat and farmlands.

Secondary impacts to parklands from the project are not anticipated as parklands are protected by the counties through development guidelines and by federal regulations including FHWA Section 4(f). However, as mentioned above close oversight should be provided given the unanticipated growth identified by the panel, with special attention to Frederick City Zone #5, Germantown Zone #17, and Gaithersburg Zone #19 should either an LRT or BRT alternate be chosen.

Figure III-64: Trends in Acres of Farmland and Numbers of Farms



***Source**: US Agricultural Census*



***Source:** US Agricultural Census*

Secondary impacts to cultural resources have been addressed through the Section 106 process.

Wild and scenic rivers impacted by the project include the Monocacy River. All areas surrounding the Monocacy River and its tributaries are anticipated to experience a substantial increase in both population and employment over the next 25 years. The result of development in this area may negatively impact the river aesthetically, physically, and biologically. Except for the portion of Seneca Creek that will be impacted directly by the I-270 improvements, no other portion of this body of water are anticipated to be impacted, as the entire portion of Seneca Creek is protected as parkland.

Secondary impacts to 100-year floodplains are not expected as there are state, federal and local regulations discouraging development in 100-year floodplains, and any floodplain encroachment would require authorization by MDE under a Waterways Construction Permit.

Substantial secondary impacts to Waters of the US are not expected to occur as a result of any of the alternates considered. Direct (project-related) impacts to wetlands and Waters of the US will be offset by the proposed mitigation package. Most in-stream construction activities associated with the project will occur in areas previously disturbed by development in the project area. The use of Best Management Practices and adherence to established riparian buffer zones by future developers in the SCEA boundary will minimize overall impacts.

Substantial secondary impacts to aquatic habitats are not expected to occur as a result of any of the alternates considered. This is partially due to the fact that the project is not expected to create long-term direct impacts to aquatic habitat resources, since none of the alternates considered involve the creation of a new road corridor to serve "new" vehicle traffic. Opportunities for maintaining current aquatic habitats in a healthy status are based in the management of public lands, wetlands, and waters in the SCEA boundary.

The alternates considered for the project, including the No-Build alternate are not anticipated to have secondary effects upon forest resources within the SCEA boundary. The project is not anticipated to change current trends in forest area or forest fragmentation within the SCEA boundary. Direct impacts to forest resources in the project area will be offset by mitigation completed in accordance with the Reforestation Law. The mitigation package will help stabilize forest trends in the region. Secondary impacts to forest-dependent wildlife are not anticipated to occur as a result of the project. Secondary impacts to State Champion Trees are not expected to occur. The majority of Champion Trees within the SCEA boundary occur on sites that are either already developed or protected from future development (i.e. parklands).

For zones the Land Use Expert Panel anticipates will develop above what the county Master Plans illustrate. a greater threat of redevelopment would be placed upon farmland.

b. Cumulative Impacts

Direct impacts on the environment from each of the alternates considered are added to past, present and future actions to result in cumulative impacts. No-Build (Alternate 1) and TSM/TDM (Alternate 2) would not result in direct impacts to SCEA resources. Alternates 3A/B,

4A/B, and 5A/B/C would result in direct impacts to parklands, cultural resources, surface water, wild and scenic rivers, floodplains, Waters of the US, terrestrial habitat, aquatic habitat/species and farmlands. These resources have historically been impacted by development within the SCEA boundary and would be further impacted by the alternates. Impacts to these resources from other future actions within the SCEA boundary may result in cumulative effects.

Cumulative impacts to parklands within the SCEA boundary are anticipated to be minimal as developments on parklands are rarely permitted. Impacts to public parks and recreation areas as a part of a federally funded or approved transportation project would require a Section 4(f) Evaluation to document that there are no feasible or prudent alternates to avoid the park, and that the project investigated minimization of impacts to the park.

Development pressures associated with population and employment growth may effect existing historic resources or properties that may be determined historically significant in the future. Both Montgomery and Frederick and counties have responded to the loss of cultural resources resulting from development through their Historic Preservation Commissions. These commissions work to ensure that planned future development protects these resources to the greatest extent possible. Cultural resources situated in locations the Land Use Expert Panel identified as prone to development, different from what the Master Plans describes, may be under more pressure for redevelopment than anticipated under the Master Plans. Special attention should be given to those resources for which the settings are contributing factors in the historic significance.

Regarding surface water quality, the conversion of open-space and forested areas to impervious areas or manicured landscapes would be expected to increase surface runoff and peak storm flows as well as introduce sediment and other pollutants into waterways. These effects would be somewhat mitigated by required compliance with water quality protection regulations administered by the Maryland Department of the Environment (MDE). These regulations require reductions in runoff and pollutant loadings through the use of approved stormwater management and erosion and sediment control plans. Infill development is also likely to add to past and current water quality impacts, as it would further reduce the remaining natural areas in the project area available to filter and infiltrate runoff. All new projects would be required to comply with current regulations to reduce water quality impacts wherever possible.

The project may make an incremental contribution to cumulative 100-year floodplain effects in the SCEA boundary, given the successive loss of 100-year floodplain area over the SCEA time frame. This effect will be minimized to some extent within the area through mitigation sites that would enhance local floodplain function. Within the SCEA boundary, 90 percent of floodplain area consists of open space. According to future land use plans, further residential development will occur in these areas, thus increasing the area of impermeable land within the floodplains. As residential development increases, open space within the floodplain will decrease to 70 percent. As more homes are built in these areas, the risk of flooding and property damage will greatly increase. The floods themselves will also be worse because they will recede at a slower with more impermeable surfaces. Today, federal and state floodplain regulations and a wider appreciation for the valuable functions of floodplains and the dangers inherent in building on them, make it unlikely that historic rates of floodplain encroachment would continue.

Within the SCEA boundary over the last 20 years, many Waters of the US, including wetlands, have been altered, compromised, or lost. This is primarily a result of urban and suburban development in the region, and an initial lack of enforcement of waterways protection regulations. The initial construction of I-270 played a role in this trend. However, Waters of the US are not expected to be impacted overall as a direct result of this project, based on two factors. First, many of the Waters of the US which will be affected by the project were previously culverted during the construction of I-270. The addition of culvert length is often not a significant factor to waterways impacts, once the waterway has already been placed in culvert. Second, the proposed mitigation package for wetlands and waterways impacts will help stabilize overall impact trends in the SCEA boundary, and effectively eliminate any potential contribution made by the project to long-term impacts to Waters of the US Therefore, the project is not anticipated to cause significant cumulative impacts on Waters of the US within the SCEA boundary, since its contribution to long-term regional trends will be minimal.

Cumulative impacts to forest resources, forest habitats, and State Champion Trees may occur within the SCEA timeframe and study area. However, the project's role as a value-added contributor to these impacts should be minimal, given the amount of existing, planned, and forecasted urban development expected to occur within the SCEA boundary in the next 20 years. Local master plans for the region account for an increase in housing stock and housing density regardless of potential service improvement scenarios for I-270. Additionally, the fact remains that nearly all of the of the forests in the SCEA boundary have been harvested in the past, and most of the currently existing forest areas are under local, state, or federal protection from extensive degradation. Overall, the project's impacts upon cumulative forest trends in the SCEA boundary will be minimal.

Most of the relevant constraints and opportunities facing aquatic habitats in the study area are well-entrenched and functioning independently of the project, and exist as a result of well-established federal and state regulations and local ordinances. As a result, no cumulative impacts to aquatic species or aquatic habitats are anticipated as a result of the project.

Wetlands within the SCEA boundary may be described in various level of ecological distress due to locally high development densities. Large areas of impervious material do not allow the area's wetlands and waters to effectively perform natural functions like sediment trapping and the filtration of waterborne solvents and pollutants. This functional overload impacts the habitat value of these wetlands and waters. Management of continued development and the construction activities associated with it will play an important part in stabilizing the quantity and quality of wetlands within the SCEA boundary. These processes will operate independently of the project, and will not be accelerated or promoted as a result of the project.

The effect of widening I-270 would directly impact some properties by the additional of right-of-way. Still, the pressure for further acquisition, and development to support the growing population will impact farms indirectly. As we see the cycle of development perpetuate, greater demands are placed on agricultural land to be developed for non-farm uses. The widening of I-270 will increase the potential for development, thereby perpetuating the decline in the number of farms, and acreage of land used for farming.

P. SHORT-TERM EFFECTS VERSUS LONG-TERM PRODUCTIVITY

All of the build alternates would facilitate mobility through the project area by adding highway and transit capacity to the existing transportation network. The 1-270/US 15 Corridor is a rapidly growing and changing environment, primarily due to its location, infrastructure and people. Maintaining the infrastructure at a level that supports this environment has been identified by local and state officials as an important need for the State of Maryland. To accomplish this, there will necessarily be effects to the corridor's cultural, human, natural and built resources over the short and long term that have been identified elsewhere in this DEIS and summarized here.

With continued access control and transit mobility improvement components, the three build alternates (Alternates 3A/B, 4A/B and 5A/B/C) would achieve greater transportation system successes to alleviate the travel demand growth in the corridor. It is projected that the combination of highway and transit improvements would improve corridor travel conditions and congestion. Alternate 5C (Premium Bus) offers the greatest mobility improvements for the I-270/US 15 Corridor followed by Alternates 5B (BRT) and 5A (LRT). Alternates 3A/B and 4A/B offer similar transit mobility improvements to Alternates 5A/B, however, the highway mobility improvements offered by Alternates 3A/B and 4A/B are less than those improvements offered by Alternates 5A/B/C.

Long-term environmental effects of the build alternates include loss of wildlife habitat, including forest and wetlands; acquisition of floodplains; residential and business displacements, loss of public parkland; effects upon historic and archaeological resources; and increased noise levels. In general, Alternate 5C has the least long-term natural environmental effects as it does not include the CCT. However Alternate 5C has the largest number of residential and business displacements and due to the inclusion of direct access ramps at MD 85 for the Premium Bus component at Monocacy National Battlefield, the largest parkland losses.

Short-term effects that would occur as a direct result of this project include the dust, erosion and noise associated with construction; and, increased siltation and turbidity in affected streams. In general, Alternate 5C has the least short-term effects due to its exclusion of the CCT. However, all of the build alternates will have short-term effects that could occur over an extended period, depending on project phasing and sequencing. The magnitude of this project is such that funding may limit the amount of construction that will occur at a given time, meaning there could be a series of substantial construction events over a number of years. For those residents and businesses in the immediate area of a particular event, the short-term effects would be similar to other transportation improvements. On a corridor level, though, several of these major events could subject the corridor to an extended construction period to fully implement the entire project. The sponsoring agencies of the project will develop comprehensive phasing and mitigation efforts in conjunction with residents to lessen effects of this series of events.

Q. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The construction of a build alternative involves the irreversible and irretrievable commitment of various natural, human, and fiscal resources. The build alternates would require the commitment of land to new highway, transitway and associated facility construction, which is considered an irreversible commitment during the time period that the land is used for a transportation facility. If a greater need for the land is identified, or the highway, transitway, or associated facility is proven no longer necessary, it is possible to re-convert the property to another use. It is not likely, however, that either of these situations would occur.

Fossil fuels, labor, and construction materials would be used in considerable quantities for the build alternates. In addition, labor and natural resources are also used in the quarrying, manufacturing, mixing, and transporting of construction materials. The materials used in the highway and transitway construction process are irretrievable, however, they are not in short supply and their use should not have an adverse effect on continued availability of these resources.

The build alternates for I-270, US 15, the transitway and its associated facilities would require an irretrievable commitment of state and federal funds for right-of-way acquisition, materials, and construction. Funds for annual maintenance and operations would also be required. The loss of tax revenues from private land taken for highway and transitway use would be an irretrievable loss for state, county and local governments of the build alternates.

The commitment of these resources is established on the premise that the local and regional residents, commuters, and business communities would benefit from the proposed highway and transitway improvements. Benefits would include increased safety, increased mobility and accessibility to transportation.

IV. TRANSPORTATION FACILITIES, SERVICES AND MOBILITY IMPACTS

IV. TRANSPORTATION FACILITIES, SERVICES AND MOBILITY IMPACTS

A. PURPOSE

The purpose of this chapter is to provide a summary of travel forecasts performed for the alternates studied and the resulting highway and transit operations. Existing (1998) and 2025 forecasts are provided for the different transit and highway alternates. Traffic operating along I-270 and US 15 resulting from projected household and employment growth in the project area is also provided.

B. ALTERNATES STUDIED

The purpose of this chapter is to provide a summary of highway and transit forecasts performed for the final set of alternates and the resulting transportation system operations. The alternates were developed through a series of community input/public workshops. The alternates are described in Section II.D and named as follows:

- Alternate 1: No-Build Alternate
- Alternate 2: Transportation System Management/Transportation Demand Management (TSM/TDM) Alternate
- Alternate 3A: Master Plan High Occupancy Vehicle (HOV)/Light Rail Transit (LRT) Alternate
  Alternate 3B: Master Plan HOV/ Bus Rapid Transit (BRT) Alternate
- Alternate 4A: Master Plan General-Purpose/LRT Alternate
  Alternate 4B: Master Plan General-Purpose/BRT Alternate
- Alternate 5A: Enhanced Master Plan HOV/General-Purpose/LRT Alternate
  Alternate 5B: Enhanced Master Plan HOV/General-Purpose/BRT Alternate
  Alternate 5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus Alternate

Throughout this chapter, projected transit ridership, travel times and other characteristics are provided for all LRT Alternates (i.e., Alternates 3A, 4A and 5A) as a group since the data results are similar for all of the LRT Alternates. Likewise, results for the BRT Alternates (i.e., Alternates 3B, 4B and 5B) are provided as a group.

Results for the highway-only alternates are also provided in groups since projected AM and afternoon peak hour highway travel is forecasted to be similar for the No-Build and TSM/TDM Alternates (Alternates 1 and 2, respectively), Alternates 3A/B, 4A/B and 5A/B/C.

C. TRAVEL DEMAND METHODOLOGY

1. Travel Demand Forecasting Model

A travel demand forecasting model was developed to estimate the effects of the alternates considered on the transportation operations using year 2025 land use forecasts (MWCOG Round 6.2 Cooperative Forecast). The model, which was provided by the Metropolitan Washington

Council of Governments (MWCOG), has been specifically tailored for the I-270/US 15 Multi-Modal Corridor Study. The model used for this analysis is a hybrid of the original model developed for the I-270 study in 1992 and the current conformity Version 1 Model. The model structure underwent a validation effort, primarily focused on this corridor, to ensure that the model adequately reflected the travel patterns in the corridor.

The travel demand forecasting model follows the standard four step sequential demand forecasting process: trip generation, trip distribution, mode choice and trip assignment. The only added step that the model incorporates is a feedback loop into trip distribution following the first iteration of trip assignment.

To accommodate the multi-modal alternates, there are two different trip assignments, one for highway and one for transit. The highway assignment is created using an iterative capacity restraint assignment process; transit trips are assigned to the fastest available path. Transit trips are assigned based on walk access and drive access transit trips, which are determined by the mode choice model.

The model provided 2025 forecasts of weekday average daily traffic (ADT) for the facilities of interest in the corridor. Post-processing procedures based on the techniques documented in the *Highway Traffic Data for Urbanized Area Project Planning and Design* (NCHRP-255) were used to refine those results to make them more useful for project planning. The post-processing procedures outlined here were based on SHA guidelines and were reviewed and approved by SHA.

After trip tables for an alternate were assigned, total non-directional link ADT volumes for the links composing pre-selected screenlines along I-270 and US 15 were recorded. These screenlines included I-270, US 15 and competing arterials. Next it was confirmed that the correct future capacities were attributed to links making up the screenlines. Refined link forecasts were calculated based on relative capacity of links comprising the screenline, and then ADT turning movements were calculated. Peak hour volumes were then derived for both the AM and PM weekday time periods. The peak hour calculation took into account future spreading of the peak period and the relationship between the peak period and the peak hour. Turning movements at each I-270 interchange were adjusted to achieve projected mainline peak hour volumes. Final traffic forecasts were compared to current patterns and checked for reasonableness.

2. Model Assumptions

As shown in **Table IV-1**, several assumptions were developed related to land use, highway and transit networks, LRT, BRT, Premium (Express) Bus, and feeder bus characteristics. These assumptions, which were developed by the Project Team with the concurrence of the I-270/US 15 focus group, provided the basis for the travel forecasting models and the alternates that were analyzed by the models. These assumptions were developed to allow for the highest reasonable transit use forecast for each alternate.

TABLE IV-1
PROJECT ASSUMPTIONS

Item	Assumption
Land Use	Round 6.2 Regional Cooperative Forecasts (2025)
Highway and Transit Network	2000 Regional Constrained Long Range Plan
Headways	
LRT	8 minutes
BRT	Headway to accommodate forecasted ridership based on vehicle capacity: 2 minute to 30 minute headways assumed
Premium Bus	Headway to accommodate forecasted ridership based on vehicle capacity
Feeder Bus	Initial: Feeder bus route network in each alternate have the same routes, geographical coverage and headways in order to allow a relative travel demand comparison and consistency between the build alternates and the No-Build Alternate. Final: Headways modified to reflect ridership
Maryland Area Rail Commuter (MARC) Service	MARC: Headways recoded to year 2000 service levels: 24 minutes Frederick extension coded as skip-stop with 40 minute headways
Average transit travel speeds, including station stops.	LRT and BRT 22 mph Premium Bus 30 mph MARC 53 mph
Signal preemption at crossings	Yes
Parking	Unconstrained (no parking charges)
Fare Structure	
LRT, BRT, Premium Bus	¾ Metrorail fare
MARC	same as existing MARC fare
Drive Access	Auto connect coding consistent with MWCOG coding conventions.

***Source**: I-270 Project Team with concurrence of the I-270/US 15 focus group.*

D. TRANSIT SERVICE AND RIDERSHIP IMPACTS

1. Existing Service

a. MARC

Commuter rail service is available in the Corridor through MTA's MARC system. MARC offers service from Martinsburg, West Virginia through Point of Rocks, Maryland to Washington, DC. The stations along this corridor are primarily oriented toward commuters working in downtown Washington, DC, as well as commuters who work in Rockville, Silver Spring or other locations along the Metrorail system (through transfers made in Rockville, Silver Spring and at Union Station). The MARC Brunswick line had service extended to Frederick in December 2001. Currently, approximately 2,524 commuters board MARC trains in the project area during the AM peak period and 5,047 riders daily.

b. Metrorail

The northwestern terminus of Washington Metropolitan Area Transit Authority (WMATA's) Metrorail Red Line system is the Shady Grove Metro Station, located at the southern end of the project area. Direct connections to Metrorail from MARC are available in Rockville, and at

Union Station. Metrorail provides service to the south, but does not currently provide service into or through the project area. The Shady Grove Metro Station currently has 5,791 parking spaces available, with a total of 7,800 spaces anticipated by 2010. Currently, approximately 8,301 passengers board Metro at the Shady Grove Metro Station and the Rockville Metro Station during the average weekday AM peak period.

c. Metrobus

Metrobus service provided by WMATA primarily serves the areas south of the Shady Grove Metro Station, serving approximately 14,369 riders per day.

d. Ride-On

Montgomery County provides bus service within the project area via the Montgomery County Ride-On system, which generally operates in support of Metrorail, Metrobus and MARC services. In the Gaithersburg/northern Rockville area, Ride On serves approximately 26,000 AM peak period riders.

e. TransIT

Approximately 929 riders per day use the Frederick County TransIT local bus system. This system operates primarily within the City of Frederick, but also provides service to other locations within Frederick County, such as the Francis Scott Key Mall.

f. Other Bus Service

MTA has a contract for a privately operated commuter bus service (#991) between Hagerstown, Frederick and the Shady Grove Metro Station. This service currently transports approximately 95 riders during the average weekday AM peak period.

2. Travel Time

The effectiveness of transit service is dependent upon several factors including geographic coverage, hours of operation and frequency of service, door-to-door travel times, travel time reliability, number and convenience of transfers required, comfort and safety. A useful indicator of quality of service is travel time savings. Travel time savings indicates the amount of time saved by commuters in taking transit with the proposed improvements for each alternate to their destinations as compared to the No-Build alternate. **Table IV-2** illustrates projected travel time reductions for daily work trips relative to the No-Build Alternate for the year 2025. **Figure IV-1** provides the same travel time information as a graphic. The times presented in these exhibits represent the transit in-vehicle time and the estimated time that it takes to wait for a transit vehicle. In some cases, the wait time can be 30 minutes or more. These exhibits indicate the largest savings of in-vehicle travel time occur as a result of the BRT Alternate, which provides more than 30 minutes of potential travel time savings using transit for work trips (89,200). The Premium Bus Alternate provides the next highest number of trips that save 30 minutes or more (53,400). Savings at five-minute intervals from 5 to 30 minutes are also presented. For 1 to 20

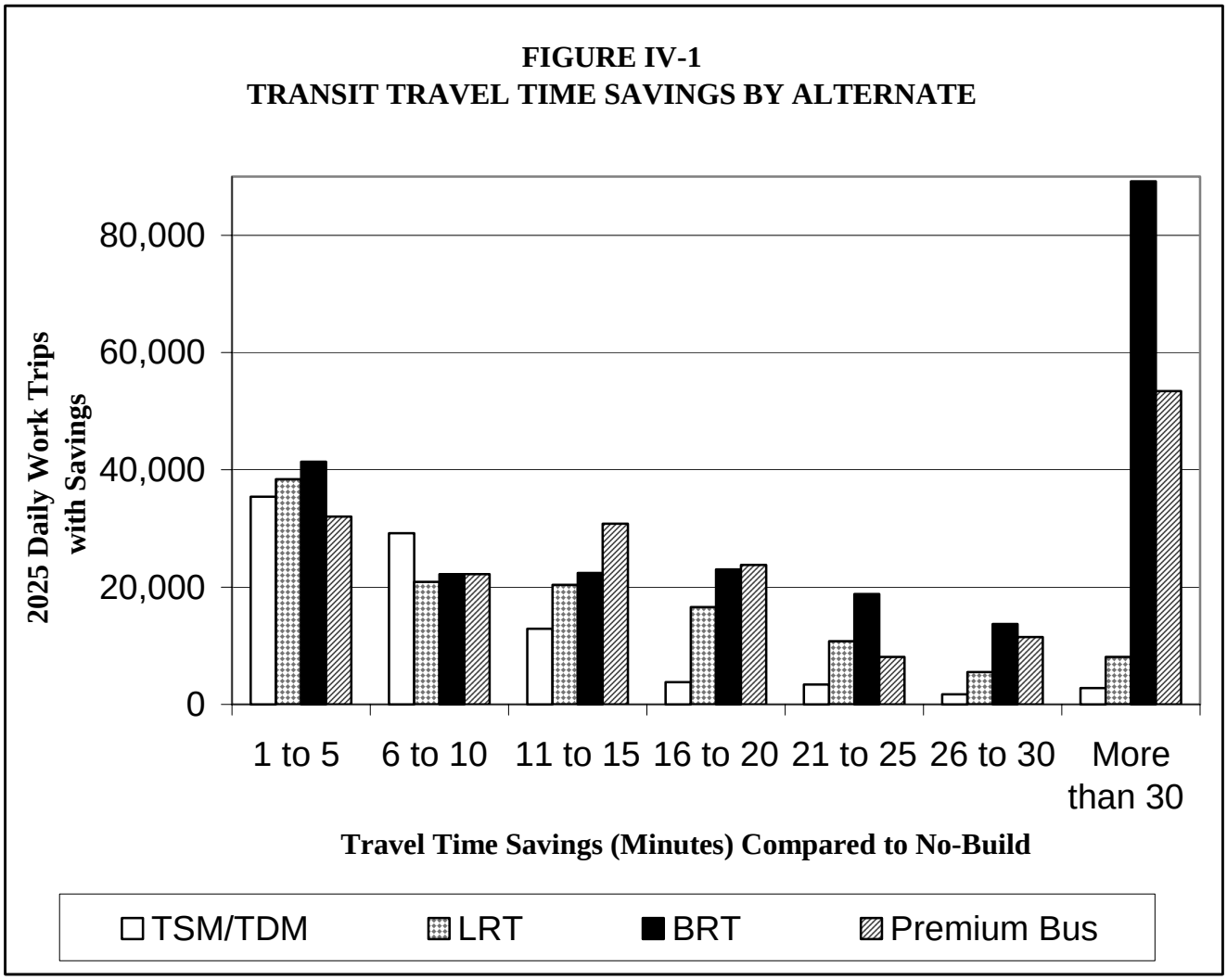
minutes of time saved the LRT Alternates appear to provide the same order of magnitude of time savings as the BRT and Premium Bus Alternates.

TABLE IV-2
POTENTIAL DAILY WORK TRIP MARKET WITH REDUCTIONS IN TRANSIT TRAVEL TIME RELATIVE TO ALTERNATE 1 (NO-BUILD) FOR 2025

Alternate	1 to 5 Minutes Saved	6 to 10 Minutes Saved	11 to 15 Minutes Saved	16 to 20 Minutes Saved	21 to 25 Minutes Saved	26 to 30 Minutes Saved	More than 30 Minutes Saved	Total
TSM/TDM	35,400	29,200	12,900	3,800	3,400	1,700	2,800	89,200
LRT	38,400	20,900	20,400	16,600	10,800	5,500	8,100	120,700
BRT	41,400	22,200	22,400	23,000	18,800	13,700	89,200	230,700
Premium Bus	32,000	22,200	30,800	23,800	8,100	11,500	53,400	181,800

Note: *Door to door travel time for trips whose origin or destination is in project area.*
Source: *MWCOG Travel Forecasts April 2001 – July 2001*

FIGURE IV-1
TRANSIT TRAVEL TIME SAVINGS BY ALTERNATE



While it is difficult to quantify the overall quality of service provided for all trips by an alternate, it is possible to develop measures that highlight the difference between options for selected trips. A useful indicator for this purpose is the transit travel time between various locations. Transit travel times are important since they are the key determinate of transit patronage for transit improvements. As travel time on transit decreases for a given trip, reflecting an improvement in transit service, the number of people using transit increases. **Table IV-3** provides travel times from selected origins within the project area to several key employment centers for each of the alternates studied and provides travel times for individuals who drive alone or with one passenger (low occupancy vehicle (LOV)) and those who carpool or vanpool (HOV). The origins are Germantown, Clarksburg and Frederick City, while the destinations are downtown Washington (Connecticut Avenue/K Street), Bethesda, the Life Sciences Center, Germantown and the Rockville Town Center. The travel times are provided separately for those who walk from home to board their first transit vehicle and for those who drive to a park and ride facility to board transit.

TABLE IV-3
YEAR 2025 PROJECTED TRAVEL TIME (IN MINUTES) BETWEEN SELECTED ORIGINS AND DESTINATIONS

Origins	Destinations	Transit via Walk Access [1]					Transit via Auto Access [2]					Low Occupancy Vehicle [3]					High Occupancy Vehicle [4]				
		Alternates					Alternates					Alternates					Alternates				
		1	2	3A, 4A, 5A	3B, 4B, 5B	5C	1	2	3A, 4A, 5A	3B, 4B, 5B	5C	1	2	3A, 4A, 5A	3B, 4B, 5B	5C	1	2	3A, 4A, 5A	3B, 4B, 5B	5C
Germantown	Downtown DC (Connecticut Avenue and K Street)	78	86	76	77	55	62	62	75	59	62	78	78	76	76	76	70	70	64	64	63
Germantown	Bethesda	64	72	62	63	41	48	48	61	40	41	50	50	49	49	48	42	42	35	35	34
Germantown	Rockville Town Center	44	52	46	47	25	32	32	33	33	33	28	28	27	27	27	26	26	19	19	19
Germantown	Life Sciences Center	36	29	29	36	30	52	38	28	40	42	18	18	16	16	16	18	18	13	13	13
Clarksburg	Downtown DC (Connecticut Avenue and K Street)	99	70	83	86	57	71	71	80	83	54	87	87	82	82	82	79	79	69	68	68
Clarksburg	Bethesda	62	51	69	49	43	57	57	66	46	40	59	59	54	53	53	51	51	40	40	39
Clarksburg	Life Sciences Center	79	51	36	46	32	61	49	33	43	29	27	27	21	20	21	27	27	18	17	18
Clarksburg	Germantown	50	34	17	18	12	N/A	N/A	N/A	N/A	9	11	11	8	7	8	11	11	8	7	8
Frederick City	Downtown DC (Connecticut Avenue and K Street)	109	108	109	109	102	110	110	110	110	104	110	110	104	108	104	109	109	88	87	88
Frederick City	Bethesda	95	94	95	95	89	96	96	96	96	91	88	88	81	87	79	80	80	59	59	58
Frederick City	Rockville Town Center	75	75	75	75	72	76	76	76	76	74	66	66	59	65	59	64	64	43	43	43
Frederick City	Life Sciences Center	101	100	97	94	93	105	110	98	96	95	57	57	48	55	48	57	57	37	37	37
Frederick City	Germantown	61	61	61	66	58	62	62	62	68	60	46	46	34	43	34	46	46	28	28	28

Notes: *1. Travel times shown include time to access the transit vehicle via walking to the boarding location.*
2. Travel times shown include time to access the transit vehicle via driving to the boarding location.
3. Low occupancy vehicle is defined as a vehicle with two or less occupants (driver alone or driver with one passenger).
4. High occupancy vehicle is defined as a vehicle with driver and two or more passengers.

Source*: MWCOG Travel Forecasts 4/2001-7/2001*

a. Results: Germantown

Figure IV-2 shows the travel time for individuals who both walk and drive to their first transit vehicle in Germantown, and are destined for downtown Washington (Connecticut Avenue/K Street), Bethesda, Rockville Town Center, and the Life Sciences Center. This data is shown as bars on the chart. As a comparison, LOV and HOV travel times for those destinations are drawn as horizontal lines across the bars to show the travel time if an individual were to take an automobile the entire distance for a comparable trip. For trips to downtown Washington, walk access transit travel times for No-Build, LRT and BRT are all approximately 76 to 78 minutes, with drive access travel times approximately 59 to 62 minutes. The Premium Bus Alternate generally yields the shortest travel times for each alternate and mode.

The transit travel time to Bethesda and Rockville via auto access is usually faster than transit travel time via walk access. HOV travel time is the fastest way to reach either Bethesda or Rockville, and the Premium Bus Alternate is generally the fastest transit alternative, and is faster than driving alone. The No-Build transit travel time is faster than the TSM/TDM travel time for trips to downtown Washington, Bethesda, and Rockville due to a change in individual bus routes serving the Germantown area and feeding the Shady Grove Metro Station for the TSM/TDM alternate.

For trips from Germantown to the Life Sciences Center, the BRT Alternate and No-Build show the highest walk access transit travel times, followed by Premium Bus, LRT and the TSM/TDM Alternates. The drive access transit travel times were generally higher. As a comparison, LOV and HOV travel times were at least 15 minutes faster than the fastest transit alternates. Overall, walk access transit trips to the Life Sciences Center are the faster than drive access transit trips, however, the trip still takes twice as long as driving an automobile the entire trip.

b. Results: Clarksburg

Figure IV-3 shows travel times for individuals who both walk and drive to their first transit vehicle in Clarksburg, and are destined for downtown Washington (Connecticut Avenue/K Street), Bethesda, the Life Sciences Center, and Germantown (Note: transit travel times via auto access are not applicable for trips from Clarksburg to Germantown). For walk and drive access transit trips to downtown Washington, Premium Bus is fastest at under an hour, followed by the TSM/TDM and No-Build (auto access only) Alternates at approximately 70 minutes. LRT and BRT take approximately 82 to 85 minutes, while No-Build (walk access) is well over an hour and a half. Premium Bus is approximately 30 minutes faster than the comparable travel time for LOV, while transit time with the TSM/TDM Alternate is approximately 10 minutes faster than the LOV time. The remaining transit alternates are generally slower than the LOV time.

For trips to Bethesda, Premium Bus, TSM/TDM and BRT are all within approximately 10 minutes of each other, with Premium Bus again being the fastest alternate. These three transit alternates also provide faster travel times than LOV. LRT provides the slowest travel time at almost 70 minutes. For trips to the Life Sciences Center, the LOV travel time is faster than the alternates by at least 10 minutes or more. However, Premium Bus provides the fastest transit

FIGURE IV-2
YEAR 2025 PROJECTED TRAVEL TIME BY ALTERNATE
TRAVELING FROM GERMANTOWN

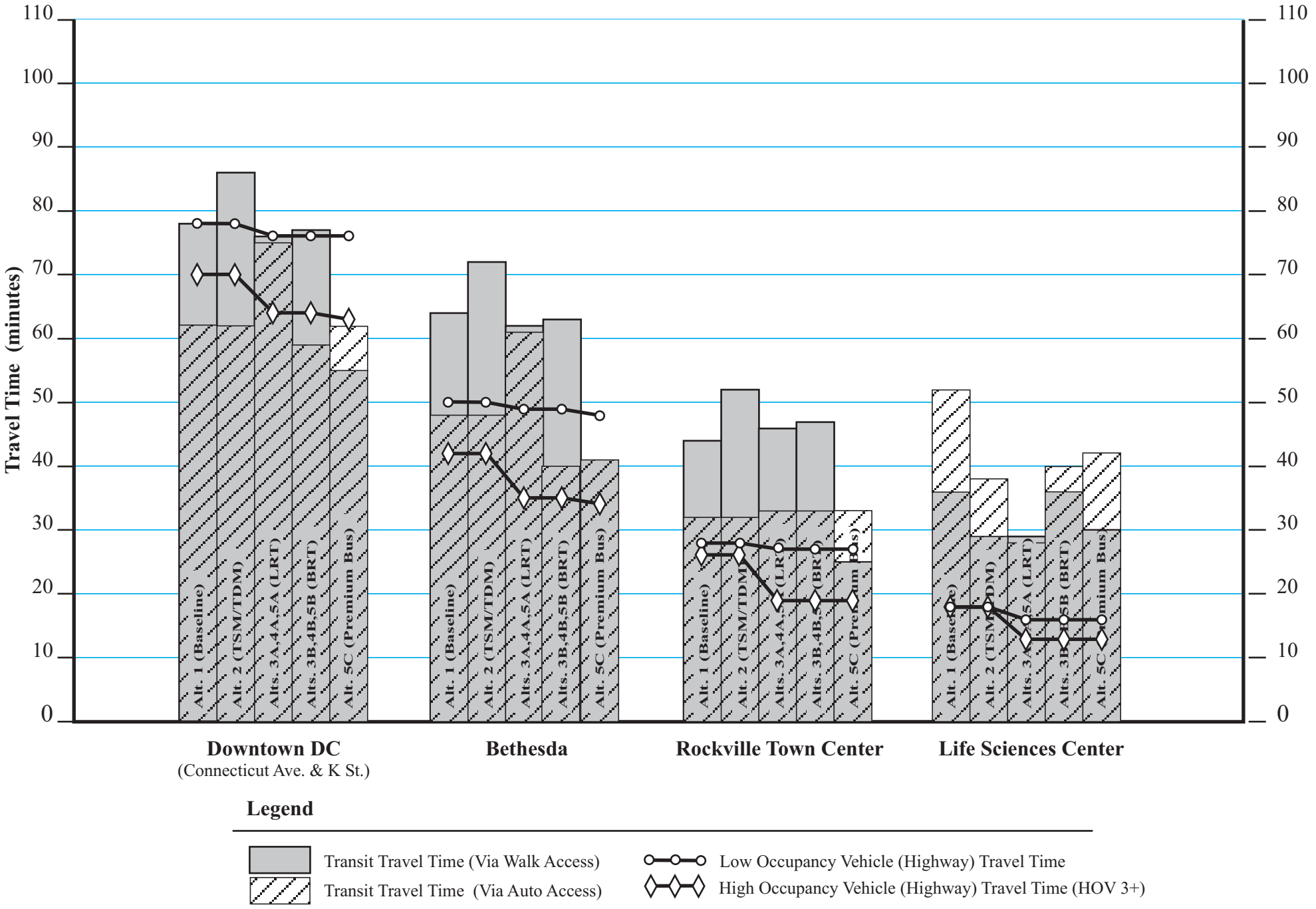
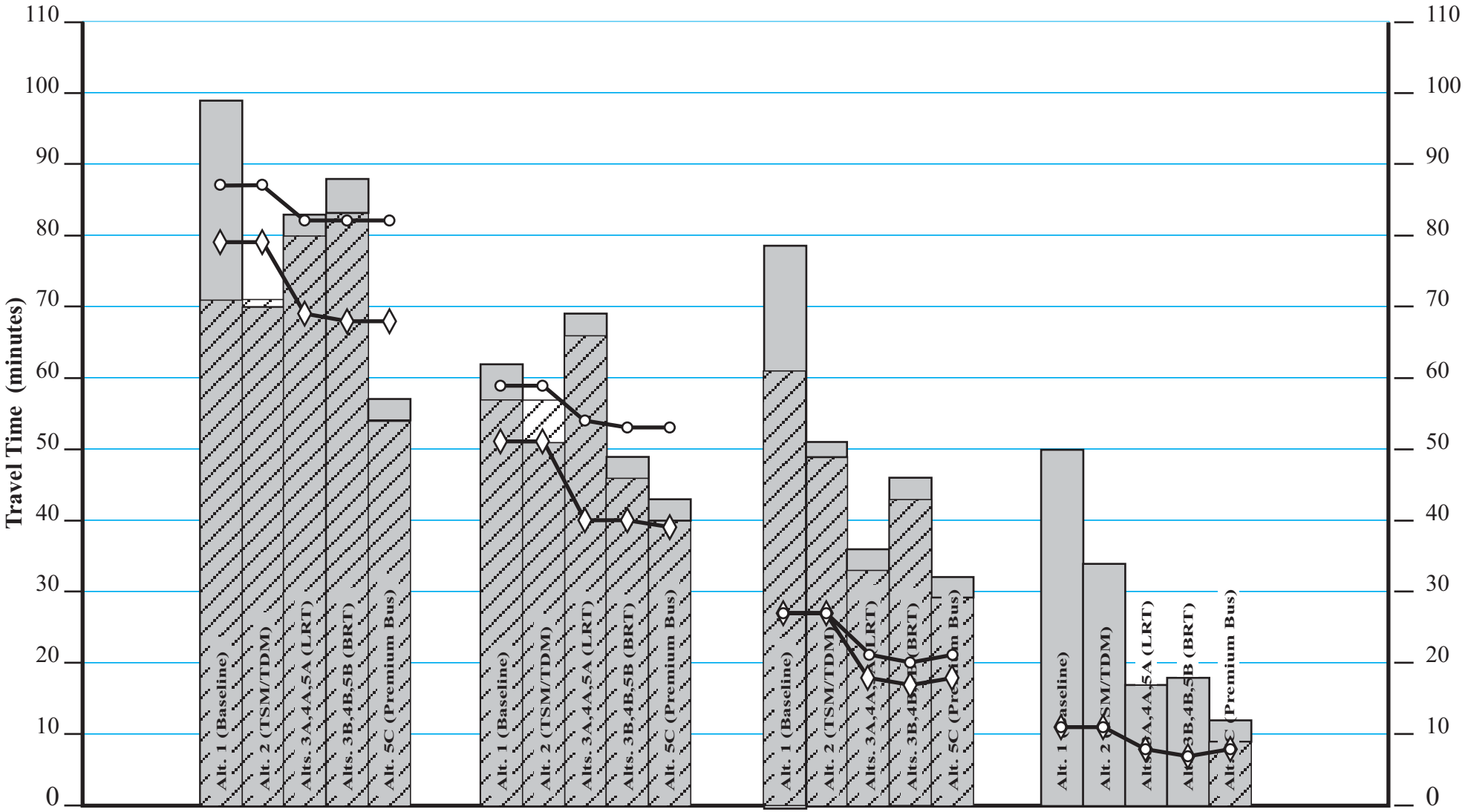


FIGURE IV-3
YEAR 2025 PROJECTED TRAVEL TIME BY ALTERNATE
TRAVELING FROM CLARKSBURG



trips at just over 30 minutes. All alternates provide slower trips than LOV, which provides travel times of roughly 20 minutes.

Trips to Germantown are fastest overall. No-Build transit travel to Germantown is slowest at 50 minutes, while Premium Bus is fastest at approximately 11 minutes. LRT and BRT provide similar travel times at approximately 16 to 17 minutes. LOV and HOV are faster, at approximately eight minutes, than all the alternates. In general, to all destinations from Clarksburg, Premium Bus provides the fastest transit travel time.

c. Results: Frederick

Figure IV-4 shows travel times for individuals who both walk and drive to their first transit vehicle in Frederick, and are destined for downtown Washington (Connecticut Avenue/K Street), Bethesda, Rockville Town Center, the Life Sciences Center, and Germantown. For trips to downtown Washington, the transit travel time with the No-Build, TSM/TDM, LRT and BRT Alternates are comparable and just slightly over the travel time for LOV. Premium Bus provides the fastest travel times at just over 100 minutes, which is just under LOV travel time.

For travel to Bethesda, again the No-Build, TSM/TDM, LRT and BRT Alternates are all comparable with transit travel times at about 92 minutes. Premium Bus is fastest at just under 90 minutes. However, all alternates provide slower travel time than LOV, which is at least 10 minutes faster than the fastest alternate.

For travel to Rockville, transit travel times for the No-Build, TSM/TDM, LRT and BRT Alternates are all the same at approximately 75 minutes, while Premium Bus is slightly faster at about 72 minutes. Again, LOV provides faster travel than all the alternates by about 10 minutes.

For travel to Life Sciences Center, overall transit travel times are approximately 50 minutes slower than LOV. Transit travel times for the No-Build, TSM/TDM, LRT, BRT and Premium Bus Alternates are all within 10 minutes of each other, between 91 to 101 minutes.

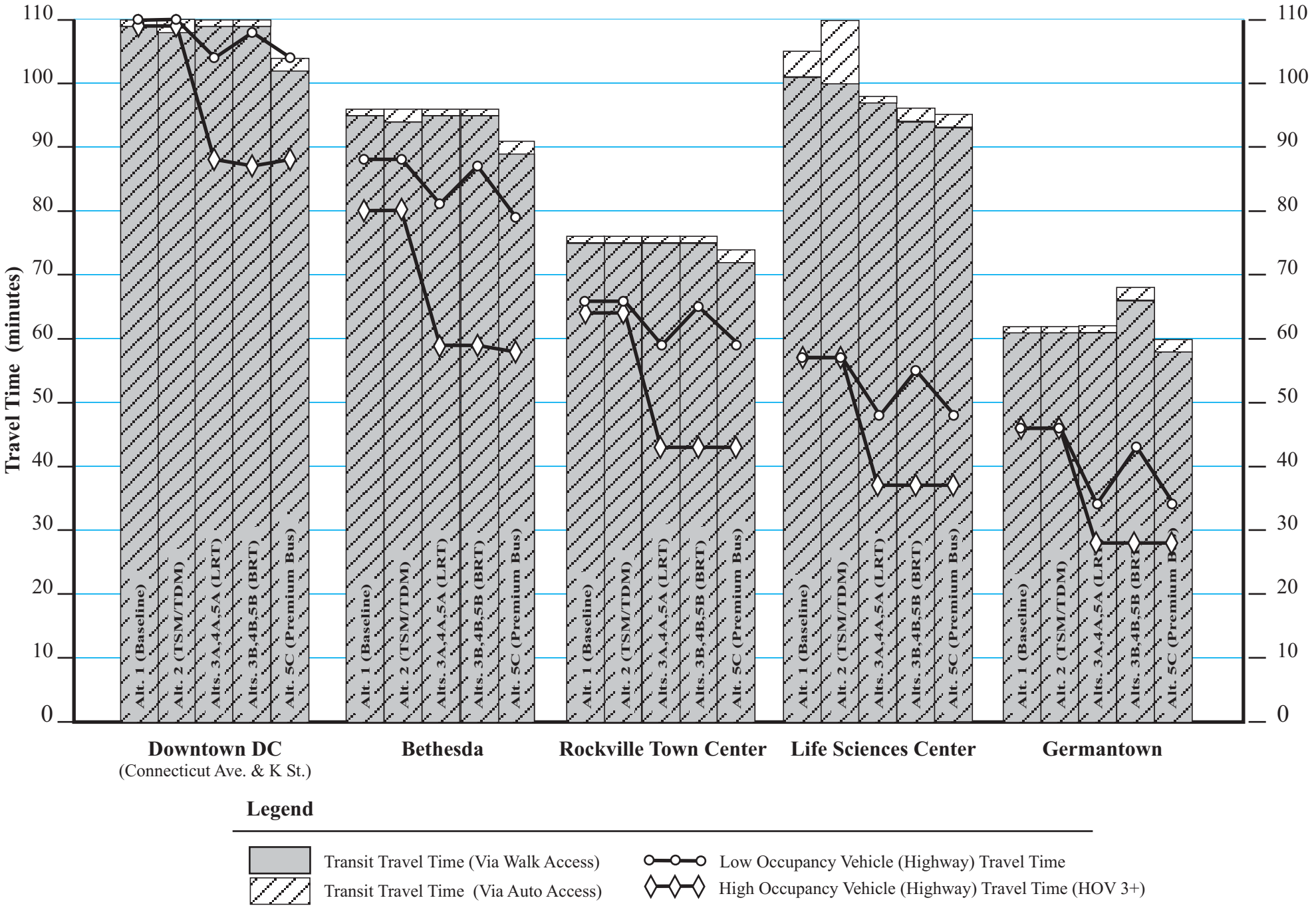
For travel to Germantown, Premium Bus is the fastest alternate, just slightly faster than the No-Build, TSM/TDM, and LRT Alternates. BRT provides the slowest travel time. LOV provides at least a 20-minute time savings over the transit alternates.

Overall, for travel from Frederick, Premium Bus provides the fastest transit travel times.

3. Transit Ridership

Table IV-4 and Figure IV-5 show the forecasted transit ridership for the 2025 AM peak period (5:30 AM to 9:30 AM) for each transit alternate. Estimates are provided for MARC boardings within the project area, Metrorail boardings, feeder and local bus boardings within the project area, and LRT, BRT or Premium Bus service depending on the alternate. **Table IV-5** presents a summary of the projected 2025 daily transit ridership. The MARC boardings were estimated by multiplying the projected AM peak period ridership by a factor of 2.1 while the remaining modes were estimated using a factor of 2.6. These daily peak factors are based on research performed

FIGURE IV-4
YEAR 2025 PROJECTED TRAVEL TIME BY ALTERNATE
TRAVELING FROM THE CITY OF FREDERICK



by the project team for two existing transit services that are comparable to the proposed services within the I-270 corridor. The following transit systems were investigated:

Port Authority Transit Corporation (PATCO) - Lindenwold Line

Based on information from the Port Authority Transit Corporation (PATCO) for operational data on its 14.2 mile rail line, which operates between Lindenwold, New Jersey and Center City Philadelphia, Pennsylvania, the following information was obtained:

Service Characteristics:

- Thirteen stations are located along the rail line
- The average speed during the peak period is 35 mph
- 6-car trains
- Car loading capacity:
  Seated = 80 persons/car
  Standing = 120% x 80 = 96 persons/car
  Average = 88 persons/car
- AM peak period headway = 4 minutes
- Daily ridership = 38,800

(1 train/4 min)x(120 min/peak period)x(88 persons/car)x(6 cars/train) = 15,840 trips/peak period

AM Peak to Daily Conversion Factor = 38,800/15,840 = 2.45

Washington Metropolitan Area Transit Authority (WMATA)

The following data was provided by WMATA's Business Planning and Development Section:

- Shady Grove Station
  - Peak Period: 5:30 AM to 9:30 AM
  - AM Peak Ridership: 6,496
  - Daily Ridership: 19,400
  - Peak to Daily Factor: 2.99
- Rockville Station
  - Peak Period: 5:30 AM to 9:30 AM
  - AM Peak Ridership: 2,242
  - Daily Ridership: 7,400
  - Peak to Daily Factor: 3.30
- Systemwide
  - AM Peak Ridership: 225,000
  - Daily Ridership: 688,000
  - Peak to Daily Factor: 3.06

The peak-to-daily conversion factor of 2.6 reflects an approximate estimate of these systems. The higher peak-to-daily ratio in the Washington region is likely due to the commuter oriented nature of the region's travel market and changing travel patterns. Additionally, the higher factor at the WMATA Rockville Station is probably related to the presence of the MARC – Brunswick Line station, which serves as a major transfer point.

Approximately 14,000 passengers are projected to use the Premium Bus and LRT Alternates during the AM peak period and approximately 18,000 passengers are projected to use the BRT Alternate. MARC ridership from the project area is projected to grow from approximately 2,000 riders during the AM peak period in 2001 to over 11,000 riders for the 2025 No-Build. 2025 MARC ridership from the project area is projected to drop to approximately 6,000 boardings for the LRT and Premium Bus Alternates and approximately 5,000 for the BRT Alternate. Passengers boarding Metrorail at the Shady Grove Metro and Rockville Metro Stations during the AM peak period are projected to be highest for the Premium Bus Alternate (24,800), which is 9,000 more than projected for the No-Build and over 14,000 more than board today. AM peak period Shady Grove Metro Station and Rockville Metro Station ridership is projected to be 19,200 for the LRT and 22,000 for the BRT Alternates. Feeder and local bus ridership is projected to be highest for the BRT and Premium Bus Alternates, 29,200 and 31,300 respectively, and it is nearly 10,000 lower for the LRT Alternate.

TABLE IV-4
2025 AM PEAK PERIOD TRANSIT RIDERSHIP SUMMARY (BOARDINGS)

	LRT, BRT or Premium Bus Boardings	Project area MARC Boardings	Shady Grove and Rockville Metrorail Boardings	Project area Feeder and Local Bus Boardings	Total Project area Transit Boarding
Year 2000 Observed	N/A	2,100	10,400	N/A	N/A
Alternate 1 (No-Build)	N/A	11,400	15,800	17,300	44,500
Alternate 2 (TSM/TDM)	N/A	9,900	15,900	27,600	53,400
Alternates 3A, 4A, 5A (LRT)	14,000	5,800	19,200	20,500	59,500
Alternates 3B, 4B, 5B (BRT)	18,300	6,000	22,000	29,200	75,500
Alternate 5C (Premium Bus)	14,500	4,700	24,800	31,300	75,300

Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

TABLE IV-5
2025 DAILY TRANSIT RIDERSHIP SUMMARY (BOARDINGS)

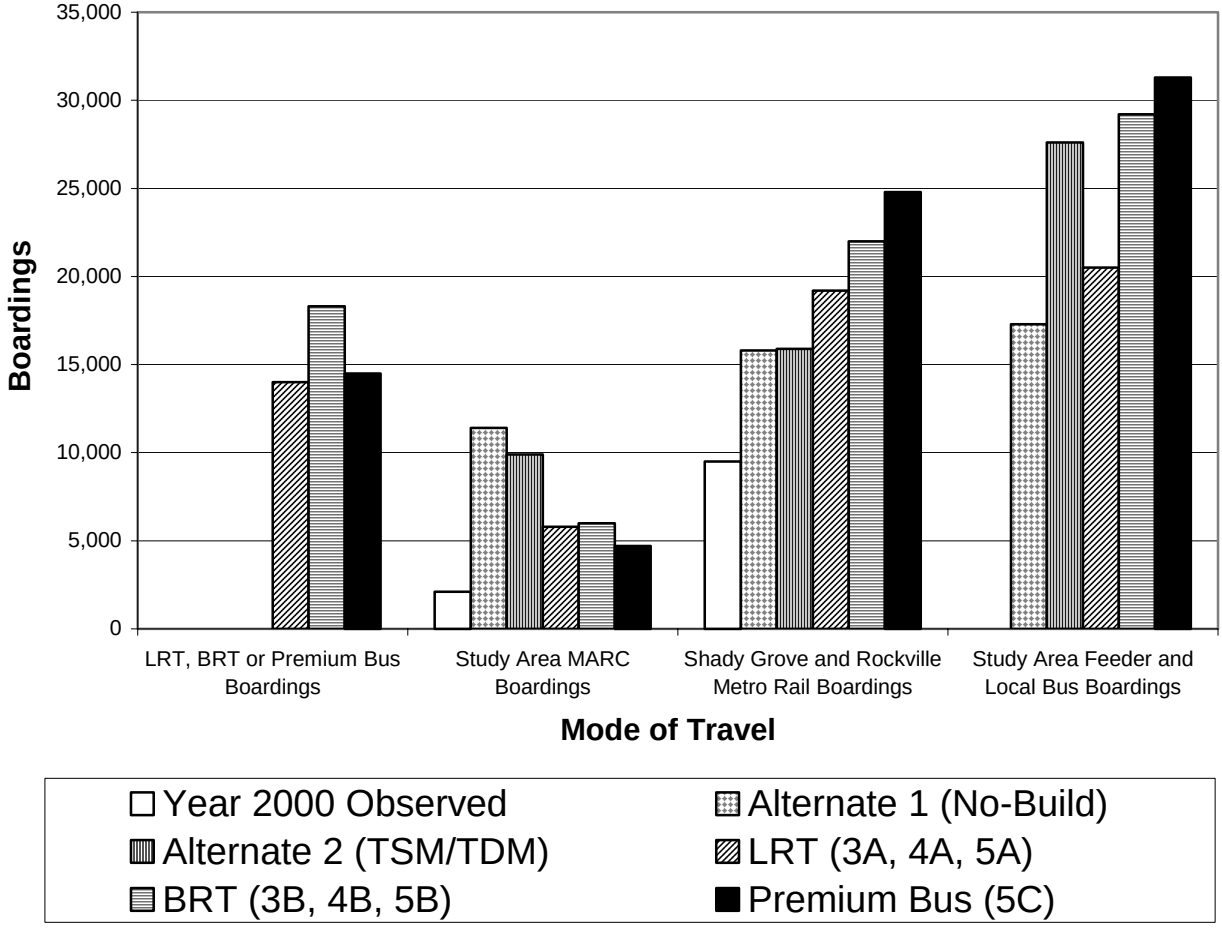
	LRT, BRT or Premium Bus Boardings	Project Area MARC Boardings	Shady Grove and Rockville Metrorail Boardings	Project Area Feeder and Local Bus Boardings	Total Project Area Transit Boarding
Year 2000 Observed	N/A	4,400	14,700	N/A	N/A
Alternate 1 (No-Build)	N/A	23,900	41,100	45,000	110,000
Alternate 2 (TSM/TDM)	N/A	20,800	41,300	71,800	133,900
Alternates 3A, 4A, 5A (LRT)	36,400	12,200	49,900	53,300	151,800
Alternates 3B, 4B, 5B (BRT)	47,600	12,600	57,200	75,900	193,300
Alternate 5C (Premium Bus)	37,700	9,900	64,500	81,400	193,500

Note: *Daily factor of 2.1 used to convert AM peak period MARC boardings to daily boardings. All other boardings were factored using 2.6.*

Source: *Daily to peak factor for Ride On, MTA and WMATA statistics.*

Analysis of this ridership data indicates that over 5,000 of the patrons forecasted to use the new transit service provided by the alternates are individuals who would have used the MARC service if the new service was not available. Most of these patrons will transfer to Metrorail at the Shady Grove Metro Station. It is also important to note that even the lowest projected MARC use is more than twice that of today and the No-Build Alternate is more than five times the current AM peak period MARC ridership (11,400 compared to 2,100).

FIGURE IV-5
2025 AM PEAK PERIOD TRANSIT BOARDINGS



4. Work Trip Market

Table IV-6 summarizes transit trip production (work trips to and from homes in the project area). **Table IV-7** summarizes the forecasted 2025 use of transit for trips to and from work. In these tables 2025 projected transit trips for the different alternates are compared to the projected transit use for the TSM/TDM Alternate. A change from the TSM/TDM Alternate as compared to the other alternates is calculated to show which alternate causes the greatest increase in transit trips to or from the project area. The TSM/TDM Alternate represents the practical extent by

which transit service can be improved in the project area without major infrastructure investments.

TABLE IV-6
2025 DAILY TRANSIT TRIPS TO AND FROM HOMES IN PROJECT AREA

Suburban Area	Alternate 1 (No-Build)	Alternate 2 (TSM/TDM)	Alternates 3A, 4A, 5A (LRT)	Alternates 3B, 4B, 5B (BRT)	Alternates 5C (Premium Bus)
Bethesda	7,900	7,900	7,900	8,000	7,900
North Bethesda	9,700	9,800	10,000	10,200	10,000
Rockville	16,300	17,100	17,900	18,200	17,700
Gaithersburg	19,400	21,600	25,000	25,800	24,500
Germantown	10,500	11,300	10,900	13,600	13,000
Clarksburg	2,000	2,700	2,500	3,400	3,800
Frederick City	3,200	3,500	2,700	3,600	5,300
Remainder of Frederick County	4,200	4,600	3,300	4,600	5,900
Total Project area	**73,200**	**78,500**	**80,200**	**87,400**	**88,100**
Change from TSM/TDM Alternate	**-5,300**	**0**	**1,700**	**8,900**	**9,600**
% Change from TSM/TDM Alternate	**-7%**	**0%**	**2%**	**11%**	**12%**

Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

Table IV-6 summarizes transit trip production (work trips to and from homes in the project Area). The TSM/TDM Alternate increases the number of transit trips over the No-Build by 7%. The LRT Alternate increases total usage by 2% over the TSM/TDM Alternate, while BRT and Premium Bus Alternates increase total usage by 11% and 12% respectively over TSM/TDM, and 18% and 19% respectively over the No-Build. Overall, the Premium Bus Alternate showed the highest increase in transit trips that were to and from homes located in the project area, followed closely by the BRT Alternate. The LRT Alternate barely generated an increase in transit trips compared to the TSM/TDM Alternate. There was five times as much of an increase in transit trips for BRT and Premium Bus Alternates as there was for the LRT Alternate. Specifically, Premium Bus serves Frederick County better than any of the other alternates. Germantown, Clarksburg and Frederick County are the least well served by the LRT Alternate. The Premium Bus Alternate has the greatest impact on transit ridership. The primary reason for this may be that the Premium Bus Alternate includes through routing of bus services, providing a one-seat trip for a larger number of new riders than the LRT.

TABLE IV-7
2025 DAILY TRANSIT TRIPS TO AND FROM WORK IN PROJECT AREA

Suburban Area	Alternate 1 (No-Build)	Alternate 2 (TSM/TDM)	Alternates 3A, 4A, 5A (LRT)	Alternates 3B, 4B, 5B (BRT)	Alternate 5C (Premium Bus)
Bethesda	20,300	20,400	20,100	20,600	21,200
North Bethesda	12,300	12,600	12,200	13,000	13,300
Rockville	24,300	26,300	27,600	29,700	29,900
Gaithersburg	10,900	13,500	17,000	17,100	15,400
Germantown	1,600	2,000	2,600	2,800	2,000
Clarksburg	80	200	200	200	30
Frederick City	2,700	3,000	2,800	2,900	3,000
Remainder Frederick County	100	100	100	700	300
Total project area	**72,200**	**78,100**	**82,600**	**87,000**	**85,130**
Change from TSM/TDM Alternate	**-5,820**	**0**	**4,500**	**8,900**	**7,030**
% Change from TSM/TDM Alternate	**-7%**	**0%**	**6%**	**11%**	**9%**

Source: *MWCOG Travel Forecast 4/2001 – 7/2001*

Trip attractions are summarized in **Table IV-7**, for trips to and from work locations within the project area follow the same type of pattern as the trips to home locations. The TSM/TDM Alternate is forecasted to generate a 7% increase in transit riders compared to the No-Build Alternate. The LRT Alternate still resulted in the lowest increase in usage of all the alternates, but the increase in transit use at the work end is projected to be higher than at the home end (4,500 more trips than the TSM/TDM Alternate at the work end compared to 1,700 at the home end). In other words, the LRT serves employment in the project area better than it does residents. The BRT Alternate generates the greatest increase in transit trips over the TSM/TDM Alternate at the work end (8,900) followed by the Premium Bus Alternate (7,030). Clarksburg is least well served by the Premium Bus Alternate, while the City of Frederick is best served by the Premium Bus Alternate. The remainder of Frederick County is best served by the BRT Alternate. The BRT and LRT Alternates generate approximately the same number of transit users destined to jobs in Bethesda, North Bethesda, Rockville, Gaithersburg, Germantown and Clarksburg. The Premium Bus Alternate generates fewer transit trips than the other two alternates for trips to Clarksburg, Gaithersburg and Germantown.

5. New Transit Riders

A measure of the effectiveness of the different alternates is the number of new riders who would not otherwise use transit without that alternate being available. These riders reflect the number of people diverted from auto usage because the transit alternates provide an attractive choice in terms of travel time, convenience, and cost.

Table IV-8 provides an estimate of the number of people who are projected to use transit who would not use transit with the No-Build Alternate. As can be seen from this table, over 7,000 new riders are projected if the TSM/TDM Alternate is implemented. The LRT Alternates are

projected to result in 2,800 more transit riders than the TSM/TDM Alternate. The BRT Alternates result in the most new riders (11,400) over the TSM/TDM Alternate, followed by the Premium Bus Alternate, which is projected to generate 10,800 new transit users more than the TSM/TDM Alternate. Considerably more new transit riders are generated by the BRT and Premium Bus alternates than LRT.

TABLE IV-8
NEW DAILY TRANSIT RIDERS IN CORRIDOR

Alternate	Total Riders	New Riders Compared with No-Build		New Riders Compared with TSM/TDM Alternate	
Alternate 1 (No-Build)	78,500	0	0.0%	-7,000	-8.2%
Alternate 2 (TSM/TDM)	85,500	7,000	8.9%	0	0.0%
Alternates 3A, 4A, 5A (LRT)	88,300	9,800	12.5%	2,800	3.3%
Alternates 3B, 4B, 5B (BRT)	96,900	18,400	23.4%	11,400	13.3%
Alternate 5C (Premium Bus)	96,300	17,800	22.7%	10,800	12.6%

Note: *New transit riders are defined as new daily transit trips to or from the project area.*
Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

6. Access and Egress Modes

The forecasted access modes of passengers boarding at the proposed stations were analyzed as a transportation impact. The highest peak period boardings are typically at those stations that provide large park and ride lots and feeder bus service. Transit patrons will generally walk to a rail station when the distance does not exceed one-half mile. Beyond a half mile, access is provided either by feeder bus service, automobile to a park and ride lot where the vehicle is parked and the driver and passengers then ride transit, or by automobile to a kiss and ride facility where the transit passenger is dropped off and picked up after their return trip by a motorist.

Table IV-9 provides the AM peak period boardings for the LRT Alternate. Approximately half of the total passengers are arriving at the stations by auto access. Bus access and walk access make up the other half. The Decoverly and School Drive stations result in the highest overall passenger boardings (3,500) and, therefore, result in the highest number of walk access boardings (1,000) and bus access boardings (800). Three-fourths of the passengers boarding at the East Gaither (King Farm) to Washingtonian stations walk to those stations, however these stations have the lowest number of users, only 800 passengers use those stations during the AM peak period. The most northern stations, which include the Dorsey Mill to COMSAT stations, have the highest number of patrons who use auto to access transit and the most southern stations, which include the East Gaither (King Farm) to Washingtonian stations, have the lowest number.

TABLE IV-9
AM PEAK PERIOD LRT BOARDINGS - HOME TO WORK TRIPS

Station Grouping	Total Boardings	Walk Access	Bus Access[1]	Auto Access[2]
Shady Grove Metro Station[3]	2,000	N/A	N/A	N/A
East Gaither (King Farm) to Washingtonian	800	600	100	100
Decoverly to School Drive	3,500	1,000	800	1,700
Quince Orchard Park to Metropolitan Grove	2,500	700	200	1,600
Germantown Center to Cloverleaf	2,500	700	700	1,100
Dorsey Mill to COMSAT	2,700	400	100	2,300
Total	**14,000**	**3,400**	**3,800**	**6,800**

Notes: *1. The approximate difference between the actual sum of all bus access boardings (1,900) and the total of the bus access column (3,800) is the amount of total boardings at Shady Grove.*
2. Auto access includes park and ride and kiss-and-ride.
3. Cannot determine access mode since station is shared with Metrorail.

Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

Table IV-10 provides the AM peak period boardings for the BRT Alternate. For this alternate, access to stations is almost evenly divided among the three access modes. Again, the northern stations, which include the Dorsey Mill to COMSAT stations, have the highest number of patrons who use auto to access transit (1,600); the southern stations, which include the East Gaither (King Farm) to Washingtonian stations, and the Germantown Center to Cloverleaf stations have the lowest (200 each).

TABLE IV-10
AM PEAK PERIOD BRT BOARDINGS - HOME TO WORK TRIPS

Station Grouping	Total Boardings	Walk Access	Bus Access	Auto Access[1]
Shady Grove Metro Station[2]	5,700	N/A	N/A	N/A
East Gaither (King Farm) to Washingtonian	2,300	600	1,500	200
Decoverly to School Drive	2,600	1,200	200	1,300
Quince Orchard Park to Metropolitan Grove	2,700	800	1,000	900
Germantown Center to Cloverleaf	2,200	1,000	1,000	200
Dorsey Mill to COMSAT	2,800	370	900	1,600
Total	**18,300**	**3,970**	**4,600**	**4,200**

Notes: *1. Auto access includes park and ride and kiss-and-ride.*
2. Cannot determine access mode since station is shared with Metrorail.

Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

Table IV-11 provides the AM peak period boardings for the Premium Bus Alternate. The stations for the Premium Bus Alternate vary slightly from LRT and BRT. Half of the passengers used autos to access the Premium Bus stations, approximately 30% used bus and approximately

20% walked. The lowest number of passengers arrived at the MD 75 and MD 85 stations at the northern end of the study corridor. Overall, the most passengers used Metropolitan Grove and Germantown Center stations at the southern end of the study corridor, both of which had higher bus and auto access than walk access.

TABLE IV-11
AM PEAK PERIOD PREMIUM BUS BOARDINGS - HOME TO WORK TRIPS

Station Grouping	Total Boardings	Walk Access	Bus Access	Auto Access[1]
Shady Grove Metro Station[2]	3,800	N/A	N/A	N/A
Metropolitan Grove	3,900	600	1,600	1,700
Germantown	4,000	1,000	1,500	1,500
COMSAT	2,500	300	300	1,900
MD 75	100	0	50	50
MD 85	200	N/A	20	200
Total	**14,500**	**1,900**	**3,470**	**5,350**

Notes: *1 Auto access includes park and ride and kiss-and-ride.*
2. Cannot determine access mode since station is shared with Metrorail.
Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

7. Projected Effects on Metrorail and MARC Ridership

Table IV-12 provides the daily boardings for the different stations along the corridor by alternate. Overall, boardings for commuter rail are highest for No-Build, followed by TSM/TDM, BRT, and LRT while Premium Bus has the lowest number of passengers who use MARC. Germantown to Gaithersburg has the highest MARC boardings for each alternate. Frederick to Monocacy is the only area where MARC boardings are higher for the LRT alternate than the BRT alternate. For Metrorail, the highest boardings occur with the Premium Bus alternate, followed by BRT, LRT, TSM/TDM and No-Build.

TABLE IV-12
PROJECTED DAILY RIDERSHIP AT MARC AND SELECTED METRORAIL STATIONS (BOARDINGS)

MARC/Metrorail Stations	Number of Stations	Total Boardings				
		Alternate 1 No-Build	Alternate 2 TSM/TDM	Alternates 3A/4A/5A LRT	Alternates 3B/4B/5B BRT	Alternate 5C Premium Bus
MARC Brunswick Line		23,900	20,800	12,200	12,600	9,900
Frederick to Monocacy	2	2,200	1,300	1,600	900	300
Brunswick to Boyds	5	8,100	7,600	3,700	4,200	4,000
Germantown to Gaithersburg	3	13,600	11,900	6,900	7,500	5,600
Metrorail						
Shady Grove to Rockville	2	41,100	41,300	49,900	57,200	64,500

Source: *MWCOG Travel Forecast 4/2001 – 7/2001*

8. Transit Conclusions

The general transit ridership trends show that project area MARC boardings will decrease under the build alternates when compared with the No-Build Alternate, while the Shady Grove and Rockville Metrorail boardings and the project area feeder and local bus boardings will increase (**Table IV-4**). This is due to the southern terminus of the proposed CCT located at the Shady Grove Metro Station, and the projections that approximately 60% of the transit trips in the corridor will transfer at Shady Grove. The transit forecasts continue to show the need for additional transit services in the corridor beyond what is currently in place.

Ridership projections for the proposed build alternates show that the BRT Alternates (Alternates 3B/4B/5B) generate the largest transit ridership, with approximately 18,300 riders in the 2025 AM peak period. The Premium Bus Alternate (Alternate 5C) would generate the second largest transit ridership with 14,500 riders during the 2025 AM peak period; the LRT Alternates (Alternates 3A/4A/5A) would generate the least amount of transit riders of the three alternates, with approximately 14,000 riders for the 2025 AM peak period.

The BRT Alternate will result in the most new corridor transit riders (see **Table IV-8**) due to its accessibility throughout the corridor and the ability of buses to travel off the transitway alignment and serve a larger market area. The Premium Bus Alternate would result in the second most new riders, and the LRT Alternate would result in the least amount of new transit riders. In addition, the BRT Alternate exhibits the largest savings of travel time, as it provides more than 30 minutes of potential travel time savings for approximately 89,200 daily work trips when compared to the No-Build Alternate. The Premium Bus Alternate exhibits the second most potential (53,400 daily work trips) and the LRT Alternate offers the least potential for travel time savings of more than 30 minutes (8,100 daily work trips).

E. ROADWAY NETWORK EFFECTS

1. Traffic Operations for Existing (1998) Conditions

Operations of highway facilities are evaluated using qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers. Traffic operations are characterized by level of service (LOS). Each LOS is given letter designations, from A to F, with LOS A representing the best operating conditions or free flow conditions with few interactions between vehicles and LOS E representing capacity of the facility. LOS F represents the worst conditions when a facility is being used to its fullest capacity and severe congestion is experienced. LOS is determined using techniques that are continuously being refined by research performed for the Transportation Research Board (TRB). Periodically recommendations for LOS analysis are published by TRB. The freeway analyses performed for this study are based on the Highway Capacity Manual published by TRB in 1998.

Table I-6 in **Chapter I** illustrates 1998 existing conditions on the mainline of I-270 and US 15 in the project area. During the 1998 AM peak hour, southbound I-270 operated at LOS E except for the sections from MD 118 to MD 121, which operated at LOS C/D. Southbound US 15 operated at various levels of congestion in 1998. The I-70 to US 15/US 340 segment operated at LOS C, US 15/US 340 to MD 144 at LOS D, MD 144 to Opossumtown Pike/Motter Avenue at LOS E, Opossumtown Pike/Motter Avenue to MD 26 at LOS D, MD 26 to Trading Lane at LOS B, and Trading Lane to Biggs Ford Road at LOS C.

Northbound I-270 was congested during the 1998 PM peak hour, operating at LOS D/E. The I-370 to MD 124 mainline segments operated at LOS D, and the northbound C-D lanes operate at LOS C. The northern portion of I-270 from MD 124 to I-70 operated at LOS D/E. In 1998, northbound US 15 operated at LOS D/E from I-70 to MD 26, and LOS C from MD 26 to Biggs Ford Road.

2. Traffic Operations for 2025 No-Build and TSM/TDM Alternates

Operations on the mainline of I-270 and US 15 are projected to degrade significantly between 1998 and the 2025 No-Build Alternate. During the AM peak hour, southbound I-270 will experience a drop in LOS from E to F, and US 15 will experience a lesser degradation, generally to LOS E. The I-270 northbound direction during the PM peak hour is projected to experience a drop in LOS from D/E to F. US 15 will generally change from LOS D/E to LOS E/F.

Table IV-13 illustrates 2025 No-Build (Alternate 1) and TSM/TDM (Alternate 2) operating conditions on the mainline of I-270 and US 15 along the corridor. Congestion is expected during the AM peak hour with the southbound direction projected to operate at LOS F along I-270. The US 15 portion is projected to operate at LOS D from I-70 to Jefferson Street and LOS E/F from Jefferson Street to Biggs Ford Road.

Congestion is also projected for the I-270 northbound direction during the PM peak hour, operating at LOS F, with the exception of the segment just south of I-370, which would operate at LOS D. The northbound C-D lane between I-370 and MD 117 and between MD 117 and

MD 124 is projected to operate at LOS F/E, respectively. Northbound US 15 would operate at LOS E/F from I-70 to Biggs Ford Road.

Figures IV-6 and IV-7 indicate traffic volumes and LOS for the 1998 existing conditions and Alternates 1 and 2, respectively.

3. Build Alternates

Table IV-13 compares the AM and PM peak hour mainline and C-D lanes LOS between the projected 2025 traffic for Alternates 1 & 2, and Alternates 3A/B, 4A/B and 5A/B/C respectively.

a. Alternates 3A/B

With Alternates 3A/B, I-270 traffic operations are expected to improve slightly over the No-Build and TSM/TDM Alternates during the AM and PM peak hours in the northbound direction between Middlebrook Road and MD 121, and in the southbound direction between MD 118 and MD 121. Over the entire 31± mile corridor study area, the proposed improvements with Alternates 3A/B result in approximately seven fewer miles of LOS F operations northbound and approximately four fewer miles of LOS F operations southbound as compared to the 2025 No-Build conditions.

In the northbound direction with Alternates 3A/B conditions, the mainline is projected to operate at LOS F from south of the I-370 interchange to the proposed Watkins Mill Road interchange, LOS E from Watkins Mill Road to MD 121, LOS F from MD 121 to MD 85, and LOS D from MD 85 to I-70. The extended C-D lanes, which accommodate the merging traffic on and off of I-270 will operate at LOS F from south of the I-370 interchange to the Middlebrook Road interchange and LOS E/D from Middlebrook Road to Father Hurley Boulevard. US 15 northbound is projected to operate at LOS E/F from I-70 to Rosemont Avenue and LOS C/D from Rosemont Avenue to Biggs Ford Road.

In the southbound direction, the mainline is projected to operate at LOS F from south of the I-370 interchange to MD 118, LOS E from MD 118 to MD 121, and LOS F from MD 121 to I-70. The southbound I-270 C-D lanes will operate at LOS E/F from I-370 to MD 118 and LOS D from MD 118 to Father Hurley Boulevard. US 15 southbound is projected to operate at LOS C/D, with the exception of the segment between Jefferson Street and MD 144, which will operate at LOS F.

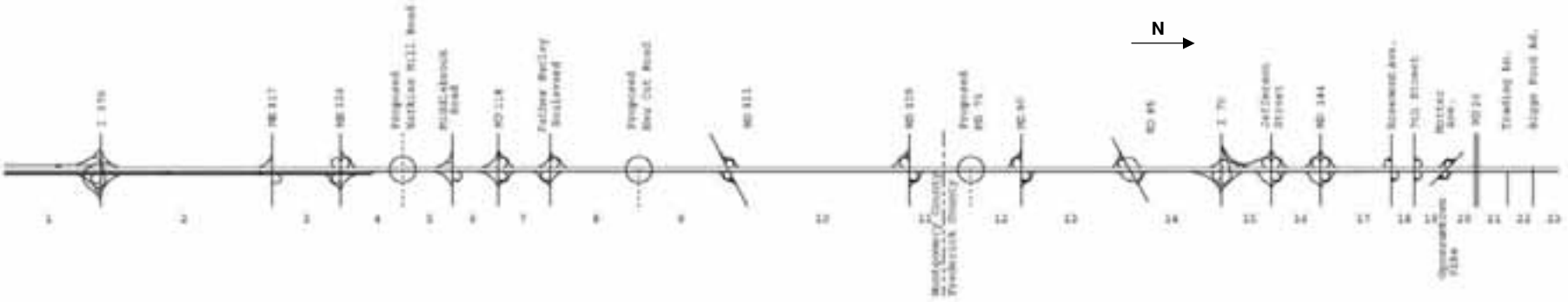
Figure IV-8 indicates traffic volumes, number of lanes, LOS, and volume to capacity ratios for Alternates 3A/B.

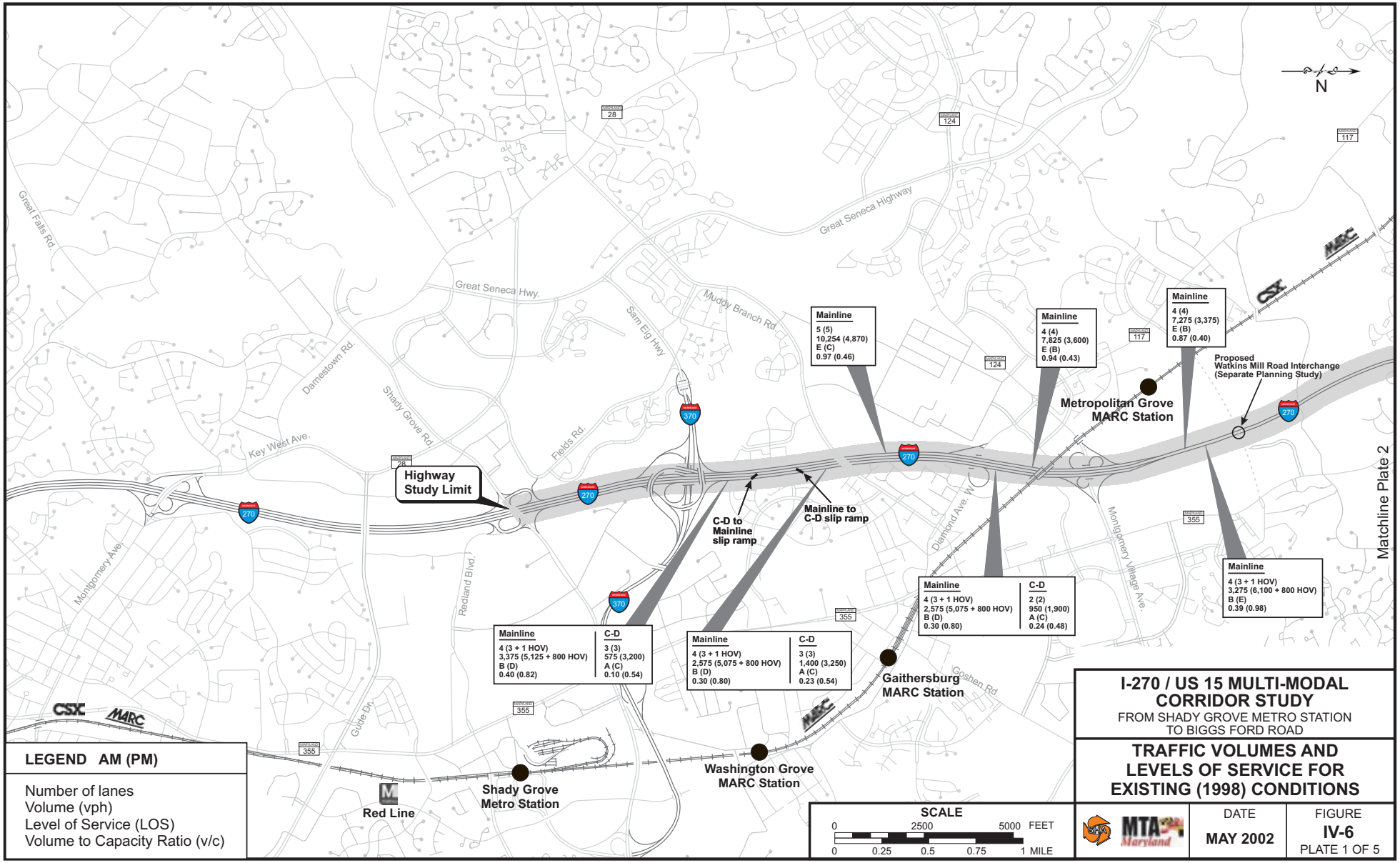
TABLE IV-13
2025 NO-BUILD AND BUILD ALTERNATES AM(PM) PEAK HOUR MAINLINE LEVEL OF SERVICE (LOS) [1,2] / VOLUME TO CAPACITY (V/C) RATIOS [3] ALONG I-270 AND US 15

Highway Segments		Alternates 1 & 2 (2025)				Alternates 3A/B (2025)				Alternates 4A/B (2025)				Alternates 5A/B/C (2025)			
		Northbound		Southbound		Northbound		Southbound		Northbound		Southbound		Northbound		Southbound	
		Mainline	C-D Lanes	Mainline	C-D Lanes	Mainline	C-D Lanes	Mainline	C-D Lanes	Mainline	C-D Lanes	Mainline	C-D Lanes	Mainline	C-D Lanes	Mainline	C-D Lanes
1.	South of I-370	C (D)	C (F)/-(1.91)	F (C) /1.22(-)	F (C)/1.10(-)	B(F)/-(1.14)	E(F)/-(1.38)	F(B)/1.35(-)	F(D)/1.02(-)	B(F)/-(1.14)	E(F)/-(1.38)	F(B)/1.35(-)	F(D)/1.02(-)	B(F)/-(1.15)	E(F)/-(1.40)	F(B)/1.37(-)	F(D)/1.03(-)
2.	I-370 to MD 117	C (F) /-(1.03)	A(E)	F (D) /1.37(-)	-	B(F)/-(1.15)	D(F)/-(1.20)	F(B)/1.34(-)	F(D)/1.08(-)	B(F)/-(1.15)	D(F)/-(1.20)	F(B)/1.35(-)	F(D)/1.08(-)	B(F)/-(1.15)	D(F)/-(1.23)	F(B)/1.37(-)	F(D)/1.10(-)
3.	MD 117 to MD 124	C (F) /-(1.09)	B (E)	F (D) /1.41(-)	-	B(F)/-(1.15)	D(F)/-(1.14)	F(B)/1.14(-)	E(D)	B(F)/-(1.15)	D(F)/-(1.14)	F(B)/1.14(-)	E(D)	B(F)/-(1.15)	D(F)/-(1.18)	F(B)/1.16(-)	E(D)
4.	MD 124 to Proposed Watkins Mill Road	D (F) /-(1.83)	-	F (D) /1.49(-)	-	B(F)/-(1.15)	E(F)/-(1.17)	F(B)/1.14(-)	E(D)	B(F)/-(1.15)	E(F)/-(1.17)	F(B)/1.14(-)	E(D)	B(F)/-(1.15)	E(F)/-(1.20)	F(B)/1.16(-)	E(D)
5.	Proposed Watkins Mill Road to Middlebrook Road		-		-	A(E)	E(F)/-(1.14)	F(B)/1.28(-)	F(D)/1.12(-)	A(E)	E(F)/-(1.14)	F(B)/1.28(-)	F(D)/1.12(-)	A(E)	E(F)/-(1.17)	F(B)/1.32(-)	F(D)/1.14(-)
6.	Middlebrook Road to MD 118	C (F) /-(1.39)	-	F (D) /1.51(-)	-	B(E)	C(E)	F(B)/1.28(-)	D(C)	B(E)	C(E)	F(B)/1.28(-)	D(C)	B(E)	C(E)	F(B)/1.32(-)	D(C)
7.	MD 118 to Father Hurley Boulevard	C (F)[4]	-	E(C)	-	B(E)	A(D)[4]	E(B)	D(C)	B(E)	A(D)[4]	E(B)	D(C)	B(E)	A(D)[4]	F(B)/1.01(-)	D(C)
8.	Father Hurley Boulevard to Proposed Newcut Road	D (F) /-(1.94)	-	F (E) /1.21(-)	-	B(E)	C(E)	E(B)	F(E)/1.12(-)	B(E)	C(E)	E(B)	F(E)/1.12(-)	B(E)	C(E)	E(B)	F(E)/1.10(-)
		Mainline		Mainline		Mainline		Mainline		Mainline		Mainline		Mainline		Mainline	
9.	Proposed Newcut Road to MD 121	D (F) /-(1.94)		F (E) /1.21(-)		B(E)		E(C)		B(E)		E(C)		B(E)		E(C)	
10.	MD 121 to MD 109	D (F) /-(1.45)		F (E) /1.15(-)		C(F) / -(1.54)		F(D) / 1.27(-)		C(F) / -(1.12)		E(D)		C(F) / -(1.16)		E(C)	
11.	MD 109 to Proposed MD 75	D (F) /-(1.25)		F (E) /1.16(-)		C(F) / -(1.34)		F(D) / 1.29(-)		C(E)		E(D)		C(F) / -(1.03)		E(C)	
12.	Proposed MD 75 to MD 80					C(F) / -(1.40)		F(C) / 1.23(-)		C(E)		E(D)		B(F) / -(1.01)		E(C)	
13.	MD 80 to MD 85	E (F) /-(1.41)		F (F) /1.37(1.00)		C(F) / -(1.48)		F(D) / 1.48(-)		D(F) / -(1.11)		F(D) / 1.12(-)		C(F) / -(1.16)		F(C) / 1.15(-)	
14.	MD 85 to I-70	C (F) /-(1.05)		F (F) /1.48(1.01)		B(D)		F(D) / 1.50(-)		B(C)		F(D) / 1.11(-)		B(D)		F(C) / 1.14(-)	
15.	I-70 to Jefferson Street	C (E)[4]		D (C)		C(F)[4]		D(C)		C(F)[4]		D(C)		C(F)[4]		D(C)	
16.	Jefferson Street to US 40/MD 144	D (F)[4]		E (D)[4]		C(E)[4]		F(E)[4]		C(E)[4]		F(E)[4]		C(F)[4]		F(E)[4]	
17.	US 40/MD 144 to Rosemont Avenue	E (F) /-(1.21)		F (F) /1.04(1.03)		D(E)		D(D)		D(E)		D(D)		D(E)		D(D)	
18.	Rosemont Avenue to 7th Street	E (E)		E (E)		C(C)[4]		D(D)		C(C)[4]		D(D)		C(C)[4]		D(D)	
19.	7th Street to Opossumtown Pike	D (E)		E (E)		C(D)		D(C)[4]		C(D)		D(C)[4]		C(D)		D(C)[4]	
20.	Opossumtown Pike to MD 26	C (E)		E (D)		B(C)		C(B)		B(C)		C(B)		B(C)		C(B)	
21.	MD 26 to Trading Lane	D (F) /-(1.10)		F (C) /1.00(-)		B(D)		C(B)		B(D)		C(B)		B(D)		C(B)	
22.	Trading Lane to Biggs Ford Road	C (E)		E (C)		B(D)		D(B)		B(D)		D(B)		B(D)		D(B)	
23.	North of Biggs Ford Road	-		-		A(C)		C(A)		A(C)		C(A)		A(C)		C(A)	

Source: *RK&K, BMI, 2001*

1. *LOS A – free flowing traffic; LOS B and C – stable flowing traffic; LOS D – slight impact to traffic flow; LOS E – traffic volumes approaching capacity of facility; LOS F – stop and go, standstill conditions.*
2. *Levels of service were calculated based on traffic counts collected in 1998 and 2025 traffic projections for the No-Build and Build alternates.*
3. *Volume to capacity (v/c) ratios reported for mainline (freeway) level of service F conditions only.*
4. *Indicates weaving section along I-270 or US 15*





I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

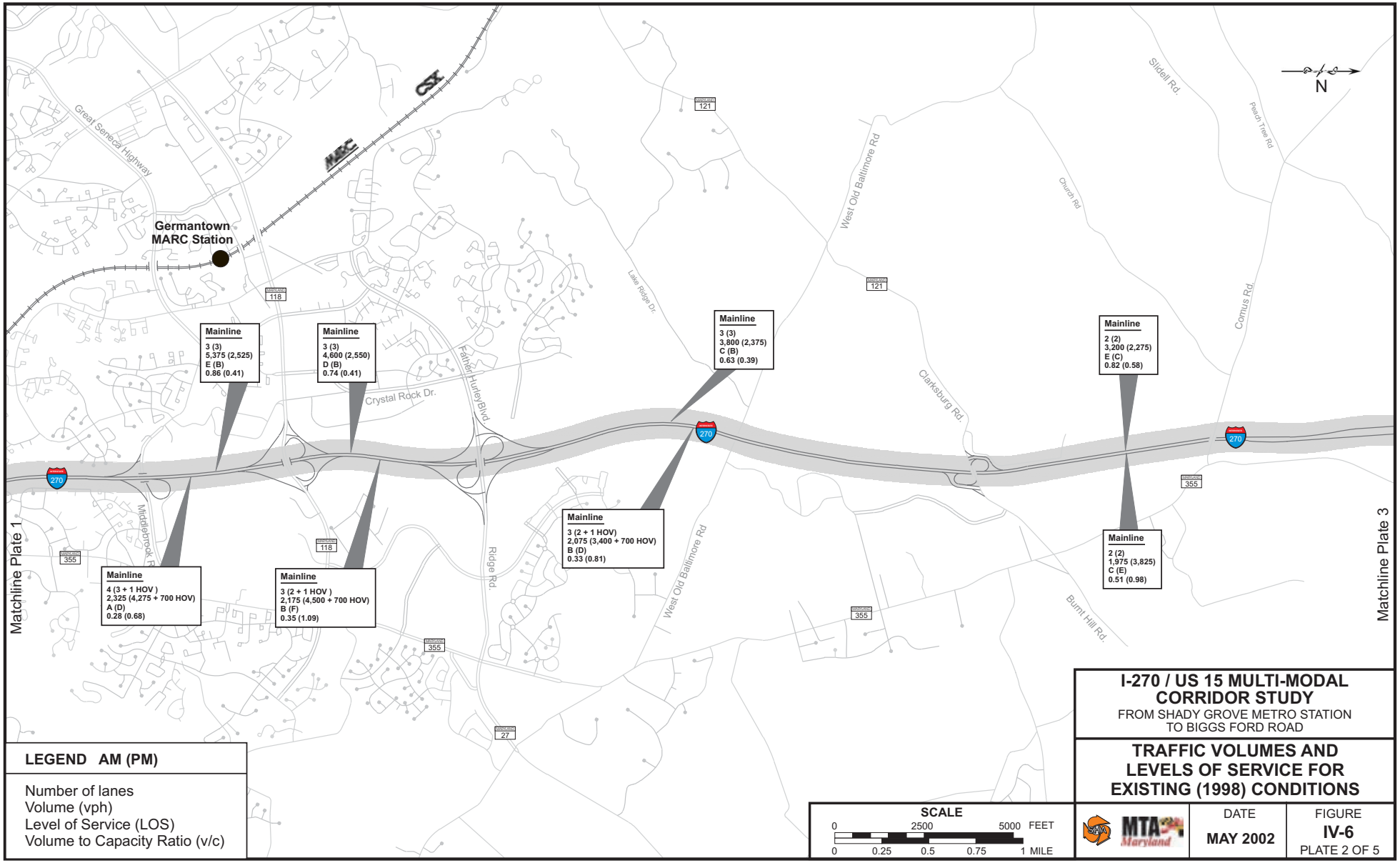
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR EXISTING (1998) CONDITIONS

MTA Maryland

DATE
MAY 2002

FIGURE
IV-6
PLATE 1 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

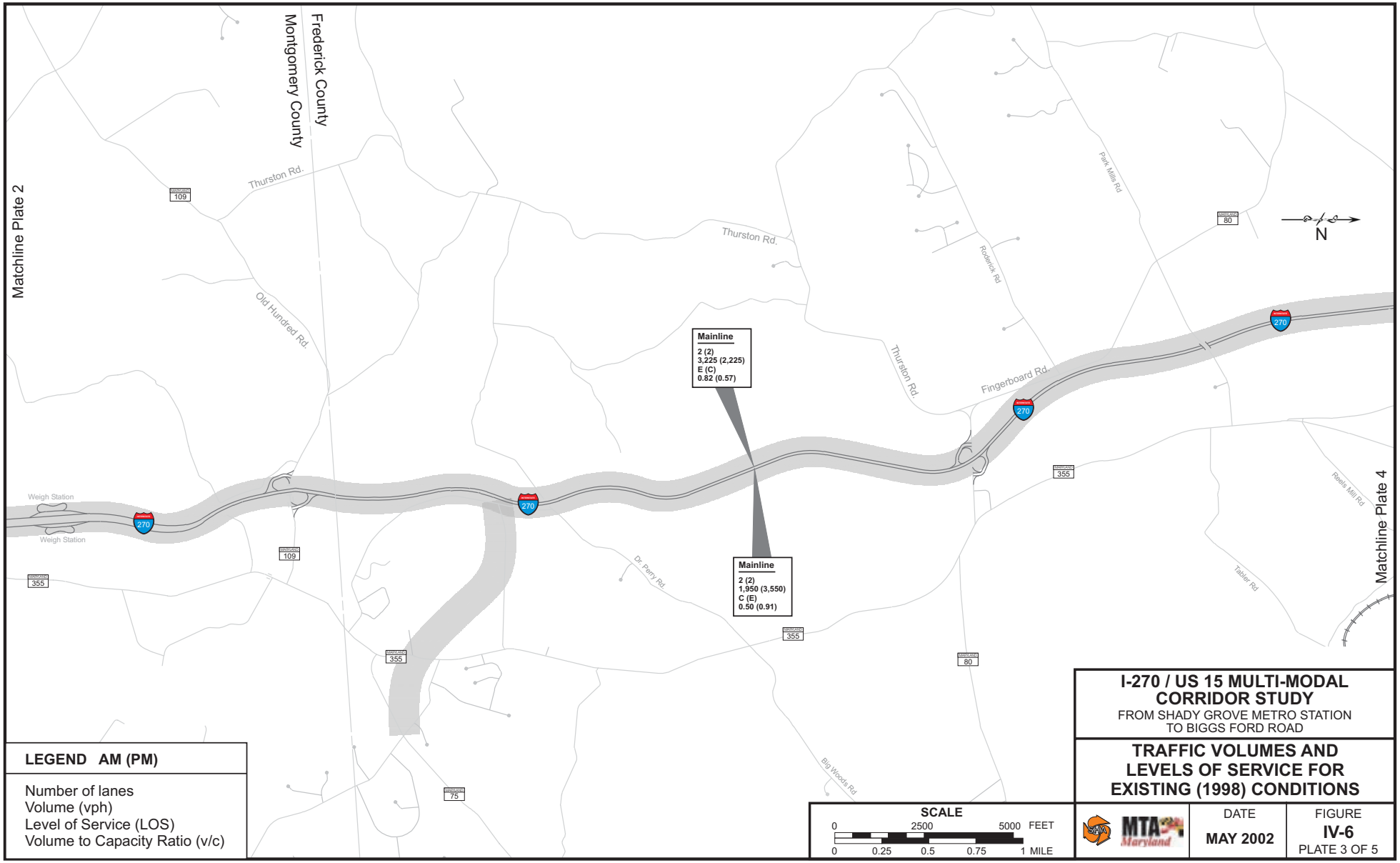
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR EXISTING (1998) CONDITIONS

MTA Maryland

DATE
MAY 2002

FIGURE
IV-6
PLATE 2 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR EXISTING (1998) CONDITIONS

MTA Maryland

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FIGURE
IV-6
PLATE 3 OF 5

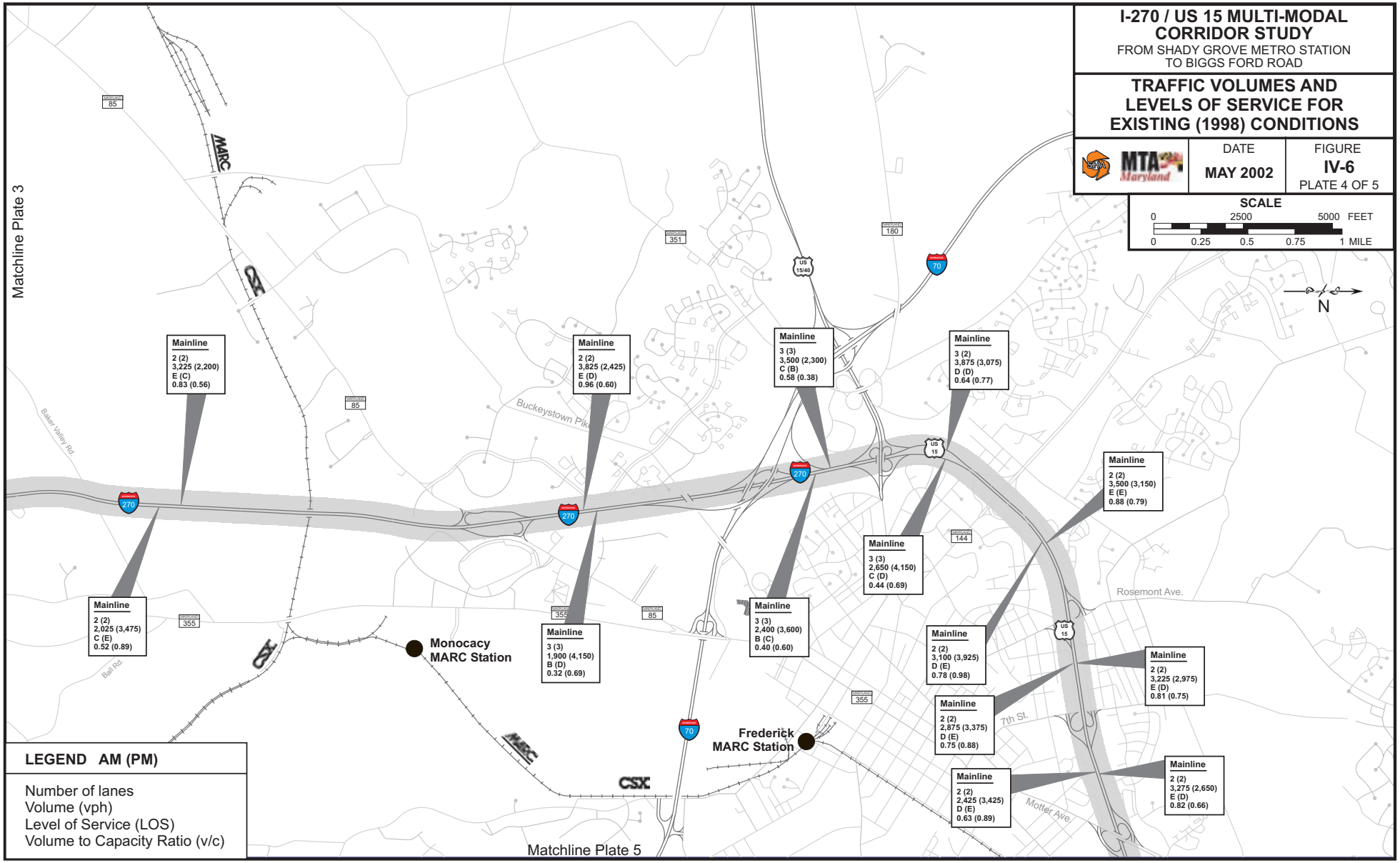
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR EXISTING (1998) CONDITIONS
MTA Maryland
DATE
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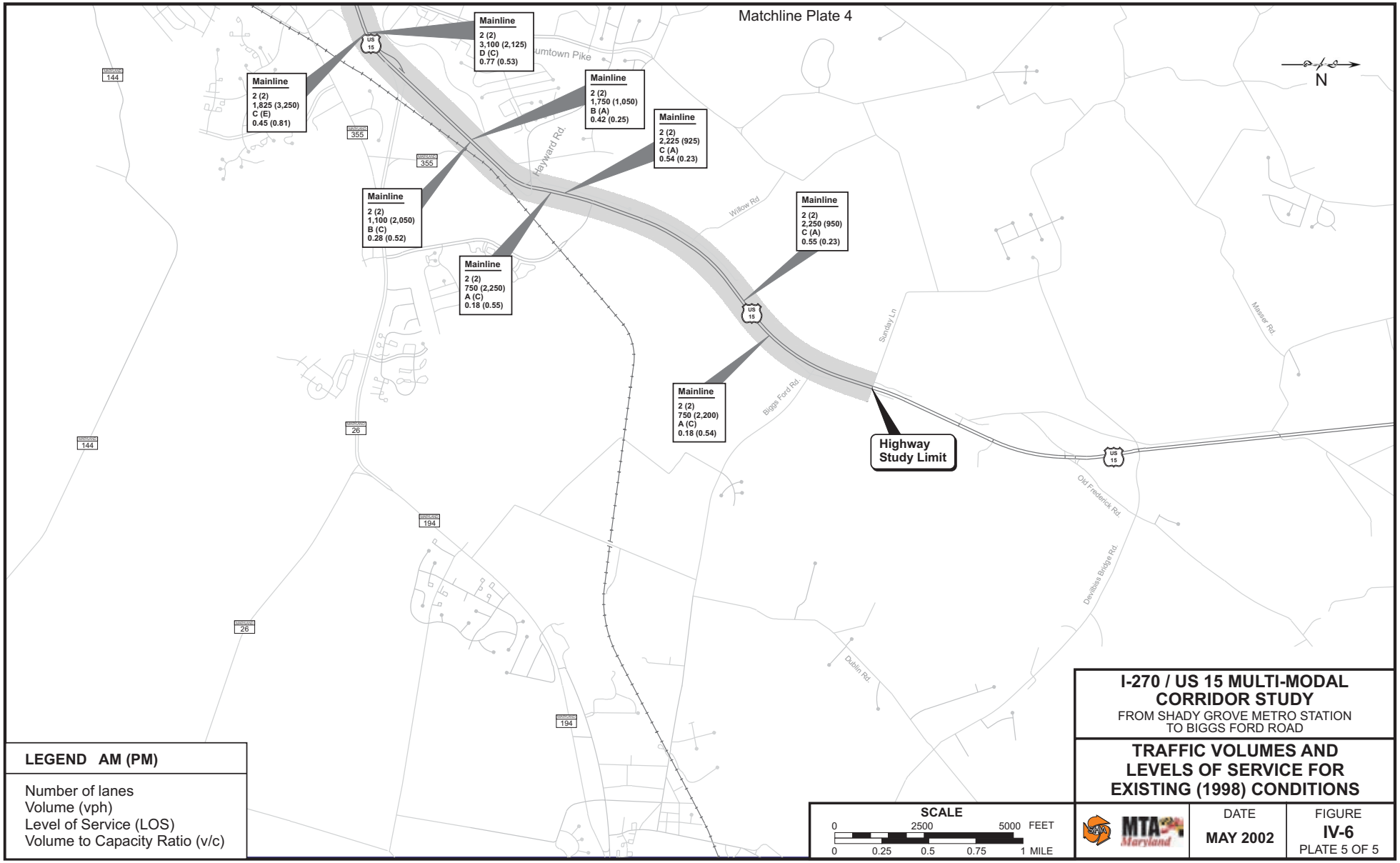
FIGURE
IV-6
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Mainline
2 (2)
3,225 (2,200)
E (C)
0.83 (0.56)
Mainline
2 (2)
3,825 (2,425)
E (D)
0.96 (0.60)
Mainline
3 (3)
3,500 (2,300)
C (B)
0.58 (0.38)
Mainline
3 (2)
3,875 (3,075)
D (D)
0.64 (0.77)
Mainline
2 (2)
3,500 (3,150)
E (E)
0.88 (0.79)
Mainline
3 (3)
2,650 (4,150)
C (D)
0.44 (0.69)
Mainline
2 (2)
2,025 (3,475)
C (E)
0.52 (0.89)
Mainline
3 (3)
1,900 (4,150)
B (D)
0.32 (0.69)
Mainline
3 (3)
2,400 (3,600)
B (C)
0.40 (0.60)
Mainline
2 (2)
3,100 (3,925)
D (E)
0.78 (0.98)
Mainline
2 (2)
3,225 (2,975)
E (D)
0.81 (0.75)
Mainline
2 (2)
2,875 (3,375)
D (E)
0.75 (0.88)
Mainline
2 (2)
2,425 (3,425)
D (E)
0.63 (0.89)
Mainline
2 (2)
3,275 (2,650)
E (D)
0.82 (0.66)
Monocacy MARC Station
Frederick MARC Station
Buckeystown Pike
Bauer Valley Rd.
Bail Rd.
Rosemont Ave.
7th St.
Motter Ave.
MARC
CSX
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)


Matchline Plate 4
N
Mainline
2 (2)
1,825 (3,250)
C (E)
0.45 (0.81)
Mainline
2 (2)
3,100 (2,125)
D (C)
0.77 (0.53)
Mainline
2 (2)
1,750 (1,050)
B (A)
0.42 (0.25)
Mainline
2 (2)
2,225 (925)
C (A)
0.54 (0.23)
Mainline
2 (2)
1,100 (2,050)
B (C)
0.28 (0.52)
Mainline
2 (2)
750 (2,250)
A (C)
0.18 (0.55)
Mainline
2 (2)
2,250 (950)
C (A)
0.55 (0.23)
Mainline
2 (2)
750 (2,200)
A (C)
0.18 (0.54)
Highway Study Limit
Hayward Rd.
Willow Rd
Sunday Ln
Biggs Ford Rd.
Old Frederick Rd.
Devilbiss Bridge Rd.
Dublin Rd.
Masser Rd.
US 15
MARYLAND 144
MARYLAND 355
MARYLAND 26
MARYLAND 194
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR EXISTING (1998) CONDITIONS
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DATE
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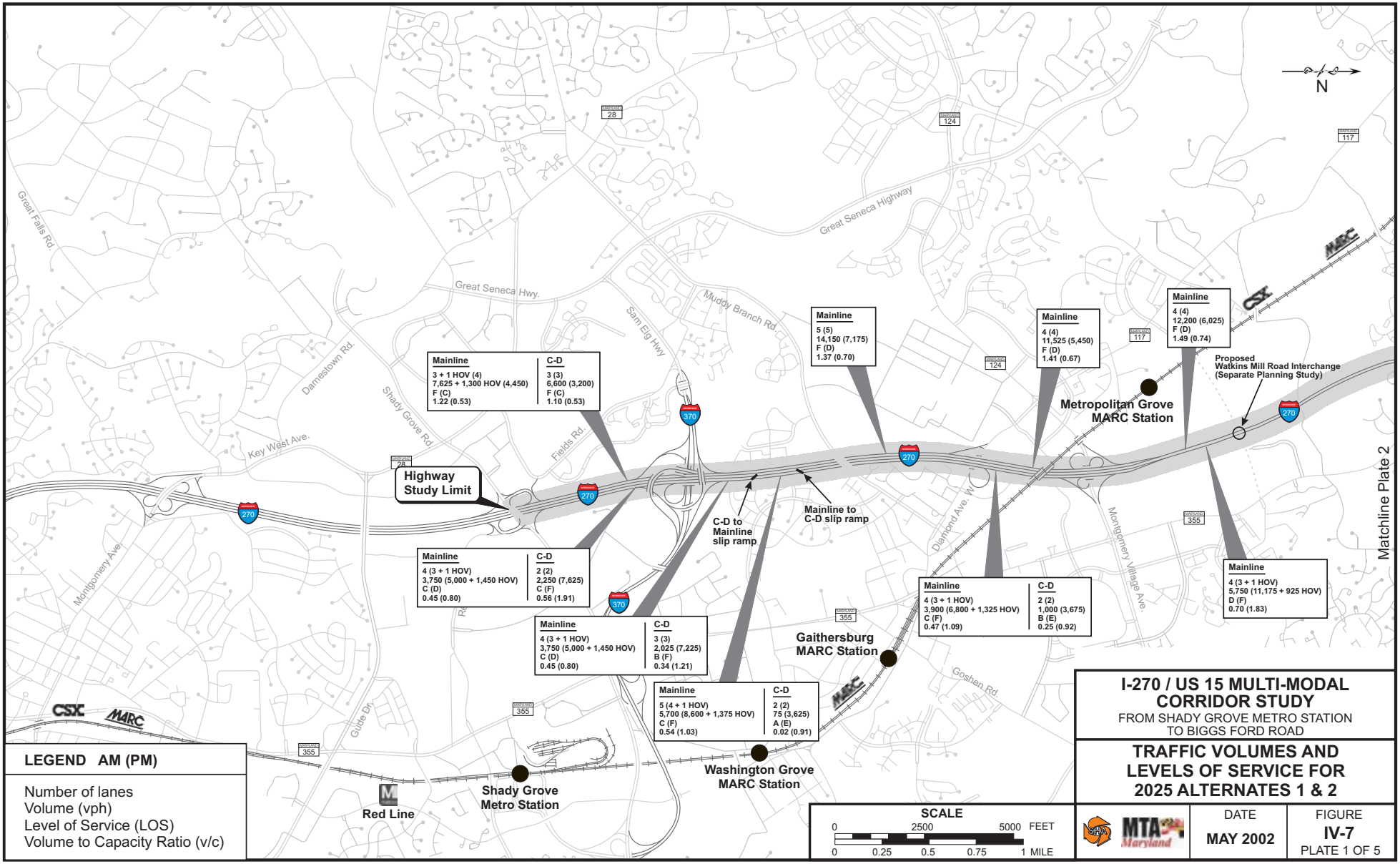
FIGURE
IV-6
PLATE 5 OF 5



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)

SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

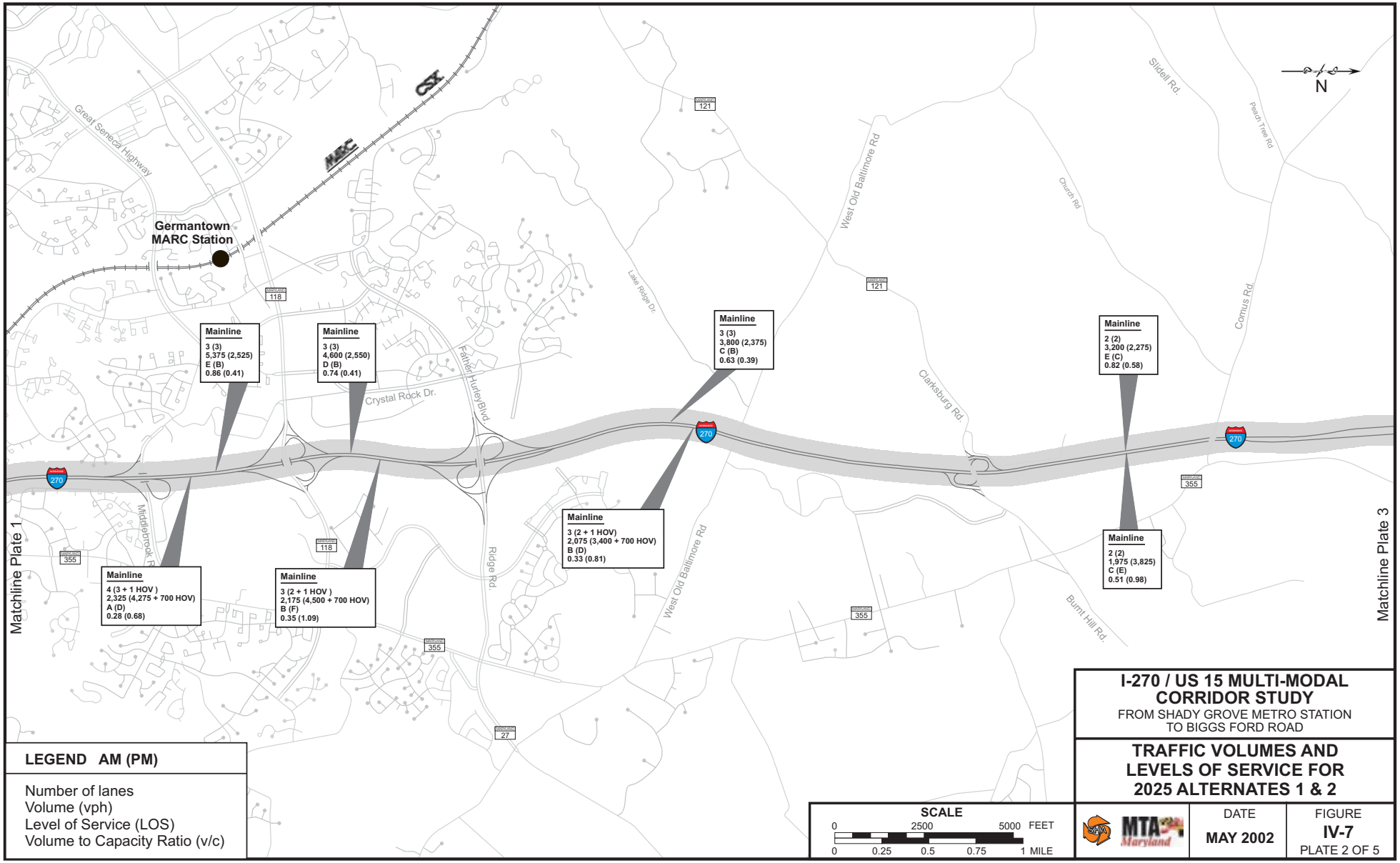
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 1 & 2

MTA Maryland

DATE
MAY 2002

FIGURE
IV-7
PLATE 1 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 1 & 2

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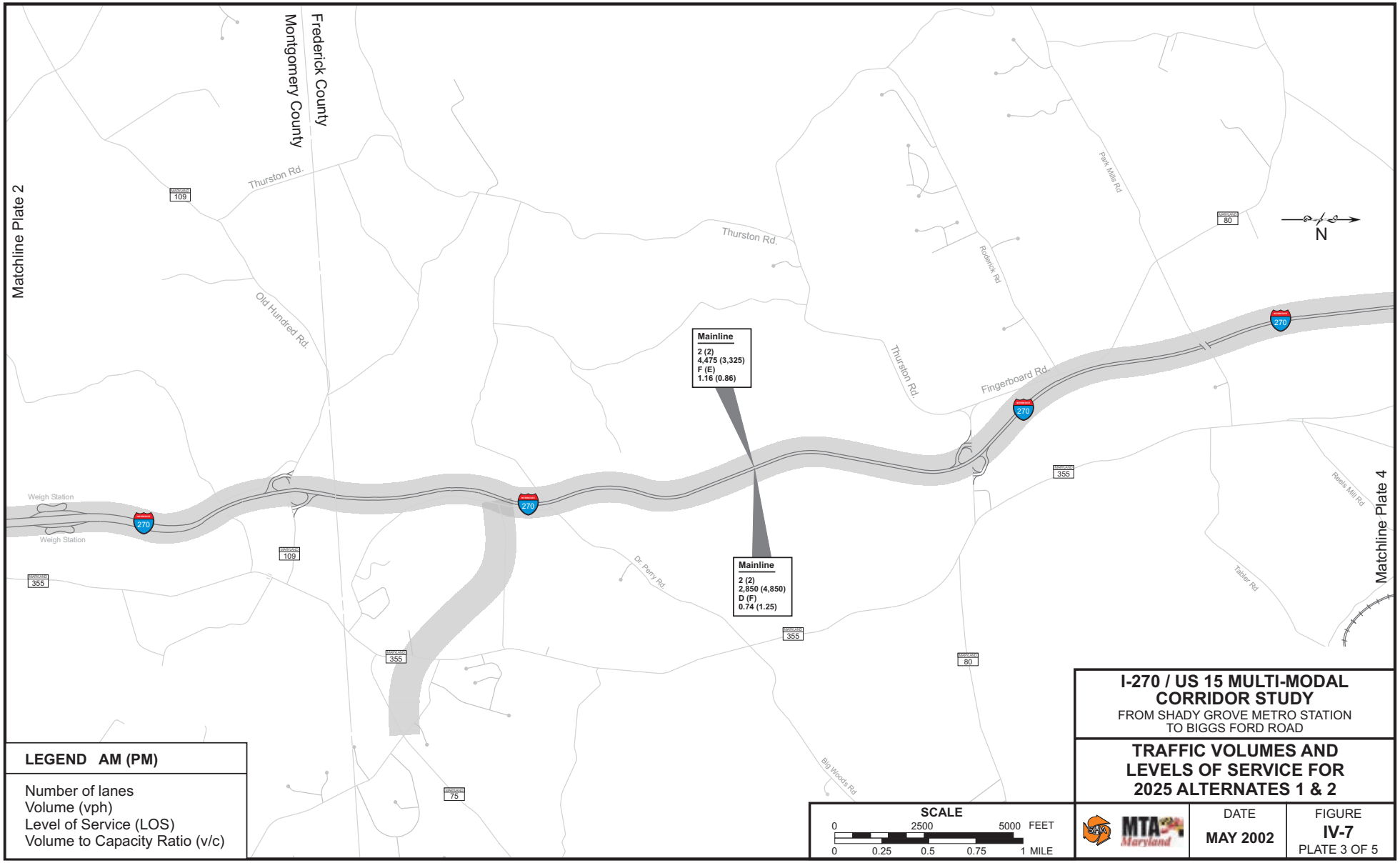
FIGURE
IV-7
PLATE 2 OF 5



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)

SCALE

0 2500 5000 FEET

0 0.25 0.5 0.75 1 MILE

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 1 & 2

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FIGURE
IV-7
PLATE 3 OF 5

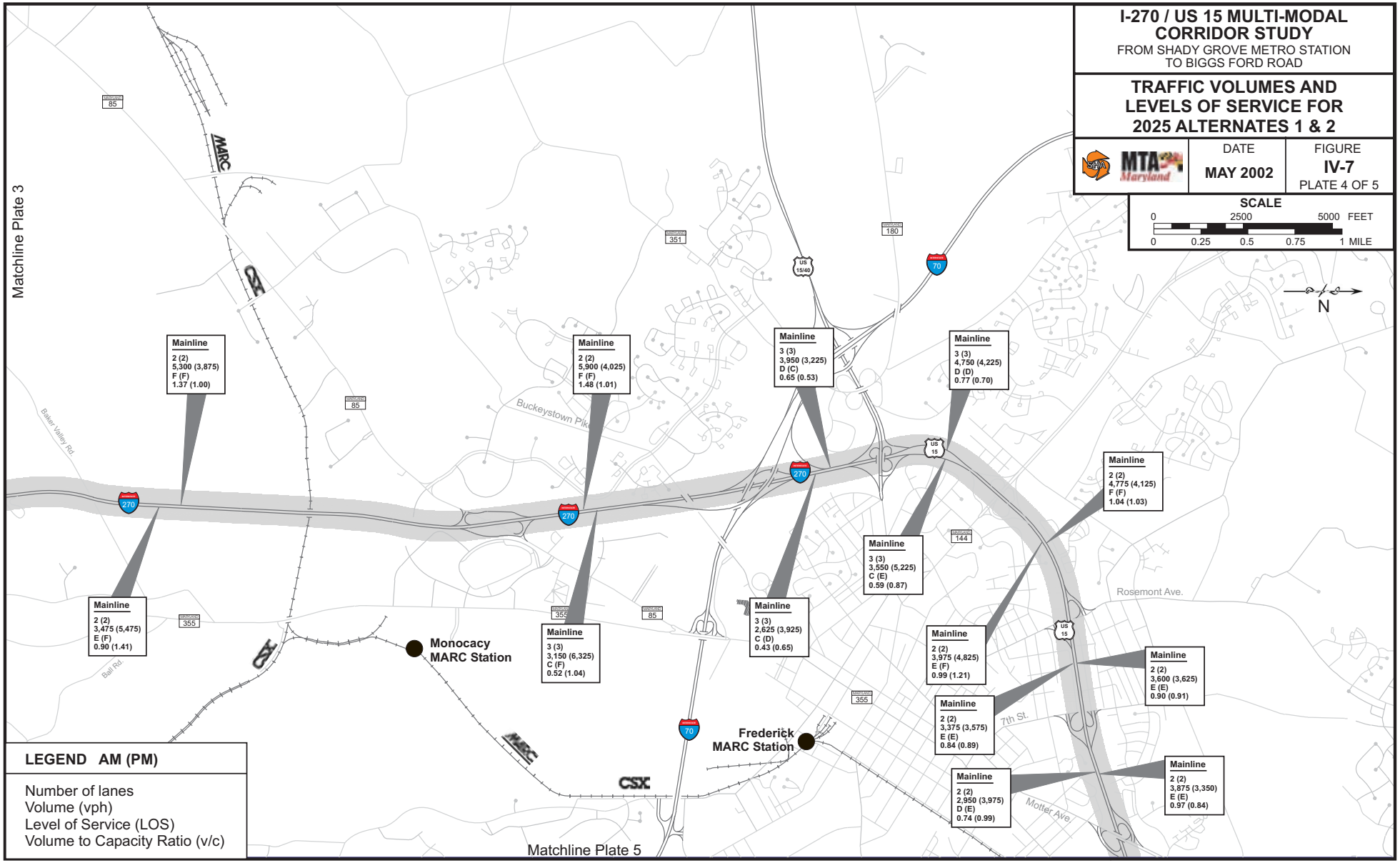
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 1 & 2
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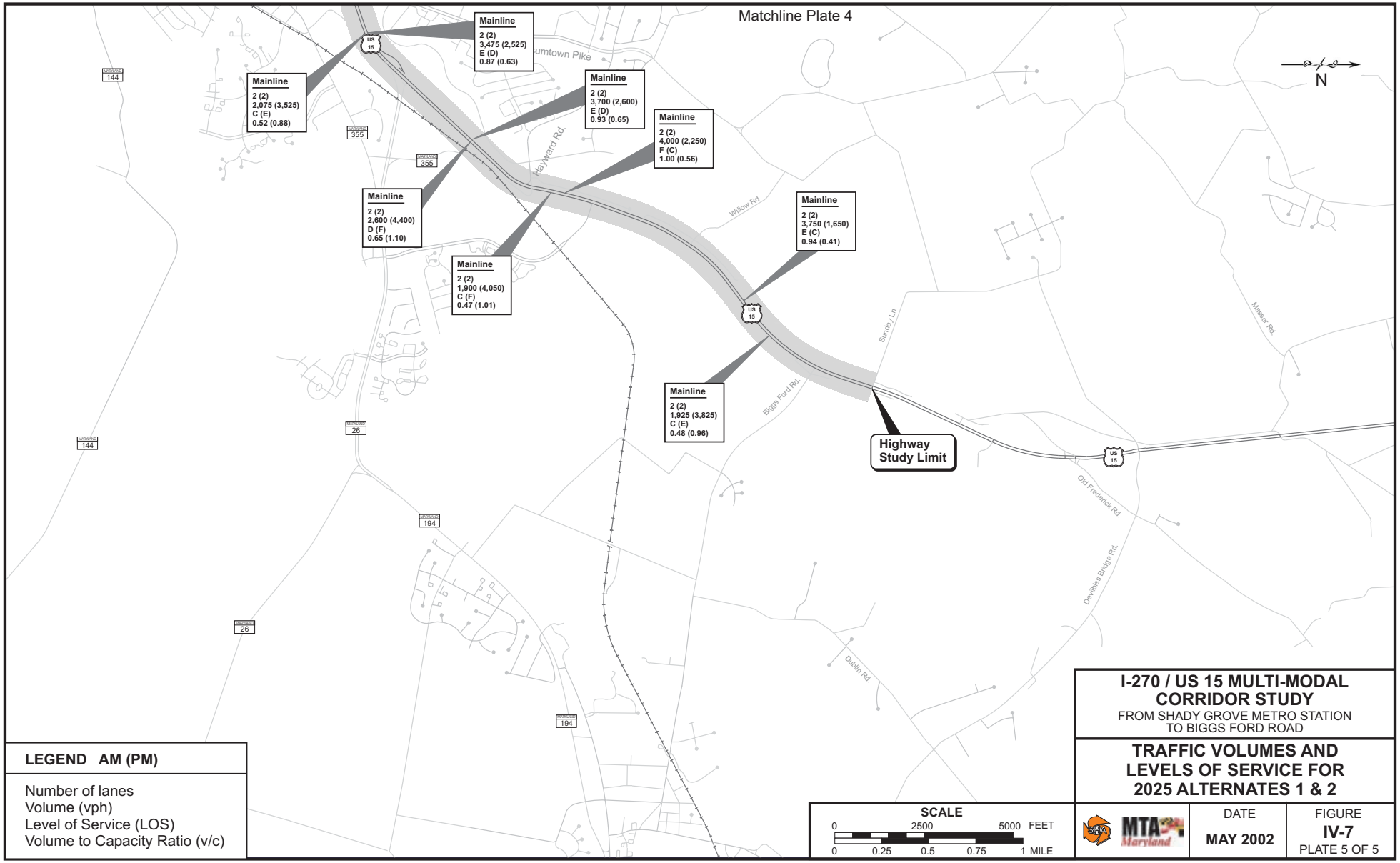
FIGURE
IV-7
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Mainline
2 (2)
5,300 (3,875)
F (F)
1.37 (1.00)
Mainline
2 (2)
5,900 (4,025)
F (F)
1.48 (1.01)
Mainline
3 (3)
3,950 (3,225)
D (C)
0.65 (0.53)
Mainline
3 (3)
4,750 (4,225)
D (D)
0.77 (0.70)
Mainline
2 (2)
4,775 (4,125)
F (F)
1.04 (1.03)
Mainline
3 (3)
3,550 (5,225)
C (E)
0.59 (0.87)
Mainline
2 (2)
3,475 (5,475)
E (F)
0.90 (1.41)
Mainline
3 (3)
3,150 (6,325)
C (F)
0.52 (1.04)
Mainline
3 (3)
2,625 (3,925)
C (D)
0.43 (0.65)
Mainline
2 (2)
3,975 (4,825)
E (F)
0.99 (1.21)
Mainline
2 (2)
3,600 (3,625)
E (E)
0.90 (0.91)
Mainline
2 (2)
3,375 (3,575)
E (E)
0.84 (0.89)
Mainline
2 (2)
2,950 (3,975)
D (E)
0.74 (0.99)
Mainline
2 (2)
3,875 (3,350)
E (E)
0.97 (0.84)
Monocacy MARC Station
Frederick MARC Station
Buckeystown Pike
Bauer Valley Rd.
Bail Rd.
Rosemont Ave.
7th St.
Motter Ave.
MARC
CSX
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

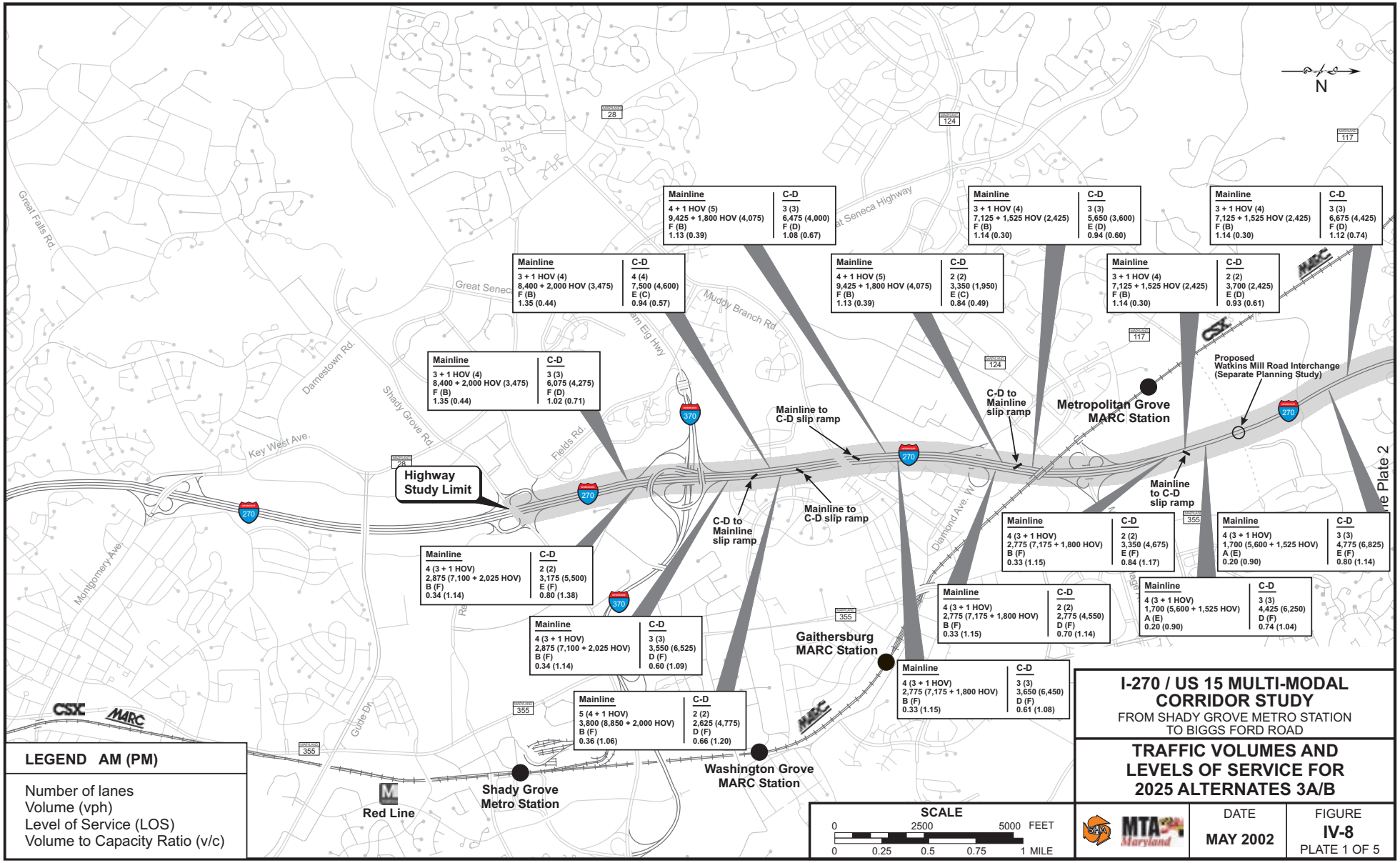
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

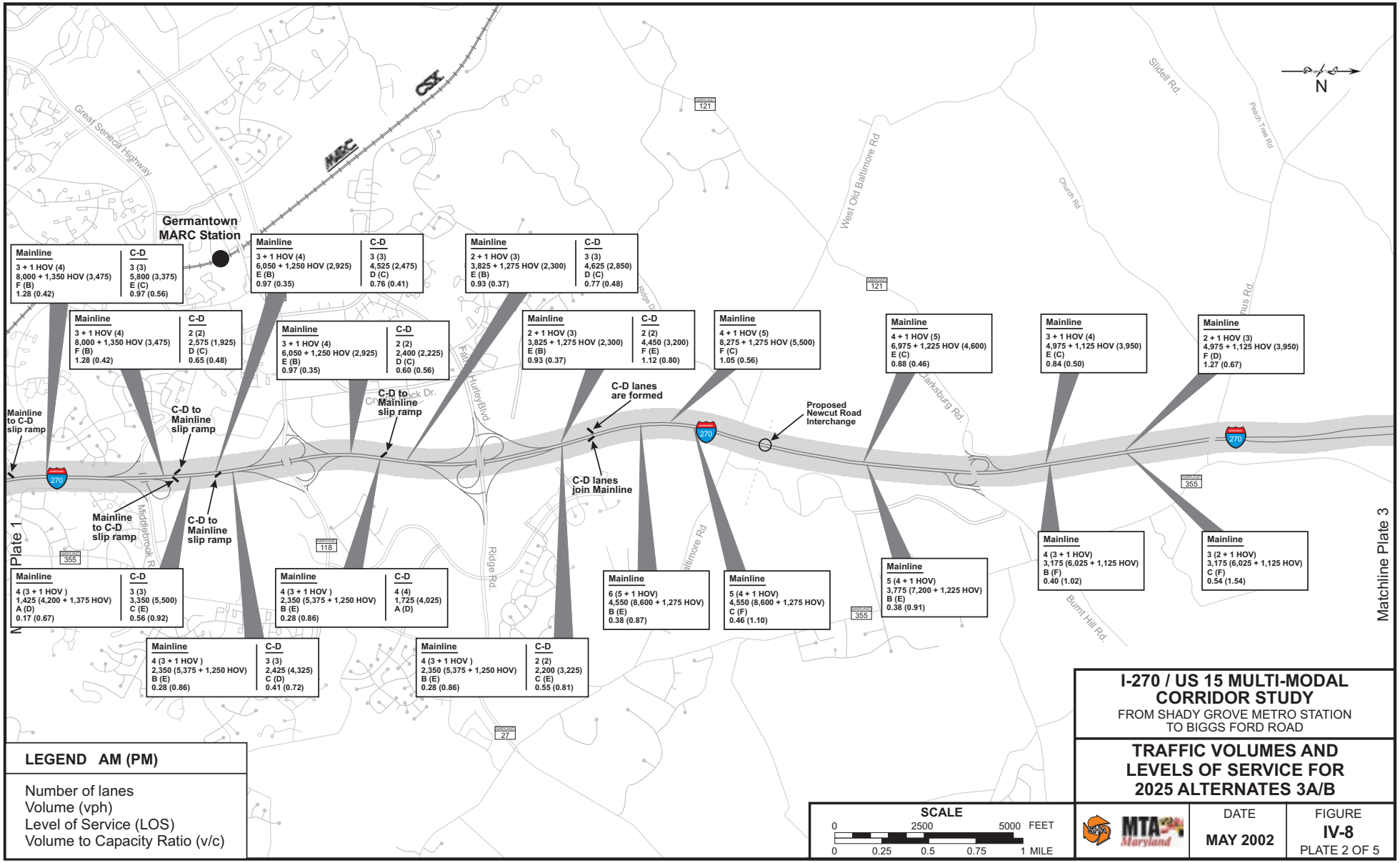
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 1 & 2

MTA Maryland

DATE
MAY 2002

FIGURE
IV-7
PLATE 5 OF 5


N
Mainline
4 + 1 HOV (5)
9,425 + 1,800 HOV (4,075)
F (B)
1.13 (0.39)
C-D
3 (3)
6,475 (4,000)
F (D)
1.08 (0.67)
Mainline
3 + 1 HOV (4)
8,400 + 2,000 HOV (3,475)
F (B)
1.35 (0.44)
C-D
4 (4)
7,500 (4,600)
E (C)
0.94 (0.57)
Mainline
3 + 1 HOV (4)
8,400 + 2,000 HOV (3,475)
F (B)
1.35 (0.44)
C-D
3 (3)
6,075 (4,275)
F (D)
1.02 (0.71)
Mainline
4 + 1 HOV (5)
9,425 + 1,800 HOV (4,075)
F (B)
1.13 (0.39)
C-D
2 (2)
3,350 (1,950)
E (C)
0.84 (0.49)
Mainline
3 + 1 HOV (4)
7,125 + 1,525 HOV (2,425)
F (B)
1.14 (0.30)
C-D
3 (3)
5,650 (3,600)
E (D)
0.94 (0.60)
Mainline
3 + 1 HOV (4)
7,125 + 1,525 HOV (2,425)
F (B)
1.14 (0.30)
C-D
2 (2)
3,700 (2,425)
E (D)
0.93 (0.61)
Mainline
3 + 1 HOV (4)
7,125 + 1,525 HOV (2,425)
F (B)
1.14 (0.30)
C-D
3 (3)
6,675 (4,425)
F (D)
1.12 (0.74)
Mainline
4 (3 + 1 HOV)
2,875 (7,100 + 2,025 HOV)
B (F)
0.34 (1.14)
C-D
2 (2)
3,175 (5,500)
E (F)
0.80 (1.38)
Mainline
4 (3 + 1 HOV)
2,875 (7,100 + 2,025 HOV)
B (F)
0.34 (1.14)
C-D
3 (3)
3,550 (6,525)
D (F)
0.60 (1.09)
Mainline
5 (4 + 1 HOV)
3,800 (8,850 + 2,000 HOV)
B (F)
0.36 (1.06)
C-D
2 (2)
2,625 (4,775)
D (F)
0.66 (1.20)
Mainline
4 (3 + 1 HOV)
2,775 (7,175 + 1,800 HOV)
B (F)
0.33 (1.15)
C-D
2 (2)
3,350 (4,675)
E (F)
0.84 (1.17)
Mainline
4 (3 + 1 HOV)
1,700 (5,600 + 1,525 HOV)
A (E)
0.20 (0.90)
C-D
3 (3)
4,775 (6,825)
E (F)
0.80 (1.14)
Mainline
4 (3 + 1 HOV)
2,775 (7,175 + 1,800 HOV)
B (F)
0.33 (1.15)
C-D
2 (2)
2,775 (4,550)
D (F)
0.70 (1.14)
Mainline
4 (3 + 1 HOV)
1,700 (5,600 + 1,525 HOV)
A (E)
0.20 (0.90)
C-D
3 (3)
4,425 (6,250)
D (F)
0.74 (1.04)
Mainline
4 (3 + 1 HOV)
2,775 (7,175 + 1,800 HOV)
B (F)
0.33 (1.15)
C-D
3 (3)
3,650 (6,450)
D (F)
0.61 (1.08)
Highway Study Limit
Mainline to C-D slip ramp
C-D to Mainline slip ramp
Mainline to C-D slip ramp
C-D to Mainline slip ramp
Mainline to C-D slip ramp
Proposed Watkins Mill Road Interchange (Separate Planning Study)
Metropolitan Grove MARC Station
Gaithersburg MARC Station
Washington Grove MARC Station
Shady Grove Metro Station
Red Line
Great Falls Rd.
Great Seneca Highway
Muddy Branch Rd.
Damestown Rd.
Shady Grove Rd.
Key West Ave.
Fields Rd.
Montgomery Ave.
Diamond Ave.
Gude Dr.
CSX
MARC
MD 28
MD 124
MD 117
MD 355
I-270
I-370
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 3A/B
MTA Maryland
DATE
MAY 2002
FIGURE
IV-8
PLATE 1 OF 5
See Plate 2



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

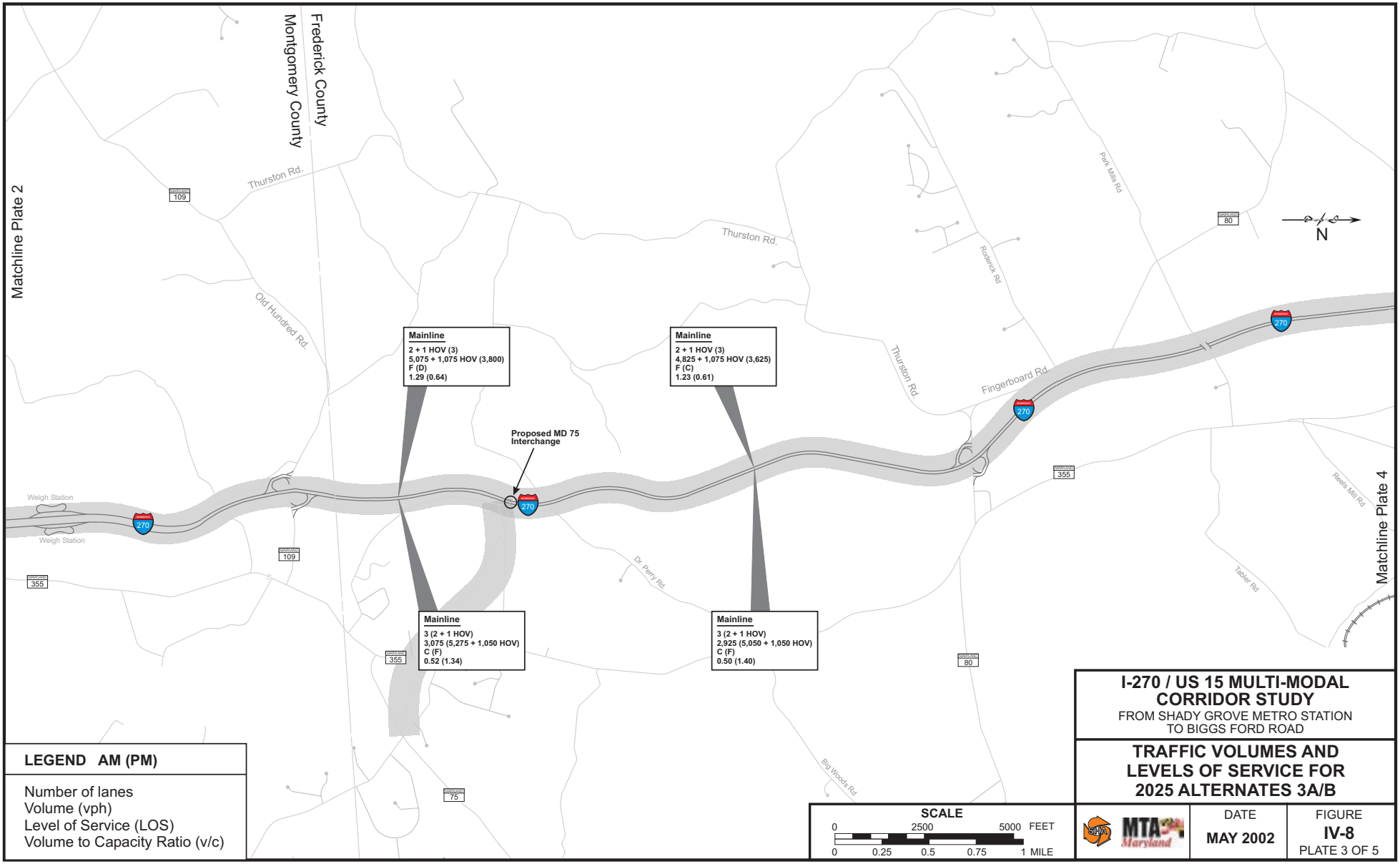
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 3A/B

MTA Maryland

DATE: MAY 2002

FIGURE: IV-8

PLATE 2 OF 5


Matchline Plate 2
Frederick County
Montgomery County
Thurston Rd.
Old Hundred Rd.
Thurston Rd.
Park Mills Rd
Roderick Rd
Thurston Rd.
Fingerboard Rd.
Proposed MD 75 Interchange
Mainline
2 + 1 HOV (3)
5,075 + 1,075 HOV (3,800)
F (D)
1.29 (0.64)
Mainline
2 + 1 HOV (3)
4,825 + 1,075 HOV (3,625)
F (C)
1.23 (0.61)
Mainline
3 (2 + 1 HOV)
3,075 (5,275 + 1,050 HOV)
C (F)
0.52 (1.34)
Mainline
3 (2 + 1 HOV)
2,925 (5,050 + 1,050 HOV)
C (F)
0.50 (1.40)
Weigh Station
Weigh Station
Dr. Perry Rd
Reels Mill Rd
Tabler Rd
Big Woods Rd
Matchline Plate 4
N
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 3A/B
DATE
MAY 2002
FIGURE
IV-8
PLATE 3 OF 5

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 3A/B

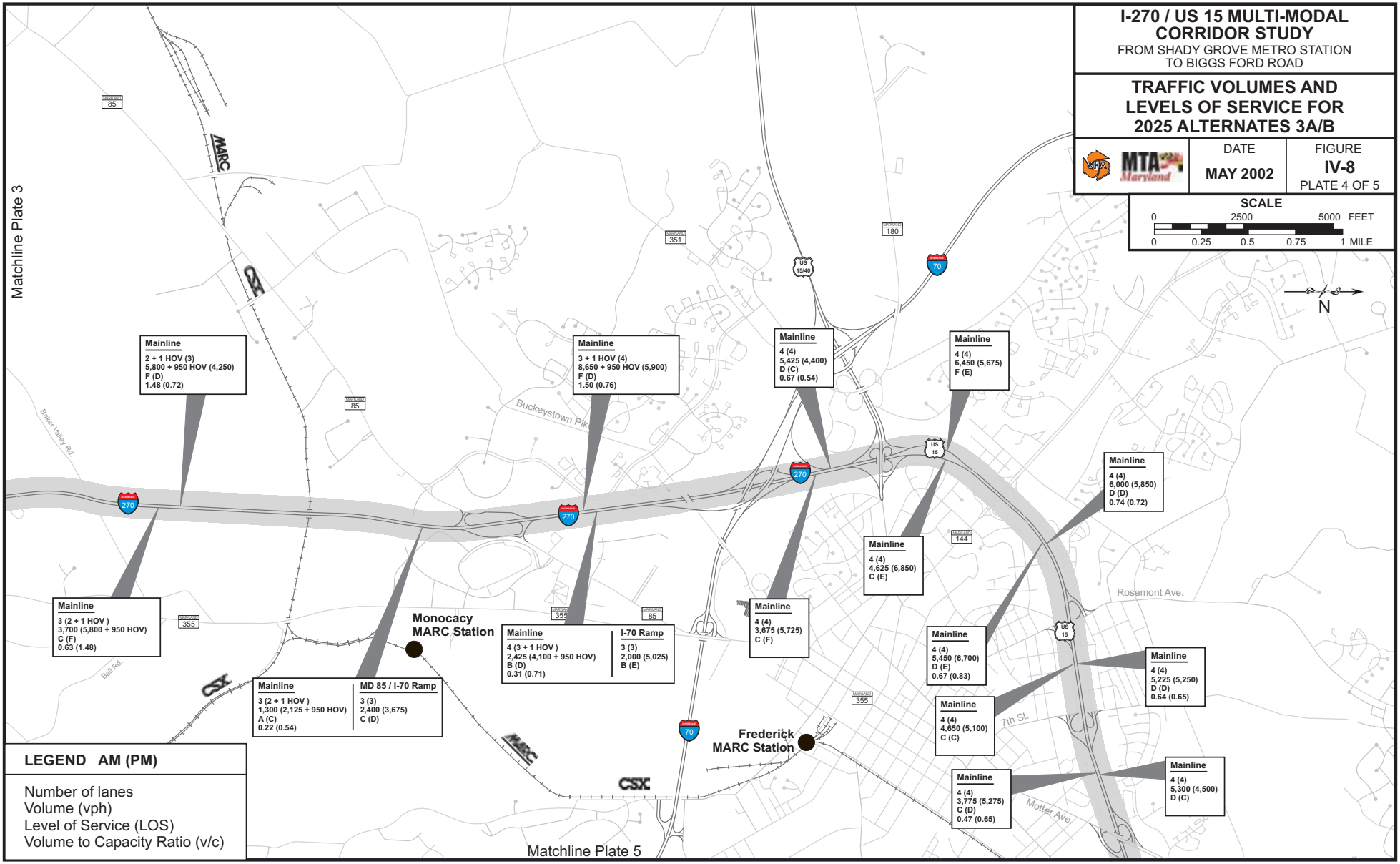
MTA Maryland

DATE
MAY 2002

FIGURE
IV-8
PLATE 4 OF 5

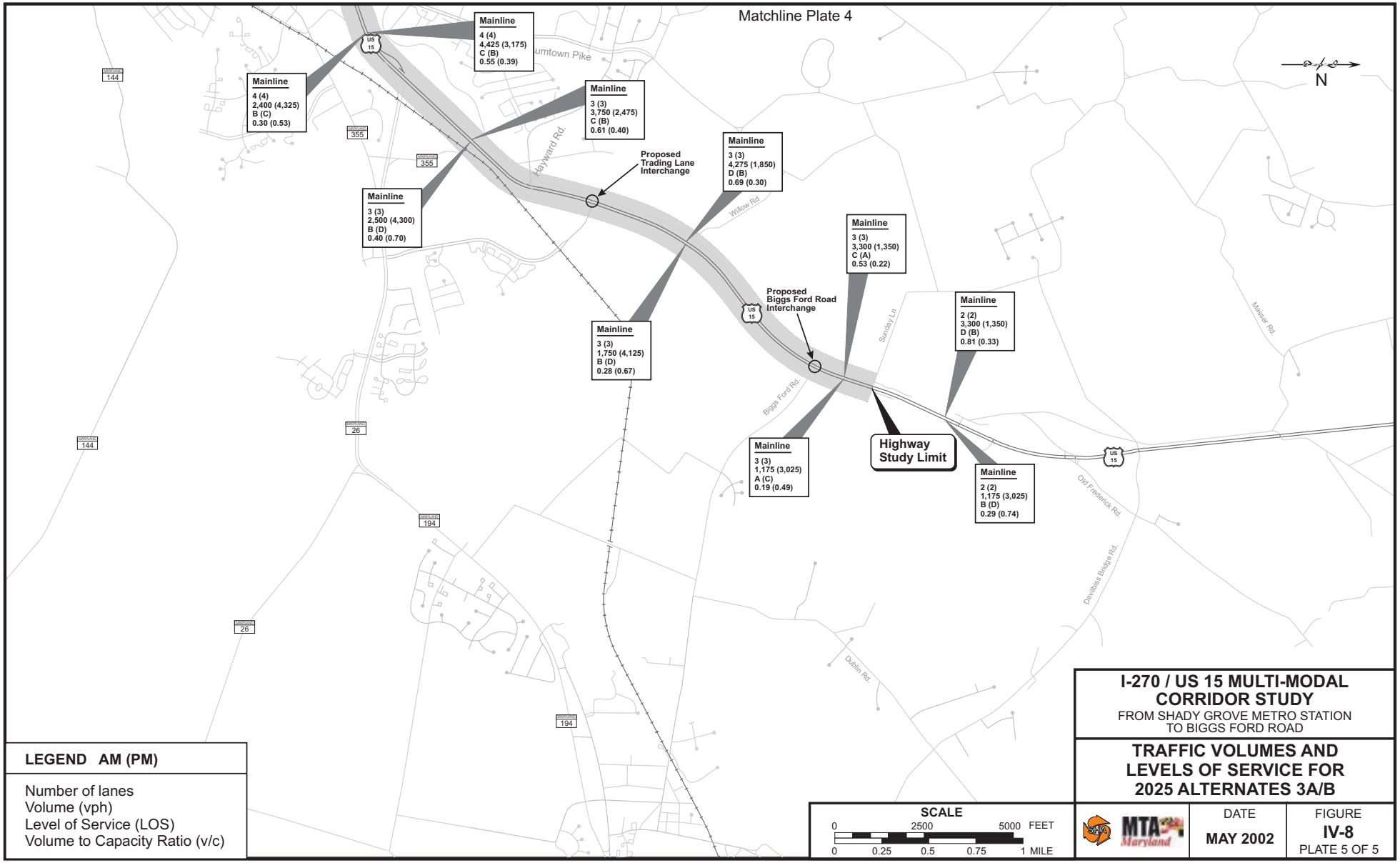
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE

N



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 3A/B

SHA MTA Maryland

DATE
MAY 2002

FIGURE
IV-8
PLATE 5 OF 5

b. Alternates 4A/B

Projected peak hour traffic operations for Alternates 4A/B are the same as Alternates 3A/B south of MD 121 due to identical proposed improvements and traffic volumes. North of I-70, Alternates 4A/B are also projected to operate the same as Alternates 3A/B. Over the entire corridor study area, the proposed improvements with Alternates 4A/B result in approximately eleven fewer miles of LOS F operations northbound and approximately twelve fewer miles of LOS F operations southbound than under the No-Build conditions. Therefore Alternates 4A/B offer a greater reduction in the miles of LOS Fin both the northbound and southbound directions, as compared to Alternates 3A/B or Alternates 1 & 2.

Differences between Alternates 3A/B and 4A/B occur North of MD 121, where an additional general-purpose lane is added in each direction. The northbound direction of I-270 is projected to operate at LOS F between the MD 121 and MD 109 interchanges, LOS E between MD 109 and MD 80, LOS F between MD 80 and MD 85, and LOS C between MD 85 and I-70. The southbound direction will operate at LOS E between MD 121 and MD 80 and LOS F between MD 80 and I-70.

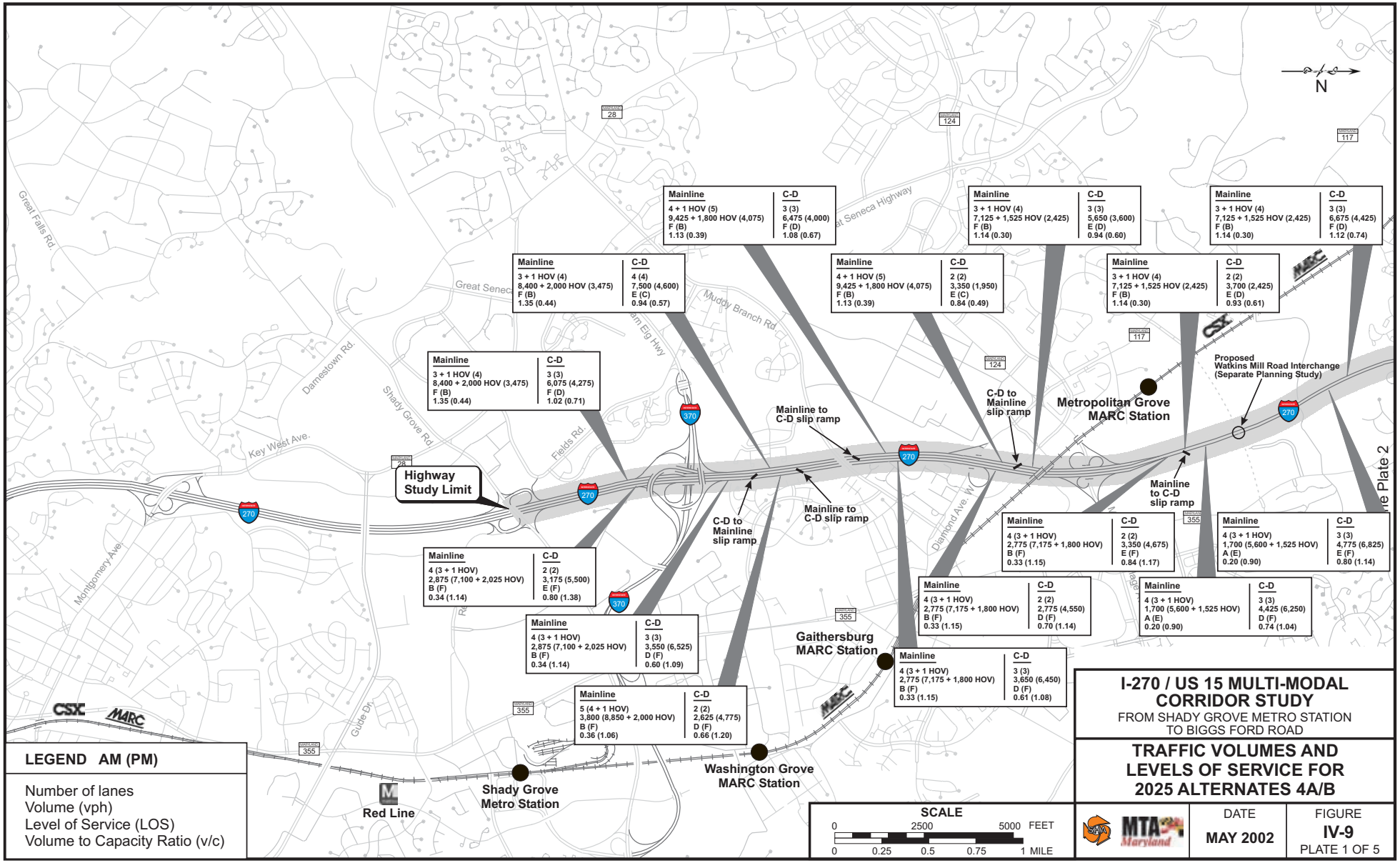
Figure IV-9 indicates traffic volumes, number of lanes, LOS, and volume to capacity ratios for Alternates 4A/B.

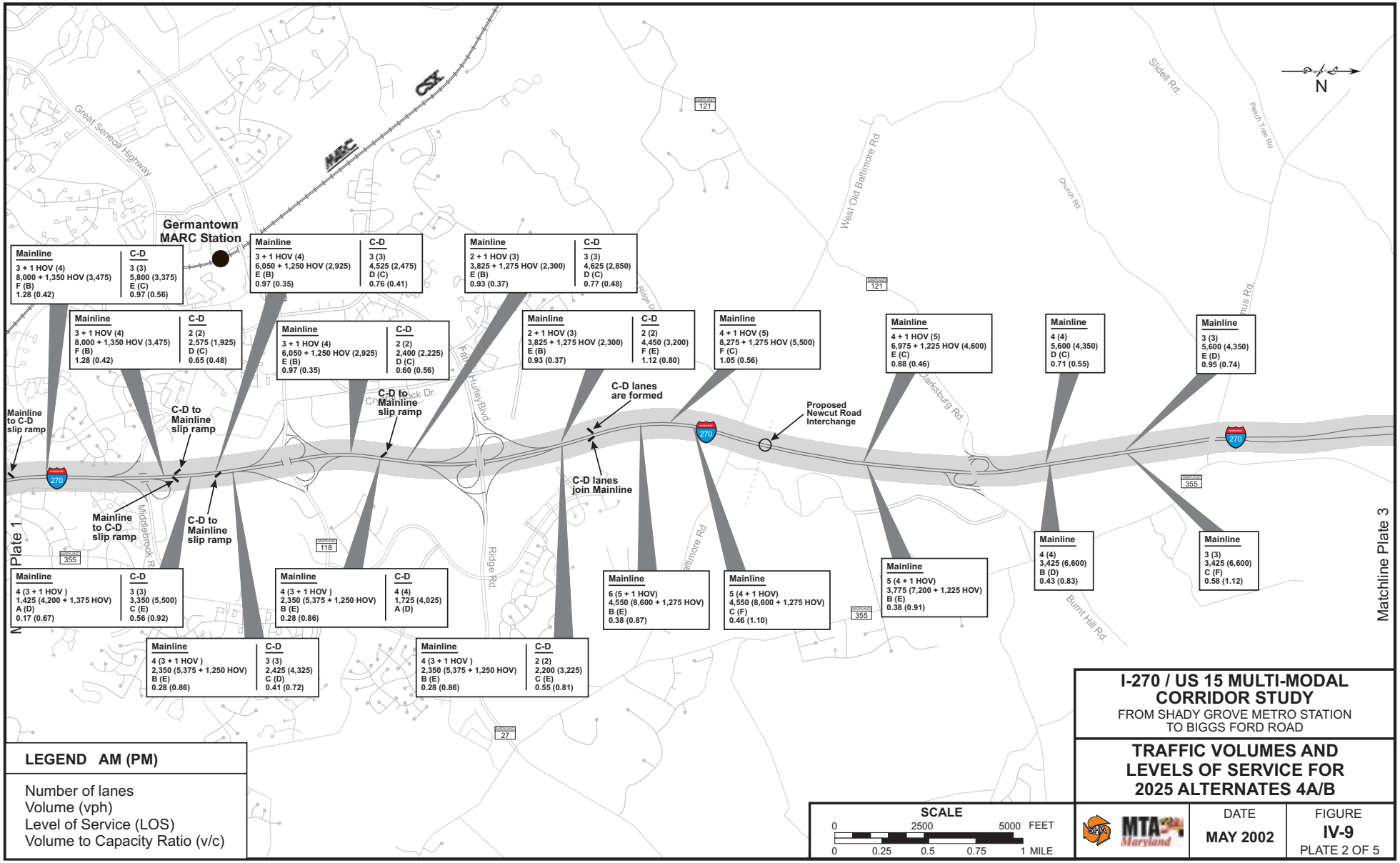
c. Alternates 5A/B/C

Over the entire corridor study area, the proposed improvements with Alternates 5A/B/C result in approximately seven fewer miles of LOS F operations northbound and approximately eleven fewer miles of LOS F operations southbound than under the No-Build conditions. Therefore, Alternates 5A/B/C offer a greater reduction in the miles of LOS F in the southbound direction as compared to Alternates 3A/B or Alternates 1 and 2, but only offers a greater reduction in miles of LOS F in the northbound direction over Alternates 1 and 2. Alternates 4A/B continue to offer the greatest reduction in miles of LOS F along the corridor.

In the northbound direction, projected peak hour traffic operations for Alternates 5A/B/C are similar to Alternates 3A/B and 4A/B south of MD 121. The northbound level of service is the same south of MD 121; however, the v/c ratios are generally higher for Alternate 5 A/B/C. The mainline will operate at LOS F between MD 121 and MD 85 and LOS D between MD 85 and I-70, which is similar to Alternates 3A/B but generally with lower v/c ratios. North of I-70, Alternates 5A/B/C will operate the same as Alternates 3A/B and 4A/B, with the exception of the segment between Jefferson Street and US 40/MD 144, where the mainline is projected to operate at LOS F.

In the southbound direction, projected traffic operations for Alternates 5A/B/C are the same as Alternates 3A/B and 4A/B, with the exception of the segment between Father Hurley Boulevard and MD 118, where the mainline is projected to operate at LOS F. The mainline will operate at LOS E between MD 121 and MD 80, and LOS F between MD 80 and I-70. North of I-70, Alternates 5A/B/C will operate the same as Alternates 3A/B and 4A/B.


N
Mainline
4 + 1 HOV (5)
9,425 + 1,800 HOV (4,075)
F (B)
1.13 (0.39)
C-D
3 (3)
6,475 (4,000)
F (D)
1.08 (0.67)
Mainline
3 + 1 HOV (4)
8,400 + 2,000 HOV (3,475)
F (B)
1.35 (0.44)
C-D
4 (4)
7,500 (4,600)
E (C)
0.94 (0.57)
Mainline
4 + 1 HOV (5)
9,425 + 1,800 HOV (4,075)
F (B)
1.13 (0.39)
C-D
2 (2)
3,350 (1,950)
E (C)
0.84 (0.49)
Mainline
3 + 1 HOV (4)
7,125 + 1,525 HOV (2,425)
F (B)
1.14 (0.30)
C-D
3 (3)
5,650 (3,600)
E (D)
0.94 (0.60)
Mainline
3 + 1 HOV (4)
7,125 + 1,525 HOV (2,425)
F (B)
1.14 (0.30)
C-D
2 (2)
3,700 (2,425)
E (D)
0.93 (0.61)
Mainline
3 + 1 HOV (4)
7,125 + 1,525 HOV (2,425)
F (B)
1.14 (0.30)
C-D
3 (3)
6,675 (4,425)
F (D)
1.12 (0.74)
Mainline
3 + 1 HOV (4)
8,400 + 2,000 HOV (3,475)
F (B)
1.35 (0.44)
C-D
3 (3)
6,075 (4,275)
F (D)
1.02 (0.71)
Mainline
4 (3 + 1 HOV)
2,875 (7,100 + 2,025 HOV)
B (F)
0.34 (1.14)
C-D
2 (2)
3,175 (5,500)
E (F)
0.80 (1.38)
Mainline
4 (3 + 1 HOV)
2,875 (7,100 + 2,025 HOV)
B (F)
0.34 (1.14)
C-D
3 (3)
3,550 (6,525)
D (F)
0.60 (1.09)
Mainline
5 (4 + 1 HOV)
3,800 (8,850 + 2,000 HOV)
B (F)
0.36 (1.06)
C-D
2 (2)
2,625 (4,775)
D (F)
0.66 (1.20)
Mainline
4 (3 + 1 HOV)
2,775 (7,175 + 1,800 HOV)
B (F)
0.33 (1.15)
C-D
2 (2)
3,350 (4,675)
E (F)
0.84 (1.17)
Mainline
4 (3 + 1 HOV)
1,700 (5,600 + 1,525 HOV)
A (E)
0.20 (0.90)
C-D
3 (3)
4,775 (6,825)
E (F)
0.80 (1.14)
Mainline
4 (3 + 1 HOV)
2,775 (7,175 + 1,800 HOV)
B (F)
0.33 (1.15)
C-D
2 (2)
2,775 (4,550)
D (F)
0.70 (1.14)
Mainline
4 (3 + 1 HOV)
1,700 (5,600 + 1,525 HOV)
A (E)
0.20 (0.90)
C-D
3 (3)
4,425 (6,250)
D (F)
0.74 (1.04)
Mainline
4 (3 + 1 HOV)
2,775 (7,175 + 1,800 HOV)
B (F)
0.33 (1.15)
C-D
3 (3)
3,650 (6,450)
D (F)
0.61 (1.08)
Mainline to C-D slip ramp
C-D to Mainline slip ramp
Mainline to C-D slip ramp
C-D to Mainline slip ramp
Mainline to C-D slip ramp
Highway Study Limit
Metropolitan Grove MARC Station
Proposed Watkins Mill Road Interchange (Separate Planning Study)
Gaithersburg MARC Station
Shady Grove Metro Station
Washington Grove MARC Station
Red Line
Great Falls Rd.
Great Seneca Highway
Muddy Branch Rd.
Damestown Rd.
Shady Grove Rd.
Key West Ave.
Fields Rd.
Montgomery Ave.
Diamond Ave.
Gude Dr.
CSX
MARC
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 4A/B
MTA Maryland
DATE
MAY 2002
FIGURE
IV-9
PLATE 1 OF 5
Plate 2



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

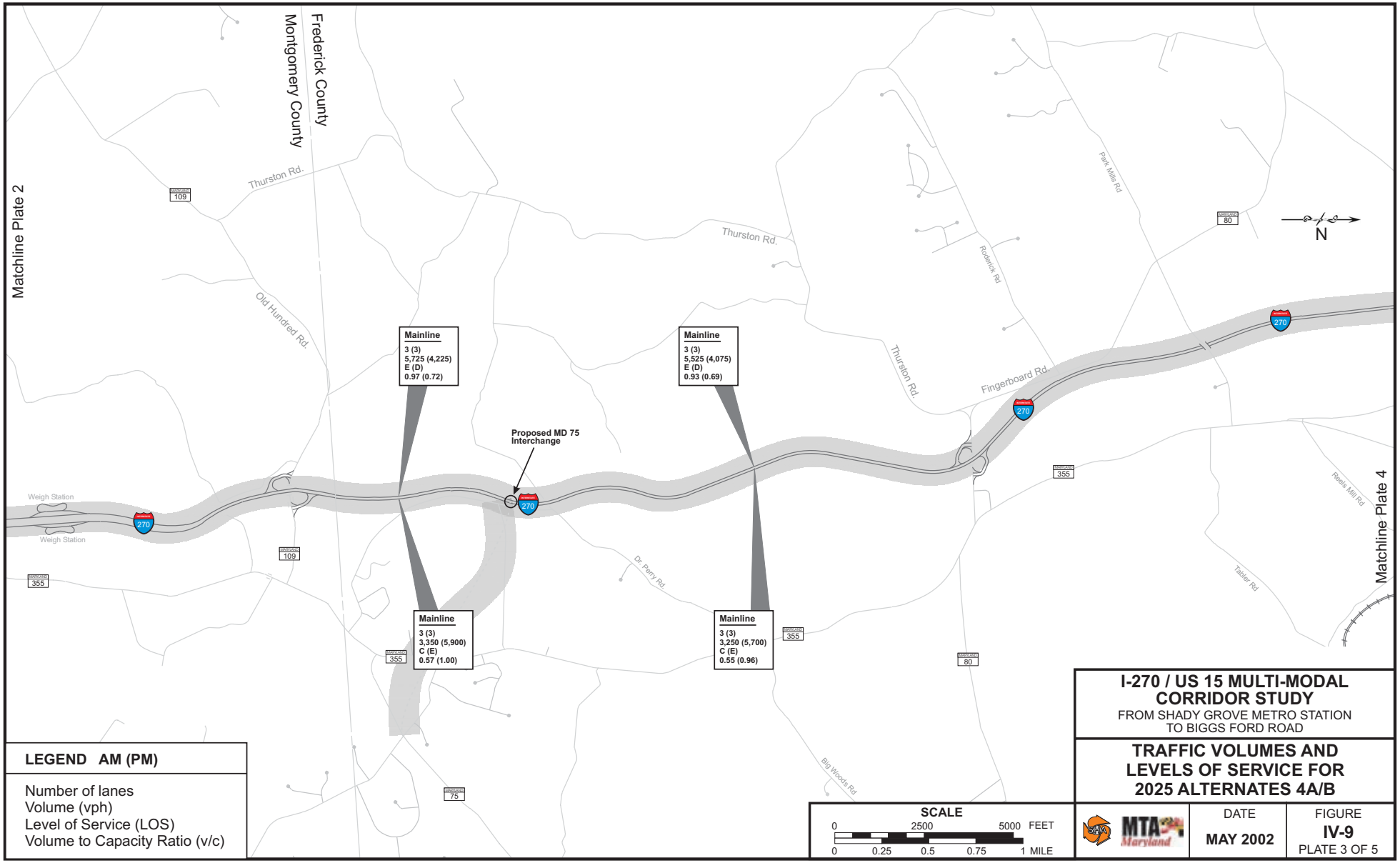
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 4A/B

MTA Maryland

DATE: MAY 2002

FIGURE: IV-9

PLATE 2 OF 5


Matchline Plate 2
Frederick County
Montgomery County
Thurston Rd.
Old Hundred Rd.
Thurston Rd.
Park Mills Rd
Roderick Rd
Thurston Rd.
Fingerboard Rd.
Proposed MD 75 Interchange
Mainline
3 (3)
5,725 (4,225)
E (D)
0.97 (0.72)
Mainline
3 (3)
5,525 (4,075)
E (D)
0.93 (0.69)
Mainline
3 (3)
3,350 (5,900)
C (E)
0.57 (1.00)
Mainline
3 (3)
3,250 (5,700)
C (E)
0.55 (0.96)
Weigh Station
Weigh Station
Dr. Perry Rd
Reels Mill Rd
Tabler Rd
Big Woods Rd
Matchline Plate 4
N
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 4A/B
DATE
MAY 2002
FIGURE
IV-9
PLATE 3 OF 5

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 4A/B

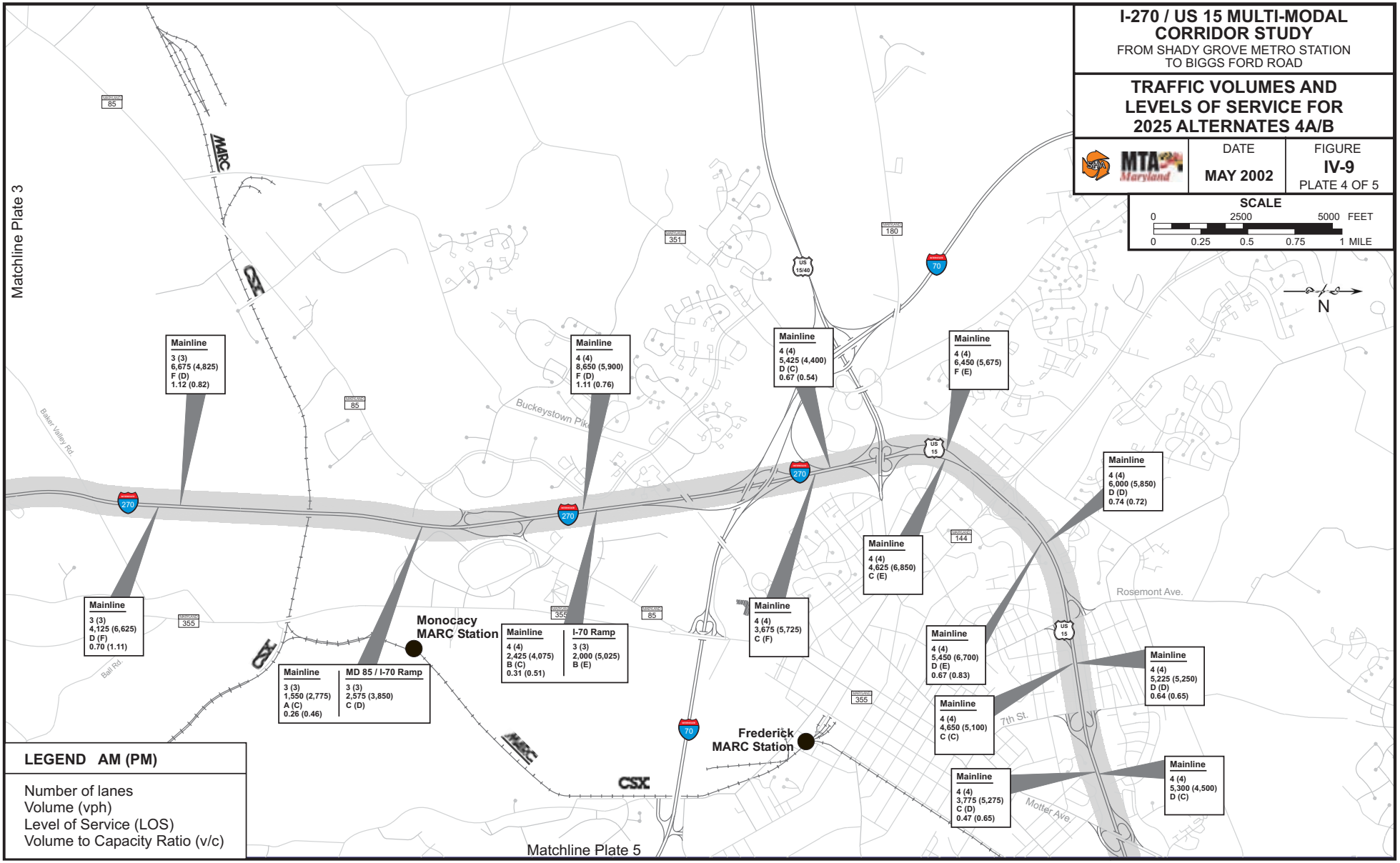
MTA Maryland

DATE
MAY 2002

FIGURE
IV-9
PLATE 4 OF 5

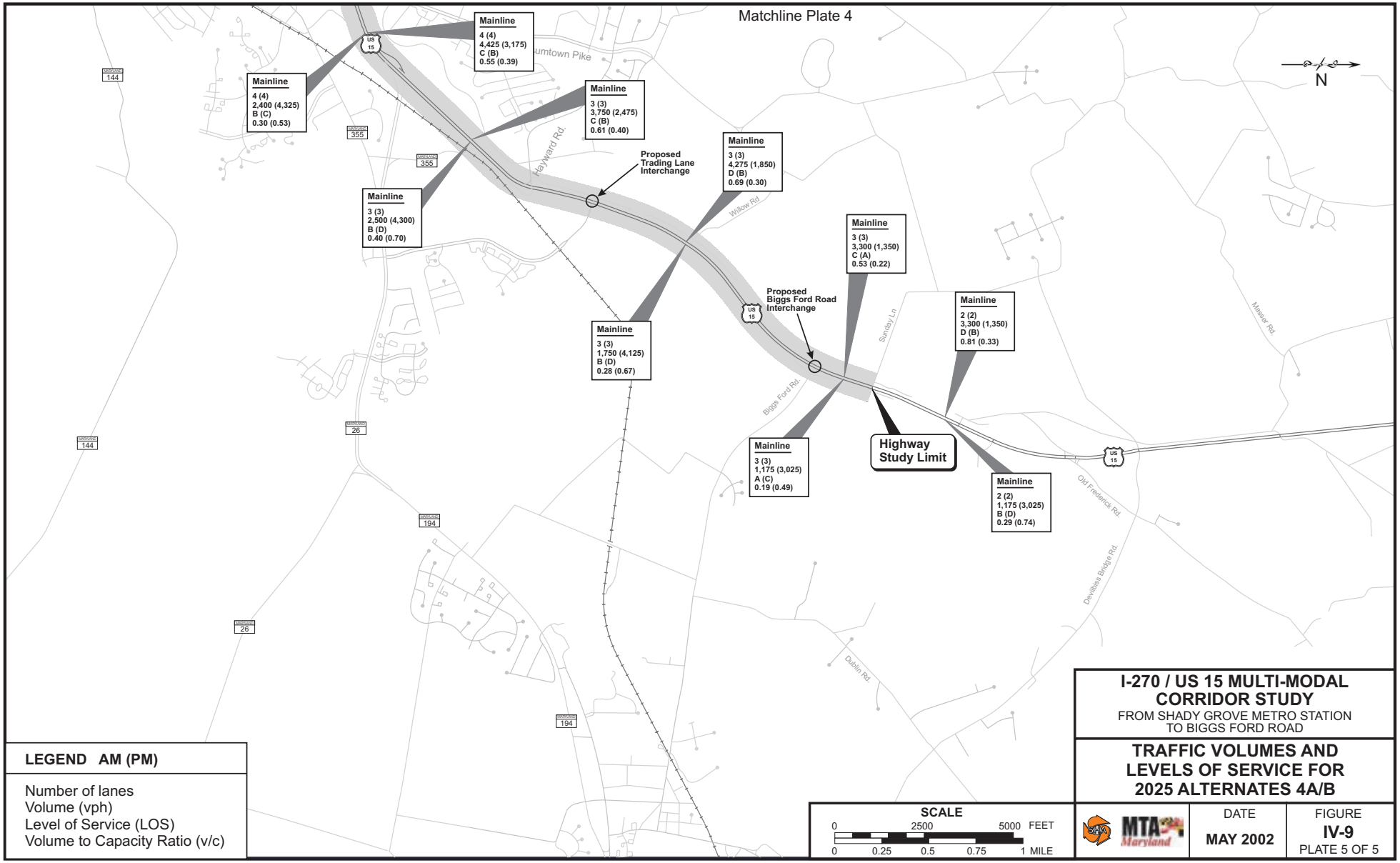
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE

N



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)

SCALE

0 2500 5000 FEET

0 0.25 0.5 0.75 1 MILE

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 4A/B

SHA MTA Maryland

DATE
MAY 2002

FIGURE
IV-9
PLATE 5 OF 5

Figure IV-10 indicates traffic volumes, number of lanes, LOS, and volume to capacity ratios for Alternates 5A/B/C.

4. Corridor and Ramp Terminal Intersection Impacts

a. Corridor Intersections

In addition to reviewing the highway mainline and interchanges, a number of representative intersections along the corridor that are anticipated to be affected by the highway and transitway improvements were evaluated. The intersections were selected from a preliminary list of approximately 130 intersections along the proposed transitway alignment (which originally extended to Frederick) and along each side of I-270 and US 15 throughout the corridor. Due to the significant time and cost to analyze this many intersections (and also since the northern terminus of the proposed transitway alignment was reduced from Frederick to south of Clarksburg at COMSAT), the list was shortened to approximately 47 intersections as listed in **Table IV-14**. The primary rationale used for selection was to choose those intersections that would be most adversely affected by the proposed highway and transitway alternates. In general, the intersections selected are located near a proposed transitway station or crossing, or on either side of an I-270/US 15 interchange. **Table IV-14** also highlights the corridor intersections selected for more detailed analyses (presented in **Table IV-16**).

TABLE IV-14
CORRIDOR INTERSECTIONS

Intersection	1998 Existing			
	AM		PM	
	LOS	V/C	LOS	V/C
1. Thomas Johnson Drive/Opossumtown Pike	A	0.49	B	0.69
2. US 40/Baughmans Lane	E	0.92	E	0.94
3. MD 85/Crestwood Boulevard	E	0.95	F	2.09
4. MD 85/Spectrum Drive	A	0.31	E	0.91
5. West Patrick Street/Jefferson Street	A	0.32	A	0.54
6. MD 80 west/MD 355	D	0.90	D	0.88
7. MD 80 east/MD 355	D	0.89	D	0.85
8. MD 75(west)/MD 80	A	0.39	A	0.44
9. MD 75(east)/MD 80	A	0.26	A	0.42
10. MD 27/MD 80	C	0.76	A	0.54
11. MD 75/MD 355	A	0.57	A	0.31
12. MD 355/MD 109	A	0.46	A	0.61
13. MD 355/Comus Road	A	0.59	A	0.37
14. MD 121/MD 355	C	0.75	A	0.59
15. MD 121/West Old Baltimore Road	A	0.14	A	0.14
16. Father Hurley Boulevard /MD 355	C	0.76	B	0.64
17. Father Hurley Boulevard/Crystal Rock Drive	F	1.03	B	0.70
18. MD 118/MD 355	A	0.50	A	0.53
19. MD 118/Crystal Rock Drive	A	0.55	E	0.94
20. MD 118/Observation Drive	A	0.39	A	0.45
21. Father Hurley Boulevard/Middlebrook Road	B	0.64	C	0.74
22. Jefferson Street/Prospect Boulevard	B	0.66	A	0.55

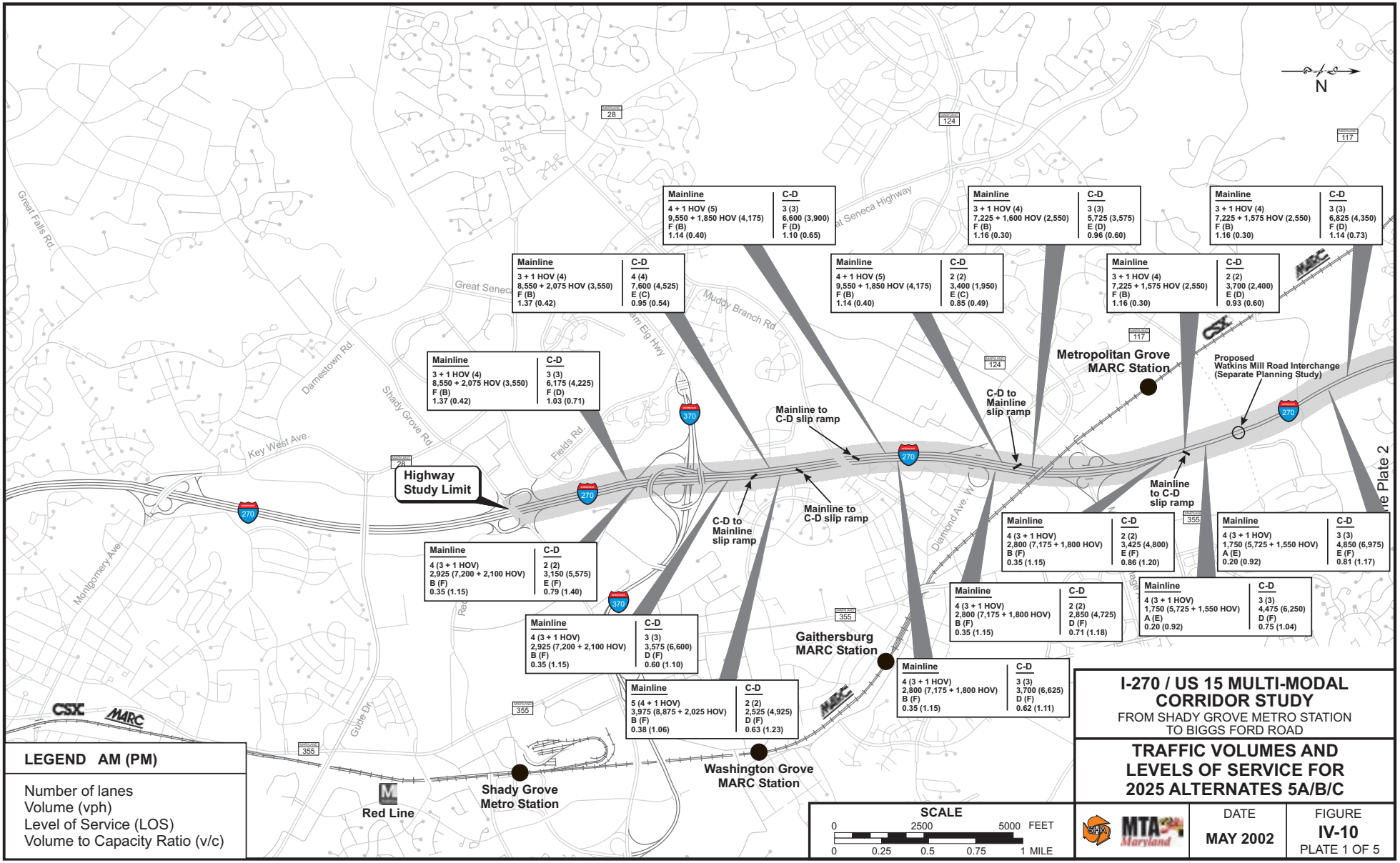
TABLE IV-14 (CONTINUED)
CORRIDOR INTERSECTIONS

Intersection	1998 Existing			
	AM		PM	
	LOS	V/C	LOS	V/C
22. MD 118/Middlebrook Road	A	0.55	A	0.62
23. Middlebrook Road/Waring Station Road	D	0.90	D	0.90
24. Middlebrook Road/Great Seneca Highway	A	0.47	A	0.57
25. Middlebrook Road/MD 355	F	1.15	E	0.94
26. Watkins Mill Road/MD 355	A	0.36	A	0.54
27. Watkins Mill Road/MD 117	C	0.79	B	0.65
28. MD 117/Perry Parkway	F	1.37	F	1.45
29. MD 117/Bureau Drive	E	0.95	E	0.96
30. MD 117/MD 355				
Eastbound MD 117 to southbound MD 355	B	N/A	B	N/A
Southbound MD 355 to westbound MD 117	B	N/A	A	N/A
Northbound MD 355 to eastbound MD 117	B	N/A	C	N/A
Westbound MD 117 to northbound MD 355	B	N/A	C	N/A
31. MD 124/MD 117	C	0.77	F	1.02
32. MD 124/Firstfield Road	A	N/A	D	0.82
33. Montgomery Village Avenue/MD 355	F	1.10	F	1.19
34. Sam Eig Highway/Fields Road	A	0.59	A	0.56
35. Sam Eig Highway/MD 355	N/A	N/A	N/A	N/A
36. Shady Grove Road/Key West Avenue/Gude Drive	B	0.66	D	0.86
37. Shady Grove Road/Research Drive	E	0.97	D	0.82
38. Shady Grove Road/MD 355	F	1.06	F	1.05
39. Shady Grove Road/Gaither Road	C	0.76	E	0.91
40. Redland Road/MD 355	F	1.08	F	1.14
41. Redland Road/Gaither Road	A	0.40	A	0.38
42. Redland Road/Piccard Drive	A	0.46	A	0.49
43. Gude Drive/Research Boulevard	D	0.81	C	0.80
44. MD 28/MD 124	D	0.89	A	0.62
45. MD 28/Shady Grove Road	B	0.71	A	0.52
46. Muddy Branch Road/Great Seneca Highway	F	1.13	F	1.16
47. MD 26/Trading Lane	A	0.56	B	0.70

Note: *Shaded rows indicate those intersections evaluated in more detail in this study.*

b. Ramp Terminal Intersections

The ramp terminal intersections were selected based on a review of the existing (1998), 2025 No-Build and 2025 build traffic volume scenarios. Each ramp terminal along the I-270/US 15 corridor within the project area was evaluated, as shown in **Table IV-15**. The shaded intersections represent those analyzed in further detail.



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

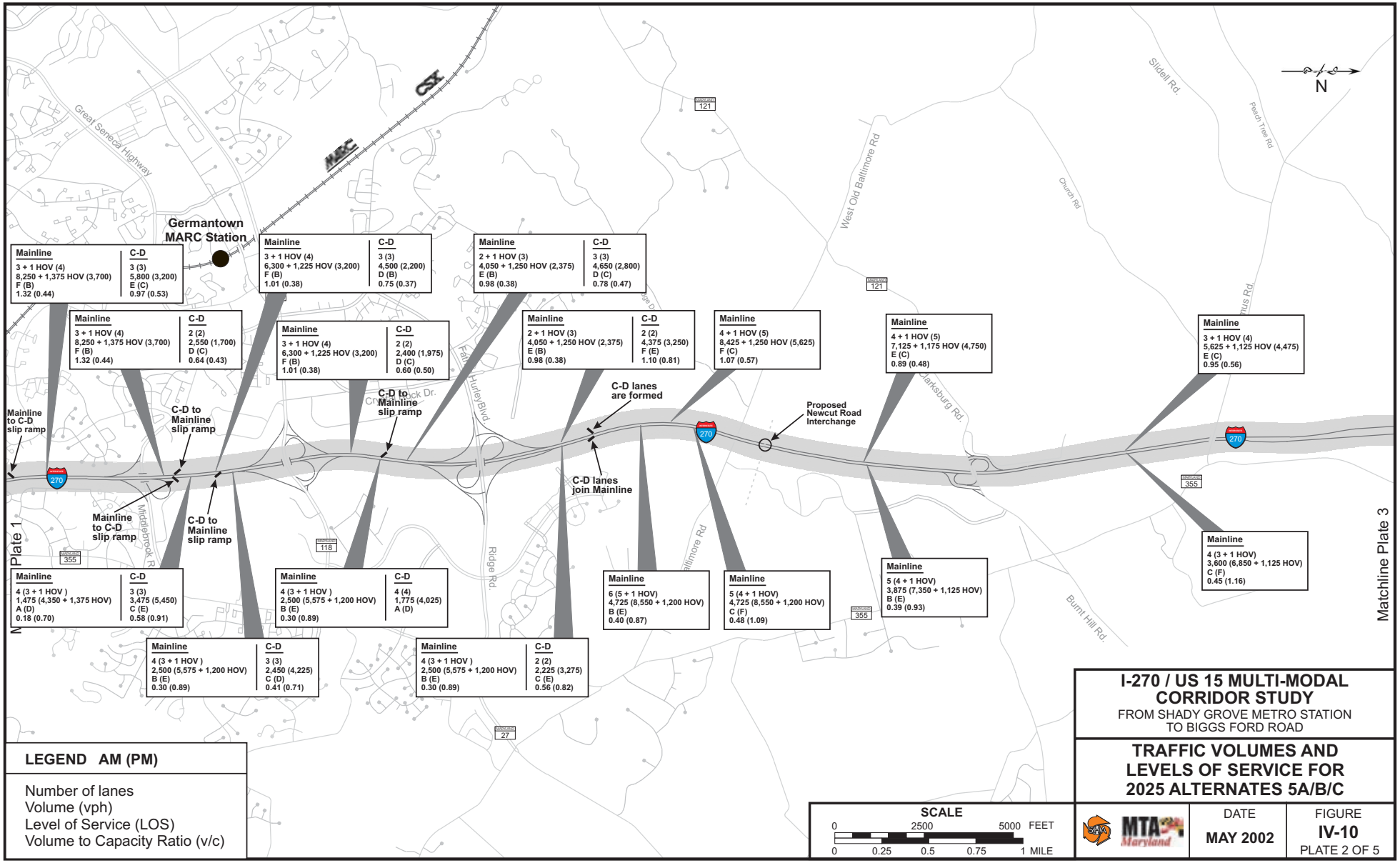
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 5A/B/C

MTA Maryland

DATE
MAY 2002

FIGURE
IV-10
PLATE 1 OF 5

See Plate 2



LEGEND AM (PM)

Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)

SCALE

0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE

I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

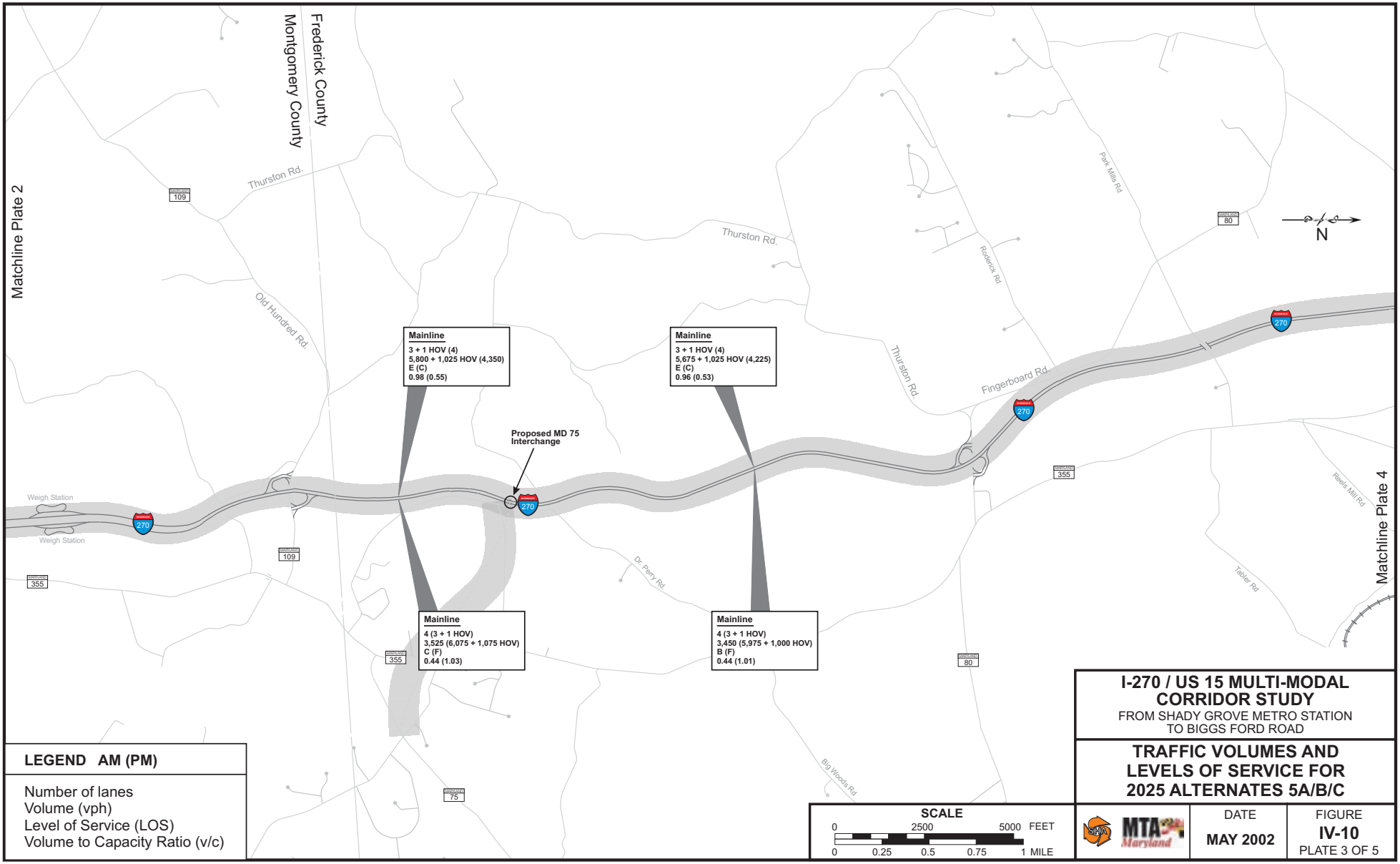
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 5A/B/C

MTA Maryland

DATE
MAY 2002

FIGURE
IV-10
PLATE 2 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

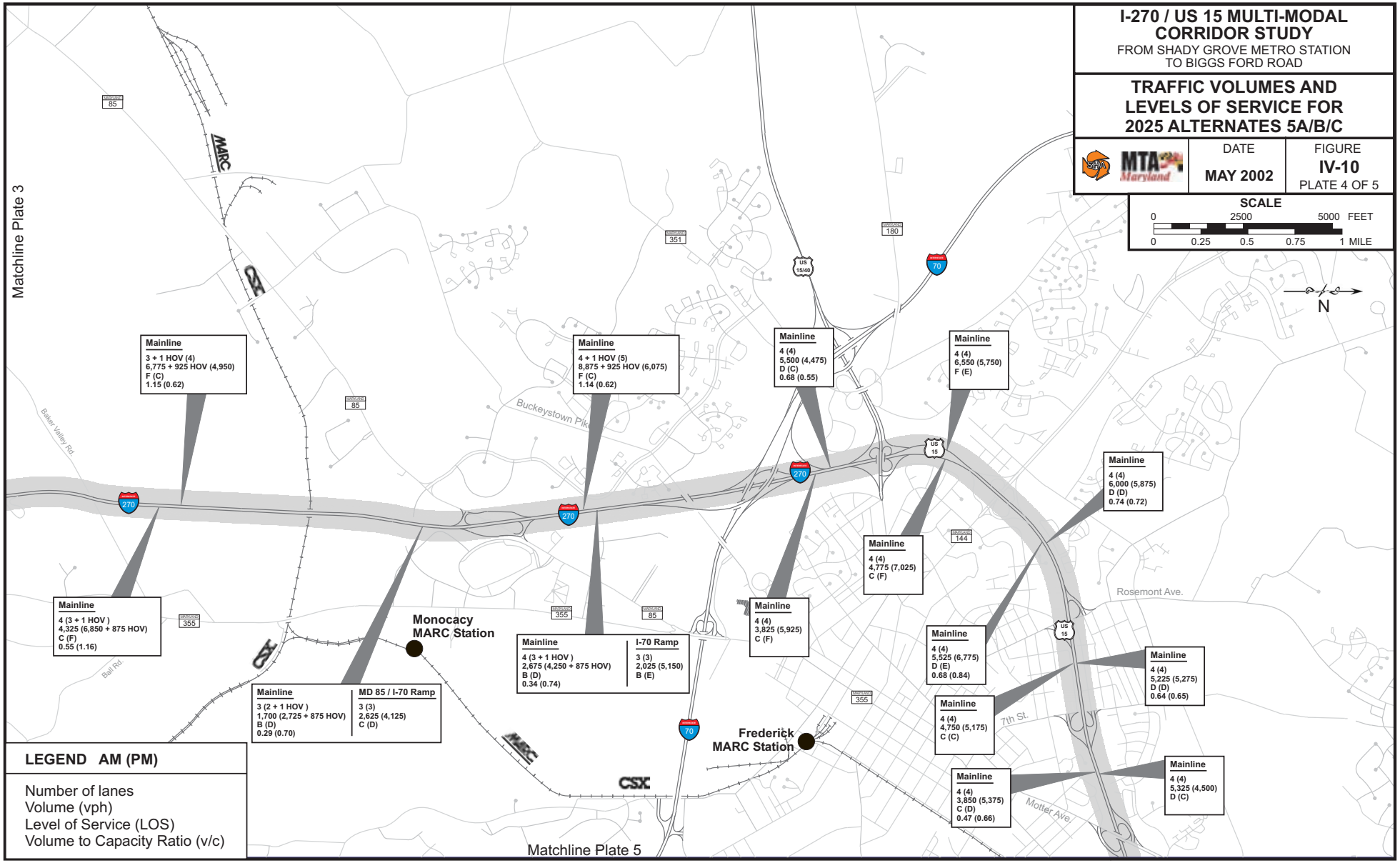
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

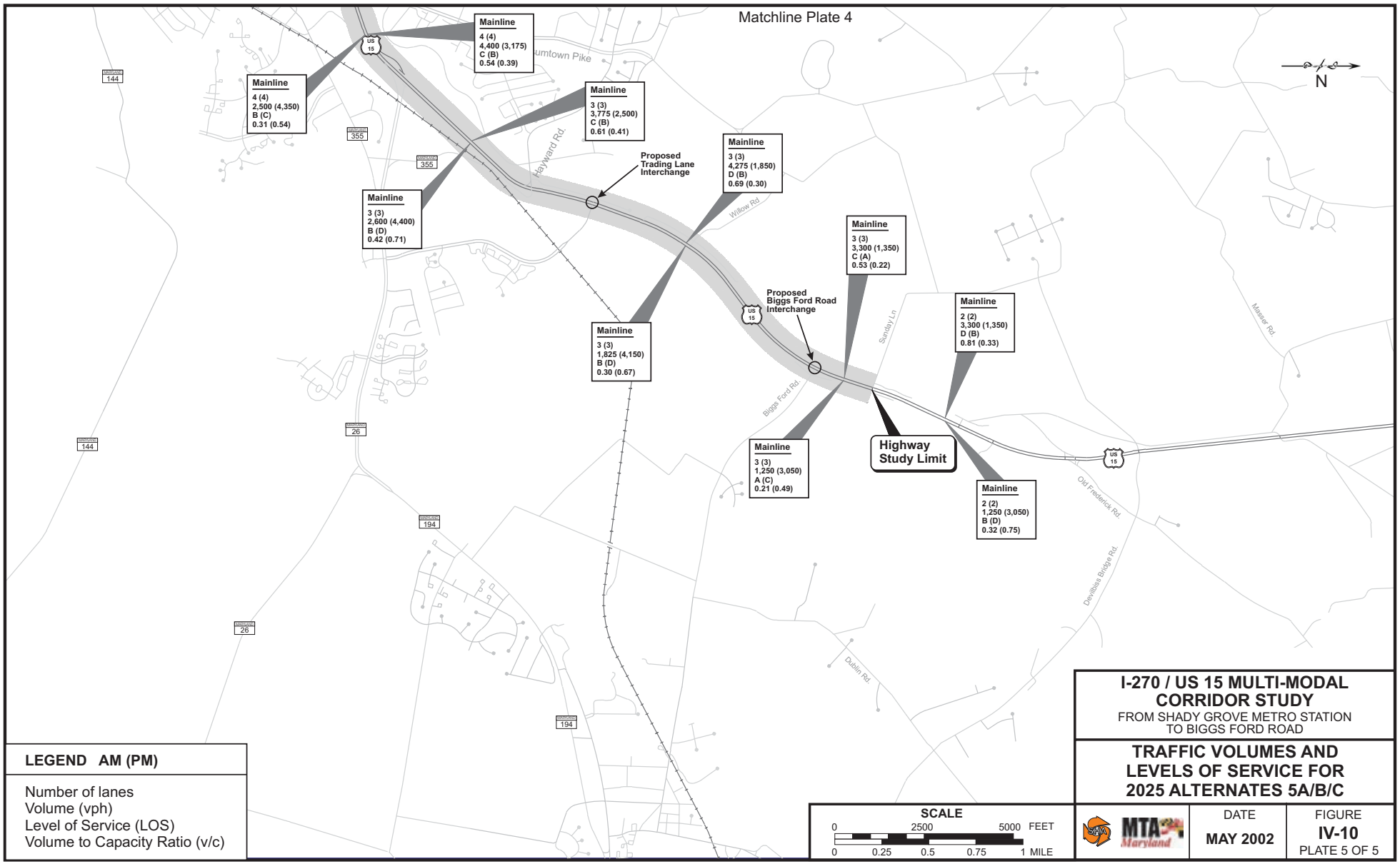
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 5A/B/C

SHA MTA Maryland

DATE
MAY 2002

FIGURE
IV-10
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 5A/B/C
DATE
MAY 2002
FIGURE
IV-10
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Mainline
3 + 1 HOV (4)
6,775 + 925 HOV (4,950)
F (C)
1.15 (0.62)
Mainline
4 + 1 HOV (5)
8,875 + 925 HOV (6,075)
F (C)
1.14 (0.62)
Mainline
4 (4)
5,500 (4,475)
D (C)
0.68 (0.55)
Mainline
4 (4)
6,550 (5,750)
F (E)
Mainline
4 (4)
6,000 (5,875)
D (D)
0.74 (0.72)
Mainline
4 (4)
4,775 (7,025)
C (F)
Mainline
4 (4)
3,825 (5,925)
C (F)
Mainline
4 (4)
5,525 (6,775)
D (E)
0.68 (0.84)
Mainline
4 (4)
5,225 (5,275)
D (D)
0.64 (0.65)
Mainline
4 (4)
4,750 (5,175)
C (C)
Mainline
4 (4)
3,850 (5,375)
C (D)
0.47 (0.66)
Mainline
4 (4)
5,325 (4,500)
D (C)
Mainline
4 (3 + 1 HOV)
4,325 (6,850 + 875 HOV)
C (F)
0.55 (1.16)
Mainline
4 (3 + 1 HOV)
2,675 (4,250 + 875 HOV)
B (D)
0.34 (0.74)
I-70 Ramp
3 (3)
2,025 (5,150)
B (E)
Mainline
3 (2 + 1 HOV)
1,700 (2,725 + 875 HOV)
B (D)
0.29 (0.70)
MD 85 / I-70 Ramp
3 (3)
2,625 (4,125)
C (D)
Monocacy MARC Station
Frederick MARC Station
Buckeystown Pike
Bauer Valley Rd.
Bail Rd.
Rosemont Ave.
7th St.
Motter Ave.
MARC
CSX
LEGEND AM (PM)
Number of lanes
Volume (vph)
Level of Service (LOS)
Volume to Capacity Ratio (v/c)



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

TRAFFIC VOLUMES AND LEVELS OF SERVICE FOR 2025 ALTERNATES 5A/B/C

DATE	FIGURE
MAY 2002	IV-10
	PLATE 5 OF 5

TABLE IV-15
RAMP TERMINAL INTERSECTIONS

Site	Intersection	2025 No-Build				2025 Build Alternates 3A/B				2025 Build Alternates 5A/B/C			
		AM		PM		AM		PM		AM		PM	
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
1	I-270 northbound to MD 117	F	1.83	F	1.70	F	1.20	F	1.91	F	1.23	F	1.91
2	I-270 southbound to MD 117	F	2.45	F	1.89	F	1.72	F	1.55	F	1.75	F	1.59
3	I-270 northbound Off Ramp at MD 124	N/A	N/A	N/A	N/A	F	1.28	F	1.58	F	1.29	F	1.61
4	I-270 southbound Off Ramp at MD 124	N/A	N/A	N/A	N/A	F	1.04	F	1.03	F	1.04	D	0.90
5	I-270 northbound Off Ramp at Watkins Mill Road	N/A	N/A	N/A	N/A	F	1.17	F	1.24	F	1.17	F	1.19
6	I-270 southbound On Ramp at Watkins Mill Road	N/A	N/A	N/A	N/A	D	0.83	C	0.74	D	0.85	C	0.79
7	I-270 southbound Off Ramp at Watkins Mill Road	N/A	N/A	N/A	N/A	F	1.13	E	0.99	F	1.17	F	1.04
8	I-270 northbound Off Ramp at Middlebrook Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	I-270 southbound On Ramp at Middlebrook Road	F	1.31	F	1.19	F	1.39	F	1.32	F	1.41	F	1.32
10	I-270 northbound Off Ramp at MD 118	F	1.50	D	0.86	F	1.57	F	1.48	F	1.57	F	1.50
11	I-270 southbound Off Ramp at MD 118	F	1.16	F	1.02	F	1.13	F	1.10	F	1.14	F	1.12
12	I-270 northbound Off Ramp at Father Hurley Blvd.	A	0.45	A	0.39	B	0.68	C	0.74	B	0.70	C	0.75
13	I-270 southbound Off Ramp at Father Hurley Blvd.	A	0.52	A	0.56	D	0.86	B	0.66	D	0.84	B	0.67
14	I-270 northbound Off Ramp to Newcut Road	N/A	N/A	N/A	N/A	F	1.13	F	1.37	F	1.13	F	1.40
15	I-270 southbound Off Ramp to Newcut Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	I-270 northbound Off Ramp at MD 121	F	1.11	F	1.01	C	0.81	B	0.67	B	0.68	B	0.72
17	I-270 southbound Off Ramp at MD 121	F	1.64	F	1.28	E	0.94	C	0.80	E	0.94	C	0.75
18	I-270 northbound Off Ramp at MD 109	F	1.20	F	1.91	B	0.68	C	0.75	B	0.64	E	0.99
19	I-270 southbound Off Ramp at MD 109	F	1.38	E	0.94	D	0.84	A	0.62	D	0.83	C	0.73
20	I-270 northbound Off Ramp at MD 75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21	I-270 southbound Off Ramp at MD 75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	I-270 northbound Off Ramp at MD 80	F	1.26	F	1.10	F	1.43	F	1.38	F	1.45	F	1.36
23	I-270 southbound Off Ramp at MD 80	F	1.41	F	1.14	F	2.36	F	1.88	F	2.39	F	1.86

TABLE IV-15 (CONTINUED)
RAMP TERMINAL INTERSECTIONS

Site	Intersection	2025 No-Build				2025 Build Alternates 3A/B				2025 Build Alternates 5A/B/C			
		AM		PM		AM		PM		AM		PM	
		LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
24	I-270 northbound Off Ramp at MD 85	A	0.46	C	0.76	A	0.61	F	1.34	A	0.52	F	1.12
25	I-270 southbound Off Ramp at MD 85	A	0.56	C	0.73	C	0.76	D	0.87	C	0.79	C	0.76
26	US 40 northbound Off Ramp at MD15/340	E	0.99	A	0.55	F	1.03	E	0.92	F	1.03	E	0.91
27	US 40 southbound Off Ramp at MD15/340	N/A	N/A	N/A	N/A	F	1.48	F	1.40	F	1.47	F	1.38
28	US 15 northbound Off Ramp at MD 144	E	0.95	F	1.01	E	0.92	E	0.92	E	0.95	E	0.93
29	US 15 southbound Off Ramp at MD 144	A	0.46	C	0.77	A	0.46	E	0.91	A	0.47	E	0.91
30	US 15 northbound Off Ramp at Rosemont Avenue	F	1.24	F	1.65	F	1.54	F	1.97	F	1.57	F	1.92
31	US 15 southbound Off Ramp at Rosemont Avenue	A	0.60	D	0.82	E	0.95	F	1.00	E	0.96	F	1.05
32	US 15 northbound Off Ramp at 7th Street	C	0.72	F	1.02	D	0.87	F	1.28	D	0.84	F	1.23
33	US 15 southbound Off Ramp at 7th Street	F	1.05	E	1.00	F	1.07	F	1.13	F	1.02	F	1.11
34	US 15 northbound Off Ramp at Motter Avenue/Opossumtown Pike	C	0.72	E	0.94	F	1.22	F	1.32	F	1.26	F	1.37
35	US 15 southbound Off Ramp at Motter Avenue/Opossumtown Pike	F	1.30	E	0.98	E	0.94	D	0.90	E	0.91	D	0.90
36	US 15 northbound at MD 26	F	1.58	F	1.29	F	1.04	C	0.72	F	1.02	B	0.71
37	US 15 southbound at MD 26	F	1.37	F	1.48	F	1.01	E	0.96	E	1.00	E	0.92
38	US 15 northbound at Hayward Road	F	1.68	F	1.53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	US 15 southbound at Hayward Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40	US 15 northbound at Trading Lane	F	1.52	F	1.41	D	0.83	D	0.90	D	0.83	D	0.87
41	US 15 southbound at Trading Lane	F	1.52	F	1.41	E	0.91	F	1.01	E	0.91	E	1.00
42	US 15 northbound at Willow Road	F	1.57	F	1.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
43	US 15 southbound at Willow Road	F	1.57	F	1.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
44	US 15 northbound at Biggs Ford Road	F	1.86	F	1.54	D	0.89	B	0.69	D	0.89	B	0.69
45	US 15 southbound at Sunday's Lane	N/A	N/A	N/A	N/A	A	0.41	A	0.53	A	0.44	A	0.53
46	US 15 southbound at Biggs Ford Road	N/A	N/A	N/A	N/A	E	0.97	D	0.84	F	1.00	D	0.84

Note: *Shaded rows indicate those intersections evaluated in more detail in this study.*

Intersection LOS for planning studies in Maryland is assessed using the Critical Lane Volume (CLV) technique. This technique assesses congestion using potential conflicts at signalized intersections. Thus, the resulting critical lane volume is a measure of the number of potential conflicts during the hour being analyzed. The critical lane volume that is produced from the analysis corresponds to the following levels of service and volume to capacity ratios:

Critical Lane Volume Total	Level of Service	Volume to Capacity (v/c) Ratio
< 1,000	A	< 0.63
1,000 to 1,150	B	0.63 to 0.72
1,150 to 1,300	C	0.72 to 0.81
1,300 to 1,450	D	0.81 to 0.91
1,450 to 1,600	E	0.91 to 1.00
> 1,600	F	> 1.00

Analyses have been completed for the existing (1998) conditions, 2025 No-Build/TSM/TDM, and each of the build alternates. It should be noted that build alternates 3A/B and 4A/B possess identical traffic volume forecasts for the intersections evaluated. **Table IV-16** presents existing and projected CLV for selected intersections in the project area. The total number of 1998 intersections with CLV less than 1,600 (the threshold value for LOS F) during the AM and PM peak hours is 17. The total number of 2025 intersections in the No-Build condition with CLV less than 1,600 during the AM and PM peak hours decreased to two.

It should also be noted that the intersections of Muddy Branch Road/Great Seneca Highway and MD 117/MD 124 would experience additional delays due to options for the transitway crossings at grade. These two intersections would require additional time for the LRT or BRT vehicles to travel through the intersection at-grade (assuming signal pre-emption for both intersections. A signal phase length of approximately 60 seconds for the LRT vehicles to travel through the intersections was analyzed. The 60 seconds includes the time before the train arrives at the intersection (23 seconds); time for the train to travel through the intersection (30 seconds); and a clearance time after the train travels through the intersection (7 seconds).

TABLE IV-16
EXISTING (1998) AND PROJECTED 2025 CLV FOR SELECTED INTERSECTIONS IN PROJECT AREA

Corridor Intersections

	Corridor Intersection	AM/PM	Existing (1998)		2025 No-Build		2025 Alternates 3A/B and 4A/B		2025 Alternates 5A/B/C	
			CLV	LOS Total	CLV	LOS Total	CLV	LOS Total	CLV	LOS Total
1	MD 355/ Shady Grove Road	AM	1,691	1.06	2,360	1.48	2,430	1.52	2,330	1.46
		PM	1,677	1.05	2,243	1.40	2,363	1.48	2,310	1.44
2	Fields Road/ Sam Eig Highway	AM	941	0.59	1,865	1.17	1,780	1.11	1,800	1.13
		PM	902	0.56	2,405	1.50	2,310	1.44	2,330	1.46
3	Muddy Branch Road/ Great Seneca Highway	AM	1,815	1.13	2,101	1.31	2,301	1.44	1,816	1.14
		PM	1,859	1.16	2,805	1.75	2,350	1.57	2,773	1.73
4	MD 117/Perry Parkway	AM	2,200	1.37	1,873	1.17	1,490	0.93	1,515	0.95
		PM	2,318	1.45	2,195	1.37	1,838	1.15	1,890	1.18
5	MD 117/MD 124	AM	1,225	0.77	1,958	1.22	1,689	1.06	1,768	1.10
		PM	1,630	1.02	2,505	1.57	2,135	1.33	2,338	1.46
6	MD 355/MD 124	AM	1,755	1.10	2,443	1.53	2,484	1.55	2,538	1.59
		PM	1,900	1.19	3,128	1.95	3,093	1.93	2,888	1.80
7	MD 355/ Watkins Mill Road	AM	581	0.36	1,971	1.239	2,104	1.31	2,182	1.36
		PM	862	0.54	2,508	1.57	2,255	1.41	2,388	1.49
8	MD 355/ Middlebrook Road	AM	1,834	1.15	2,488	1.55	2,415	1.51	2,506	1.57
		PM	1,509	0.94	3,060	1.91	3,084	1.93	2,961	1.85
9	MD 118/ Middlebrook Road	AM	880	0.55	1,776	1.11	2,143	1.34	1,813	1.13
		PM	996	0.62	2,178	1.36	2,073	1.30	2,073	1.30
10	MD 118/ Observation Drive	AM	623	0.39	1,850	1.16	1,793	1.12	1,813	1.13
		PM	716	0.45	1,850	1.16	1,768	1.10	1,789	1.12
11	MD 118/ Crystal Rock Drive	AM	882	0.55	1,716	1.07	2,220	1.39	1,908	1.19
		PM	1,499	0.94	2,913	1.82	3,018	1.89	2,998	1.87
12	Father Hurley Boulevard/ MD 355	AM	1,220	0.76	2,956	1.85	3,280	2.05	3,419	2.14
		PM	1,025	0.64	2,519	1.57	2,196	1.37	2,285	1.43
13	MD 121/MD 355	AM	1,206	0.75	3,859	2.41	3,716	2.32	3,695	2.31
		PM	949	0.59	3,055	1.91	2,580	1.61	2,583	1.61
14	MD 26/Trading Lane	AM	903	0.56	1,430	0.89	2,228	1.39	2,214	1.38
		PM	1,119	0.70	1,784	1.11	2,478	1.55	2,521	1.58
15	Spectrum Drive/MD 85	AM	494	0.31	1,021	0.64	1,434	0.90	1,361	0.85
		PM	1,454	0.91	1,795	1.12	2,015	1.26	1,780	1.11
16	Jefferson Street/ Prospect Boulevard	AM	1,064	0.66	1,751	1.09	1,789	1.12	1,803	1.13
		PM	882	0.55	1,460	0.91	1,323	0.83	1,309	0.82

TABLE IV-16 (CONTINUED)
EXISTING (1998) AND PROJECTED 2025 CLV FOR SELECTED INTERSECTIONS IN PROJECT AREA

Ramp Terminal Intersections

	Ramp Terminal Intersection	AM/PM	Existing (1998)		2025 No-Build		2025 Alternates 3A/B and 4A/B		2025 Alternates 5A/B/C	
			CLV	LOS Total	CLV	LOS Total	CLV	LOS Total	CLV	LOS Total
1	I-270 southbound Ramp/ MD 117	AM	2,424	1.52	3,925	2.45	2,750	1.72	2,800	1.75
		PM	2,965	1.85	3,025	1.89	2,475	1.55	2,550	1.59
2	I-270 northbound Ramp/ MD 118	AM	1,461	0.91	2,405	1.50	2,505	1.57	2,519	1.57
		PM	1,376	0.86	1,370	0.86	2,368	1.48	2,393	1.50
3	I-270 southbound Ramp/ MD 118	AM	1,244	0.78	1,849	1.16	1,813	1.13	1,828	1.14
		PM	1,341	0.84	1,636	1.02	1,759	1.10	1,788	1.12
4	I-270 southbound Ramp/ MD 121	AM	126	0.08	2,625	1.64	1,500	0.94	1,500	0.94
		PM	301	0.19	2,050	1.28	1,275	0.80	1,200	0.75
5	I-270 northbound Ramp/ MD 121	AM	397	0.25	1,779	1.11	1,295	0.81	1,080	0.68
		PM	206	0.13	1,619	1.01	1,064	0.67	1,144	0.72
6	I-270 northbound Ramp/ MD 80	AM	438	0.27	2,010	1.26	2,290	1.43	2,315	1.45
		PM	709	0.44	1,760	1.10	2,200	1.38	2,175	1.36
7	I-270 southbound Ramp/ MD 80	AM	N/A	N/A	2,250	1.41	3,775	2.36	3,825	2.39
		PM			1,825	1.14	3,000	1.88	2,975	1.86
8	I-270 southbound Ramp/ MD 85	AM	N/A	N/A	900	0.56	1,210	0.76	1,270	0.79
		PM			1,165	0.73	1,385	0.87	1,210	0.76
9	US 15 southbound Ramp/ Rosemont Ave.	AM	615	0.38	968	0.60	1,522	0.95	1,535	0.96
		PM	741	0.46	1,316	0.82	1,600	1.00	1,675	1.05
10	US 15 northbound Ramp/ Rosemont Ave.	AM	1,370	0.86	1,985	1.24	2,465	1.54	2,506	1.57
		PM	1,610	1.01	2,640	1.65	3,155	1.97	3,074	1.92
11	US 15 southbound Ramp/ 7th Street	AM	968	0.61	1,681	1.05	1,707	1.07	1,632	1.02
		PM	1,211	0.76	1,600	1.00	1,811	1.13	1,783	1.11
12	US 15 northbound Ramp/ 7th Street	AM	N/A	N/A	1,150	0.72	1,385	0.87	1,340	0.84
		PM			1,632	1.02	2,050	1.28	1,968	1.23

5. Park and Ride Lots and Transit Station Parking

a. Park and Ride Lots

Park and ride lots exist or are planned (as noted) directly along the I-270/US 15 corridor at the following locations (as part of separate SHA/county efforts): I-270/MD 117 interchange northeast quadrant (proposed); I-270/MD 124 southwest quadrant (existing); I-270/MD 121 northwest quadrant (proposed); MD 80 northeast and southeast quadrants (existing); Francis Scott Key Mall (existing).

Park and ride lots are being considered in each of the proposed alternates (Alternates 2, 3A/B, 4A/B, 5A/B/C) based on a park and ride feasibility study developed for the SHA in October 1997 (I-270 Park and Ride Site Identification Study). Preliminary concepts have been developed at three locations in Frederick County, including the northeast quadrant of the US 15/MD 26 interchange; the northwest quadrant of the proposed US 15/Trading Lane interchange; and the northwest quadrant of the proposed US 15/Biggs Ford Road interchange. Additional park and ride lots may be considered in the following locations: along Observation Drive in Montgomery County; in the northeast quadrant of the proposed I-270/MD 75 extended interchange in Frederick County; in the southwest quadrant loop ramp of the US 15/MD 144 interchange in Frederick County; and in the Frederick Shopping Center, located in the northwest quadrant of the US 15/7th Street interchange in the City of Frederick. These potential lots may be considered further as the study progresses or if SHA, MTA, or the counties decide to pursue them in advance of this study's completion.

b. Transit Station Parking

Table IV-17 provides transit station parking demand and proposed capacity for proposed LRT, BRT and Premium Bus stations. As summarized in **Table IV-1**, the travel demand forecasts assumed unconstrained parking capacity with no parking charges at the proposed stations. There is sufficient parking capacity to meet the demand at most of the stations. The Decoverly and School Drive stations would be short by approximately 750 to 1,050 spaces to meet the demand of the LRT and BRT Alternates. Parking demand at the Dorsey Mill and COMSAT stations will exceed supply by approximately 300 spaces for the LRT Alternate. Parking at the Shady Grove Station will be accommodated by expanded Metrorail parking. However, the access mode cannot be determined since station shares parking with Metrorail.

TABLE IV-17
TRANSIT STATION PARKING REQUIREMENTS

Station Location		Parking Capacity	Parking Demand by Alternate		
First Station	Last Station		Alternates 3A/4A/5A (LRT)	Alternates 3B/4B/5B (BRT)	Alternate 5C (Premium Bus)
Shady Grove[1]	Shady Grove	N/A	N/A	N/A	N/A
East Gaither (King Farm)	Washingtonian	450	80	200	N/A
Decoverly	School Drive	250	1,300	1,000	N/A
Quince Orchard	Metropolitan Grove	1,200	1,300	700	1,300
Germantown	Cloverleaf	1,100	900	200	1,200
Dorsey Mill	COMSAT	1,500	1,800	1,200	1,500
Total		**4,500**	**5,380**	**3,300**	**4,000**

1. Shady Grove Station parking will be accommodated by expanded Metrorail parking. Cannot determine access mode since station shares parking with Metrorail.

Source: *MWCOG Travel Forecasts 4/2001 – 7/2001*

6. Highway Conclusions

As can be seen from **Table IV-13** and **Table IV-16**, the LOS along mainline I-270 and US 15, and at the corridor and ramp terminal intersections, will degrade significantly over the next 25 years. In general, the 2025 No-Build scenario results in LOS E/F conditions along mainline I-270/US 15 and at the corridor and ramp terminal intersections during the AM and PM peak periods.

With the proposed highway improvements (Alternates 3A/B, 4A/B, and 5A/B/C), the Montgomery County mainline and C-D lane sections of I-270 will continue to be congested, operating at LOS E/F conditions during the AM and PM peak periods. However, the corridor and ramp terminal intersections are expected to operate above capacity.

The Frederick County mainline section of I-270 will also continue to operate at LOS E/F conditions during the 2025 AM and PM peak periods. In general, the section of I-270 between MD 121 and I-70 will operate at LOS E/F conditions regardless of the proposed number of lanes (six lanes in each direction in Alternates 3A/B and 4A/B versus eight lanes in each direction in Alternates 5A/B/C). This is due to the travel demand projections which show that additional capacity improvements made along I-270 result in additional traffic volumes along the corridor. There are some minor improvements in traffic LOS along southbound I-270 in Alternates 4A/B and 5A/B/C versus Alternates 3A/B (LOS E versus LOS F, respectively) due to these alternates having three general-purpose lanes in each direction, while Alternates 3A/B have only two general-purpose lanes in each direction (note that Alternates 5A/B/C also have an additional HOV lane in each direction).

The general trend along US 15 through the City of Frederick is that traffic conditions will improve over the No-Build conditions with the proposed build alternates and will be consistent

with the existing traffic conditions. All three of the build alternates yield similar results along US 15 due to the fact that the proposed alternates are identical in this segment.

The overall traffic analyses show that I-270 and US 15 will continue to be congested (with the proposed build alternates) to 2025 and beyond due to the existing and projected growth along the corridor. However, the build alternates do provide congestion relief in that projected traffic operations would be worse with the No-Build conditions. For instance, reviewing the difference in mainline segment miles that operate under LOS F between the build alternatives and No-Build conditions illustrates this congestion relief, as indicated in **Table IV-18**:

TABLE IV-18
I-270/US 15 LEVEL OF SERVICE IMPROVEMENTS

	Alternates 1 & 2 (No-Build & TSM/TDM)	Alternates 3A/B	Alternates 4A/B	Alternates 5A/B/C
Year 2025 Mainline Segment Mileage of LOS F Conditions [1]				
I-270/US 15 Northbound (PM Peak Hour)	25	18	14	18
I-270/US 15 Southbound (AM Peak Hour)	25	21	13	14
Total Mileage of LOS F Segments	**50**	**39**	**27**	**32**
Year 2025 Mileage Reduction of LOS F Segments from No-Build and TSM/TDM Alternates				
I-270/US 15 Northbound (PM Peak Hour)	N/A	7	11	7
I-270/US 15 Southbound (AM Peak Hour)	N/A	4	12	11
Total Mileage Reduction of LOS F Segments	**N/A**	**11**	**23**	**18**

Note: 1. Total I-270/US 15 corridor length is approximately 31 miles.

Alternates 3A/B would provide an eleven mile total reduction in the mainline segments operating at LOS F (seven miles reduction northbound, four miles reduction southbound). Alternates 4A/B would provide a 23 mile total reduction in the mainline segments operating at LOS F (eleven miles reduction northbound, twelve miles reduction southbound). Alternates 5A/B/C would provide an 18 mile total reduction in the mainline segments operating at LOS F (seven miles reduction northbound, eleven miles reduction southbound). Therefore, Alternates 4A/B offer the greatest reduction in miles of LOS F along the corridor, Alternates 5A/B/C offer the second most reduction, and Alternates 3A/B offer the least amount of congestion relief compared to the expected No-Build conditions.

F. MULTI-MODAL CONCLUSIONS

The travel demand modeling results concluded that the limited capacity on I-270 in Alternates 3A/B and 4A/B (six lanes on I-270 between MD 121 and I-70 in Alternates 3A/B and 4A/B versus eight lanes in Alternates 5A/B/C) does not affect the transit ridership. In addition, none of the transit modes provide a significant positive impact on the highway travel demand; however, the proposed build alternates do provide additional mobility and modal options with free-flow conditions and consistent travel times. A multi-modal approach is a prudent option for the corridor since the different highway and transit modes under consideration serve different travel markets and trip origins and destinations.

V. EVALUATION OF ALTERNATES

V. EVALUATION OF ALTERNATES

This chapter presents a comparative evaluation of the I-270/US 15 Multi-Modal Corridor build alternates with the No-Build Alternate. The evaluation follows the framework suggested by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) for Draft Environmental Impact Statement (DEIS) documents. This evaluation incorporates factors that specifically address the concerns of the Metropolitan Washington Region and the I-270/US 15 Multi-Modal Corridor project area. **Table V-1** summarizes the measures that contribute substantially to differentiating among the alternates (including measures evaluated in later parts of this chapter, see **Section V.D**).

This evaluation draws upon the information and analyses of the previous four chapters and features the following:

- An evaluation of the alternates based on local goals and objectives
- Calculations of cost-effectiveness indices
- Assessments of the financial feasibility of the various alternates.

A. EFFECTIVENESS

1. Attainment of Local Goals and Objectives

The five goals identified for this project reflect the goals of the regional and local jurisdictions:

- **Support Orderly Economic Growth**
  Support the orderly economic development of the I-270/US 15 Corridor consistent with the local government land use plans and Maryland's Economic Growth, Resource Protection and Planning Act.

- **Enhance Mobility**
  Provide enhanced traveler mobility throughout the I-270/US 15 Corridor by: optimizing travel choices by destination, mode and route; minimizing delay; and improving the safety and overall efficiency of the transportation system.

- **Improve Goods Movement**
  Facilitate the movement of goods within and through the I-270/US 15 Corridor and improve the delivery of services in support of the regional and local economies.

- **Preserve and Protect the Environment**
  Deliver transportation services in a manner that preserves, protects and enhances the quality of life and social, cultural and natural environment in the I-270/US 15 Corridor.

TABLE V-1
SUMMARY OF SIGNIFICANT PROJECT CHARACTERISTICS

	Alternate 1	Alternate 2	Alternate 3		Alternate 4		Alternate 5		
			A	B	A	B	A	B	C
Capital Cost (Millions of 2001 Dollars) Transit	-	$33	$857	$792	$857	$792	$857	$792	$296
Capital Cost (Millions of 2001 Dollars) Highway	-	-	$1,805	$1,805	$1,805	$1,805	$2,098	$2,098	$2,223
Total Capital Cost (Millions of 2001 Dollars) (Highway + Transit)	-	$33	$2,662	$2,597	$2,662	$2,597	$2,955	$2,890	$2,519
Capital Cost (Millions of 2007 Dollars; Midpoint of Construction) Transit	-	$36	$984	$946	$984	$946	$984	$946	$353
Annual Operations and Maintenance Cost Increases (Millions of 2001 Dollars)	-	$28	$25	$64	$25	$64	$25	$64	$32
Incremental Annual Revenues (Millions of 2001 Dollars)	-	$3	$10	$26	$10	$26	$10	$26	$21
Incremental Annual Operating Subsidy (Millions of 2001 Dollars)	-	$25	$15	$38	$15	$38	$15	$38	$11
Daily Regional Transit Trips (2025)	110,000	133,600	151,800	193,300	151,800	193,300	151,800	193,300	193,500
Total Daily Transit Trips (2025)	78,500	85,500	88,300	96,900	88,300	96,900	88,300	96,900	96,300
New Daily Transit Trips (2025) (Compared to No-Build)	-	7,000	9,800	18,400	9,800	18,400	9,800	18,400	17,800
Daily Linehaul Trips On Extension Facilities (2025)	-	-	36,400	47,600	36,400	47,600	36,400	47,600	37,700
AM Peak Period Linehaul Trips On Extension Facilities (2025)	-	-	14,000	18,300	14,000	18,300	14,000	18,300	14,500
Residential Displacements	-	-	64 - 127				64 - 128		127 - 385
Business Displacements	-	-	4 - 11				4 - 12		2 - 11
Parking Capacity (proposed transitway stations – excluding Shady Grove Metro Station)	-	-	4,500		4,500		4,500		TBD

Source: *Rummel, Klepper & Kahl, LLP, March 2002; Parsons, Brinckerhoff, Quade and Douglas, Inc., February 2002; Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area, Cambridge Systematics, Inc., 2000; and Financially Constrained Long-Range Plan Year 2000 Update for the National Capital Region, Maryland Department of Transportation, March 15, 2000.*

- **Optimize Public Investment**
  Provide a transportation system in the I-270/US 15 Corridor that makes optimal use of existing transportation infrastructure while making cost effective investments in facilities and services that support other project goals.

In general, the master plans for the I-270/US 15 Corridor identify the desirability of increased reliance on multi-occupant vehicles, generally calling for 30% (or more) non-single occupant vehicle usage. Local master plans also identify specific transportation system improvements for the project area:

- The *Gaithersburg Vicinity-Shady Grove Master Plan Amendment* (November 1996) amends the location of the Corridor Cities Transitway (CCT) alignment and reserves additional right-of-way along Decoverly Drive between Diamondback Drive and Great Seneca Highway.
- The *Gaithersburg Vicinity Master Plan Amendment* (July 1990) recommends the widening of right-of-way for major highways, including I-270, and a "northern transitway" extending from the Shady Grove Metro Station to Great Seneca Highway.
- The *Germantown Master Plan* (1990) recommends eight lanes on I-270 and the provision of local (collector-distributor) lanes on I-270 from Gaithersburg to Clarksburg. The Plan suggests providing a transitway through the planning area, increased bus service, two park-and-ride lots and expansion of area MARC facilities.
- The *Clarksburg Master Plan* and *Hyattstown Special Study Area* (1994) presents the following transportation-related recommendations:

  Transit: --A regional transitway linking the region from the City of Frederick to north of the Shady Grove Metro Station through Clarksburg

  --Regional and local bus routes linking developed areas to transit stations

  --Improved MARC service

  --Additional park-and-ride lots

  Highway: The Plan recommends widening I-270 to eight lanes plus local (collector-distributor) lanes up to MD 121, and six lanes plus local (collector-distributor lanes) from MD 121 to the county line. One new interchange at Newcut Road and the closure of the I-270 interchange at Old Hundred Road (MD 109) are also recommended.
- The *Frederick Region Plan* (1992) identifies the desirability of replacing five at-grade intersections along US 15 north of MD 26 with grade-separated interchanges, as well as upgrading the existing MD 85 interchange along I-270. The plan also identifies a transitway into downtown Frederick.

- The *Frederick County Comprehensive Plan* (October 1998) supports the development of a transitway along the I-270 Corridor that connects the Shady Grove Metro Station with downtown Frederick.
- The *Urbana Region Plan* (1993) recommends three new interchanges along I-270: (I-270 and MD-75, I-270 and MD 80 - South Urbana, and I-270 and MD 80 - North Urbana), a new park-and-ride lot and relocation of an existing lot. To better serve proposed development, the plan recommends a transitway from the Montgomery/Frederick county line to the City of Frederick and two transit stations.
- The *City of Frederick Comprehensive Plan* (August 1995) supports direct transit service to the Montgomery County/Washington, D.C. employment market and identifies a transitway into downtown Frederick. The Plan recommends improvements to the I-270/I-70 and US 15/MD 26 interchanges, as well as new interchanges at the existing at-grade intersections of US 15/Trading Lane and US 15/Biggs Ford Road.

In addition, Montgomery and Frederick counties have each performed separate but coordinated transit easement studies, each of which has identified feasible alternates for further study. Montgomery County has sponsored two studies: the I-*270 Corridor Cities Transit Easement Study* by the Maryland-National Capital Parks and Planning Commission (M-NCPPC), and the *Shady Grove/Clarksburg Transitway Study* by the Montgomery County Department of Transportation. Frederick County's study is called the I-*270 Corridor Cities Transit Easement Study -- Frederick County Extension*.

The Maryland Transit Administration (MTA) initiated a long-term master plan of the entire MARC system, which includes the Brunswick Line within the project area. Because CSX and Amtrak own the railroad tracks on which the MARC system operates, MTA is working with CSX and Amtrak officials to complete the plan, which will identify the future needs and goals in the MARC corridor for the next 24 years. The *MARC Needs Assessment and Master Plan Study* will consider system capacity and operational improvements. The study is ongoing, pending concurrence and approval from both railroads.

2. Fulfillment of Purpose and Need

The I-270/US 15 Multi-Modal Corridor study fulfills the purposes and addresses the needs in the corridor and the region as described in **Chapter I**:

- The demand for transportation mobility exceeds the supply. The I-270/US 15 Corridor provides an essential connection between the Washington, D.C. metropolitan area and both central and western Maryland and is an important corridor for carrying local and long distance trips, both within and beyond the Corridor. Even with the variety of options currently available, the Corridor is highly congested at many locations within the project area. These problems are expected to become more severe as continued growth in population and employment occur over the next quarter century. The projected traffic volumes for most of the corridor are anticipated to increase between 45 and 79% by 2025. The multi-modal alternates considered were developed to address this regional demand.

- Congestion on I-270 in the southbound AM peak hour is projected to be totally congested at level of service (LOS) F. Large portions of US 15 in Frederick County (from MD 144 to Biggs Ford Road) would operate during the PM peak in the peak direction at LOS E or F.

- Round 6.2 Cooperative Forecasts of demographics produced by MWCOG in April 2000 indicate that considerable population, household, and employment growth is expected in the Metropolitan Washington Region, as well as both Montgomery and Frederick counties, between 1990 and 2025:

  Population in Montgomery County is expected to increase by almost 35%, and population in Frederick County is expected to grow by 102%. Regional employment would total nearly 3.9 million jobs by 2025, a 56% increase over 1990 employment of 2.5 million jobs. Also under this scenario, regional population is forecast to increase 50%, reaching almost 5.9 million in 2025. The number of households is expected to attain almost 2.3 million in 2025, a 56% increase over 1990 estimates.

  In both counties, employment is expected to increase at an even faster rate than population. Forty-five percent growth is expected in Montgomery County and 201% growth is expected in Frederick County.

- The CCT alignment and its stations are located to support targeted land use growth and densities in accordance with the Montgomery County local area plans. The CCT and stations provide connectivity to the jurisdictions identified as the Corridor Cities of the County. In addition, Fredrick County has identified the need for highway improvements along US 15 and I-270 and has identified the need for a transitway along the I-270 Corridor. All of the alternates under consideration have been developed in accordance with the Smart Growth legislation and through on-going coordination with Maryland Department of Planning (MDP).

3. Major Environmental Effects

The I-270/US 15 Corridor highway alignment follows the existing roadway while the transitway alignment consists of either a busway or light rail transit along a separate transitway alignment with stations and parking facilities that would generally parallel I-270 while serving the corridor's residential areas and business centers.

One of the goals and objectives established for the I-270/US 15 Multi-Modal Corridor DEIS relate to broad environmental issues: Preserve and Protect the Environment

Within the project area, a wide range of environmental effects were assessed, including those pertaining to land use, social and economic environment, historic and archaeological resources, natural environment, hazardous material and waste sites, air quality, noise and vibration, and visual and aesthetic qualities. These assessments highlight the site-specific effects of the alternates that have been identified during preparation of the DEIS. The effects described in

Chapter III, and summarized here, are based on planning efforts to date, using currently available information.

a. Land Use

Alternate 1, No-Build Alternate, is not consistent with the future land use and zoning recommendations contained within local master plans as it would not address projected traffic congestion and safety hazards along I-270 and US 15 that will occur with the planned growth in the Corridor. The pattern of growth presently seen in the I-270/US 15 Corridor is largely a reflection of the regional economy and local market conditions. The No-Build Alternate will not change the basic patterns of land use but could be detrimental to the long-term growth and economic health of the I-270/US 15 Corridor. The No-Build Alternate will not impact farms.

Alternate 2, TSM/TDM Alternate, will include enhancements of existing services or conversions of lanes from one use to another. These improvements, while improving the efficiency of existing roadways, is expected to have little effect on existing land use patterns and densities or future development trends. However, the addition of park and ride lots in Frederick County at the intersections of US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road will result in changes from agricultural to developed land uses. The TSM/TDM Alternate is expected to have a slight effect on parking area development plans due to the additional planned development associated within the interchange vicinities. Current land-use trends discernible in the I-270/US 15 Corridor will continue under the TSM/TDM Alternate and the prevailing development and policy in the vicinities, is likely to continue whether or not the TSM/TDM Alternate is developed.

Alternates 3A/B, 4A/B and 5A/B/C, consisting of various transitway and highway components, will provide a greater level of access for the existing and planned developments in the I-270/US 15 Corridor. However, the overall pattern of existing and planned land uses in the Corridor will not be substantially altered by any of the proposed alternates.

The highway alignments generally involve the addition of travel lanes immediately on the outside or within the median of the existing highway. The I-270/US 15 highway corridor is already fully access-controlled and interchanges with state routes already exist. The project could result in land use changes in those areas where land presently in agricultural, residential, park or commercial usage is converted to highway use.

Land use around the proposed four interchanges is predominantly agricultural but construction at some locations, in particular the US 15/Trading Lane interchange (Frederick County), where plans indicate a proposed North Gate Plaza (commercial) development, exhibit the beginning stages of transition to commercial uses. The proposed interchanges could expedite the already-existing development pressure on the agricultural land surrounding the proposed interchange locations.

Although a majority of the agricultural land within the project area in Montgomery County is zoned for future residential or office development under the various master plans, their existing land use designations remain agricultural. Therefore, in Montgomery County, the highway

alignment will impact approximately 26 acres of farmland under Alternates 3A/B and 4A/B and approximately 29 acres under Alternates 5A/B/C. In Frederick County, the highway alignment will impact 70 acres of farmland under Alternates 3A/B and 4A/B and approximately 77 acres under Alternates 5A/B/C. The transitway alignment will impact 36 acres of farmland under Alternates 3A/B, 4A/B and 5A/B.

Access impacts to existing neighborhoods, community facilities and businesses from the proposed highway alignments are limited due to the nature of existing I-270 as a fully access-controlled interstate highway. Negative impacts to business access are generally counted as displacements in the business displacement section of this document (refer to Section III.B.1.E). However, the highway component of Alternate 5C will impact the parking lot and traffic flow at the US Department of Health and Human Services building located east of I-270, north of I-370. The US 15/Biggs Ford Road interchange will precipitate a change of access for the Birely-Roelkey (historic) farmstead located south of Biggs Ford Road and for the commercial businesses located north of Biggs Ford Road.

The transitway alignment generally follows existing roadways and is expected to strengthen future land use patterns by improving access to activity and employment centers and supporting the development plans now underway.

There are several developments planned or currently under construction along the transitway alignment. For instance, there are office buildings under construction in the vicinity of the DANAC Station and new development associated with the Johns Hopkins Belward Campus at the Decoverly Station. However, the current transitway alignment conflicts with proposed plans for several future developments. Five locations along the transitway alignment require particular coordination between the project team and area developers to further modify design plans for the transitway alignment in relation to these properties.

Existing agricultural land within the project area in Montgomery County is slated for future development under the various master plans; therefore, the transitway alignment will have no impact on farmland in Montgomery County. The transitway alignment will not impact Frederick County farmlands.

The transitway alignment will impact access to some government buildings and businesses in the corridor.

SHA and MTA will continue to coordinate the I-270/US 15 Corridor project with surrounding municipalities concerning land use policies. SHA and MTA will also continue discussions with area property owners and businesses adjacent to the alignment to coordinate future development plans and prevent or minimize disruptions to parking, access or operations. The coordination efforts among these groups are important as the planned transitway alignment, stations and yard/shop facilities may have impacts on other planned projects.

Eighteen transit stations are proposed along the transitway alignment (see Figure II-1). Fourteen station areas are proposed within the 2025 timeframe, and ongoing coordination is needed between the Project Team and area developers to ensure compatible development plans with the

proposed transitway stations and parking facilities. Several of the proposed transitway yard/shop facilities were eliminated from further consideration due to substantial environmental and operational issues. Each of the sites retained for further study have some degree of land use impacts.

Like the transit-related development potential at stations, areas near proposed park and ride lots would also likely experience development opportunities brought on by new transit accessibility. The development in and around transit facilities (including park and ride lots) has been accounted for in the master plan. The three proposed park and ride lots are located in vacant areas where suitable land exists for development and are located where development potential is strong. Any future developments would be bolstered by transit access and most likely joined by other local commercial/service establishments, which would be developed to meet the new market demand around the park and ride lots.

b. Social Environment

The No-Build and TSM/TDM Alternates will not require any residential displacements.

An analysis of the probable residential displacement that would result from each build alternate was based on preliminary right-of-way and relocation studies. Residences that are located within the proposed right-of-way area required to construct the build alternates are counted as probable displacements. Also, residences that would be impacted in the following ways from the proposed construction are counted as displacements: access is denied, and the right-of-way required from the property is substantial that practical use of the property would no longer be possible.

Implementation of the highway components of Alternates 3A/B and 4A/B would require the displacement of 59 to 123 residences along the I-270/US 15 Corridor. Alternates 5A/B would include the same impacts described in Alternates 3A/B and 4A/B and increase those impacts by one, from a maximum of 123 residences to 124. Alternate 5C would impact between 127 and 385 residences.

The transitway alignment between the Shady Grove Metro Station and COMSAT under Alternates 3A/B, 4A/B and 5A/B would displace up to five residences.

Alternate 5C would not result in any transitway related residential displacements, as the transitway alignment is not included in this alternate.

The No-Build and TSM/TDM Alternates will not require business displacements.

An analysis of the probable business displacements that would result from each of the build alternates has been made based on preliminary right-of-way and relocation studies. Businesses that are located within the proposed right-of-way area that would be required to construct the build alternates, or businesses that are denied access as a result of the proposed construction, are counted as probable displacements.

The highway components under Alternates 3A/B, 4A/B would displace between seven and eight businesses. Construction of retaining walls would reduce the number of business displacements to between one and three businesses. Alternates 5A/B would increase the highway impacts described above by a total of one additional business (for a maximum of nine displacements). Construction of retaining walls would reduce the number of business displacements to between one and three businesses. Alternate 5C would increase the highway impacts described in Alternates 5A/B by a total of two additional businesses (for a maximum of 11 displacements).

The transitway alignment between the Shady Grove Metro Station and COMSAT under Alternates 3A/B, 4A/B and 5A/B would displace three businesses. Alternate 5C would not result in any transit related business displacements since the transitway alignment is not included in this alternate.

If a build alternate is selected, the number of actual displacements may vary slightly from those presented as a result of refinements in both the design and right-of-way requirements during the detailed engineering phase of the project.

The Brighton West, Deer Park Place, London Derry, and Fox Chapel/Middlebrook Hill communities are located in census tracts that exhibit higher proportions of minority and/or low-income populations than the total project area. These communities may experience disproportionately high or adverse impacts due to a substantial number of displacements under the highway component of the build alternates. However, the proposed direct access ramps at the I-370 interchange have been identified as a non-preferred alternate due to the number of residential displacements associated with these ramps (see Non-Preferred Alternates discussion in **Section S.I**, Issues to be Resolved and **Section III.V.E**, Trade-Off Analysis). The project team will continue to confirm and refine the locations of minority and low-income populations during subsequent stages of the project. Efforts to inform these populations and involve them in the project planning process will continue. Should a build alternate be selected that impacts these populations, the project team will develop potential mitigation measures in consultation with the affected communities. Other communities within census tracts exhibiting higher proportions of minority and/or low-income populations than the project area will not incur "disproportionately high or adverse impacts" as a result of the proposed transportation improvements. Right-of-way, noise, and visual impacts for these census tracts are comparable to other locations throughout the project area. Where possible, providing noise barriers can mitigate potential noise impacts and visual impacts can be mitigated using the measures described above. Additional environmental justice analysis appears in **Section III.B.2**.

The No-Build Alternate will not impact neighborhoods and communities. The TSM/TDM Alternate will not impact neighborhood and communities. The increased frequency of buses under the TSM/TDM Alternate will cause negligible impacts on neighborhood/community facilities during operations, since the buses will operate over existing routes. Construction of the six park and ride lots under the TSM, Busway and HOV alternates will cause some short-term localized impacts, primarily at adjacent intersections.

Alternates 3A/B, 4A/B and 5A/B/C will result in greater transportation mobility for residents. Enhanced mobility means that residents will have a greater range of choice and access to

employment centers, public service providers and facilities, including health care, and recreational facilities.

Community impacts have been minimized by the use of existing transportation corridors for the build alternates. The build alternates will have some visual effects since they are at-grade for the majority of their length. To varying degrees, the functional impact of the build alternates on community character will be most pronounced at and around the station sites.

The No-Build Alternate (Alternate 1) will not directly affect community facilities and services. However, the No-Build Alternate does not address the need for additional capacity and will exacerbate traffic congestion and safety hazards along I-270 that will occur with the growth in the corridor. The TSM/TDM Alternate (Alternate 2), while improving the efficiency of existing roadways, is not expected to have a direct impact on existing community facilities and services.

All of the build alternates (Alternates 3A/B, 4A/B and 5A/B/C) would, to varying degrees, improve overall access and mobility in the project area. However, transit stations and their adjacent parking facilities can be expected to generate some localized increases in automobile and bus traffic during rush hours, with the most noticeable effects occurring in areas where there is already substantial vehicle activity.

The No-Build Alternate (Alternate 1) will not directly affect parks and recreational facilities. The TSM/TDM Alternate (Alternate 2), while improving the efficiency of existing roadways, is not expected to have a direct impact on parks and recreational facilities. The build alternates will require right-of-way from publicly owned public parks located in the immediate project area.

c. Economic Environment

Transportation and the economy are closely linked. A number of economic activities such as the delivery of business goods and services, employment, and shopping for goods and services are all greatly impacted by efficiencies in transportation. All businesses require some level of transportation access to labor, materials and/or customers. Also, travel times affect accessibility to jobs and/or shopping opportunities, as well as market opportunities for existing and new businesses and businesses' costs of transporting raw materials and retail products. An important relationship therefore exists between the level of economic productivity and the quality of transportation services and facilities in a region. The transportation alternates that are under consideration for the I-270/US 15 Corridor in Maryland will undoubtedly affect future economic and development patterns.

All alternates are compared to the No-Build with regard to economic impacts. Thus, by definition, the No-Build Alternate has no economic development impacts. As compared to the present, however, the 2025 No-Build scenario shows dramatic increases in economic activity within the region and the study area. By virtue of the fact that the region will grow in terms of population and employment by so much between now and 2025, economic activity also will expand considerably. Between 1990 and 2025, the region will add 2.1 million residents (a 48% increase) and 1.5 million jobs (a 54% increase). Of these totals, Montgomery and Frederick Counties will account for a 421,000 gain in population (a 47% increase) and a 314,000 increase

in jobs (a 60% increase). Frederick County, in particular, is expected to double in population while its employment triples. The sizeable growth that is expected, both regionally and in the study area, will expand economic activity by roughly the same proportions, and to the extent that worker productivity improves over time, the region's and study area's gross product will expand even faster.

The TSM/TDM Alternate involves relatively modest capital improvements and would not entail substantial economic development impacts – either positive or negative as compared to the No-Build. We can assume that the public investment, while substantial, would occur from entirely state and local funds, such that no infusion of dollars from outside the region would occur.

As a result of the modest improvement in the transportation system and the limited infusion of dollars from outside the region, the TSM/TDM Alternate would produce negligible economic development impacts as compared to the No-Build Alternate. Overall, the TSM/TDM's impacts can be assumed to be very near neutral.

In comparison, the build alternates will create relatively small impacts, dwarfed in scale by the region's and project area's natural economic growth over time, though significant in their own right nonetheless. All of the build alternates' impacts must be considered in this context. Overall, the project area and the I-270 Corridor will become much more economically active between now and 2025. The transportation alternates will simply affect how much more economically active the area will become. Some alternates will contribute more to promoting economic development, while others will contribute less. The various highway options show little difference in terms of their positive economic development impacts. The differences in impacts between the alternates have to do mainly with their transit components.

The BRT alternates have greater potential to promote economic development within the corridor, increasing the region's employment by roughly 4,500 to 4,900 jobs and offering the greatest improvements in terms of job accessibility (both for households with and without cars) businesses' labor market accessibility, and reduced out-of-pocket costs of traveling. The LRT alternates would convey more modest improvements in economic development. Although they would create slightly more new jobs than the BRT alternates – roughly 4,700 to 5,100 – their positive effects on consumers, businesses and car-less workers would be less significant. This difference occurs because many employment centers in the suburban study area are well beyond the proposed stations and would require a transfer to access in the LRT alternatives but could be accessed without a transfer in the BRT alternatives. Only minor geographic differences distinguish the BRT and LRT alternates' effects within the region.

On the other hand, the Premium Bus alternate shows more positive economic impacts in Frederick County and less positive impacts in Montgomery County than do the other alternates. This rule applies for all interest groups: consumers, businesses, workers and the fiscal interests of governments. This difference is due to the Premium Bus's faster service between portions of Frederick County and the Washington Metro and less direct service to portions of Montgomery County.

Overall, the alternates are ranked as follows in terms of their likely positive economic development impacts:

1. Alternates 4B and 5B (tie)
3. Alternate 3B
4. Alternate 5C
5. Alternates 4A and 5A (tie)
7. Alternate 3A

d. Historic and Archaeological Resources

There are numerous National Register or National Register-eligible historic standing structures or districts located within the project area. They include: the Belward Farm, the Gaithersburg Historic District, the Gaithersburg Railroad Station, the Ascension Chapel, Washington Grove, the Clarksburg Historic District and School, the Hyattstown Historic District, the Stancioff House, the Urbana Historic District, Linden Grove, Schifferstadt, the Frederick Historic District, and Rose Hill Manor Museum. Further coordination with the Maryland Historical Trust will be required to determine the extent of impacts to cultural resources, including historic standing structures and archeological resources. Coordination with the State Historic Preservation Officer (SHPO) indicates that there will be no effect to significant archaeological resources for the mainline and transitway alignments.

The Monocacy National Battlefield, where the historic battlefield landscape is the most significant resource, is bisected by existing I-270. Monocacy National Battlefield is designated as a National Historic Landmark due to the significance of The Battle of Monocacy on July 9, 1864 during the Civil War.

Alternates 3A/B, 4A/B and 5A/B will have direct impacts on five historic sites with the highway and transitway component (England/Crown Farm; Belward Farm; Monocacy National Battlefield; Rose Hill Manor; and Birely-Roelkey Farmstead). Alternate 5C will impact three historic sites (Monocacy National Battlefield; Rose Hill Manor; and Birely-Roelkey Farmstead). All of the alternates would have indirect/visual impacts on two historic sites (Schifferstadt and Spring Bank).

e. Natural Environment

The topography and geology of the I-270/US 15 Corridor will not be affected by the No-Build, TSM/TDM Alternate or build alternates. The topography and geology of the I-270/US 15 Corridor will not be affected by the No-Build, TSM/TDM or build alternates and will therefore, not be discussed further. Soil disturbances will not occur as a result of the No-Build Alternate. However, soil disturbances will occur where land grading is necessary to construct roads, park and ride lots, transitways, transitway yard and shop sites, and transitway stations associated with the TSM/TDM and build alternates. Because much of the planned highway and transitway improvements are to areas that have already been disturbed, the impact to adjacent undisturbed soils will in most cases be minor. To avoid the loss of soil from areas under construction, erosion control techniques such as infiltration, sediment basins and traps, and silt fencing will be

used. All areas of exposed soil will be vegetatively or structurally stabilized as soon as practicable.

The No-Build Alternate will have no impact on prime farmland soils or soils of statewide importance. The TSM/TDM Alternate will result in the conversion of approximately 14.4 acres of prime farmland soils through the construction of park and ride lots at MD 26, Trading Lane, and Biggs Ford Road. All three sites are proposed on active farmland designated as prime farmland soils.

Alternates 3A/B and 4A/B will impact approximately 285 acres of prime farmland soils. Alternates 5A/B and 5C will impact approximately 291 and 208 acres of prime farmland soils, respectively.

Effects to wetlands within the project area are unavoidable for many of the proposed build alternates. The impacts associated with Alternates 3A/B, 4A/B, and 5A/B/C are synonymous with one another for all wetland types (10.7 to 11.6 acres), with a majority of the impacts occurring in emergent wetlands (approximately six acres). The major systems within these alternates include Great Seneca Creek, Little Seneca Creek, Monocacy River, Rock Creek, Carroll Creek and Tuscarora Creek. Wetlands associated with the Monocacy River and Little Seneca Creek ranked high for the uniqueness/heritage functions due to their association with the parks that have significant aesthetic and historical value- Monocacy National Battlefield and Black Hill Regional Park. Wetland impacts associated with Alternate 5C are slightly higher for emergent (approximately six acres) and forested (approximately four acres) wetlands due to the additional HOV lanes.

The assessment of wetland impacts for Alternate 2 considers the three proposed park and ride lots situated at MD 26, Trading Lane and Biggs Ford Road. The impacts are minimal for this alternate, with approximately 0.5 acres of emergent wetland being impacted at the proposed Trading Lane park and ride lot. Wetlands and waterways were not present within the proposed park and ride lots at MD 26 and Biggs Ford Road.

The degree of impact to streams within the highway alignment varies considerably between Alternates 3A/B and 4A/B and the remaining build alternates. Alternates 3A/B and 4A/B will affect approximately 14,185 linear feet of stream, while the impact for Alternates 5A/B are considerably higher at approximately 16,331 linear feet for Alternate 5A/B. Alternate 5C is less (13,407 linear feet) due to the exclusion of the transitway alignment. The increase in impacts for Alternates 5A/B/C are due to interchange options at I-370, which crosses Muddy Branch. Apart from this difference, the alternates bisect the same stream systems, which include Great Seneca Creek, Little Seneca Creek, Monocacy River, Rock Creek, Carroll Creek, and Tuscarora Creek.

A majority of the wetlands impacted by the transitway alignment include perennial and intermittent streams with adjacent fringe wetlands that occur within roadside drainage ways and ditches. These wetland systems flow to Little Seneca Creek, Great Seneca Creek, Gunners Branch, Muddy Branch, and Watts Branch. Most of the wetlands are emergent areas within drainage ways that are frequently disturbed by adjacent roadways. However, these wetland systems provide high ratings for sediment stabilization and water quality by retaining sediment

and other pollutants from road runoff before it enters wetland systems situated downstream. Due to a recent shift in the transitway alignment, additional wetland and waterway impacts are being considered in areas that were not previously delineated.

Wetlands and waterways were found in the proposed yard/shop facilities at Shady Grove Metro Station, Metropolitan Grove Station, and COMSAT Station. Construction of yard/shop facilities at Metropolitan Grove Station and COMSAT Station would require extensive clearing of woody vegetation and substantial earth moving to accommodate a paved surface for the yard/shop facilities. Placing fill and an impervious surface within a wetland can significantly alter the hydrology of that area, impeding groundwater movement and increasing surface runoff. Existing functions will continue to be provided by the remaining portions of the wetlands after these facilities are constructed, although the quantity of magnitude of these functions would be reduced proportionally with the area lost. Impact acreages for wetlands and waterways associated with the proposed yard/shop facilities need to be accurately assessed through a routine wetland delineation and a certified survey once the final design of these sites is complete.

Non-tidal Wetlands of Special State Concern (NTWSSC) have been specially designated by the State of Maryland as deserving of special protections due to their ecological significance. Alternates 3A/B, 4A/B, and 5A/B/C highway and transitway alignments will not directly impact the NTWSSC, known as the Germantown Bog, due to its location approximately 400 feet east of the proposed right-of-way for each alternate. However, the alternates will impact Wetland 57E, which is hydrologically connected to the Germantown Bog by a tributary to Little Seneca Creek. Due to this connection, Wetland 57E may be treated with the same regulatory requirement as a NTWSSC. An expanded buffer may be required by the agencies to ensure minimal disturbance to a NTWSSC.

There are no impacts to water quality associated with Alternate 1, as this option reflects the no-build conditions. All of the build alternates for both highway and transitway options will require new or extended stream crossings and therefore have the potential to directly impact surface waters during construction.

Alternates 5A/B/C will have the most impact to streams in the I-270/US 15 corridor due to the addition of a general-purpose lane on each side of the highway from MD 121 to I-70. This general-purpose lane will require additional bridge extensions in which the cut and fill area will be expanded to accommodate this construction. These impacts would be associated with culvert or bridge extensions in portions of the stream already disturbed by the existing crossing.

The proposed park and ride lot at Trading Lane, transit stations, and yard/shop facilities will provide additional areas of impervious surfaces. Alternate 2 includes all three of the proposed park and ride lots, however, the sites at Trading Lane and Biggs Ford Road are not impacting surface waters. Therefore, Alternate 2 has the fewest impacts to surface waters within the highway build alternates. Clearing and grading of forested land would be required to construct these sites and the transitway alignment, reducing shade and increasing water temperatures within the stream. These impacts will be evident in streams crossed by the transitway due to its extension through relatively undisturbed landscapes. In addition, thermal loading could

substantially alter in-stream habitat for streams with a Class III or Class IV designation, due to the temperature requirements needed for trout populations.

The Monocacy River's designation as a wild and scenic river does not require mitigation for impacts to this stream system. Instead, the designation is used to preserve the character of the river, not necessarily to halt development and use of the river. Impacts to the stream will be associated with the bridge extension for Alternates 3A/B, 4A/B, and 5A/B/C. However, these impacts are minimal and occurring in areas already disturbed by existing I-270/US 15.

Impacts to 100-year floodplains for all of the build alternates will occur in portions of the floodplain that have already been disturbed by the existing I-270/US 15 highway crossing. Alternates 3A/B and 4A/B will impact approximately 20 acres of 100-year floodplains associated with Muddy Branch, a tributary to Muddy Branch, tributary to Great Seneca Creek, Great Seneca Creek, Monocacy River, Carroll Creek, Rock Creek, and Tuscarora Creek. The floodplain of the Monocacy River is part of the National Battlefield designation for this stream system. However, this designation does not warrant different mitigation requirements than those stated by FEMA and MDE. Alternates 5A/B/C pose the greatest impact to 100-year floodplains (21 acres) due to the additional general-purpose lane between MD 121 and I-70, which impacts the same floodplains as Alternate 3A/B and 4A/B, with the addition of Muddy Branch, Wildcat Branch, Little Bennett, and Bennett Creek. Alternate 2 has the least impact to floodplain with approximately three acres being affected by the design of the Trading Lane park and ride lot.

The transitway alignment will impact the 100-year floodplains of Muddy Branch, Gunners Branch, Great Seneca Creek, and a tributary to Great Seneca Creek. As part of the transitway, the School Drive Station is situated in the 100-year floodplain of Muddy Branch, impacting approximately three acres of floodplain. Potential impacts to floodplains are more substantial for the transitway as the alignment extends through relatively undisturbed landscapes. Vegetation removal and grading for the track bed and the transit station at Muddy Branch could alter flow regime of the 100-year flood event as well as increase the potential for downstream flooding of residential and commercial areas.

Efforts to minimize and avoid impacts to 100-year floodplains will continue throughout the planning and engineering process. Techniques that will be investigated to further minimize or avoid impacts may include alignment shifts to ensure the narrowest possible crossing, and bridging of floodplains to further reduce encroachment and allow for unrestricted passage of floodwaters. Hydrologic and hydraulic studies should be conducted to determine the bridge or culvert opening sizes for the various alternates.

The No-Build Alternate (Alternate 1) reflects current and programmed conditions within the I-270/US 15 corridor; therefore, impacts to groundwater resources are not anticipated. The build alternates for both the highway and transitway options including those areas proposed for park and ride lots, transit stations, and yard/shop facilities will not have long-term impacts to groundwater.

Most upgrades to both the highway and transitway alignments will occur at-grade with the existing I-270/US 15 highway, reducing the depth of excavation needed to construct these road

improvements and preventing any alteration of groundwater flow within the Corridor. However, potential sources of groundwater contamination from highway deicing, urban runoff, and fuel tank leakages may seep into groundwater supplies as the movement of water between surface water and groundwater provides a major pathway for chemical transfer between the terrestrial and aquatic systems. Implementation of BMPs during and after construction, such as stormwater management ponds, biofiltration systems, and the use of sediment/erosion control will reduce the amount of contaminants entering groundwater supplies by treating runoff from the roadway, tracks, and yard/shop facilities before entering streams.

Terrestrial habitats will not be impacted by the No-Build Alternate and would be impacted by the TSM/TDM alternate and each of the build alternates. Effects to terrestrial resources will involve the conversion of habitat to impervious road, rail, or other associated facility. Effects could also result from the human-induced introduction of invasive non-native plant and animal species into undisturbed habitat adjacent to newly impacted sites. However, because the highway alignment alternates generally involve the addition of travel lanes immediately to the outside or within the median of the existing highway and the transitway alignment generally follows exiting roadways, the majority of these effects will be to maintained grassy strips or narrow rows of trees. The largest areas of potential impact to terrestrial habitats will occur within the proposed COMSAT transitway station, transitway yard and shop facilities, and portions of the transitway alignment. The transitway yard and shop facilities are mostly planned for undeveloped land adjacent to the transitway alignment. Proposed MD 75 extended represents potential habitat and wildlife impacts associated with a new roadway section. However, the majority of impacts are to active agricultural fields and disturbed forest and shrub habitat at a rubble landfill.

Alternate 1 is the No-Build Alternate and as such is not anticipated to have effects on terrestrial habitat or wildlife. Alternate 2, the TSM/TDM alternate, includes the construction of park and ride lots in Frederick County at the intersections of US 15/MD 26, US 15/Trading Lane, and US 15/Biggs Ford Road. Construction of proposed park and ride lots will result in land use changes from agricultural to developed. No forest impacts are anticipated, though, there will be a loss of cropland at all three of the proposed lots. Minor wildlife displacements will occur from these improvements. These displacements are made more of a concern because of additional planned development associated with these interchanges. However, wildlife diversity in crop fields and pastures is generally low compared to that of other habitat types.

Forest impacts associated with the highway alignment for Alternates 3A/B and 4A/B are estimated to be 156 acres. Much of this impact occurs where the outside lane additions will encroach upon the large, undeveloped parks (Seneca Creek State Park and Black Hill Regional Park) and stream crossings (Great Seneca Creek, Little Seneca Creek, Little Bennett Creek) in Montgomery County. Other large forested areas that will receive encroachment impacts occur adjacent to I-270 just south of MD 118, between MD 121 and Comus Road, and north and south of the truck weigh station.

Under Alternates 3A/B and 4A/B, the proposed transitway alignment is being investigated as either a LRT or BRT option. Regardless of the mode of transit, the proposed alignment and corresponding impacts will be the same. As discussed above, the proposed transitway alignment follows existing or proposed roadways throughout most of its length from the Shady Grove

Metro Station to COMSAT Station. This will minimize the extent of environmental impacts and will result mainly in encroachment impacts to terrestrial habitats. Overall forest impacts associated with the transitway alignment will total 27 acres.

All proposed station sites occur on developed land or on land under development except Washingtonian, Quince Orchard Park/Sioux Lane, Manekin, and COMSAT. Washingtonian station is presently a crop field, but is planned for development according to the Master Plan for the area. The Manekin station is presently a driving range with a fringe of trees comprising a narrow forested area on either side. Forest impacts associated with this station are less than one half acre. This area is planned for development with the extension of Century Boulevard. Quince Orchard/Sioux Lane Station is planned within old field and regrowth forest habitat between Great Seneca Highway and Twin Lakes Drive. Forest impacts at this station are approximately two acres. This area is also slated for development, which will all but eliminate the habitat following construction. The COMSAT station will impact a small upland deciduous forest and old field habitat on the COMSAT property. The three-acre woodlot is relatively isolated and likely provides habitat for edge-loving species of wildlife.

Proposed transitway yard and shop facilities generally have a larger footprint than stations and will impact broader areas of habitat. The yard and shop facility sites under investigation at the Shady Grove Metro station occur on mostly developed land. No substantial impact is anticipated at this location. Proposed yard and shop facility sites just northeast of the Metropolitan Grove Metro Station occur within mostly forested habitat. These sites will impact between 14 and 20 acres of forest within a large, contiguous upland deciduous forest. As mentioned with respect to the transitway alignment through this area, impacts to this forest will reduce the suitability of the area for sensitive FIDS species as well as reduce the area available for other wildlife species. Forest impacts associated with the COMSAT yard and shop facility sites ranges from two to nearly 21 acres. These impacts are to both upland and wetland forest adjacent to a tributary of Little Seneca Creek. Some of the potential sites will also result in impacts to adjacent old field habitat on the COMSAT property. These impacts will displace many individual birds and other wildlife, but will likely not result in local losses of species because of the availability of similar habitat immediately adjacent to the site.

Between I-370 and MD 121 highway improvements under Alternates 5A/B/C are the same as those for Alternates 3A/B and 4A/B. Therefore, potential effects are also the same. Between MD 121 and I-70 Alternates 5A/B/C will include one additional lane in either direction compared to Alternates 3A/B and 4A/B. The additional lanes are proposed to the outside of the existing roadway creating encroachment effects on terrestrial habitats. As discussed above, encroachment effects disturb habitats but do not create large impacts where no impacts previously existed such as would be the case if a new roadway were being constructed through previously undisturbed habitat. Potential forested impacts associated with Alternate 5A and 5B total 172 acres. This is slightly higher than impacts estimated for Alternates 3A/B and 4A/B because of the lane expansion to the outside of the existing roadway between MD 121 and Shockley Drive. Between Shockley Drive and I-70 the additional lanes will be accommodated within the same outside right-of-way as that proposed for Alternates 3A/B and 4A/B by adding lanes within the median. As a result of the direct access lanes at the three interchanges described above, Alternate 5C will impact approximately 180 acres of forest habitat. The direct access

ramps at I-370 will extend the HOV lanes from the median of I-270 to and from I-370 as well as a new general-purpose lane from westbound I-370 to northbound I-270. Forest impacts in this location will occur to the floodplain of Muddy Branch. This upland deciduous forest is an important natural corridor in an otherwise developed landscape, providing habitat for a range of wildlife species adapted to living within urban centers. The direct access ramps to the remaining interchanges are within the median of existing I-270 and will not result in impacts to terrestrial habitat or wildlife.

The proposed transitway alignment included in Alternates 5A and 5B is the same as that proposed under Alternates 3A/B and 4A/B. Therefore, the proposed transitway alignment under Alternates 5A and 5B will have the same potential impact to forest habitat (27 acres) as was described for Alternates 3A/B and 4A/B.

The proposed transitway yard and shop facilities are the same as those proposed for Alternates 3A/B and 4A/B. Therefore, the potential impacts to terrestrial habitat and wildlife are also the same as proposed for Alternates 3A/B and 4A/B.

Long-term impacts to aquatic habitat are not anticipated for the No-Build, TSM/TDM, or build alternates. However, the proposed transit stations and yard/shop facility sites could have long-term impacts to aquatic habitat and species. The facilities will provide additional areas of impervious surfaces that will increase surface runoff and potential pollutants being delivered to streams situated within the project corridor. The yard/shop facilities at Metropolitan Grove Station and COMSAT Station would permanently displace and destroy in-stream habitat and macro-invertebrate populations. These sites are situated on tributaries to Great Seneca Creek and Little Seneca Creek, which contain unimpaired, pollution-sensitive, macroinvertebrate communities. Piping these tributaries to accommodate a concrete pad for the yard/shop facilities would remove the channel substrate. Removal of the stream buffers would increase water temperatures, making in-stream conditions more suitable for warm-water fish communities.

Chemical impairment to an aquatic community could occur in streams adjacent to proposed highway and transitway facilities. The introduction of pollutants such as particulates, petroleum based fuels, metals, deicing salts and other contaminants that typically accumulate on road surfaces and become mobilized during rain events could be deposited into adjacent streams. Impacts to aquatic habitat and species would include limited species diversity due to the migration of more pollution tolerant species.

The US Fish and Wildlife Service (USFWS) has indicated that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to occur within the project impact area. The DNR response letter documented the presence of RTE species immediately adjacent to the project impact area. During field investigations for the project none of these species were identified within this wetland. Therefore, no impacts to these state listed species are anticipated.

f. Hazardous Materials/Waste Sites

No potential sites are associated with the No Build Alternate. There are six potential sites associated with Alternates 3A, 4A and 5A, and four potential sites associated with Alternates 3B, 4B, 5B and 5C.

g. Air Quality

Microscale air quality modeling was performed using the most recent version of the EPA mobile source emission factor model (MOBILE 5b) and the CAL3QHC version 2 air quality dispersion model to estimate existing, future No-Build, and future build carbon monoxide (CO) levels at selected locations in the project area. For this analysis, only build scenarios for Alternates 3B and 5A were analyzed. Alternates 3B and 5A will most likely demonstrate the largest project impacts of eight build alternates. Alternate 3B is considered the worst-case scenario for air quality due to reduced highway capacity, increased buses and increased traffic congestion. These conditions will produce high volumes and decreased speed within the study area. Both of these factors can contribute to degraded air quality. The analysis of Alternate 5A demonstrates the impact a LRT facility will have on air quality.

Since emissions of CO from motor vehicles increase with decreasing vehicle speed, disruption of traffic during construction (such as the temporary reduction of roadway capacity and the increased queue lengths) could result in short-term elevated concentrations of CO. In order to minimize the amount of emissions generated, every effort should be made during the construction phase to limit disruption to traffic, especially during peak travel periods.

The project is not predicted to cause or exacerbate a violation of the applicable NAAQS. The project does not show that it will have a meaningful impact on regional pollutant burdens. Once an alternate is selected, the project sponsor should start the application process to get the project on the TIP.

h. Noise and Vibration

According to FHWA and SHA impact assessment procedures, traffic noise impacts occur when L_{eq} (1 hour) noise levels "approach" or "exceed" the NAC. The "approach" noise level is defined by SHA as occurring at outdoor traffic noise level (hourly L_{eq} in dBA) of 66 dBA at the noisiest traffic hour.

Though FHWA regulations provide no specific criteria for determining when predicted noise levels "substantially" exceed existing levels, some quantitative guidelines are necessary. An increase of 10 dBA or more over existing noise levels is considered as a substantial increase. SHA also considers substantial increase as an increase in the future build noise levels of 10 dBA or more above low existing noise levels, where the predicted levels will be greater than 51 decibels but less than 66 decibels. Locations with substantial increase in noise levels warrant abatement considerations.

Future 2025 traffic noise levels were estimated at all of the 55 highway sites along the proposed highway improvement corridor. Except at one site, site H-35, the future build noise levels at all of the other sites do not increase by 10 dBA or more over existing levels.

Future predicted 2025 build noise levels under both highway alternates 3B and 5A exceed the 66 dBA SHA Noise Abatement Criteria at 36 and 35 monitoring locations, respectively. Future No-Build and build noise levels exceed 66 dBA at 26 residential noise monitoring properties scattered throughout the study area. These residential impacts occur at sites H-2 thru H-6, H-8, H-14, H-15, H-18, H-19, H-23, H-24, H-31, H-32, H-34, H-36, H-37, H-39, H-41 thru H-45, H-48 thru H-50.

Museums (H-40 and H-46) do not fall under the SHA and FHWA Category "B" exterior noise criteria since they largely involve indoor activities. They fall under the FHWA Category "E" designation for noise sensitive activities that occur in interior spaces. For Category "E" sites noise impact occurs when interior noise levels exceed 51 dBA. Assuming that the building is centrally air conditioned and is used under closed window conditions, an average of 25 dBA noise reduction is expected to occur as traffic noise transmits through inoperable double glazed windows. Under these conditions interior noise levels at the two museums would not approach impact levels.

In assessing the environmental impact of a proposed rail alignment, it is sufficient to assume a level terrain for the surrounding community. Shielding offered by intervening buildings between the rail alignment and noise sensitive receptors was dismissed to provide a conservative analysis.

Noise impacts were determined at the 18 sites, by applying the FTA guidelines contained in *Transit Noise and Vibration Impact Assessment* (FTA, April 1995).

The results of the noise analysis show noise impacts that were identified for the LRT alternate under two different scenarios: a) without the train horn and b) with the train horn. Impact assessment was also performed by applying the APTA guidelines and WMATA criteria, both of which specify maximum allowable limits for single pass-by train noise levels (L max) at sensitive land uses along the corridor.

Under the build alternate, 10 sites would be affected without the train horn and 16 sites would be affected with the train horn. Of the 10 sites under the "without train horn" category nine sites would be categorized as "impacts" and one site would be categorized as "severe impact". Of the 16 sites under the "with train horn" category four sites would be categorized as "impacts" and 12 sites would be categorized as "severe impacts". For purposes of comparison, the results of the impact analysis performed by applying the APTA guidelines and WMATA criteria show noise impacts at five sites (T-2, T-8, T-10, T-11, and T-14) and no impacts at the remaining 13 sites.

Ground-borne noise is a rumbling noise which can only be perceived inside a building near a train track and which is due to radiation of noise from the vibrating floor and sometimes walls during a train pass-by. The noise from trains operating in a subway is ground-borne and can be perceived as ground-borne noise when an individual is inside a building near the subway. Outdoors, ground-borne noise is inaudible. Ground-borne noise levels that comply with

acceptability criteria will not be inaudible in all cases, but should be low enough so that no meaningful intrusion or annoyance will occur.

Projected vibration levels throughout the transit corridor stay below impact threshold. Noise levels generated by the proposed Busway Alignment traveling along the transitway corridor will generally produce noise levels which are lower than those caused by the LRT option. Commuter buses are not heavy enough to cause any perceptible ground borne vibration.

i. Visual and Aesthetic Quality

The project will introduce new elements into the visual landscape such as additional lanes, structures, at-grade alignments, park and ride lots and station facilities. The extent of the visual impacts of these new elements will depend on the existing visual character of each specific area and surrounding land uses. Visual impacts are likely to be greater where the corridor passes by residential communities, parks, or wooded areas. Positive outcomes may be achieved for the affected communities through the visibility of the proposed transit facility and the improved transportation choices that the facility would provide. Positive visual impacts would also occur in areas where the new facilities are well integrated with the surrounding communities or where the project results in an upgrading of a deteriorated area.

Negative impacts would occur in places where the proposed facilities would detract from or obstruct the view of existing visually sensitive built up or natural areas. For instance, negative visual impacts are likely to be greater through a park such as the Monocacy National Battlefield, where the historic battlefield landscape is the most significant resource that is actually bisected by existing I-270. In areas where negative visual impacts are anticipated, mitigative measures would be developed in consultation with the affected communities. Examples of possible mitigative measures to minimize the visual impacts of the corridor are also described in this section.

The No-Build Alternate would not introduce any new visual elements into the landscape, therefore there would not be any visual impacts. Alternate 2, the TSM/TDM Alternate, would not introduce any major new infrastructure into the project area. Some visual changes would occur as a result of the introduction of the following elements: interactive transit information at major employment centers, additional park and ride lots/spaces, improved pedestrian access to existing transit stations and improved bicycle connections. The visual changes are considered to be minor and would be planned taking into consideration urban design and landscaping elements sensitive to existing environments.

Alternates 3A/B, 4A/B and 5A/B/C all include different combinations of highway upgrades, light rapid transit or bus rapid transit options. The main differences between the options are the use of the additional infrastructure, that is, for HOV lanes or general purpose lanes. Therefore, the visual impact would be similar regardless of the highway alternate adopted. The visual impacts of the highway options and LRT versus BRT are discussed in more detail in the following sections.

The stations and other facilities proposed as part of the project would be designed to be compatible and integrated with the environmental context of their locations and existing

development. The stations and other facilities will be integrated, as much as feasible, with existing and proposed developments.

j. Secondary and Cumulative Effects Analysis (SCEA)

The Land Use Expert Panel found that with or without this project the region would experience future development beyond that planned for by Montgomery and Frederick counties, specifically in Lewistown Zone #3, Frederick City Zone #5, Urbana Zone #8, Damascus-Brookeville Zone #10, Clarksburg Zone #15, Germantown Zone #17, Seneca Creek Zone #18, and Gaithersburg Zone #19. Therefore, resources may be under unanticipated stress. In addition, the panel identified some development differences in Frederick City Zone #5, Germantown Zone #17, and Gaithersburg Zone #19 that they attribute to the LRT or BRT Alternates.

Secondary effects associated with the project were considered for parklands, cultural resources, surface waters, wild and scenic rivers, floodplains, Waters of the US, terrestrial habitat and farmlands.

Parklands are well protected by the counties and by federal regulations including FHWA Section 4(f); therefore secondary impacts from the project are not anticipated. However, as mentioned above close oversight should be provided to those locations where the Land Use Expert Panel identified unanticipated growth.

Secondary impacts to cultural resources have been addressed through the Section 106 process.

Wild and scenic rivers impacted by the project include the Monocacy River. All areas surrounding the Monocacy River and its tributaries are anticipated to experience a substantial increase in both population and employment over the next 25 years. The result of development in this area may negatively impact the river aesthetically, physically, and biologically. Except for the portion of Seneca Creek that will be impacted directly by the I-270 improvements, no other portion of this body of water are anticipated to be impacted, as the entire portion of Seneca Creek is protected as parkland.

Secondary impacts to 100-year floodplains are not expected as there are state, federal and local regulations discouraging development in 100-year floodplains, and any floodplain encroachment would require authorization by MDE under a Waterways Construction Permit. Substantial secondary impacts to Waters of the US, aquatic habitats or forest resources are not expected to occur as a result of any of the alternatives considered.

For zones the Land Use Expert Panel anticipates will develop above what the county Master Plans illustrate. a greater threat of redevelopment would be placed upon farmland.

Direct impacts on the environment from each of the alternates considered are added to past, present and future actions to result in cumulative impacts. No Build (Alternate 1) and TSM/TDM (Alternate 2) would not result in direct impacts to SCEA resources. Alternates 3A/B, 4A/B, and 5A/B/C would result in direct impacts to parklands, cultural resources, surface water, wild and scenic rivers, floodplains, Waters of the US, terrestrial habitat, aquatic habitat/species and farmlands. These resources have historically been impacted by development within the

SCEA boundary and would be further impacted by the alternates. Impacts to these resources from other future actions within the SCEA boundary may result in cumulative effects.

Cumulative impacts to parklands within the SCEA are anticipated to be minimal as parklands are well protected from development impacts by the counties and the state. Impacts to public parks and recreation areas as a part of a federally funded or approved transportation project would require a Section 4(f) Evaluation to document that there are no feasible or prudent alternates to avoid the park, and that the project investigated minimization of impacts to the park.

Development pressures associated with population and employment growth may effect existing historic resources or properties that may be determined historically significant in the future. Both Montgomery and Frederick and counties have responded to the loss of cultural resources resulting from development through their Historic Preservation Commissions. These commissions work to ensure that planned future development protects these resources to the greatest extent possible. Cultural resources situated in locations the Land Use Expert Panel identified as prone to development, different from what the Master Plans describes, may be under more pressure for redevelopment than anticipated under the Master Plans. Special attention should be given to those resources for which the settings are contributing factors in the historic significance.

Regarding surface water quality, the conversion of open-space and forested areas to impervious areas or manicured landscapes would be expected to increase surface runoff and peak storm flows as well as introduce sediment and other pollutants into waterways. These effects would be somewhat mitigated by required compliance with water quality protection regulations administered by the Maryland Department of the Environment (MDE). These regulations require reductions in runoff and pollutant loadings through the use of approved stormwater management and erosion and sediment control plans. Infill development is also likely to add to past and current water quality impacts, as it would further reduce the remaining natural areas in the project area available to filter and infiltrate runoff. All new projects would be required to comply with current regulations to reduce water quality impacts wherever possible.

The project may make an incremental contribution to cumulative 100-year floodplain effects in the SCEA boundary, given the successive loss of 100-year floodplain area over the SCEA time frame. This effect will be minimized to some extent within the area through mitigation sites that would enhance local floodplain function. Within the SCEA boundary, 90 percent of floodplain area consists of open space. According to future land use plans, further residential development will occur in these areas, thus increasing the area of impermeable land within the floodplains. As residential development increases, open space within the floodplain will decrease to 70 percent. As more homes are built in these areas, the risk of flooding and property damage will greatly increase. The floods themselves will also be worse because they will recede at a slower with more impermeable surfaces. Today, federal and state floodplain regulations and a wider appreciation for the valuable functions of floodplains and the dangers inherent in building on them, make it unlikely that historic rates of floodplain encroachment would continue.

Within the SCEA boundary over the last 20 years, many Waters of the US, including wetlands, have been altered, compromised, or lost. This is primarily a result of urban and suburban

development in the region, and an initial lack of enforcement of waterways protection regulations. The initial construction of I-270 played a role in this trend. However, Waters of the US are not expected to be impacted overall as a direct result of this project, based on two factors. First, many of the Waters of the US which will be affected by the project were previously culverted during the construction of I-270. The addition of culvert length is often not a factor to waterways impacts, once the waterway has already been placed in culvert. Second, the proposed mitigation package for wetlands and waterways impacts will help stabilize overall impact trends in the SCEA boundary, and effectively eliminate any potential contribution made by the project to long-term impacts to Waters of the US. Therefore, the project is not anticipated to cause cumulative impacts on Waters of the US within the SCEA boundary, since its contribution to long-term regional trends will be minimal.

Cumulative impacts to forest resources, forest habitats, and State Champion Trees may occur within the SCEA timeframe and study area. However, the project's role as a value-added contributor to these impacts should be minimal, given the amount of existing, planned, and forecasted urban development expected to occur within the SCEA boundary in the next 20 years. Local master plans for the region account for an increase in housing stock and housing density regardless of potential service improvement scenarios for I-270. Additionally, the fact remains that nearly all of the of the forests in the SCEA boundary have been harvested in the past, and most of the currently existing forest areas are under local, state, or federal protection from extensive degradation. Overall, the project's impacts upon cumulative forest trends in the SCEA boundary will be minimal.

Most of the relevant constraints and opportunities facing aquatic habitats in the study area are well-entrenched and functioning independently of the project, and exist as a result of well-established federal and state regulations and local ordinances. As a result, no cumulative impacts to aquatic species or aquatic habitats are anticipated as a result of the project.

Wetlands within the SCEA boundary may be described in various level of ecological distress due to locally high development densities. Large areas of impervious material do not allow the area's wetlands and waters to effectively perform natural functions like sediment trapping and the filtration of waterborne solvents and pollutants. This functional overload impacts the habitat value of these wetlands and waters. Management of continued development and the construction activities associated with it will play an important part in stabilizing the quantity and quality of wetlands within the SCEA boundary. These processes will operate independently of the project, and will not be accelerated or promoted as a result of the project.

The effect of widening I-270 would directly impact some properties by the additional of right-of-way. Still, the pressure for further acquisition, and development to support the growing population will impact farms indirectly. As we see the cycle of development perpetuate, greater demands are placed on agricultural land to be developed for non-farm uses. The widening of I-270 will increase the potential for development, thereby perpetuating the decline in the number of farms, and acreage of land used for farming.

4. Transportation Impacts

a. Transit Conclusions

The general transit ridership trends show that project area MARC boardings will decrease under the build alternates when compared with the No-Build Alternate, while the Shady Grove and Rockville Metrorail boardings and the project area feeder and local bus boardings will increase. This is due to the southern terminus of the proposed CCT located at the Shady Grove Metro Station, and the projections that approximately 60% of the transit trips in the corridor will transfer at Shady Grove. In general, the transit forecasts continue to show the need for additional transit services in the corridor beyond what is currently in place.

The proposed build alternates generally show that the BRT Alternate (Alternates 3B, 4B and 5B) provide the largest transit ridership, with approximately 18,300 riders in the 2025 AM peak period. The Premium Bus Alternate (Alternate 5C) shows the second largest transit ridership with 14,500 riders during the 2025 AM peak period; the LRT Alternate (Alternates 3A, 4A and 5A) shows the smallest transit ridership of the three alternates, with approximately 14,000 riders for the 2025 AM peak period.

The BRT Alternate will result in the most new corridor transit riders due to its accessibility throughout the corridor and its ability to travel off the transitway alignment and serve a larger market area. This is followed by the Premium Bus Alternate and then the LRT Alternate. In addition, the BRT Alternate exhibits the largest savings of in-vehicle travel time, as it provides more than 30 minutes of potential travel time savings for approximately 89,200 daily work trips when compared to the No-Build Alternate. This is followed by the Premium Bus Alternate (53,400 daily work trips) and the LRT Alternate (8,100 daily work trips).

b. Highway Conclusions

The level of service along mainline I-270 and US 15, and at the corridor and ramp terminal intersections, will degrade substantially over the next 25 years. In general, the 2025 No-Build scenario results in LOS E/F conditions along mainline I-270/US 15 and at the corridor and ramp terminal intersections during the AM and PM peak periods.

With the proposed highway improvements (Alternates 3A/B, 4A/B, and 5A/B/C), the Montgomery County mainline and C-D lane sections of I-270 will not worsen from their projected No-Build conditions. I-270 will continue to be congested, operating at LOS E/F conditions during the AM and PM peak periods. In addition, the corridor and ramp terminal intersections are expected to operate above capacity.

The Frederick County mainline section of I-270 will also continue to operate at LOS E/F conditions during the AM and PM peak periods. In general, the section of I-270 between MD 121 and I-70 will operate at LOS E/F conditions regardless of the proposed number of lanes (six lanes total in Alternates 3A/B and 4A/B versus eight lanes total in Alternates 5A/B/C). This is due to the travel demand projections which show that additional capacity improvements made along I-270 result in additional traffic volumes along the corridor. There are some minor

improvements in traffic LOS along southbound I-270 in Alternates 4A/B and 5A/B/C versus Alternates 3A/B (LOS E versus LOS F, respectively) due to these alternates having three general-purpose lanes in each direction, while Alternates 3A/B have two general-purpose lanes in each direction (note that Alternates 5A/B/C also have an additional HOV lane in each direction).

The general trend along US 15 through the City of Frederick is that traffic conditions will improve over the No-Build conditions with the proposed build alternates and will be consistent with the existing traffic conditions. All three of the build alternates yield similar results along US 15 due to the fact that the proposed alternates are the same in this segment.

The overall traffic analyses show that I-270 and US 15 will continue to be congested (with the proposed build alternates) to 2025 and beyond due to the existing and projected growth along the corridor. However, the build alternates do provide congestion relief in that projected conditions would worsen beyond the No-Build conditions. For instance, reviewing the difference in mainline segments that operate under LOS F between the build alternatives and No-Build conditions illustrates this congestion relief, as indicated in **Table V-2**:

TABLE V-2
I-270/US 15 LEVEL OF SERVICE IMPROVEMENTS

	Alternates 1 & 2 (No-Build & TSM/TDM)	**Alternates 3A/B**	**Alternates 4A/B**	**Alternates 5A/B/C**
Year 2025 Mainline Segment Mileage of LOS F Conditions [1]				
I-270/US 15 Northbound (PM Peak Hour)	25	18	14	18
I-270/US 15 Southbound (AM Peak Hour)	25	21	13	14
Total Mileage of LOS F Segments	**50**	**39**	**27**	**32**
Year 2025 Mileage Reduction of LOS F Segments from No-Build and TSM/TDM Alternates				
I-270/US 15 Northbound (PM Peak Hour)	N/A	7	11	7
I-270/US 15 Southbound (AM Peak Hour)	N/A	4	12	11
Total Mileage Reduction of LOS F Segments	**N/A**	**11**	**23**	**18**

Note: 1. Total I-270/US 15 corridor length is approximately 31 miles.

Alternates 3A/B would provide an eleven mile total reduction in the mainline segments operating at LOS F (seven miles reduction northbound, four miles reduction southbound). Alternates 4A/B would provide a 23 mile total reduction in the mainline segments operating at LOS F (eleven miles reduction northbound, twelve miles reduction southbound). Alternates 5A/B/C would provide an 18 mile total reduction in the mainline segments operating at LOS F (seven miles reduction northbound, eleven miles reduction southbound). Therefore, Alternates 4A/B offer the greatest reduction in miles of LOS F along the corridor, Alternates 5A/B/C offer the second most reduction, and Alternates 3 A/B offer the least amount of congestion relief compared to the expected No-Build conditions.

c. Multi-Modal Conclusions

The travel demand modeling results concluded that the limited capacity on I-270 in Alternates 3A/B and 4A/B (six lanes on I-270 between MD 121 and I-70 in Alternates 3A/B and 4A/B versus eight lanes in Alternates 5A/B/C) does not affect the transit ridership. In addition, none of the transit modes provide a substantial positive impact on the highway travel demand; however, the proposed build alternates do provide additional mobility and modal options with free-flow conditions and consistent travel times. A multi-modal approach is a prudent option for the corridor since the different highway and transit modes under consideration serve different travel markets and trip origins and destinations.

B. EFFICIENCY (COST EFFECTIVENESS)

1. Introduction

The cost-effectiveness analysis is a mechanism comparing the total costs of a project to its benefits -- measured here by the additional annual transit patronage attracted. The method for determining the cost-effectiveness measure is a formula described in *Technical Guidance on Section 530g New Start Criteria (September 1997)* published by FTA. The output of the formula is a project's cost per new passenger attracted relative to the No-Build and TSM/TDM Alternates. The option of primary interest is the TSM/TDM Alternate, since it is designed to represent the most effective solution to transportation problems short of new facility construction. The TSM/TDM Alternate provides a baseline against which it is possible to isolate the added costs and benefits of a capital intensive alternate. The cost index is included here because it has been used by FTA to rate proposed major capital transportation projects around the country which are being considered for federal funding.

In using this cost-effectiveness to compare projects against each other, only an ordering of projects according to their relative merits is needed rather than the calculation of absolute merits. Since the transportation benefits of a project (new riders) are usually the largest component of overall benefits, the ranking of projects based on transportation benefits alone is the same ordering that would result if the secondary benefits were also measured, such as air pollution reduction and energy savings. Therefore, the indirect measurement of secondary benefits is quite adequate for this evaluation. Direct measurement of the secondary benefits would become critical only if the evaluation were designed to judge the absolute merits of each alternate -- whether its total benefits exceed its total costs.

The TSM/TDM Alternate consists of improved bus service throughout the corridor, with additional express routes serving the Shady Grove Metro Station.

2. Methodology

The general methodology of this cost-effectiveness analysis translates the capital costs of the project into equivalent uniform annual costs. These uniform annual capital costs reflect assumptions about the economic life of the capital components in each alternate (based on federal guidelines) and the cost of capital (i.e., the discount rate). Uniform annual capital costs

are combined with annual O&M expenses and then compared to the benefits of the project -- measured by additional transit patronage -- to arrive at a cost-effectiveness index for the project.

Placing the capital costs of the project into a common framework involves calculating a stream of annual costs that is equivalent to their initial investment. These annual costs are referred to as an equivalent annual cost (EAC). The method of computing the EAC is straightforward: an annualization formula, which takes into account the discount rate and the useful economic life of major cost components, is applied directly to the initial year capital cost of each major component. For cost components with relatively long useful lives (over 25 years), this formula is approximately equal to the discount rate. In effect, the EAC represents the amount that would have to be invested each year to maintain the capital stock of the project at its initial level. The reason for converting the capital costs of each alternate to equivalent annual costs is that EAC can be compared with annual operating statistics and annual passengers, allowing a reasonably uniform analysis of cost-effectiveness.

Because all costs used in the analysis are in constant dollars, the effects of inflation are already taken into account; the discount rate used in the analysis is a "real" discount rate that reflects prevailing interest rates net of the effect of inflation.

As noted above, key assumptions required for the derivation of equivalent annual cost include the choice of discount rates and the effective useful lives of all major cost components. Following recommended FTA practice, a real discount rate of 7 percent was used. Assumptions about the effective useful lives of major cost components correspond to the economic lives of the major categories of capital cost. The economic life of heavy construction items, for instance, was assumed to be 50 years, while buses and rail vehicles were assumed to have a useful economic life of 12 years and 25 years, respectively, before needing replacement.

3. Calculation of Cost–Effectiveness Index

The index, as it is applied here, measures the additional cost of proposed transit investments, using the cost per additional rider expected under the No-Build and the TSM/TDM Alternate as the measure against which the project alternates are compared. Specifically, the cost effectiveness index is computed as follows:

$$\text{C/E Index} = \frac{\Delta\ \$CAP + \Delta\ \$O\&M}{\Delta\ RIDERS}$$

where Δ represents changes in costs and benefits compared to the No-Build and the TSM/TDM Alternate, and

$CAP	=	equivalent annual capital costs
$O&M	=	annual operating and maintenance costs
RIDERS	=	annual transit ridership, measured in "linked" trips

4. Discussion of Index

A cost-effectiveness index was calculated for three build alternates: Alternates 5A/B/C. The transit portion of Alternate 5A (LRT) and 5B (BRT) are identical to the transit definitions in Alternates 3A and 4A for LRT and Alternates 3B and 4B for BRT. The ridership and cost results were likewise nearly identical. Therefore the results are used for the transit portion of each alternate. **Table V-3** presents the results and input data, including the total capital costs, annual operating and maintenance costs, and new transit riders. The use of a cost-effectiveness measure allows analysis of added benefits and added costs of the alternates as compared to the No-Build and to lower cost options such as the TSM/TDM Alternate.

The cost-effectiveness index for the alternates range from $5.07 to $10.94 relative to the No-Build and $4.16 to $17.99 relative to the TSM/TDM. The results are comparable to many projects funded with FTA Section 5309 funds. It is important to note that this FTA index is a measure of relative costs and benefits and is not a calculation of the cost or subsidy required to attract a new transit rider.

TABLE V-3
FTA COST EFFECTIVENESS INDICES AND INPUT VALUES

Alternative	Change in O&M Costs from No-Build (000's)	Change in O&M Costs from TSM/TDM (000's)	Change in Equivalent Annual Capital Costs from No-Build (000's)	Change in EAC from TSM/TDM (000's)	Change in Annual Riders from No-Build (000's)	Change in Annual Riders from TSM/TDM (000's)	C/E Relative to No-Build[1]	C/E Relative to TSM/TDM[1]
TSM/TDM	$27,800		$4,100		5,100			
5A LRT	$24,800	-$3,000	$68,400	$64,300	8,500	3,400	$10.94	$17.99
5B BRT	$63,900	$36,100	$65,700	$61,600	12,400	7,300	$10.45	$13.40
5C Premium Bus	$32,050	$4,250	$27,450	$23,350	11,750	6,650	$5.07	$4.16

1. Note: The lower the cost effectiveness number, the more cost effective the alternate.

C. EQUITY CONSIDERATIONS

1. Service Equity

The I-270/US 15 Multi-Modal Corridor transportation improvements will support economic development and improved access throughout the Corridor. The project will provide substantial travel benefits to residents of the project area and beyond, including minority, low-income and elderly populations. Low-income individuals, who are the most transit-dependent, will especially benefit from greater accessibility to jobs, services and shopping opportunities throughout the project area. This improved accessibility will be evenly distributed to surrounding communities within the project area.

Currently, the Shady Grove Metro Station provides the northwestern terminus of the Metrorail red line. Metrorail provides service to the south but does not currently provide service into or through the project area. Further, county bus providers serve within the limits of each county and

Metrobus service, provided by WMATA, primarily services the areas south of the Shady Grove Metro Station. Though there is a privately operated commuter bus (#991) service between Frederick and the Shady Grove Metro Station, this service only operates weekdays during AM and PM peak periods. Therefore, the project will improve the availability of transit services and provide a greater benefit to people seeking employment in the I-270/US 15 Corridor. The build alternates will provide residents of Washington, DC, a substantial portion of whom are low-income and transit dependent, the opportunity to "reverse" commute to jobs in the I-270/US 15 Corridor. Further, the build alternates will provide more convenient transit services for project area residents to access the services, shopping and recreational opportunities within the project area as well as in Washington, DC.

Key employment centers in the corridor include Washington, DC, Bethesda, Rockville, Gaithersburg, Germantown, and Clarksburg. (Clarksburg, while much smaller in employment than the other areas listed, has long-range plans to accommodate over 10,000 dwelling units and enough commercial/industrial space for 20,000 employees). The build alternates will reduce travel times and will benefit low-income and transit-dependent workers by widening the geographic area for employment opportunities that are accessible in relatively the same amount of travel time. Low-income and transit-dependent workers will benefit from the BRT and LRT Alternates, in particular, because these transit alternates focus accessibility along the CCT alignment where existing and proposed businesses are located and considerably improves transit connections to those businesses.

The build alternates will also benefit consumers in the region by reducing travel costs throughout the corridor. The BRT Alternates (Alternates 3B, 4B and 5B), in particular, would save travelers the most out-of-pocket costs through the reduction in vehicle miles traveled. Compared with the amount of time spent by commuters in driving alone within the project corridor under the No-Build Alternate, the proposed build alternates all allow faster travel times, indicating an improvement in the quality of service and a greater benefit to people using transit services. Of particular benefit to low-income consumers, the build alternates will shorten travel times, increasing consumers' accessibility to project area and region-wide services, shopping, and recreational activities. Therefore, consumers will benefit from greater availability of attractive shopping opportunities and lower prices from competing businesses within the project corridor.

2. Financial Equity

Financial equity relates to the sources of capital and operating funds for transportation improvements and is a function of how the sources of those funds relate to the beneficiaries of a transportation improvement and to various income groups.

The selected alternative will be financed predominantly by state and federal funds. Some local funding from Montgomery County and Frederick County may also be provided; the source and allocation of county funds are unknown at this time. State funds will come from the State of Maryland Transportation Trust Fund (TTF). The trust fund consists of general taxes, fees, charges and operating revenues of the Maryland Department of Transportation (MDOT) paid by residents statewide. This is the process for all statewide transportation projects. No one group

will be bearing a disproportionate financial burden as a result of the financial plan for the proposed I-270/US 15 Corridor multi-modal improvements.

It is anticipated the selected alternative will compete with other transportation improvement projects in the Washington, DC region and throughout the State of Maryland for existing federal and state funding allocations. If existing revenues are not sufficient, additional revenue sources that have been used to fund other projects within the region include a special federal authorization and the transfer of funds from the MD General Fund to the TTF. These sources are also based on broad taxes such as income, sales or property taxes and are not directly related to the individual's use of the proposed facility. Other sources of capital and operating revenue that may be considered include locally enacted or increased gasoline, sales or property taxes, although these sources have not been widely supported in the past. The taxes are often enacted within the area expected to benefit from the transportation improvements through congestion relief or improved access to public transit, which serves to offset the regressive nature of the levy(s).

3. Environmental Equity

To comply with Executive Order 12898 of February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, potential effects on low-income and minority populations in the project area and measures taken to mitigate effects have been undertaken. The order requires federal agencies to identify and address, as appropriate, "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Montgomery Village, Derwood, and The Colony at Germantown have been identified as communities with a substantial minority presence.

The No-Build and TSM/TDM Alternates will not impact minority neighborhoods and communities. The increased frequency of buses under the TSM/TDM Alternate will cause no impacts on minority populations during operations, since the buses will operate over existing routes.

Highway Alignment

The highway alignment will impact a substantial amount of existing residential and business development, particularly along I-270 between I-370 and Muddy Branch Road (see **Section III.B.1.e**).

Transitway Alignment

The transitway alignment is primarily located on land that is largely vacant and undeveloped, and therefore would result in minimal residential and business displacements. In the vicinity of Montgomery Village, the transitway alignment is on the west side of I-270 and no impacts are expected on this community.

The Shady Grove Metro Station already exists north of the Derwood community. The transitway alignment would connect with the Shady Grove Metro station and the new transitway alignment

would continue to travel north of Redland Boulevard. and north of the Derwood community. No impacts are expected in the Derwood community from the transitway alignment, itself. However, one of the proposed transitway yard/shop facilities near the Shady Grove Metro station is proposed adjacent to the Derwood community. By constructing this facility, an existing area consisting of an empty lot, gravel lot, Beltway Cable Service (storage and infrastructure), Paramount Construction, a car storage lot and two recently constructed buildings would be displaced. In addition, the transitway yard/shop facility would affect the traffic flow and access into the Derwood community and surrounding businesses and introduce noise issues in the area.

The transitway alignment will have a visual impact and require property acquisition (though no residential displacements are expected) from The Colony at Germantown as the alignment travels between Middlebrook Road and Germantown Road. The residents of The Colony at Germantown will have a choice of two stations in the vicinity to access the transitway alignment: Middlebrook Station and Germantown Center Station.

A benefit of this project is the support of economic development and improved access throughout the Corridor. This improved accessibility will improve the economic development benefits and will be evenly distributed to surrounding communities**.**

D. MEASURES OF EFFECTIVENESS

The project team has developed Measures of Effectiveness based on the Goals and Objectives discussed in section V.A.1 for purposes of evaluating the proposed alternates.

GOAL 1: SUPPORT ORDERLY ECONOMIC GROWTH

Support the orderly economic development of the I-270/US 15 Corridor consistent with the existing local government land use plans and the State's Smart Growth Policies.

1. Improve accessibility to support Smart Growth.

    a. Difference in job accessibility for households in Priority Funding Areas (PFAs) (build vs. no-build) – number of households in PFAs who can reach an additional 500 jobs within 45 minutes by auto or 60 minutes by transit in 2025.

Alternate	Projected Number of Households in *PFAs* that Reach an Additional 500 Jobs in 2025			
	Transit – Walk Access (within 60 minutes)	Transit – Drive Access (within 60 minutes)	Auto – LOV (within 45 minutes)	Auto – HOV (within 45 minutes)
Alternate 1 (No-Build)	-	-	-	-
Alternate 2 (TSM/TDM)	285,812	197,420	0	0
Alternate 3A (LRT)	284,444	170,011	332,086	401,570
Alternate 3B (BRT)	361,199	310,727	319,277	319,277
Alternate 4A (LRT)	284,444	170,011	332,086	401,570
Alternate 4B (BRT)	361,199	310,727	319,277	319,277
Alternate 5A (LRT)	284,444	170,011	368,334	400,626
Alternate 5B (BRT)	361,199	310,727	368,334	400,626
Alternate 5C (Premium Bus)	320,582	261,608	368,334	400,626

b. Difference in job accessibility for households in non-PFAs (build vs. no-build) – number of households in non-PFAs who can reach an additional 500 jobs within 45 minutes by auto or 60 minutes by transit in 2025.

Alternate	Projected Number of Households in *non-PFAs* that Reach an Additional 500 Jobs in 2025			
	Transit – Walk Access (within 60 minutes)	**Transit – Drive Access (within 60 minutes)**	**Auto – LOV (within 45 minutes)**	**Auto – HOV (within 45 minutes)**
Alternate 1 (No-Build)	-	-	-	-
Alternate 2 (TSM/TDM)	32,310	63,094	0	0
Alternate 3A (LRT)	20,336	48,640	92,469	100,815
Alternate 3B (BRT)	25,719	82,267	88,111	88,111
Alternate 4A (LRT)	20,336	48,640	92,469	100,815
Alternate 4B (BRT)	25,719	82,267	88,111	88,111
Alternate 5A (LRT)	20,336	48,640	98,600	101,703
Alternate 5B (BRT)	25,719	82,267	98,600	101,703
Alternate 5C (Premium Bus)	26,643	77,581	98,600	101,703

c. Difference in PFA household accessibility for businesses [employment] in PFAs (build vs. no-build) – number of households in PFAs who can be reached by businesses in PFAs within 45 minutes by auto or 60 minutes by transit in 2025.

Alternate	Projected Number of Households in *PFAs* who can be Reached by Businesses in 2025			
	Transit – Walk Access (within 60 minutes)	**Transit – Drive Access (within 60 minutes)**	**Auto – LOV (within 45 minutes)**	**Auto – HOV (within 45 minutes)**
Alternate 1 (No-Build)	51,792,671	45,463,563	91,914,414	100,362,801
Alternate 2 (TSM/TDM)	54,500,333	45,866,029	91,914,414	100,362,801
Alternate 3A (LRT)	58,237,600	47,373,757	93,548,075	108,921,507
Alternate 3B (BRT)	70,635,831	57,716,930	93,444,683	108,901,630
Alternate 4A (LRT)	58,237,600	47,373,757	93,548,075	108,921,507
Alternate 4B (BRT)	70,635,831	57,716,930	93,444,683	108,901,630
Alternate 5A (LRT)	58,237,600	47,373,757	95,325,212	109,279,528
Alternate 5B (BRT)	70,635,831	57,716,930	95,325,212	109,279,528
Alternate 5C (Premium Bus)	66,924,934	57,780,852	95,325,212	109,279,528

2. Demonstrate consistency with applicable land use and transportation plans.

a. Comparison of transportation network alternates with National Capital Region Long Range Transportation Plan.

The proposed alternates are consistent with the National Capital Region Long Range Transportation Plan

b. Comparison of transportation network alternates with local master plans.

Proposed Alternates 3A/B and 4A/B are consistent with local master plans. However, Alternates 5A/B/C, the enhanced master plan alternate, is inconsistent with the master plans because it proposes one additional highway lane along I-270 in Montgomery County between MD 121 and the Montgomery County/Frederick County line (which results in an eight lane section versus the six lane section identified in local master plans).

GOAL 2: ENHANCE MOBILITY

Provide enhanced traveler mobility through the I-270/US 15 Corridor.

1. Decrease travel time

   a. AM peak period travel time between selected locations by HOV, LOV, and transit (some selected locations from and to designated PFAs).

   Refer to Section IV.D.2 for a discussion on travel times from Germantown, Clarksburg, and the City of Frederick to Downtown, DC, Bethesda, Rockville, the Life Sciences Center, and Germantown. All of these origin-destination pairs are located within priority finding areas along the I-270/US 15 corridor.

2. Increase efficient use of transportation system

   a. Average vehicle ridership during the AM peak period (total person trips/total non-transit vehicles) by screenline. Screenlines are boundary lines used to measure traffic volumes moving on parallel routes from one segment of the corridor to another. The following screenline locations were used in this study:

   Approximate Screenline Locations
   Screenline A: US 15/MD 26 Interchange
   Screenline B: I-270/MD 85 Interchange
   Screenline C: Frederick County/Montgomery County Line
   Screenline D: I-270/Father Hurley Boulevard Interchange
   Screenline E: Great Seneca Creek
   Screenline F: I-270/I-370 Interchange

Average vehicle ridership during the AM peak period (total person trips/total non-transit vehicles)							
Alternate	**Corridor-wide Average**	**Screenline A**	**Screenline B**	**Screenline C**	**Screenline D**	**Screenline E**	**Screenline F**
Alternate 1 (No-Build)	1.30	1.15	1.20	1.29	1.28	1.32	1.40
Alternate 2 (TSM/TDM)	1.31	1.14	1.21	1.29	1.30	1.34	1.43
Alternate 3A, 4A, 5A (LRT)	1.35	1.14	1.27	1.37	1.35	1.37	1.45
Alternate 3B, 4B, 5B (BRT)	1.39	1.15	1.33	1.41	1.39	1.41	1.49
Alternate 5C (Premium Bus)	1.43	1.16	1.32	1.41	1.40	1.43	1.53

The BRT alternate and the Premium Bus alternate increase the corridor-wide average vehicle ridership levels greater than five percent over the No-Build, which is a substantial increase in ridership. The Premium Bus alternate shows a ten percent increase as compared to the No-Build. This increase in average vehicle ridership is not reflected in the forecast volumes on I-270 during the peak hours, but rather in the total screenline volumes (trips that are on lower volume facilities move to fill the capacity on the higher class freeway facility). In general, the BRT and Premium Bus alternates move more people through the corridor with fewer vehicles. This MOE corresponds directly to the mode choice result for HOV and transit.

b. AM peak period person trips by HOV, LOV and transit by screenline

Peak Direction High Occupancy Vehicle (HOV) Trips						
Alternate	**Screenline A**	**Screenline B**	**Screenline C**	**Screenline D**	**Screenline E**	**Screenline F**
Alternate 1 (No-Build)	1,728	4,806	6,113	6,811	7,844	14,591
Alternate 2 (TSM/TDM)	1,728	4,806	6,113	6,811	7,844	14,591
Alternate 3A (LRT)	3,118	9,252	11,164	11,923	13,644	20,192
Alternate 3B (BRT)	3,118	9,252	11,164	11,923	13,644	20,192
Alternate 4A (LRT)	3,118	9,252	11,164	11,923	13,644	20,192
Alternate 4B (BRT)	3,118	9,252	11,164	11,923	13,644	20,192
Alternate 5A (LRT)	2,743	8,208	10,386	11,441	13,957	20,858
Alternate 5B (BRT)	2,743	8,208	10,386	11,441	13,957	20,858
Alternate 5C (Premium Bus)	2,743	8,208	10,386	11,441	13,957	20,858

Peak Direction Low Occupancy Vehicle (LOV) Trips						
Alternate	**Screenline A**	**Screenline B**	**Screenline C**	**Screenline D**	**Screenline E**	**Screenline F**
Alternate 1 (No-Build)	45,628	30,745	35,849	49,080	66,800	90,125
Alternate 2 (TSM/TDM)	45,628	30,745	35,849	49,080	66,800	90,125
Alternate 3A (LRT)	46,645	31,667	36,890	49,936	66,879	92,091
Alternate 3B (BRT)	46,645	31,667	36,890	49,936	66,879	92,091
Alternate 4A (LRT)	46,645	31,667	36,890	49,936	66,879	92,091
Alternate 4B (BRT)	46,645	31,667	36,890	49,936	66,879	92,091
Alternate 5A (LRT)	46,768	32,894	37,804	50,898	67,319	92,685
Alternate 5B (BRT)	46,768	32,894	37,804	50,898	67,319	92,685
Alternate 5C (Premium Bus)	46,768	32,894	37,804	50,898	67,319	92,685

Peak Direction Transit Trips						
Alternate	**Screenline A**	**Screenline B**	**Screenline C**	**Screenline D**	**Screenline E**	**Screenline F**
Alternate 1 (No-Build)	1,050	1,355	3,785	6,550	12,350	23,585
Alternate 2 (TSM/TDM)	1,210	1,405	3,900	7,105	13,285	25,890
Alternates 3A, 4A, 5A (LRT)	695	850	3,100	6,155	11,910	23,220
Alternates 3B, 4B, 5B (BRT)	915	1,715	4,175	7,645	14,790	27,040
Alternate 5C (Premium Bus)	1,935	2,900	5,270	9,205	16,330	31,035

c. AM peak period level of service (volume to capacity ratio) for HOV, LOV and transit by screenline

Alternate	**Screenline A**		**Screenline B**		**Screenline C**		**Screenline D**		**Screenline E**		**Screenline F**	
	LOV	**HOV**	**LOV**	**HOV**	**LOV**	**HOV**	**LOV**	**HOV**	**LOV**	**HOV**	**LOV**	**HOV**
Alternate 1 (No-Build)	0.79		0.84		1.15		1.19	0.23	0.97	0.33	1.13	0.50
Alternate 2 (TSM/TDM)	0.79		0.84		1.15		1.18	0.23	0.96	0.33	1.12	0.55
Alternate 3A (LRT)	0.73		0.79	0.34	1.01	0.40	1.19	0.48	0.93	0.60	1.07	0.82
Alternate 3B (BRT)	0.73		0.89	0.36	1.20	0.41	1.17	0.50	0.92	0.59	1.06	0.78
Alternate 4A (LRT)	0.73		0.79	0.34	1.01	0.40	1.19	0.48	0.93	0.60	1.07	0.82
Alternate 4B (BRT)	0.73		0.89	0.36	1.20	0.41	1.17	0.50	0.92	0.59	1.06	0.78
Alternate 5A (LRT)	0.73		0.79	0.34	1.01	0.40	1.19	0.48	0.93	0.60	1.07	0.82
Alternate 5B (BRT)	0.73		0.89	0.36	1.20	0.41	1.17	0.50	0.92	0.59	1.06	0.78
Alternate 5C (Premium Bus)	0.73		0.78	0.31	1.00	0.37	1.19	0.44	0.92	0.55	1.07	0.75

d. Percent of the AM peak period person miles traveled (PMT)on HOV, LOV, and transit

Alternate	Percent of PMT by Mode		
	HOV (3+)	LOV	Transit
Alternate 1 (No-Build)	14%	76%	10%
Alternate 2 (TSM/TDM)	10%	80%	10%
Alternates 3A, 4A (LRT)	14%	76%	10%
Alternates 3B, 4B (BRT)	14%	75%	11%
Alternate 5A (LRT)	14%	77%	10%
Alternate 5B (BRT)	13%	76%	11%
Alternate 5C (Premium Bus)	13%	75%	12%

e. Number of selected intersections where the projected 2025 critical lane volume (CLV) decreases (improves) by more than 150 vehicles during the AM and/or PM peak hour

Intersection	AM PM	No-Build CLV	Alternates 3A/B and 4A/B		Alternates 5A/B/C	
			CLV	*Decrease from No-Build*	CLV	*Decrease from No-Build*
Corridor Intersections						
Muddy Branch Road/ Great Seneca Highway	AM	2,101	1,978	*-123*	1,976	*-125*
	PM	2,805	2,545	*-260*	2,491	*-314*
MD 117/Perry Parkway	AM	1,873	1,490	*-383*	1,515	*-358*
	PM	2,195	1,838	*-357*	1,890	*-305*
MD 117/MD 124	AM	1,958	1,415	*-543*	1,475	*-483*
	PM	2,505	2,025	*-480*	2,056	*-449*
MD 355/MD 124	AM	2,443	2,193	*-250*	2,240	*-203*
	PM	3,128	2,443	*-685*	2,298	*-830*
MD 355 / Middlebrook Road	AM	2,488	2,503	*15*	2,508	*20*
	PM	3,060	2,785	*-275*	2,731	*-329*
Middlebrook Road/ Great Seneca Highway	AM	910	820	*-90*	830	*-80*
	PM	1,275	1,120	*-155*	1,120	*-155*
Father Hurley Boulevard/MD 355	AM	2,956	3,280	*324*	3,419	*463*
	PM	2,519	2,196	*-323*	2,285	*-234*
MD 121/MD 355	AM	5,300	4,950	*-350*	4,850	*-450*
	PM	4,975	3,775	*-1200*	4,175	*-800*
MD 75/MD 355	AM	2,650	2,050	*-600*	2,025	*-625*
	PM	2,200	1,625	*-575*	1,700	*-500*
Jefferson Street/Prospect Boulevard	AM	1,860	1,951	*91*	1,961	*101*
	PM	1,860	1,565	*-295*	1,585	*-275*

Intersection	AM PM	No-Build CLV	Alternates 3A/B and 4A/B		Alternates 5A/B/C	
Ramp Terminal Intersections						
I-270 southbound Ramp/MD 117	AM	3925	2,750	*-1175*	2,800	*-1125*
	PM	3025	2,475	*-550*	2,550	*-475*
I-270 southbound Ramp/MD 121	AM	2625	1,500	*-1125*	1,500	*-1125*
	PM	2050	1,275	*-775*	1,200	*-850*
I-270 northbound Ramp/MD 121	AM	1779	1,295	*-484*	1,080	*-699*
	PM	1619	1,064	*-555*	1,144	*-475*
I-270 southbound Ramp/MD 85	AM	900	1,210	*310*	1,270	*370*
	PM	1625	1,385	*-240*	1,210	*-415*
US 15 northbound Ramp/MD 26	AM	2525	1,671	*-854*	1,631	*-894*
	PM	2070	1,158	*-912*	1,129	*-941*
US 15 southbound Ramp/ Trading Lane	AM	2438	1,450	*-988*	1,450	*-988*
	PM	2259	1,611	*-648*	1,598	*-661*
US 15 northbound Ramp/ Biggs Ford Road	AM	2981	1,425	*-1556*	1,425	*-1556*
	PM	2471	1,100	*-1371*	1,100	*-1371*

f. Number of selected intersections where the projected 2025 critical lane volume (CLV) increases (worsens) by more than 150 vehicles during the AM and/or PM peak hour

Intersection	AM / PM	No-Build CLV	Alternates 3A/B and 4A/B		Alternates 5A/B/C	
			CLV	***Increase from No-Build***	CLV	***Increase from No-Build***
Corridor Intersections						
MD 355 / Shady Grove Road	AM	2,360	2,506	*146*	2,415	*55*
	PM	2,243	2,548	*305*	2,470	*227*
MD 355/Watkins Mill Road	AM	2,390	3,055	*665*	3,099	*709*
	PM	2,539	2,548	*9*	2,660	*121*
MD 118/Crystal Rock Drive	AM	1,716	1,890	*174*	1,908	*192*
	PM	2,913	3,251	*338*	2,998	*85*
Father Hurley Boulevard/ Crystal Rock Drive	AM	2,116	3,000	*884*	2,874	*758*
	PM	1,064	1,780	*716*	1,710	*646*
Father Hurley Boulevard/MD 355	AM	2,956	3,280	*324*	3,419	*463*
	PM	2,519	2,196	*-323*	2,285	*-324*
MD 121/ MD 355	AM	3,859	4,950	*1091*	4,850	*991*
	PM	3,055	3,775	*720*	4,175	*1120*
MD 26/Trading Lane	AM	1,430	2,228	*798*	2,214	*784*
	PM	1,784	2,478	*694*	2,521	*737*
Jefferson Street / Prospect Boulevard	AM	1,751	1,951	*200*	1,961	*210*
	PM	1,460	1,565	*105*	1,585	*125*
Spectrum Drive/MD 85	AM	1,021	1,434	*413*	1,361	*340*
	PM	1,795	2,015	*220*	1,780	*-15*

Intersection	AM / PM	No-Build CLV	Alternates 3A/B and 4A/B		Alternates 5A/B/C	
			CLV	*Increase from No-Build*	CLV	*Increase from No-Build*
Ramp Terminal Intersections						
I-270 northbound Ramp/MD 118	AM PM	2405 1370	2,505 2,368	*100* *998*	2,519 2,393	*114* *1023*
I-270 northbound Ramp/MD 80	AM PM	2010 1760	2,290 2,225	*280* *465*	2,315 2,200	*305* *440*
I-270 southbound Ramp/MD 85	AM PM	900 1165	1,210 1,385	*310* *220*	1,270 1,210	*370* *45*
US 15 northbound Ramp/ Jefferson Street	AM PM	1671 1083	1,654 1,473	*-17* *390*	1,641 1,459	*-30* *376*
US 15 southbound Ramp/ Rosemont Avenue	AM PM	968 1316	1,522 1,600	*554* *284*	1,535 1,675	*567* *359*
US 15 northbound Ramp/ Rosemont Avenue	AM PM	1985 2640	2,465 3,155	*480* *515*	2,506 3,074	*521* *434*
US 15 southbound Ramp/7th Street	AM PM	1681 1600	1,707 1,811	*26* *211*	1,632 1,783	*-49* *183*
US 15 northbound Ramp/Trading Lane	AM PM	- -	1,325 1,438	*1325* *1438*	1,325 1,385	*1325* *1385*

3. Increase multi-modal transportation options

   a. Percent AM peak period transit trips with travel time less than or equal to 1.5 times the auto travel time

Percent Study Area Trips with Transit Time < 1.5 * Auto Time			
Alternate	**Study area trips w/ Transit Time < 1.5 * Auto Time**	**Total study area trips**	**Percent**
Alternate 1 (No-Build)	135,641	415,707	32.63
Alternate 2 (TSM/TDM)	138,235	415,707	33.25
Alternate 3A, 4A, 5A (LRT)	136,937	415,707	32.94
Alternate 3B, 4B, 5B (BRT)	197,703	415,707	47.56
Alternate 5C (Premium Bus)	173,509	415,707	41.74

Alternate 2 (TSM/TDM) includes expanded bus service, which operates on more streets and reaches more zones than the LRT alternatives. Since Alternate 2 provides greater access with more frequent service than the LRT alternatives, it results in a greater number of trips with transit travel times < 1.5 times the auto travel time.

b. Number of residents and employees within ½ mile of a line haul transit station in year 2025

Alternate	Residents	Employees	Total
Alternate 1 (No-Build)	34,372	38,265	**72,637**
Alternate 2 (TSM/TDM)	34,372	38,265	**72,637**
Alternate 3A, 4A, 5A (LRT)	81,888	103,950	**185,838**
Alternate 3B, 4B, 5B (BRT)	81,888	103,950	**185,838**
Alternate 5C (Premium Bus)	41,589	41,517	**83,106**

4. Improve future safety conditions

a. Changes in vehicle miles traveled on non-freeway facilities, as compared to the Baseline (No-Build) Alternate

Changes in Non-Freeway VMT			
Alternate	**Total VMT**	**Freeway VMT**	**Non-Freeway VMT**
Alternate 1 (No-Build)	214,127,440	72,835,469	141,291,971
Alternate 2 (TSM/TDM)	214,126,595	72,843,085	141,283,510
Alternate 3A, 4A, 5A (LRT)	214,362,854	74,017,455	140,345,399
Alternate 3B, 4B, 5B (BRT)	214,107,209	73,704,604	140,402,605
Alternate 5C (Premium Bus)	214,245,264	73,994,275	140,250,989

GOAL 3: IMPROVE GOODS MOVEMENT

Facilitate the movement of goods within and through the I-270/US 15 Corridor and improve the delivery of services in support of the regional and local economies.

1. Improve accessibility within the Washington and Frederick areas of existing and planned industrial development areas

a. Number of regional non-industrial jobs within 45 minutes in the AM peak period of selected corridor industrial centers

Alternate	Number of Jobs
Alternate 1 (No-Build)	0
Alternate 2 (TSM/TDM)	0
Alternate 3A, 4A (LRT)	590,275
Alternate 3B, 4B (BRT)	590,275
Alternate 5A (LRT)	1,418,753
Alternate 5B (BRT)	1,418,753
Alternate 5C (Premium Bus)	1,418,753

GOAL 4: PRESERVE THE ENVIRONMENT

Deliver transportation services in a manner that preserves, protects, and enhances the quality of life and natural environment in the I-270/US 15 Corridor.

Refer to the environmental impacts summary table (**Table S-2**).

GOAL 5: OPTIMIZE PUBLIC INVESTMENT

Provide a transportation system in the I-270/US 15 Corridor that makes optimal use of the existing transportation infrastructure while making cost effective investments in facilities and services that support other project goals.

1. Provide transportation facilities in a cost effective manner while limiting incremental public agency costs to increase corridor capacity

   a. FTA Cost-Effectiveness Index

      Refer to Chapter V.B for further discussion of the FTA Cost-Effectiveness Index. The results of the analysis are presented in **Table V-3**.

      The cost-effectiveness index for the alternates range from $5.07 (Alternate 5C) to $10.94 (Alternate 5A) relative to the No-Build and $4.16 (Alternate 5C) to $17.99 (Alternate 5A) relative to the TSM/TDM. Alternate 5B has a cost-effectiveness of $10.45 relative to No-Build and $13.40 relative to TSM/TDM.

E. TRADE-OFF ANALYSIS

The selection of a preferred alternative by decision makers will involve a balancing of the advantages and disadvantages associated with each study alternate under consideration, the consideration of comments received during the public comment period and the relative success of the alternates in fulfilling the purpose and need for the transportation improvements. For the purposes of this process, key distinguishing factors are summarized in this section to provide decision makers with information needed for a comparative assessment. The findings presented in this document, combined with the public comments received during the public comment period and hearings will facilitate the decision at hand, selection of a preferred transportation alternate to carry forward into a Final Environmental Impact Statement.

The following text presents the key trade-off categories: environmental effects; consistency with local planning documents; capital costs, operating and maintenance costs, and cost effectiveness; and transit usage, mobility and accessibility for comparison purposes.

Environmental Effects

The TSM/TDM alternate has minor environmental effects as it involves little construction activity. All of the remaining build alternates result in both positive and negative environmental effects commensurate with their amounts of construction activity. Each of the remaining build alternates will require acquisition of private property and displacement of businesses (up to 12)

and residences/townhomes (64 to 385). They will also necessitate the acquisition of parklands and natural environmental features (10.7 to 11.6 acres of wetlands; 21 to 24 acres of floodplain; 13,407 to 16,331 linear feet of streams; 180 to 199 acres of forest; 37 to 48 acres of parks and recreational facilities) to similar degrees due to the need for additional lanes and/or right-of-way for highway and transit components. The introduction of additional highway lanes, a transit alignment, transit stations, a transit maintenance facility, parking facilities, noise walls and retaining walls will also add new visual elements into the local environs. These effects are also substantially similar for the build alternates. None of the alternates will result in air quality violations and each build alternate includes transit components to help offset the regional effects of highway improvements. Five to seven historic sites will be affected by each of the build alternates. In general, Alternate 5C, Premium Bus has less environmental effects when compared to Alternates 3A, 3B, 4A, 4B, 5A and 5B as it does not include the CCT alignment, except in the case of parklands and acreage of historic sites due to the direct access ramps required at MD 85 in the vicinity of the Monocacy National Battlefield.

None of the Build Alternates have non-mitigatable effects but, due to the corridor size, result in the above mentioned commensurate levels of effects. The CCT, because it has been recognized for a number of years as a future transit corridor, has fewer effects on the natural and socioeconomic environments than the highway elements. In addition, effects due to the highway components of the alternates carry a greater proportion of effects due to the widening and interchange improvements. The magnitude of the highway effects, however, is lessened somewhat by the inclusion of alternates that reside, to the greatest extent possible, within existing right-of-way.

Consideration of community concerns, agencies and elected officials within the corridor have been included in the planning and will continue to be included throughout the public comment period and development of a Final Environmental Impact Statement that assesses a preferred alternate.

Consistency with Local Planning Documents

As noted earlier in this chapter, transportation improvements have been identified in a number of local and state planning documents over the years. In general, the master plans for the I-270/US 15 Corridor identify the desirability of increased reliance on multi-occupant vehicles, generally calling for 30% (or more) non-single occupant vehicle usage. Local master plans in the corridor also identify specific transportation system improvements for the project area, including transit along the Corridor Cities Transitway, additional highway lanes, increased bus service, improved MARC service and park and ride facilities. Alternate 1 is inconsistent with these goals. Alternate 2, and to a much greater degree Alternates 3 and 4, are consistent with local and state planning. Alternate 5 goes beyond local planning recommendations by including additional general purpose lanes.

Capital Costs/Operating and Maintenance Costs/Cost Effectiveness

The capital and operating and maintenance costs of the Build Alternates would have significant incremental increases over either the No-Build or TSM/TDM alternates. Alternates 5A and 5B

have the highest capital cost at approximately $3.0 billion and $2.9 billion respectively, with Alternates 3A/B, 4A/B, and 5C ranging between approximately $2.5 billion and $2.6 billion. Transit operating and maintenance costs are $25 million annually for Alternates 3A, 4A and 5A, $28 million annually for Alternate 2, and $64 million annually for Alternates 3B, 4B and 5B. Alternate 5C is estimated to have an annual operating and maintenance cost of approximately $32 million.

A cost-effectiveness index was calculated for three build alternates: Alternates 5A/B/C. The transit portion of Alternate 5A (LRT) and 5B (BRT) are identical to the transit definitions in Alternates 3A and 4A for LRT and Alternates 3B and 4B for BRT. The ridership and cost results were likewise nearly identical. Therefore the results are used for the transit portion of each alternate. The cost-effectiveness index for the alternates range from $5.07 (Alternate 5C) to $10.94 (Alternate 5A) relative to the No-Build and $4.16 to $17.99 relative to the TSM/TDM. Alternate 5B has a cost-effectiveness of $10.45 relative to No-Build and $13.40 relative to TSM/TDM. The results are comparable to many projects funded with FTA Section 3 funds. It is important to note that this FTA index is a measure of relative costs and benefits and is not a calculation of the cost or subsidy required to attract a new transit rider.

Transit Usage, Mobility and Accessibility

An evaluation measure of the different alternates is the number of new riders who would not otherwise use transit. These riders reflect the number of people diverted from auto usage because the transit alternates provide an attractive choice in terms of travel time, convenience, and cost.

Over 7,000 new riders are projected if the TSM/TDM Alternate is implemented. The LRT Alternates are projected to result in 2,800 more transit riders than the TSM/TDM Alternate. The BRT Alternates result in the most new riders (11,400) over the TSM/TDM Alternate, followed by the Premium Bus Alternate, which is projected to generate 10,800 new transit users more than the TSM/TDM Alternate. Considerably more new transit riders are generated by the BRT and Premium Bus Alternates than LRT.

The TSM/TDM Alternate increases the number of transit trips over the No-Build by 7%. The LRT Alternate increases total usage by only 2% over the TSM/TDM Alternate, while BRT and Premium Bus Alternates increase total usage by 11% and 12% respectively over TSM/TDM, and 18% and 19% respectively over the No-Build. Overall, the Premium Bus Alternate showed the highest increase in transit trips that were to and from homes located in the project area, followed closely by the BRT Alternate. The LRT Alternate barely generated an increase in transit trips compared to the TSM/TDM Alternate. There was five times as much of an increase in transit trips for BRT and Premium Bus Alternates as there was for the LRT Alternate. Specifically, Premium Bus serves Frederick County better than any of the other alternates. Germantown, Clarksburg and Frederick County are the least well served by the LRT Alternate. The Premium Bus Alternate has the greatest impact on transit ridership. The primary reason for this may be that the Premium Bus Alternate includes through routing of bus services, providing a one-seat trip for a larger number of new riders than the LRT.

Non-Preferred Alternates

Due to the potential for significant residential impacts/displacements in two areas along the I-270 Corridor, the Project Team has identified the following items as Non-Preferred Alternates:

- I-270/I-370 Direct Access Ramps (included in Alternate 5C)
- Slope Limits along I-270 Northbound, South of Middlebrook Road along Staleybridge Road (retaining wall to be provided) (included in Alternates 3A/B, 4A/B, 5A/B/C)

I-270/I-370 Direct Access Ramps (included in Alternate 5C)
The proposed direct access ramps at the I-270/I-370 interchange are considered a non-preferred alternate, as the ramps and associated highway widening would result in a substantial number of residential/townhouse unit displacements. If direct access ramps are not provided, this would potentially avoid displacing up to 261 additional residential units than in Alternates 5A/B, resulting in a potential total of either 91 to 124 displacements (without retaining walls) or 59 to 96 displacements (with retaining walls). The resulting displacements are identical to the impacts in Alternates 5A/B. Elimination of the I-270/I-370 direct access ramps would also potentially avoid up to one additional business displacement.

The elimination of the I-370 direct access ramps would likely reduce the Premium Bus transit ridership in Alternate 5C by approximately 4,000 riders during the AM peak period. This would decrease the total projected 2025 AM peak period ridership from 14,500 to 10,500 riders. In addition, the elimination of these ramps would decrease total corridor transit ridership (MARC commuter rail, local bus, and premium bus) by approximately 800 riders, and would increase traffic volumes in the corridor by approximately 650 additional low occupancy vehicle trips.

Slope Limits along I-270 Northbound, South of Middle brook Road along Staleybridge Road (included in Alternates 3A/B, 4A/B, 5A/B/C)
Slope limits along I-270 northbound, south of Middlebrook Road are considered a non-preferred alternate, as these slope limits would result in the displacement of a substantial number of single-family residences. In lieu of slope limits in this area, a retaining wall would be provided along I-270 northbound, south of Middlebrook Road in order to avoid displacements to residents located along Staleybridge Road. Retaining walls in this area would reduce residential impacts from potential displacements of between 26 and 35 residences (total without retaining walls) to between nine and 13 residences.

F. FINANCIAL ANALYSIS

1. Introduction

This section summarizes the financial analysis for the proposed I-270/US 15 Corridor multi-modal improvements. It includes background information about transportation revenues and expenditures in Maryland and places the transportation improvement alternatives in the context of the state's budgeting and capital planning process. The estimated capital and operations and maintenance (O&M) funding requirements for the various I-270/US 15 Corridor highway and transit improvements are also reviewed. Finally, the analysis compares the projected capital and

O&M costs for the different build alternatives to available revenues to determine the feasibility of existing revenue sources to support the project's financial needs and identify funding shortfalls. Additional revenue sources to offset I-270/US 15 Corridor improvement costs are also explored.

2. Transportation Finance in Maryland

a. Transportation Trust Fund

Maryland's transportation system is funded through the state Transportation Trust Fund (TTF). The TTF was created in 1971 to establish a dedicated source of funding for all of MDOT – the SHA, the MTA, the Maryland Aviation Administration (MAA), the Maryland Port Administration (MPA), and the Motor Vehicle Administration (MVA). Activities supported by the TTF include: debt service; MDOT maintenance, operations and administration; local government allocations; and capital projects. In addition, the TTF supports Maryland's share of net operating costs for the Washington Metropolitan Area Transit Authority (WMATA). Unexpended funds remaining in the TTF at the close of the fiscal year are carried over and are not reverted to the State's General Fund. It is MDOT's goal to maintain a fund balance of $100 million to accommodate its working cash flow requirements throughout the year.

b. Existing Revenues

Current revenues and expenditures of the TTF are between $2.0 and $2.5 billion annually. Revenues flowing into the TTF are not allocated for a specific program. This provides the State tremendous flexibility to meet the needs of a diverse transportation system. The estimated future annual revenues generated by the various TTF sources are listed in **Table V-4**. Revenue projections are based upon MDOT financial forecasts for the period FY2001-2006. MDOT assumed a moderate growth scenario for the nation's economy over the forecast period. Bond rates were projected to fluctuate between 4.6 and 5.3% during that period. An annual inflation rate of 2.0-3.0% was also assumed.

TABLE V-4
MARYLAND TRANSPORTATION TRUST FUND REVENUES (2001 DOLLARS)

Revenue Source	Projected FY2001-2006 Revenues ($ Millions)	Percentage of Total Fund
Opening Balance	$100	1%
Motor Vehicle Fuel Tax	$2,800	18%
Motor Vehicle Titling Tax	$2,800	18%
Motor Vehicle Registration and Related Fees	$1,400	9%
Corporate Income Tax	$470	3%
Operating Revenues	$2,000	13%
Bond Proceeds	$1,000	7%
Other	$500	3%
Federal Aid	$4,300	28%
Total	$15,370	100%

***Source**: Maryland Consolidated Transportation Program, FY 2001-2006, Maryland Department of Transportation*

A description of each of the revenue sources comprising the TTF is provided below.

- Motor Fuel Taxes: Current state motor fuel taxes are 23.5 cents per gallon of gasoline and 24.25 cents per gallon of diesel fuel. This is the largest source of revenue among the various TTF taxes and fees. MDOT forecasts predict small increases in gasoline consumption, stabilizing at 1% annually for the second half of the forecast period.

- Vehicle Titling Tax: The vehicle titling tax is 5% of the fair market value of new and used motor vehicles at the time of purchase. Along with motor fuel taxes, this is the largest source of revenue among TTF taxes and fees. This revenue source has cycles with periods of decline and growth, based on consumer demand and economic confidence. The high level of consumer confidence and economic growth experienced in recent years has resulted in consistent increases in vehicle sales. MDOT expects short-term sales to decline over the next several years, as consumer demand subsides and economic growth slows, with a normal cyclical pattern then resuming.

- Motor Vehicle Registration and Related Fees: These fees are applied to all motor vehicles registered and licensed in the State. MDOT forecasts assume a combination of reduced growth in vehicle registration and a change to a heavier vehicle mix will increase registration revenues an average of 2.5% every two-year cycle.

- Corporate Income Tax: The Transportation Trust Fund receives a portion (approximately 25%) of the State's 7% corporate income tax.

- Operating Revenues: Operating revenues include revenues produced by facilities or services operated by the MTA, MPA and MAA. MTA revenues come primarily from bus and rail fares. MPA revenues include Port of Baltimore terminal operations, World Trade Center leases and other port-related revenues. MAA revenues are associated with operations at Baltimore-Washington International (BWI) Airport and include flight

activities, rent and user fees, parking fees, airport concessions and other aviation-related fees. The MAA is the largest contributor of operating revenues, followed by the MTA and the MPA. Operating revenues from the three sources are projected to increase between 2 to 3% annually from FY2001 to 2006.

- Bond Proceeds: MDOT issues bonds on occasion, the amount and timing of which are dependent on the net revenues and capital program requirements. MDOT is authorized by state statute to issue up to $1.2 billion in total bond obligations, with the upper limit set annually by the Maryland General Assembly. The level of bonds that can be issued is also dependent upon net MDOT revenues. MDOT follows a debt service coverage test, established by bond resolution, that allows net revenues and pledged taxes to be no less than 2.0 times the maximum future annual debt service. For planning purposes, MDOT uses a minimum coverage of 2.5 times net revenues.

- Other Revenues: These revenues include investment income of trust funds, reimbursements and miscellaneous revenues, and transfers from the State's General Fund. Transfers from the General Fund during the FY2001-2006 period totaling approximately $370 million are "one-time" transfers earmarked for specific capital projects as part of the Governor's Transportation Initiatives.

Federal aid funds are the largest source of TTF revenues and include funds for transit, highway and aviation facility operations and improvements. MDOT receives Federal capital and operating assistance for its programs as well as a separate contribution that goes directly to WMATA. Federal funding levels for FY1998 through 2003 are authorized through the Transportation Equity Act for the 21st Century (TEA-21). Funding beyond FY2003 is dependent upon TEA-21 reauthorization. The majority of the anticipated federal funds are drawn from the following aid categories:

- Woodrow Wilson Bridge Replacement (special federal authorization) – 17%
- National Highway System (NHS) – 15%
- Surface Transportation Program (STP) – 14%
- New Starts, Fixed Guideway Modernization, Bus – 13%
- Congestion Management/Air Quality (CMAQ) – 8%
- Urbanized Area Formula – 8%
- Interstate Maintenance (IM) – 7%
- Other Federal Sources – 18%

The majority of federal aid flowing into the TTF – approximately $4.2 billion or 97% of federal aid funds received – is for capital projects; only a small portion is for operating assistance or subsidies.

c. Committed Expenditures

Capital Expenditures

The TTF is the principal source of federal and state revenues for transportation system expansion in the State of Maryland. Revenues earmarked for capital expenditures are allocated among the various MDOT administrations, as shown in **Table V-5**. Federal aid monies received through the TTF comprise approximately 45% of the MDOT capital program. Bond sales are also used for capital expenditures, to supplement TTF and other revenues.

TABLE V-5
FY 2001-2006 MDOT CAPITAL EXPENDITURES (2001 DOLLARS)

Administration	State Funds [1] ($ Millions)	Federal Aid ($ Millions)	Other Funds [2] ($ Millions)	Total ($ Millions)
The Secretary's Office	$76.8	$3.5		$80.3
Motor Vehicle Administration	$129.9			$129.9
Maryland Aviation Administration	$403.5	$129.7	$700.3	$1,233.5
Maryland Port Administration	$479.4		$4.5	$483.9
Maryland Transit Administration	$498.6	$974.3		$1,472.9
State Highway Administration	$2,018.5	$2,801.2		$4,819.7
Washington Metropolitan Area Transit Authority	$481.8	$318.1	$433.1	$1,233.0
Total	$4,088.5	$4,226.8	$1,137.9	$9,453.2

Notes:

1. TTF funds, including General Fund appropriations.

2. Funds not received through the TTF. Includes direct federal aid to WMATA, funds from the Maryland Transportation Authority, Passenger Facility Charges, Certificates of Participation, Customer Facility Charges and Maryland Army National Guard/DOD funds.

Source: *Maryland Consolidated Transportation Program, FY 2001-2006, Maryland Department of Transportation*

The Maryland Consolidated Transportation Program (CTP) is the six-year capital budget for all state transportation projects, based upon anticipated TTF revenues. Project planning and environmental studies for the proposed I-270/US 15 Corridor multi-modal improvements are included in the list of funded projects in the FY2001-2006 CTP. The CTP also includes funding for the I-270/Watkins Mill Road interchange planning, a separate study associated with the I-270/US 15 Corridor improvement project. No commitment of state or federal funds for the engineering design and/or construction of the improvements have been made.

In addition to the CTP, the Constrained Long Range Plan (CLRP) for the National Capital Region (i.e., suburban Maryland, District of Columbia and northern Virginia), prepared by MWCOG, lists proposed transportation improvement projects for the region and estimates the state and federal capital revenues that will be available to fund those improvements over a twenty-five year period. An Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area (Cambridge Systematics, Inc., 2000), conducted for the MWCOG 2000 CLRP update, identifies projected long-term capital revenues for the Washington metropolitan area to fund transportation improvements for the period 2001-2025.

The forecast of funds for the suburban Maryland (i.e., Prince Georges, Montgomery and Frederick Counties) area of the Washington, DC region was provided to MWCOG by the MDOT, based upon suburban Maryland's historical percentage of MDOT statewide system expansion funds and is shown in **Table V-6**. Most of the anticipated capital funds for suburban Maryland will be used for short-range (FY2001-2005) programmed projects and for long-range (FY2006-2025) projects identified through the plan development process. The Highway Contingency Fund and a Transit Contingency Fund represent federal and state capital funds anticipated from the Maryland TTF over the years 2006-2025 that have not been earmarked for a specific project.

TABLE V-6
FY2001-2025 CAPITAL EXPANSION FUNDS, SUBURBAN MARYLAND[1]
(2001 DOLLARS)

Funds	Highway[2] ($ Million)	Transit[2] ($ Million)	Total[2] ($ Million)
Consolidated Transportation Program FY 2001-2005			
Programmed Projects	$1,350	$618	$1,968
MDOT Forecast FY 2006-2025			
Long-Term Identified Expenditures	$2,597	$634	$3,231
Highway Contingency Fund	$108		$108
Transit Contingency Fund		$847	$847
Total FY 2001-2025	$4,055	$2,099	$6,154

Notes:

1. *Combined total for Prince Georges, Montgomery and Frederick Counties.*
2. *Includes state and federal revenues from the Maryland TTF. Transit funds include approximately $939 million in federal New Starts funds over the period F Y2001-2025.*
3. *FY 2001-2005 revenue/expenditure forecasts are from the final F Y2000 CTP. FY 2006-2025 projections of state funds use a historical annual growth rate of 3.3%. Federal fund projections for the same period are based on an annual growth rate of 4.7% for both Highway and Transit Program funds.*
4. *FY 2006-2025 capital fund forecasts for the Washington region were derived from total MDOT projected surface (i.e., highway and transit) enhancement funds by adding the expenditures for all of WMATA, one-half of MARC and that portion SHA expenditures pertaining to Prince Georges, Montgomery and Frederick Counties.*

Source: *Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area, Cambridge Systematics, Inc., 2000 and Financially Constrained Long-Range Plan Year 2000 Update for the National Capital Region, Maryland Department of Transportation, March 15, 2000.*

Operations and Maintenance Expenditures

The Maryland TTF is also the source of O&M funding for state transportation systems, including highways and transit, port and aviation facilities. TTF funds also include shared highway user revenues that are distributed to counties and municipalities for highway operations and maintenance. Anticipated MDOT operating expenditures, as identified in the CTP, are shown in **Table V-7**.

TABLE V-7
FY 2001-2006 MDOT OPERATIONS EXPENDITURES (2001 DOLLARS)

Administration	State and Federal Funds ($ Millions)
The Secretary's Office	$375.3
Motor Vehicle Administration	$790.3
Maryland Aviation Administration	$568.6
Maryland Port Administration	$532.4
Maryland Transit Administration	$2,409.9
State Highway Administration [1]	$3,751.3
Operating Grants, Etc. [2]	$852.2
Total	$9,280.0

Notes: *Includes $2580.4 million in highway user revenues distributed to counties and municipalities.*
1. Includes WMATA operating grants and Governor's Transportation Initiative funds.
Source: *Maryland Consolidated Transportation Program, FY 2001-2006, Maryland Department of Transportation*

d. Available Funds

Available Capital Funds

The forecast of capital funds available for long-term (FY2006-2025) transportation improvements in the suburban Maryland portion of the Washington, DC metropolitan region, prepared for the National Capital Region CLRP (see **Table V-6**), included uncommitted federal and state highway funds of approximately $108 million over the 20 year forecast period (or $5 million annually) and uncommitted federal and state transit funds of approximately $847 million (or $42 million annually).

The CLRP estimates the Washington, DC region will receive approximately $100 million per year in federal funds (e.g., New Starts) or $2.5 billion over the 25-year life of the CLRP. Suburban Maryland is projected to receive about one third of the region's New Starts funds or approximately $33 million per year. Uncommitted New Starts funds projected for 2006-2025, total approximately $23.5 million per year or approximately $470 million for that 20-year period. The I-270/US 15 Corridor transit improvements and other transit projects proposed for Montgomery, Frederick or Prince Georges Counties will compete for those uncommitted New Starts dollars.

Competition for State of Maryland capital funds is intense as well. The Maryland TTF has been supplemented in recent history with special, project-specific federal and state authorizations (i.e., Woodrow Wilson Bridge and MD Governor's Transportation Initiative projects) above and beyond regular revenues. Those authorizations have been considered exceptions and are not anticipated as a regular practice. Therefore the I-270/US 15 Corridor improvements must compete against other projects throughout Maryland for available TTF dollars.

Available Operations and Maintenance Funds

Once the proposed I-270/US 15 highway improvements are constructed, it is anticipated that recurring O&M costs will be included in the overall repair cycle for the affected segments of I-270 and US 15 and funded from the Maryland TTF.

It is assumed transit O&M costs for the I-270 Corridor transit improvements will be met from two sources: system-generated revenues and an operating subsidy. System-generated revenues include passenger fares, advertising revenues and other miscellaneous sources, with the fare revenues being the largest component. Projected fare revenues for the various alternatives are shown in **Table V-8**. The net operating deficit that remains after system-generated revenues are applied to O&M costs must be met from federal, state, local or private sector sources.

TABLE V-8
PROJECTED ANNUAL FARE REVENUES (2001 DOLLARS)

Alternate		Estimated Annual Fare Revenues ($ Millions)
Alternate 2	TSM/TDM	$3
Alternate 3A	Master Plan HOV/LRT	$10
Alternate 3B	Master Plan HOV/BRT	$26
Alternate 4A	Master Plan General Purpose/LRT	$10
Alternate 4B	Master Plan General Purpose/BRT	$26
Alternate 5A	Enhanced MP HOV/General Purpose/LRT	$10
Alternate 5B	Enhanced MP HOV/General Purpose/BRT	$26
Alternate 5C	Enhanced MP HOV/General Purpose/Premium Bus	$21

Note: *All revenues are net increase above No-Build.*
Source: *Parsons, Brinckerhoff, Quade & Douglas, Inc., February 2002.*

3. Cost of I-270 Alternatives

a. Capital Costs

The capital funding strategy is in its formative stages. Highway capital costs include right-of-way acquisition, roadway and ramp construction costs and other related costs (e.g., signage, landscaping, etc.). Transit capital costs include right-of-way acquisition, transitway and station construction, rail cars or buses and non-revenue vehicles, maintenance yard(s) and shop, and related roadway or feeder bus improvements.

The estimated capital costs for each I-270/US 15 Corridor build alternative are shown in **Table V-9**.

b. Operations and Maintenance Costs

The development of an O&M cost strategy is in its formative stages as well. Highway O&M costs include routine repairs, maintenance and periodic road resurfacing. Transit O&M costs include transitway and vehicle maintenance and repairs, transit vehicle operators and other staff,

and O&M costs associated with changes to existing transit services (e.g., feeder bus or rail routes, etc.).

The estimated O&M costs for the I-270/US 15 highway and transit improvement alternatives are shown in **Table V-9**.

TABLE V-9
PROJECTED I-270/US 15 CORRIDOR CAPITAL AND O&M COSTS (2001 DOLLARS)

Alternative		Estimated Capital Costs ($ Millions)			Estimated Annual O&M Costs ($ Millions)		
		Highway	Transit	Total	Highway	Transit	Total
Alternate 2	TSM/TDM	-	$33	$33	-	$28	$28
Alternate 3A	Master Plan HOV/LRT	$1,805	$857	$2,662	-	$25	$25
Alternate 3B	Master Plan HOV/BRT	$1,805	$792	$2,597	-	$64	$64
Alternate 4A	Master Plan General Purpose/LRT	$1,805	$857	$2,662	-	$25	$25
Alternate 4B	Master Plan General Purpose/BRT	$1,805	$792	$2,597	-	$64	$64
Alternate 5A	Enhanced MP HOV/General Purpose/LRT	$2,098	$857	$2,955	-	$25	$25
Alternate 5B	Enhanced MP HOV/General Purpose/BRT	$2,098	$792	$2,890	-	$64	$64
Alternate 5C	Enhanced MP HOV/General Purpose/Premium Bus	$2,223	$296	$2,519	-	$32	$32

Source: *Rummel, Klepper & Kahl, LLP, March 2002 (Highway Capital Costs) and Parsons, Brinckerhoff, Quade & Douglas, Inc., February 2002 (Transit Capital and O&M Costs).*

4. Financial Analysis

a. Capital Funding Shortfall

It is assumed a portion of the capital costs for the selected alternative will be met from federal sources flowing into the TTF, either federal highway aid (e.g., NHS, STP, CMAQ) for the selected highway improvements or federal transit aid (e.g., Section 5307, Section 5309, STP) for the selected transit improvements. The balance of the capital costs would be met from state or local (i.e., Montgomery County, Frederick County, etc.) sources. The percentage of funds from each source has been based upon the historical funding mix identified in the State of Maryland and metropolitan Washington planning documents, as follows.

- Highway capital costs will be funded with a combination of state and federal funds. A 50/50 mix of funding sources is assumed.
- 60% of transit capital costs will be sought from federal sources; 40% of transit non-federal capital costs will be sought from state and local sources, in a proportion that is currently undetermined.

Capital funding for the engineering and construction of the I-270/US 15 Corridor multi-modal improvements has not been programmed by the State of Maryland. **Table V-10** identifies projected capital funding availability for the various highway/transit improvement alternatives, based upon the use of uncommitted federal and state highway and transit monies identified for Prince Georges, Montgomery and Frederick County in the 2000 update of the Financially Constrained Long-Range Plan for the National Capital Region.

Due to the insufficient availability of capital funds, a shortfall of between $1.7 and $2.1 million for highway/transit improvements is projected. A shortfall of available federal and state highway capital funds is the primary reason for the shortfalls. While the analysis indicates sufficient uncommitted transit funds, including New Starts funds, are available to finance the TSM/TDM, BRT and Premium Bus alternative improvements, it is based upon the assumption that all of the uncommitted funds for the three county suburban Maryland area of the Washington, DC region will be applied towards the I-270/US 15 Corridor capital requirements and no contribution will be provided by Montgomery or Frederick Counties or other local jurisdictions. For the LRT alternatives, a $10 million shortfall in capital funds is projected if all available federal/state capital monies are utilized. In all likelihood, the I-270/US 15 Corridor improvements will have to compete against other transit projects slated for Montgomery, Frederick or Prince Georges Counties for a portion of the federal/state funds available to the three county area.

b. Operations and Maintenance Funding Shortfall

There has been no commitment of state TTF or other funds to offset the proposed I-270/US 15 improvement highway or transit operating costs. Neither Montgomery County nor Frederick County, or any other local jurisdictions in either county, have made a commitment to contribute local revenues towards the operation of the proposed systems. As a result, an annual shortfall of between $11 and $38 million in O&M funding requirements is projected, after estimated fare revenues are deducted.

It should be noted that no decision has been made as to the operating entity for the I-270 Corridor transitway. That decision, and the development of a detailed financial plan, will be made during subsequent phases of project development.

TABLE V-10
FUNDING PLAN, I-270/US 15 CORRIDOR MULTI-MODAL ALTERNATIVES
(2001 DOLLARS, MILLIONS)

	Alternate 2 TSM/TDM	Alternate 3A Master Plan HOV/LRT	Alternate 3B Master Plan HOV/BRT	Alternate 4A Master Plan General-Purpose/LRT	Alternate 4B Master Plan General-Purpose/BRT	Alternate 5A Enhanced Master Plan HOV/General-Purpose/LRT	Alternate 5B Enhanced Master Plan HOV/General-Purpose/BRT	Alternate 5C Enhanced Master Plan HOV/General-Purpose/Premium Bus
Capital Funding Requirements								
Federal Highway Share (50%)		$903	$903	$903	$903	$1,049	$1,049	$1,112
State Highway Share (50%)		$902	$902	$902	$902	$1,049	$1,049	$1,111
Federal Transit Share (60%)	$20	$514	$475	$514	$475	$514	$475	$178
State/Local Transit Share (40%)	$13	$343	$317	$343	$317	$343	$317	$118
Total	$33	$2,662	$2,597	$2,662	$2,597	$2,955	$2,890	$2,519
Projected Capital Funding[1]								
Federal Highway Funds		$54	$54	$54	$54	$54	$54	$54
State Highway Funds		$54	$54	$54	$54	$54	$54	$54
Federal Transit Funds	$20	$508	$475	$508	$475	$508	$475	$178
State Transit Funds	$13	$339	$317	$339	$317	$339	$317	$118
Total	$33	$955	$900	$955	$900	$955	$900	$404
Residual Capital Funding Requirement	$0	$1,707	$1,697	$1,707	$1,697	$2,000	$1,990	$2,115
Annual O&M Funding Requirements								
Highway O&M								
Transit O&M	$28	$25	$64	$25	$64	$25	$64	$32
Total	$28	$25	$64	$25	$64	$25	$64	$32
Projected O&M Funding								
Highway Maintenance Funds	$0	$0	$0	$0	$0	$0	$0	$0
Transit Fare Revenues	$3	$10	$26	$10	$26	$10	$26	$21
Federal/State/Local Transit Subsidy	$0	$0	$0	$0	$0	$0	$0	$0
Total	$3	$10	$26	$10	$26	$10	$26	$21
Residual O&M Funding Requirement	$25	$15	$38	$15	$38	$15	$38	$11

Notes:

1 Total projected funding FY2006-2025. Estimated average annual funding is $5 million for highway and $42 million for transit.

2 The cost estimates for the highway and transit components do not include the costs to construct the I 270/Watkins Mill Rd. interchange. That improvement is being evaluated as a separate project planning study. The estimates do include the construction of HOV direct access ramps at the proposed interchange.

Source: *Rummel, Klepper & Kahl, LLP, March 2002; Parsons, Brinckerhoff, Quade and Douglas, Inc., February 2002; Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area, Cambridge Systematics, Inc., 2000; and Financially Constrained Long-Range Plan Year 2000 Update for the National Capital Region, Maryland Department of Transportation, March 15, 2000.*

c. Strategy to Cover Shortfalls

Additional Revenue Sources

The financial shortfalls facing the proposed I-270/US 15 Corridor improvement project are not unique. Throughout the metropolitan Washington, DC region, the need for transportation system repairs and improvements greatly exceeds the available federal, state and local revenues. The I-270/US 15 Corridor project faces tough competition for federal and state capital funds from other major transportation improvements within the metropolitan Washington, DC region that are further along in the project development process, as well as other large state highway and transit projects in the Baltimore, MD region and other parts of the State of Maryland. Once improvements are constructed, the I-270/US 15 Corridor will then compete with those same projects for state and federal operating funds.

Because of the limited potential availability of federal and state revenues, additional emphasis is placed on securing local revenues and/or other revenue sources to satisfy the capital and O&M costs for the I-270/US 15 Corridor improvements. While Montgomery and Frederick Counties may contribute funds for the construction or operation of proposed transit improvements, they are unlikely to contribute funds for interstate highway improvements. Montgomery County, as a member jurisdiction of WMATA, currently makes annual contributions for Metrobus and Metrorail operations. The county's mass transit program is funded through a combination of property tax revenues and MDOT grants. The county has also established a Mass Transit Facilities Fund that receives revenue from a county real property tax dedicated to transit.

The Washington, DC Transportation Planning Board (TPB) has identified a number of enhanced funding mechanisms for transportation priorities that have the potential to increase the revenues available to the region to expand its transportation system, such as:

- Local tax levies – gasoline, sales or income tax – dedicated to transportation.
- Regional, monthly payroll tax.
- Tolls on new highway facilities, including high-occupancy toll (HOT) lanes.

Private Sector Funding

Other techniques to offset highway and transit improvement costs include joint development projects and private value capture techniques where a portion of the incremental increase in value of land and improvements associated with transit or highway improvements is "captured" and used towards capital or O&M costs. A variety of joint development or value capture mechanisms have potential to contribute to capital and O&M funding of I-270/US 15 Corridor multi-modal improvements. They include:

- Right-of-Way Contributions: this category includes the contribution of privately or publicly owned land that is needed for highway or transit improvement road right-of-way (ROW), interchanges, stations or support facilities.

- Developer Payment in Lieu of Parking: this mechanism involves reducing parking requirements for developments located near transit station areas. Payments in-lieu of parking are usually negotiated on a case-by-case basis according to a formula for determining the cost benefit of a parking reduction.

- Air Rights Development Revenues: among the most common air rights revenues are ground leases of authority-owned land to private-sector developers and developer cost sharing/proffer arrangements.

Advance ROW dedication is one technique that may hold promise for defraying some of the project-related land acquisition costs associated with the I-270/US 15 Corridor improvements. Frederick County Subdivision Rules and Regulations (Section 1-16-235) require developers of proposed subdivisions that include or abut streets designated on the master highway plan section of county's comprehensive development plan to dedicate to public use adequate ROW for the coordination with existing, planned or platted roads. The dedication of the full ROW indicated in the master highway plan is required, except where the ROW to be dedicated is greater than a collector street. In that case, a reservation of land to meet the ROW standard may be required for future dedication or acquisition. The Montgomery County Subdivision Ordinance (Section 50-31) provides for the reservation of land for public use, including land required for road or street rights-of-way as part of the subdivision plan submission process.

None of these private sector mechanisms have been fully explored as a means of funding I-270/US 15 highway and transit improvements. They represent a supplemental source of capital and/or O&M funds that may be pursued as a supplemental funding source.

VI. SECTION 4(f) EVALUATION

VI. SECTION 4(f) EVALUATION

A. INTRODUCTION

Section 4(f) of the U.S. Department of Transportation Act of 1966, 49 USC 303(c), requires that the proposed use of land from a publicly-owned public park, recreation area, wildlife and/or waterfowl refuge, or any significant historic site, as part of a federally funded or approved transportation project, is permissible only if there is no feasible and prudent alternative to the use. Final action requiring the taking of such land must also document and demonstrate that the proposed action includes all possible planning to minimize harm to the property resulting from such use. The project team has conducted on-going coordination with Section 4(f) property owners. Letters received from these property owners are included in the Comments/Coordination portion of this document (**Chapter VII, Section A**).

A Section 4(f) Evaluation is included in the DEIS as a result of proposed right-of-way acquisition from 13 publicly owned public parks and recreation areas and five historic sites which may be required by one or more of the Alternates being considered.

B. DESCRIPTION OF PROPOSED ACTION

The project consists of improvements to relieve congestion and improve safety conditions along the I-270/US 15 Corridor.

The project area generally extends from the Shady Grove Metro Station south of I-370 (Montgomery County) to the US 15/Biggs Ford Road intersection north of Frederick. A description of the project's purpose and need is presented in **Chapter I**.

Five alternates are under consideration: Alternate 1 – No-Build, Alternate 2 - TSM/TDM, Alternate 3 - Master Plan HOV/LRT or BRT, Alternate 4 - Master Plan General Purpose/LRT or BRT and Alternate 5 - Enhanced Master Plan/HOV/LRT or BRT or Premium Bus. For a complete description of the proposed action, see **Chapter II**. It is important to note that Alternates 3, 4 and 5 are identical in their roadway improvement components from I-370 north to MD 121. Within these study limits, the transit improvement components change from light rail to bus rapid modes operating on a separate transitway right of way, to the premium bus mode operating on the HOV lanes as denoted by the A, B or C designation with the Alternate name.

C. DESCRIPTION OF SECTION 4(f) RESOURCES

The alternates considered for the I-270/US 15 Multi-Modal Corridor Study are anticipated to require right-of-way from the following historic resources, publicly owned public parks and recreation areas.

1. Publicly-Owned Parks and Recreation Areas

Impacts to the following public parks and recreation areas (presented from south to north) are anticipated due to the alternates considered. A brief description of each property follows and is listed in **Table VI-I**. The location of each park is shown in **Figure VI-1** and on the Plan Sheets in **Chapter XI**.

a. Malcolm King Park

Malcolm King Park is located in eastern Gaithersburg, northwest of the I-270/I-370/Sam Eig Highway interchange (see **Figure VI-1**). This park was established with funds from Program Open Space and is owned by the City of Gaithersburg. The park is conveniently located next to a multi-unit residential community. No information was available from the City regarding frequency of use. The park occupies 72.9 acres and is bordered on the north, south, and west by residential property, and on the east by I-270. The park offers basketball courts, hiking trails, picnic tables, playgrounds, tennis courts, and tot lots. No future plans for additional development of this park were identified.

b. Morris Park

Morris Park's 37.2 acres are located in eastern Gaithersburg, northeast of the I-270/I-370/Sam Eig Highway interchange (see **Figure VI-1**). This park was established with funds from Program Open Space and is owned by the City of Gaithersburg. The park is conveniently located next to a neighborhood elementary school and multi-unit residential communities. No information was available from the City regarding frequency of use. Summit Hall Elementary School borders the park to the east, I-270 to the west, I-370 to the south, and Summit Hall Road to the north. The park is suited for sports activities, hosting a football/soccer field, basketball courts, tennis courts, baseball fields, playground areas, picnic tables, and grills. No future plans for additional development of this park were identified.

c. Seneca Creek State Park

Seneca Creek State Park is located in Montgomery County and serves as a border between Gaithersburg and Germantown. This park was established with funds from the Land and Water Conservation fund and Program Open Space (see **Figure VI-1**). The 6,290 acre park is under the jurisdiction of the Maryland Department of Natural Resources as noted by DNR in their April 24, 1996 letter to SHA (see **Chapter VII, Section A**). The park is bordered on the north by Schaeffer Road, South Germantown Recreational Park, open space and Clopper Road, to the south by open space and the Potomac River, to the east by open space, and the west by White Ground Road and open space. Seneca Creek State Park's amenities include biking trails, boat rental, cross-country skiing, campfire programs, fishing, flat-water canoeing, hiking trails, hunting areas, a playground, a disc golf course, and riding trails. No future plans for additional development of this park were identified.

d. Middlebrook Hill Park

The Maryland-National Capital Parks and Planning Commission (M-NCPPC) owns the 12-acre Middlebrook Hill Park (see **Figure VI-1**) as noted by M-NCPPC in their June 17, 1996 letter to SHA (see **Chapter VII, Section A**). This park was established with funds from Program Open Space. Cross Lane lies to the park's north and east, and Staleybridge Road lies south and west of the park. The park is a wooded, undeveloped parcel of land that does not offer active recreational opportunities. Based on coordination with M-NCPPC, there are no future plans for development of this park; however, it is being managed as a conservation area.

e. North Germantown Greenway/Little Seneca Greenway

The North Germantown Greenway is a proposed park under construction for the M-NCPPC. The 197-acre facility is located east of I-270 between Father Hurley Boulevard and West Old Baltimore Road (see **Figure VI-1**). Coordination with M-NCCPC is ongoing and the funding source for establishing the greenways has not been determined. The greenway is located along Little Seneca Creek and will be accessible via Observation Drive Extended. The greenway will accommodate recreational facilities such as an athletic field, playground, picnic area, basketball court and a trail. The portion of the park adjacent to I-270 is mature forest.

f. Black Hill Regional Park

Black Hill Regional Park, under the jurisdiction of the M-NCPPC, lies on 1,855 acres, between Germantown and Clarksburg (see **Figure VI-1**). This park was established with funds from Program Open Space, Montgomery County Capital Program and Montgomery County bonds as noted by M-NCCPC in their June 17, 1996 letter to SHA (see **Chapter VII, Section A**). Located west of I-270, the park borders West Old Baltimore Road to the north, Waters Landing to the southeast, I-270 to the northeast, and Clopper Road to the west. The park offers opportunities for fishing, boating, hiking, and picnicking. The park features a visitor's/nature center, equestrian trails, a fishing pier and a dock. No future plans for additional development of this park were identified. The portion of the park adjacent to I-270 is mature forest.

g. Little Bennett Regional Park

Little Bennett Regional Park is located to the east of I-270 in northern Montgomery County, just south of the Frederick County line, and is under the jurisdiction of the M-NCPPC (see **Figure VI-1**). This park was established with funds from Program Open Space and the Montgomery County Capital Program, as noted by M-NCPPC in their May 7, 1996 and June 17, 1996 letters to SHA (see **Chapter VII, Section A**).

The 3,648-acre park is bordered by Lewisdale Road on the north, by open space to the south, by Burnt Hill Road to the east, and by Frederick Road to the west. Little Bennett Regional Park includes a golf course, as well as camping and picnic areas. A concept plan includes more extensive camping areas, trails, and passive recreation facilities. The portion of the park adjacent to I-270 is undeveloped with no future plans.

h. Urbana Lake Fish Management Area

The Urbana Lake Fish Management Area is located west of I-270 between Urbana and Hyattstown and is under jurisdiction of the Maryland Department Natural Resources (see **Figure VI-1**). Coordination with MD DNR has not indicated the funding source for establishing the management area as noted by their January 28, 1990 and April 24, 1996 letters to SHA (see **Chapter VII, Section A**). The 70-acre area is bordered on the north, south, and west by open space, and to the east by I-270. The area's sole amenity is the opportunity to fish. There is also a Maryland Public Television broadcast tower on the site. No future plans for additional development of this area were identified.

i. Urbana Elementary School

Urbana Elementary School is located in northwestern Urbana and is under the jurisdiction of the Frederick County Board of Education (see **Figure VI-1**). Coordination with the school is ongoing and the funding source for establishing the intramural field has not been determined. The intramural field is open to public use and contains a ball field, soccer field, tennis/basketball courts and a playground. The intramural field is located west of the school building and is bordered by I-270 at its western edge. By letter sent on January 29, 2002 SHA requested a determination if a significant function of the resource would be affected by the alternates.

j. Urbana Community Park

Urbana Community Park is a 20-acre park located in northwestern Urbana and is under the jurisdiction of Frederick County (see **Figure VI-1**). This park was established with funds from Program Open Space as noted by Frederick County in their April 18, 1996 letter to SHA (see **Chapter VII, Section A**). This park is bordered by MD 355 on the east, to the west by I-270, to the south by Urbana, and to the north by open space. The park consists of ball fields, grills, horseshoe pits, picnic shelters, play equipment, soccer fields, tennis courts, and volleyball courts. No future plans for additional development of this park were identified.

k. Monocacy National Battlefield

Monocacy National Battlefield is under the jurisdiction of the National Park Service (NPS) (see **Figure VI-1**). The battlefield's 1,647 acres and five memorial monuments to battle participants are bisected by I-270 (originally constructed in the 1950s as US 240), running from the northwest to the southeast. The battlefield was established in part by an Act of Congress in 1934 and through deed transfers between private owners, land trusts and NPS as noted in their November 6, 1996 letter to SHA (see **Chapter VII, Section A**). Open space and the I-270 Technology Business Park are situated to the north, open space to the south and east, and Omega Center, McKinney Industrial Park, and Dudrow Business Park to the west. The battlefield was listed on the National Register of Historic Places in 1966 and listed as a national landmark in 1973. It was the location of an important Civil War battle. The national landmark designation is used for places that possess exceptional value or quality in illustrating or interpreting the heritage of the United States and only three percent of the National Register sites possess landmark status. The national landmark designation is also bestowed to places where significant historical events occurred, where prominent Americans worked or lived, that represent those ideas that shaped the nation, that provide important information about our past, or that are outstanding examples of design or construction

The Battle of Monocacy, if judged by its consequences rather than its size, ranks among the important battles of the American Civil War. Here, July 9, 1864, on a checkerboard of gold wheatfields and green cornfields just outside Frederick, Maryland, Confederate forces under General Jubal Early defeated Union forces under General Lew Wallace. The battle cost Early a day's march and his chance to capture Washington, DC. Thwarted in the attempt to take the capital, the Confederates turned back to Virginia, ending their last campaign to carry the war into the North.

Early's bold raid was part of a plan to divert Union forces away from Robert E. Lee's army at Petersburg, Virginia. Pushing northward through the Shenandoah Valley, Early arrived at Winchester, Virginia, on July 2. After plundering Federal stores at Harpers Ferry, West Virginia, Early's men crossed the Potomac into Maryland at Sharpsburg, near Antietam, where a previous Southern offensive had ended in bloody battle two years before. Early's cavalry collected $20,000 from Hagerstown residents to spare their town. But at Frederick, where the main body of troops headed, General Early himself demanded, and received, $200,000 ransom.

Meanwhile, the Confederate actions were having the desired effect on Washington. Responding to alarm caused by Early's advances, General U.S. Grant dispatched a 5,000-man division under James B. Ricketts on July 6, and a few days later sent the full corps under H.G. Wright. Until those troops arrived, however, the only Federal army between Early and the capital city was a ragtag group of 2,300 men commanded by Major General Lew Wallace. At the time, Wallace, who would become best known for his book Ben Hur, was headquartered m Baltimore. Away from the battlefront, the district was used for training recruits. Most of Wallace's men had never seen battle. Wallace learned that a large enemy force was advancing. Uncertain whether Baltimore or Washington was the Confederate's objective, he knew he had to delay their approach until reinforcements could reach either city.

The battlefield, which receives upwards of 18,000 visitors each year, is a historic landscape that encompasses land valued and utilized for farming and transportation, retaining many of the traditional landscape features, such as roads, drives, lanes, fords, bridges and road traces. Historical use by the military for troop encampments and one camp established during the Civil War also figures in the significance of the landscape and existing structures. Examples of the structures that are key features relative to the Civil War battle are Hermitage (a.k.a. Best Farm and the site of the relocated NPS Visitor's Center), Araby Mill (existing NPS Visitor's Center), Edgewood, Thomas Farm, Lewis Farm, Gambrill Farm, Worthington Farm and Baker Farm. The battlefield landscape remains largely unchanged from when the Confederate and Union troops fought. NPS is proceeding with development of a General Management Plan that will include interpretive plans. The Cultural Landscape Inventory and National Register nomination form updates have been submitted to Maryland State Historic Preservation Officer for review and concurrence. In addition, the aforementioned visitor center relocation project is underway with construction scheduled for 2004.

l. Baker Park

Baker Park is located in the City of Frederick on 44 acres of land and is under the jurisdiction of the City (see **Figure VI-1**). The park was established by the City of Frederick. The park borders West 2nd St. to the north, Carroll Parkway to the south, North Bentz Road to the east, and US 15 to the west. The property includes a band shell, playgrounds, a swimming pool, softball and baseball fields, tennis courts, a covered bridge, a lighted ice-skating area, and a picnic area with 10 pavilions. Some of the park's notable features are its bell tower, a gazebo, a lake with a boathouse, and a 1913 armory which has since been converted to a recreation center. In addition to the park features, the historic Schifferstadt home is located within the Baker Park boundaries. No future plans for additional development of this park were identified.

m. Rose Hill Manor Historic Park

Rose Hill Manor Historic Park lies in northern Frederick City, just east of Fort Detrick (see **Figure VI-1**). This park was established with funds from Program Open Space and is owned by Frederick County as noted in the County's November 7, 1989 and April 18, 1996 letters to SHA (see **Chapter VII, Section A**). The park's 43 acres are bordered on the north by a Coca-Cola distributor, utility substation and access road, to the south by Governor Thomas Johnson High School, to the east by MD 355, and to the west by US 15. The park consists mostly of museum facilities, picnic facilities, and open space. The park features the Frederick County Museum, former Maryland Governor Thomas Johnson's retirement home, and other historic buildings. No future plans for additional development of this park were identified.

TABLE VI-1
PARKLANDS AND RECREATIONAL AREAS LOCATED IN THE CORRIDOR

Park Name/Owner	Size	Amenities
Malcolm King Park/ City of Gaithersburg	72.9 acres	Basketball Courts, Hiking Trails, Picnic Tables, Playgrounds, Tennis Courts, Tot Lots
Morris Park/ City of Gaithersburg	37.2 acres	Football/soccer field; Basketball courts, tennis courts, baseball fields, and playground areas; picnic tables and two grills.
Seneca Creek State Park/ MD DNR	6,290 acres	Biking trails, boat rental, cross-country skiing, campfire programs, fishing, flat water canoeing, hiking trails, hunting, playground, riding trails.
Middlebrook Hill Park/ M-NCPPC	12 acres	Non-developed parcel near residential development
North Germantown/Little Seneca Greenway/M-NCPPC (Under Construction)	197 acres	Athletic field, playground, picnic area, basketball court, trail near proposed residential development.
Black Hills Regional Park/ M-NCPPC	1,855 acres	Fishing, boating, hiking, picnicking and nature center, mooring sites and equestrian trails.
Little Bennett Regional Park/ M-NCPPC	3,648 acres	Golf, camping, picnicking, hiking
Urbana Lake Fish Management Area/ MD DNR	70 acres	Recreational Fishing Area
Urbana Elementary School/Frederick County	21 acres	Ball fields, soccer field, tennis/basketball courts, and playground.
Urbana Community Park/Frederick County	20 acres	Ball fields, Grills, Horseshoe Pits, Picnic Shelters, Play Equipment, Soccer Fields, Tennis Courts, Volleyball Courts
Monocacy National Battlefield / National Park Service	1,647 acres	Landscape of historic Civil War battlefield; historic structures throughout battlefield area; interpretive exhibits and relocated visitor center are planned
Baker Park/ City of Frederick	44 acres	A Band shell, playgrounds, swimming pool, softball fields, a little league field, tennis courts, a covered bridge, a lighted ice-skating area, picnic area that has 10 pavilions.
Rose Hill Manor Historic Park/ Frederick County	43 acres	Picnic facilities; Carriage Museum; Antique farm Museum

2. Historic Resources

The Maryland SHPO has concurred that 31 historic sites and districts within the project's area of potential effect are on or eligible for inclusion on the NRHP. Of these 31 historic sites**,** five sites are impacted by one or more of the project alternates. The following is a brief description of each of these five resources. The location of these resources is shown in **Figure VI-1** and on the Plan Sheets in **Chapter XI**.

a. M20/17, England/Crown Farm

The England/Crown Farm, is located within the Gaithersburg City limits, is eligible for listing in the NRHP under Criterion A for its association with the agrarian history of Montgomery County (see **Figure VI-1**). The dwelling is part of a well-preserved early to mid-twentieth century farm complex totaling approximately 131 acres of which approximately 76 acres are included in the NRE site, originating with the England family in the late nineteenth century. In addition, it exhibits architectural significance because of its detailing, and the presence of a log dwelling, possibly originating as a tenant house during the ownership by the Hunter family predating the England family ownership. The property may be in the early stages of subdivision. The Crown farm has been identified as a rare link to the agrarian past of the Gaithersburg area, which is increasingly overrun by subdivision construction.

b. M20/21, Belward Farm

The Belward Farm, located on the north side of MD 28 west of Key West Avenue in the vicinity of Gaithersburg, is eligible for the NRHP (see **Figure VI-1**). It is significant under Criterion A for its strong association with the agrarian history of Montgomery County. The 124-acre historic site is a remnant of a dairy farm, continuously operated by members of the same family who established it in the mid-nineteenth century. In addition, the farmhouse is an excellent example of an 1890's Victorian frame dwelling. Since early 1998, a portion of the historic site has undergone office park/research development and is located east of the farmstead building cluster near the Great Seneca Highway/Key West Avenue intersection.

c. F3-42, Monocacy National Battlefield

Monocacy National Battlefield, a National Historic Landmark, is located in the lower part of Frederick County (see **Figure VI-1**) (see also description **Chapter VI.C.1.k**). The battlefield retains much of the rural character of the mid-nineteenth century when it gained significance under Criterion A as the location of an important Civil War battle and as a rural historic landscape. The pastoral landscape of this portion of the Monocacy River valley roads, railroad and river come together. It was the site of a July 9, 1864 engagement of Union and Confederate forces that bought the time necessary for the Union army to successfully fortify Washington, D.C. against Confederate capture.

d. F3-126, Rose Hill Manor

Rose Hill Manor Museum, located in Frederick, is listed on the NRHP (see **Figure VI-1**). This large, imposing, porticoed country mansion built near the turn of the nineteenth century is significant architecturally under Criterion C for its late Georgian-Greek Revival transitional

style. It is also historically important as the home of Maryland's first elected governor, Thomas Johnson, thus it would meet the requirement of Criterion B for its association with an important person.

e. F3-134, Birely-Roelkey Farmstead

Birely-Roelkey Farmstead, eligible for listing on the NRHP, is located in the southeast corner of the US 15/Biggs Ford Road intersection (see **Figure VI-1**). It was built about 1851 by John W. Birely, a prominent local businessman and cashier of the Farmers and Mechanics National Bank in the late nineteenth century. The property constitutes an important link to the agrarian tradition of Frederick County and thus qualifies for the Register under Criterion A for its association with the broad patterns of American history. Most of the contributing outbuildings date from the periods of the Birely and Roelkey ownerships. It is significant under Criterion C for the buildings, for the architectural style of the main dwelling and an increasingly rare type of agricultural outbuilding, the blacksmith shop.

D. IMPACTS OF THE ALTERNATIVES, AVOIDANCE OPTIONS AND MEASURES TO MINIMIZE HARM AT PARKS AND RECREATION AREAS AND CULTURAL RESOURCES

This section presents the impacts of each Alternate on Section 4(f) resources throughout the study area. Impacts discussed in this section are the result of property acquisition and impacts to existing and planned facilities from the highway and transit components of the alternates. The Section 4(f) resource impacts by each alternate are summarized in **Table VI-2.**

In order to avoid or minimize impacts to the publicly owned public parks and recreation areas, and significant historic sites, avoidance and minimization alternatives were considered in accordance with the Section 4(f) regulations. The following two sections provide a resource-specific general discussion of impacts, avoidances, minimization and mitigation measures for the study area.

1. Avoidance Alternatives

The No-Build Alternate (Alternate 1) and the TSM/TDM Alternate (Alternate 2) completely avoid impacts to publicly owned public parks and recreation areas, and historic sites. Alternates 3, 4 and 5 impact Section 4(f) resources. To completely avoid Section 4(f) resources throughout the corridor, avoidance alternatives would include development of a parallel highway corridor that serves the Montgomery and Frederick County communities currently served by I-270 and US 15 within the study limits. These avoidance alternatives may include a parallel highway on new alignment west of Interstate 270 through northern Montgomery County and southern Frederick County as well as alignment shifts through the developed areas of Montgomery County (Germantown, Gaithersburg and Rockville) and Frederick County (Frederick City). An avoidance alternative may also include upgrade/widening of existing MD 355 that parallels the I-270 and US 15 Corridors throughout the study limits. From review of the Section 4(f) resources shown in **Figure VI-1**, four large parklands (Seneca Creek State Park, Black Hill Regional Park, Little Bennett Regional Park and Monocacy National Battlefield) dominate the landscape along I-270. In addition, Seneca Creek Park and Monocacy Battlefield occupy significant areas east

and west of existing I-270. Seneca Creek Park boundaries extend from the Potomac River to MD 355 where it meets Montgomery County parkland. None of these avoidance alternatives would meet the project purpose and need by enhancing mobility and improving overall transportation system safety and efficiency while limiting environmental impacts. These avoidance alternatives are not practical due to the magnitude of new natural and socioeconomic impacts associated with development of a new 30-mile transportation corridor when compared to the incremental impacts associated with widening an existing transportation corridor. On a resource-specific basis, alignment shifts have been investigated where feasible and are presented here along with the minimization measures.

2. Measures to Minimize Harm

Measures to minimize harm have been investigated for the impacts of Alternates 3, 4 and 5. The measures to minimize impact to Section 4(f) Resources for the highway components have included steeper slopes, or retaining walls to reduce property acquisition and reduced typical section widths generally applied to shoulder widths, and a combination of both of these measures. The highway components are comprised of roadway widening and interchange improvements, which cannot be relocated to other areas in the corridor. The measures to minimize impact as a result of the transitway components also include the use of retaining walls to reduce property acquisition, relocations of transit facilities (i.e. stations, parking lots, ancillary facilities, etc.), and alternative alignment locations to reduce resource impacts. Additional measures to minimize harm for both the highway and transit components of the alternates may include:

a. Replacement land of equal or greater natural resource and economic value as per Program Open Space and Section 6(f) funding would be provided in a manner to be agreed upon by the park owner and the State Highway Administration.

b. Erosion and sediment control measures would be provided and strictly enforced to minimize water quality impacts.

c. Impacted wetlands would be replaced.

d. Vegetation mitigation, such as removal of non-native plant species and replanting of native plant species to create historic landscape buffer.

e. Additional appropriate mitigation measures, such as landscaping with view shed considerations (where applicable with respect to the resource), will be developed through coordination with the jurisdictional agency.

f. Relocation of facilities or installation of new facilities within the resource boundaries, as appropriate, may be developed through coordination with the jurisdictional agency.

3. Section 4(f) Resource Impacts

Table VI-2 lists the impacts to publicly-owned parklands and historic resources as a result of the Alternates. Impacts shown are the result of using 2:1 slope design. In addition, minimization measures were available at all resources except for the England/Crown Farm. Avoidance options were available for Little Bennett Regional Park, Urbana Lake Fish Management Area, Urbana Community Park, and the Birely-Roelkey Farmstead.

TABLE VI-2
SECTION 4(f) IMPACTS BY ALTERNATE AND RESOURCE
(In acres)

Section 4(f) Resource	Resource Size	Alternate 1	Alternate 2	Alternate 3A/B	Alternate 4A/B	Alternate 5A/B	Alternate 5C
Park Resources:							
Malcolm King Park	72.9	0	0	0.49	0.49	0.49	0.58
Morris Park	37.2	0	0	0	0	0	0.99
Seneca Creek State Park	6,290	0	0	10.47	10.47	10.47	8.49
Middlebrook Hill Park	12	0	0	1.90	1.90	1.90	1.90
North Germantown Greenway & Little Seneca Greenway	197	0	0	0.66	0.66	0.66	0.66
Black Hill Regional Park	1,855	0	0	6.98	6.98	6.98	6.98
Little Bennett Regional Park	3,648	0	0	0	0	0.02	0.02
Urbana Lake Fish Management Area	70	0	0	0.41	0.41	0.85	0.85
Urbana Elementary School	21	0	0	1.81	1.81	2.41	2.41
Urbana Community Park	20	0	0	0.15	0.15	0.33	0.33
Monocacy National Battlefield[1]	1,647	0	0	11.74	11.74	17.69	22.52
Baker Park	44	0	0	1.27	1.27	1.27	1.27
Rose Hill Manor Historic Park[2]	43	0	0	0.88	0.88	0.88	0.88
Park Resource Impact Subtotal		0	0	36.76	36.76	43.95	47.88
Cultural Resources:							
England/Crown Farm, M20/17	76	0	0	Adverse Effect	Adverse Effect	Adverse Effect	No Effect
Belward Farm, M20/21	124	0	0	Adverse Effect	Adverse Effect	Adverse Effect	No Effect
Monocacy National Battlefield, F3-42	1,647	0	0	Adverse Effect	Adverse Effect	Adverse Effect	Adverse Effect
Rose Hill Manor, F3-126	43	0	0	Adverse Effect	Adverse Effect	Adverse Effect	Adverse Effect
Birely-Roelkey Farmstead, F-3-134	114	0	0	Adverse Effect	Adverse Effect	Adverse Effect	Adverse Effect
Section 4(f) Impact Totals		0	0	36.76	36.76	43.95	47.88

***Notes**: Impacts represent use of 2:1 slope design for roadway embankments.*
Coordination is ongoing with the Maryland State Historic Preservation Officer See Effect Determination letter dated February 15, 2002.

4. Publicly-Owned Parkland Resources Impacted

a. Malcolm King Park

Within the scope of Alternates 3A/B, 4A/B, 5A/B/C, I-270 southbound would be widened to include the addition of C/D lanes on the southbound side from Father Hurley Boulevard to I-370 (see **Figures VI-2** and **VI-3**). For Alternates 3A/B, 4A/B, and 5A/B the proposed C/D lanes pass adjacent to the south side of Malcolm King Park and the widening requires the acquisition of 0.49 acre of right-of-way from the 72.9 acre park. The 120-foot wide impact occurs over a length of approximately 200 linear feet of roadway embankment. The impacted parkland currently consists of grasses, wildflowers, and a few woody trees (all less than 8" DBH). The proposed alignment will impact the edge of the forested area. The forest is a mixed-mesophytic forest composed primarily of Virginia pine, red maple, and sycamore. Although the widening will partially impact the forested buffer, the general use of the park and its amenities will not be impacted.

Alternate 5C provides direct access ramps from the proposed I-270 HOV lanes to I-370. Construction of these direct access ramps would require further widening of I-270 causing a slightly greater impact to Malcolm King Park. The approximately 140-foot wide impact occurs over a length of approximately 200 linear feet of roadway embankment. The addition of direct access ramps requires a total of 0.58 acre be acquired from Malcolm King Park. Although the general use of the park and its amenities will not be affected, a greater quantity of vegetated area will be impacted than with the other build alternatives.

Avoidance Option

There are no prudent avoidance options to eliminate impacts to Malcolm King Park. Shifting the highway widening away from the park would cause near equivalent impacts to another Section 4(f) resource – Morris Park, which is located east of I-270. In addition, shifting the highway would require complete reconstruction of the I-270/I-370/Sam Eig Highway interchange and the existing I-270 mainline for approximately one-half mile to one mile north and south of its I-370/Sam Eig Highway interchange. Cost estimates for such an undertaking were not prepared as the avoidance option was determined not to be prudent or feasible.

Measures to Minimize Harm

Alternates 3A/B, 4A/B and 5A/B

Two measures along the southbound side of the proposed highway improvements have been considered to minimize impact to Malcolm King Park: steeper slope or a retaining wall. Use of a 6:1 slope would result in 1.21 acres of impact to the park; however, use of a 2:1 slope would reduce the park impact to 0.49 acre (as mentioned above and included in the original design). By comparison, a retaining wall could reduce the 0.49 acre of impact (using the 2:1 slope technique) under Alternates 3A/B, 4A/B, and 5A/B, to 0.20 acre, a reduction of 0.29 acre. The retaining wall would be an average height above ground of 16 feet, 300 feet long, and would be visible from the park. The estimated construction cost of the wall would be $800,000.

Alternate 5C

Similarly, under Alternate 5C there are two measures to reduce park impacts: steeper slopes or a retaining wall. Use of a 6:1 slope would result in 1.32 acres of impact to the park; however, use of a 2:1 slope would reduce the park impact to 0.58 acre (as mentioned above and included in the original design). By comparison, a retaining wall could reduce the 0.58 acre impact (using the 2:1 slope technique) to 0.29 acre. The retaining wall would be an average height above ground of 21 feet 300 feet long and is estimated to cost approximately $1,000,000. The retaining wall would be visible only from the park.

b. Morris Park

Morris Park will be impacted along its southern and western boundary with I-270 by Alternate 5C only, as a result of northbound I-270 highway improvements (see **Figure VI-3**). No park amenities are impacted. Under this alternate, a retaining wall has been incorporated into the initial design for the addition of C/D lanes and an HOV direct access ramp. These improvements for Alternate 5C with the retaining wall would require that 100 linear feet to 200 linear feet be acquired for additional right-of-way. This area contains a mature oak forest approximately 100 feet from the existing roadway. The tree canopy is dominated by White Oaks in the 14" to 28" diameter at breast height (DBH) range, with red maple, black cherry, black willow, and sassafras trees in the understory. The proposed improvement, which includes the retaining wall, requires that 0.46 acre of the park's 37.2 acres will be impacted. As an alternative to the retaining wall element in Alternate 5C, an alternative standard design and construction technique would incorporate a 6:1 slope from the roadway down to the park resulting in 2.12 acres of total park impact versus the 0.46 acre impact by implementing a retaining wall.

Avoidance Option

Alternates 3A/B, 4A/B and 5A/B will not impact Morris Park. There are no prudent or feasible options for Alternate 5C to avoid Morris Park. Shifting the highway widening away from the park would cause additional impacts to another Section 4(f) resource – Malcolm King Park, which is located west of I-270.

Measures to Minimize Harm

Alternate 5C will impact this park on the northbound side of I-270 and a retaining wall was included in the original highway design to minimize impacts from the proposed highway improvements. The improvement including the retaining wall would result in an impact of 0.46 acre impact, as mentioned above. The wall would have an average height above ground of 19 feet, 200 feet long, and would be visible from the park. The estimated construction cost of the wall is $850,000.

An alternative minimization measure to reduce park impact would be to use a 2:1 slope from the roadway down to the park. This minimization measure would result in 0.99 acre of park impact and is greater than the retaining wall design included in the original design. Coordination with the City of Gaithersburg will determine the appropriate minimization measures to utilize for Morris Park.

c. Seneca Creek State Park

Interstate 270 bisects Seneca Creek State Park where the highway crosses Seneca Creek (see **Figure VI-4**). Under proposed Alternates 3A/B, 4A/B, and 5A/B/C, I-270 will be widened to include the addition of C/D lanes on both the northbound and the southbound sides from the proposed Watkins Mill Road to Middlebrook Road. In order to undertake this project, approximately 60 feet to 105 feet of additional right-of-way width is required for the mainline highway improvements. The additional right of way from the park will occur over a length of approximately 1,600 linear feet on the northbound side and 2,000 linear feet on the southbound side. The widening requires that 8.49 acres of the park's 6,290 acres be acquired as a result of incorporating 2:1 slopes into the original design. The proposed improvements cause impacts to vegetation, including forested floodplains and upland forest. The highway, improvements will impact a mixed-age oak forest and a floodplain forest. Dominant canopy trees include white oak, scarlet oak, and northern red oak. Understory and edge trees include red maple, Virginia pine, and black locust. The American sycamore dominates the forested floodplain adjacent to Seneca Creek. Additional forest exists beyond the impact area, so a portion of the aesthetic buffer between I-270 and Seneca Creek will remain.

The proposed transitway lies parallel to I-270 on the southbound side. The combined transitway and highway improvements would require an additional 115 foot to 210 foot wide strip of right of way outside of the existing right-of-way. The length the transitway would affect the park is approximately 2,025 linear feet. The transitway alignment through the park includes a 1,000 linear foot bridge and a 1,225 linear foot retaining wall. The bridge spans over Great Seneca Creek and Game Preserve Road while the retaining wall restrains the park slope from spilling into the proposed transitway alignment. The retaining wall would be a maximum height of 32 feet and would be visible from the transitway. The transitway alignment will impact an additional 1.98 acres over the highway improvement impacts for a total of 10.47 acres. The highway and transitway improvements will not affect the park's general use or its amenities.

Under Alternate 5C, transit service is provided via the use of premium bus service located on the I-270 HOV lanes and will not cause an additional impact increase to the park compared to the alternates containing the transitway alignment.

Avoidance Option

There are no prudent or feasible options to avoid impacts to Seneca Creek State Park. Because I-270 bisects the park, a shift of the proposed widening to either east or west of the existing alignment would continue to impact the park. In addition, a shift of the transit alignment to the east or west of the proposed master plan alignment would continue to impact the park.

Measures to Minimize Harm

Three measures to minimize park impact have been considered: steeper slope, reduced inside shoulder width and retaining walls. On I-270 northbound, the use of a 6:1 slope along the 1,600 feet of park/roadway boundary would result in 10.37 acres of impact; however, use of a 2:1 slope would reduce the park impact to 4.44 acres. Use of the reduced shoulder width technique would reduce the 6:1 slope impact to 10.28 acres and the 2:1 slope impact to 4.36 acres. It is not

recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width. Use of a retaining wall would reduce the 4.44 acres of impacts to 1.45 acres. The retaining wall would be an average height above ground of 22 feet, 1,300 feet long, and would be visible from both the park and the highway. The estimated construction cost is $4,760,000.

On the southbound side of I-270, the use of a 6:1 slope along the 2,000 feet of park/roadway boundary would result in impacts of 8.46 acres; however, use of a 2:1 slope would reduce the park impact to 4.05 acres. Use of the reduced shoulder width technique would reduce the 6:1 slope impact to 8.36 acres and the 2:1 slope impact to 3.96 acres. As on the northbound side, it is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width. Use of a retaining wall would reduce the 4.05 acres of impacts to 1.65 acres. The retaining wall would be an average height above ground of 13 feet, 1,800 feet long and would be visible from both the park and the highway. The estimated construction cost is $4,460,000.

The original transitway alignment design incorporates the least intrusive measures to limit impacts to the park, i.e. retaining wall and a bridge.

d. Middlebrook Hill Park

Under alternates 3A/B, 4A/B and 5A/B/C, I-270 would be widened to include the addition of C/D lanes along both the northbound and the southbound roadways from the proposed Watkins Mill Road to Middlebrook Road (see **Figure VI-4**). In order to widen I-270, 1.90 acres needs to be acquired (using a 2:1 slope technique) for the right-of-way required for construction of this project. This impact occurs with widening of the northbound roadway over a length of approximately 1,000 linear feet. Impacts in this area are not anticipated to impact wooded buffers or fully developed trees. A mixed-age hardwood forest stand begins approximately 150 feet outside of the existing alignment.

Avoidance Option

There are no prudent or feasible options to avoid impacts to Middlebrook Hill Park. Because of the park's proximity to Seneca Creek State Park, a roadway alignment away from Middlebrook Hill will increase the impacts to Seneca Creek. Coordination has been initiated with the park jurisdictional officer to determine appropriate mitigation measures (see **Chapter VII, Section A**)

Measures to Minimize Harm

Three measures have been considered for minimization to Middlebrook Hill Park impacts: steeper slopes, reduced inside shoulder width and a retaining wall. Use of a 6:1 slope would result in 2.87 acres of park impact; however, use of a 2:1 slope (incorporated into original design) would result in 1.90 acres of park impacts. A retaining wall along the northbound side of the proposed I-270 improvements would minimize impacts to Middlebrook Hill Park. The retaining wall could reduce the 1.90 acres of impacts under Alternates 3A/B, 4A/B and 5A/B/C, to 0.72 acre. The retaining wall would be an average height above ground of 20 feet, 1,000 feet long, and would be visible from both the park and the road. The estimated construction cost of the wall is $3,320,000. The retaining wall would occur in three segments with the first being 21

feet high, and 400 feet long, visible from the highway only, and second being 2 feet high, and 200 feet long, visible from the highway only, and the third segment would be 27 feet high and 400 feet long and visible only from the park.

e. North Germantown Greenway/Little Seneca Greenway

Alternates 3A/B, 4A/B and 5A/B/C include the widening of I-270 in the vicinity of North Germantown Greenway/Little Seneca Greenway between Father Hurley Boulevard and MD 121 (see **Figure VI-5**). The northbound HOV lane would be converted to a general-purpose lane; a new HOV lane would be added to the inside in both the northbound and southbound directions; and an additional general-purpose lane would be added through outside widening in both the northbound and southbound directions. This widening requires the acquisition of 0.66 acre (using the 2:1 slope technique) for right-of-way from the 197-acre park. This impact occurs over a length of approximately 400 linear feet (northbound side). The area of impact consists of hardwood forest and the stream valley for Little Seneca Creek. Dominant canopy trees include white oak, northern red oak, scarlet oak, black cherry, and tulip-poplar. Red maple, white ash, and black gum are also present. The proposed roadway expansion in this area will impact the wooded area adjacent to I-270. The forest extends for at least 100 feet into the greenway. The greenway is under construction and no recreational facilities currently exist. Coordination is on going with M-NCPPC to ascertain impacts to any proposed recreational facilities.

In addition, the transitway components of Alternates 3A/B, 4A/B and 5A/B include the implementation of a new alignment transit corridor within the median of the proposed Observation Drive Extended between Dorsey Hall Road and West Old Baltimore Road east of I-270. With respect to the North Germantown Greenway/Little Seneca Greenway, the implementation of the transitway does not impact the boundaries of the greenways and acquires no property from these resources. This is due to the reservation of the Observation Drive Extended right of way, including width for the transitway, at the greenways.

Avoidance Option

There are no prudent or feasible options to avoid impacts to North Germantown/Little Seneca Greenway. Because I-270 is bounded on the west by Black Hill Regional Park, an alignment shift of the roadway away from the greenways would increase the impacts to Black Hill Regional Park.

Highway Impact Minimization Including Direct Access Ramps at Newcut Road

Two measures to minimize park impacts have been considered: steeper slope and a retaining wall. On the northbound side of I-270, use of 6:1 slopes would result in 1.37 acres of impact, however, use of 2:1 slopes would reduce the impact to 0.66 acre. By incorporating a retaining wall, park impacts could reduce from 0.66 acre to 0.22 acre. The retaining wall would have an average above ground height of 18 feet, total 400 feet long, and visible from the park only. The estimated construction cost for the wall is $1,160,000.

f. Black Hill Regional Park

Alternates 3A/B, 4A/B and 5A/B/C include the widening of I-270 in the vicinity of Black Hill Regional Park between Father Hurley Boulevard and MD 121 (see **Figure VI-5**). The northbound HOV lane would be converted to a general-purpose lane; a new HOV lane would be added to the inside in both the northbound and southbound directions; and an additional general-purpose lane would be added through outside widening in both the northbound and southbound directions. This widening requires the acquisition of 6.98 acres (using the 2:1 slope technique) for right-of-way from the 1,855-acre park. This impact occurs over a length of approximately 700 linear feet (northbound side) to 4,000 linear feet (southbound side). The area of impact consists of hardwood forest. Improvements to southbound I-270 in this area will impact a mature oak-poplar forest. Dominant canopy trees include white oak, northern red oak, scarlet oak, black cherry, and tulip-poplar. Red maple, white ash, and black gum are also present. The proposed roadway expansion in this area will impact the wooded area adjacent to I-270. The forest extends for at least 100 feet into the park. The portion of the park that will be impacted does not include any of the mentioned amenities including hiking or equestrian trails. Appropriate mitigation measures are being determined through coordination with the jurisdictional officer (see **Chapter VII, Section A**).

Avoidance Option

There are no prudent or feasible options to avoid impacts to Black Hill Regional Park. Because I-270 is bounded on the west by Black Hill Regional Park and on the east by North Germantown Greenway/Little Seneca Greenway and a portion of Black Hill Regional Park, an alignment shift of the roadway away from Black Hill Regional Park would continue to impact Black Hill and would increase the impacts to the greenways.

Measures to Minimize Harm Including Direct Access Ramps at Newcut Road

Two measures to minimize park impacts have been considered: steeper slope and a retaining wall. On the northbound side of I-270, use of 6:1 slopes would result in 2.77 acres of impact, however, use of 2:1 slopes would reduce the impact to 1.56 acres. By incorporating a retaining wall, park impacts could reduce from 1.56 acres to 0.71 acre. The retaining wall would occur in two segments with the first retaining wall segment standing 20 feet high, 600 feet long, and visible from the park and highway. The second retaining wall segment would stand 16 feet high, 100 feet long, and visible from both the park and the highway. The estimated construction cost for the wall is $2,540,000 ($2,270,000+ $270,000 for each respective section).

In order to minimize impacts on the southbound side of I-270 to Black Hill Regional Park, the use of steeper slopes, construction of a retaining wall and shifting the highway east have been considered. Use of 6:1 slopes would result in impacts of 13.54 acres; however, use of 2:1 slopes would reduce the impact to 5.42 acres. By incorporating a retaining wall, the amount of park impacts could be reduced from 5.42 acres to 2.91 acres. The retaining wall would occur in five segments ranging in average height above ground from one foot to 17 feet, and ranging in length from 100 feet to 2,000 feet. The retaining wall segments would be visible from either the road or the park. The estimated construction cost for the five wall segments is $7,670,000 ($150,000 + $220,000 + $5,560,000 + $180,000 + $1,560,000 for each respective section).

A third measure to reduce southbound I-270 impacts to Black Hill Regional Park includes shifting the I-270 alignment and the associated roadway widening for Alternates 3A/B, 4A/B and 5A/B/C away from the park. The eastward I-270 shift would occur over a length of approximately 7,500 linear feet from approximately 2,400 feet north of Father Hurley Boulevard to the proposed Newcut Road interchange. Effects of the roadway shift would include additional right of way needs, reconstruction of approximately 1,140 linear feet of West Old Baltimore Road to address insufficient I-270 bridge overpass underclearance as well as relocation of a natural gas distribution pipeline located east of and parallel to I-270 from north of Father Hurley Boulevard to north of West Old Baltimore Road. The 7,500 linear foot alignment shift is estimated to have a negligible cost difference than the estimated proposed I-270 widening construction cost over the identical limits. The estimated cost of reconstructing West Old Baltimore Road is approximately $2,900,000.

g. Little Bennett Regional Park

Existing I-270 passes the westernmost edge of Little Bennett Regional Park near the MD 109 interchange and Bennett Creek (see **Figures VI-6** and **VI-7**). Little Bennett Regional Park is a 3,648-acre park that features a golf course, camping and picnic areas. The portion of the park nearest to I-270 is dominated by the Bennett Creek floodplain and pasture, and does not have any existing or planned recreational facilities. The proposed Alternate 3A/3B, 4A/4B roadway improvements include the addition of an HOV or general purpose lane to the inside in both the northbound and southbound directions. In addition, Alternate 5A/B/C adds an additional general purpose lane to the outside in both the northbound and southbound directions. These improvements will require the acquisition of additional right of way from Little Bennett Regional Park. Under Alternates 3A/B and 4A/B, the impact to the park is 0.86 acre using a 6:1 slope technique. The park impact would occur over a length of approximately 800 linear feet. Under Alternates 5A/B/C, the impact to the park is 0.02 acre using a 2:1 slope technique. The park impact would also occur over a length of approximately 800 linear feet. Appropriate mitigation measures are being determined through coordination with the jurisdictional officer (see **Chapter VII, Section A**).

Avoidance Option

Alternates 3A/B and 4A/B

The original highway design in the vicinity of Little Bennett Regional Park incorporated a 2:1 slope design to limit park impacts. Using the 2:1 slope technique results in no park impact. When utilizing a 6:1 slope for the highway embankment, a retaining wall for approximately 800 linear feet with an average height above ground of three feet would also eliminate park impacts. The estimate construction cost of the wall when using 6:1 slopes is approximately $540,000.

Measures to Minimize Harm

Alternates 3A/B and 4A/B

As stated earlier, the original highway widening design in the vicinity of Little Bennett Regional Park incorporated a 2:1 slope design that eliminated park impacts. An alternative design

measure would use 6:1 slope design and result in park impacts of 0.86 acre. The impact would occur over a length of approximately 800 linear feet.

Alternates 5A/B/C

The original highway design in the vicinity of Little Bennett Regional Park incorporated a 2:1 slope design that limits park impacts to 0.02 acre. Use of a 6:1 slope design would increase park impacts to 1.12 acres. Each of these impact areas would occur over a length of approximately 800 linear feet. In addition to slope design, another alternative measure would be to incorporate a retaining wall. By incorporating a retaining wall along the roadway/park boundary, the park impact would total less than 0.01 acre (approximately 30 square feet). The retaining wall would 800 linear feet total with an average height above ground of nine feet, and the wall would be visible from the park. The estimated construction cost is approximately $1,420,000.

h. Urbana Lake Fish Management Area

In the stretch of highway running from Hyattstown to Urbana, (see **Figures VI-8, VI-9, VI-10** and **VI-11**) Alternates 3A/B and 4A/B expand the highway from two lanes to three lanes (including the HOV lane) in each direction. Alternates 5A/B/C expand the highway from two lanes to four lanes (including an HOV lane) in each direction. In order to hold a consistent 30-foot median throughout the corridor where a barrier is present, the additional lane(s) can only partially be added to the inside with the remainder added to the outside. Any construction on the outside requires the acquisition of additional right-of-way. Impacts to the park will occur due to widening the southbound roadway over a length of approximately 1,000 linear feet. Of the park's 70 acres, 0.41 acre will be impacted with Alternates 3A/B and 4A/B and 0.85 acre in Alternates 5A/B/C respectively using a 2:1 slope design. The impacted area consists of hardwood forest and wetlands. Dominant canopy trees include tree-of-heaven, tulip-poplar, and black locust (all species 8" to 12" DBH). Understory trees include American elm and box elder. This forest area extends for at least 100 feet away from the existing right-of-way, and will not be completely removed, according to the proposed design features. Coordination is underway with DNR to determine appropriate mitigation measures (see **Chapter VII, Section A**).

Avoidance Option

Alternates 3A/B and 4A/B

Two design measures would eliminate impacts to the Urbana Lake Fish Management Area: retaining wall and highway alignment shift. Use of a retaining wall would eliminate impacts to the park by constructing a 1,100-foot long wall with an average height above ground of one foot. The estimated construction cost is approximately $760,000. An alternative avoidance measure is to shift the I-270 alignment east by approximately 15 feet at its furthest point of shift. The total length of I-270 that would be affected is approximately 2,200 feet, however, the additional cost of shifting the highway is minimal since the proposed southbound roadway widening would be completed in the existing grass median and the proposed northbound roadway widening would be completed on the outside of existing roadway. The length of new pavement would remain approximately equal to the existing roadway. The estimated construction cost of shifting I-270 east and away from the Urbana Lake Fish Management Area does not include maintenance of

traffic, right of way acquisition or wetland mitigation. The shift would require the purchase of 0.11 acre less of additional right of way compared to the non-shift widening design. The impacted land is currently used for farming.

Measures to Minimize Harm

Alternates 3A/B and 4A/B

To minimize impacts to the park, two measures have been considered (in addition to the avoidance measure of constructing a retaining wall): steeper slope and reduced inside shoulder width (less two feet). Use of a 6:1 slope would result in 2.19 acres of park impact; however, use of a 2:1 slope would reduce park impact to 0.41 acre. Use of the 2:1 slope has been incorporated into the original highway design as noted in previously. By adding the reduced shoulder width (less two feet) to the steeper slopes, park impacts would reduce to 2.14 acres (6:1 slope) and 0.36 acre (2:1 slope) respectively.

Alternates 5A/B/C

To minimize impacts to the park, three measures have been considered: steeper slope, retaining wall and a reduced inside shoulder width (less two feet). Use of a 6:1 slope would result in 2.63 acres of park impact; however, use of a 2:1 slope would reduce park impact to 0.85 acre. By adding the reduced shoulder width to the steeper slopes, park impacts would be reduced to 2.57 acres (6:1 slope) and 0.80 acre (2:1 slope) respectively. A retaining wall along the southbound side of I-270 would minimize parkland impacts. The retaining wall would reduce the impacts to 0.06 acre. The retaining wall would be an average height above ground of five feet, 1,100 feet long, and would be visible from both the park and the highway. The estimated construction cost is approximately $1,610,000.

In addition to the retaining wall, adding the inside shoulder width reduction technique would reduce the parkland impact of 0.06 acre to less than 0.01 acre.

i. Urbana Elementary School

In the stretch of highway running from Urbana to Frederick, I-270 would be widened in each direction (see **Figures VI-12** and **VI-13**). Alternates 3A/B and 4A/B expand the highway from two lanes to three lanes (including the HOV lane) in each direction, while Alternates 5A/B/C expand the highway from two lanes to four lanes (including HOV lane) in each direction. Each of the build alternates requires the acquisition of additional right of way. Use of a 6:1 slope would result in a 2.01 acres impact to the intramural field for Alternates 3A/B and 4A/B and 2.61 acres for Alternates 5A/B/C. The impacts would impact an existing ball field located in the southwestern corner of the intramural field. Relocation of the ball field within the existing intramural field appears feasible. No other recreational facilities at the Urbana Elementary School are impacted by the alternates. Coordination is underway with school representatives to determine the feasibility of relocating the impacted ball field (see **Chapter VII, Section A**).

Avoidance Option

There are no prudent or feasible options to avoid impacts to the Urbana Elementary School. This is due to the I-270/MD 80 interchange and a northbound on ramp that are located immediately south of the elementary school property. The existing northbound on ramp requires realignment to meet design criteria. In addition, a shift of the highway alignment further west to avoid the elementary school impact is not a feasible option due to the requirement of reconstructing the entire I-270/MD 80 interchange.

Measures to Minimize Harm

Alternates 3A/B and 4A/B

A steeper slope has been considered to reduce impact to the Urbana Elementary School. Use of a 2:1 slope would result in a 1.81 acres impact to the intramural field.

Alternates 5A/B/C

A steeper slope has been considered to reduce impact to the Urbana Elementary School. Use of a 2:1 slope would result in a 2.41 acres impact to the intramural field.

j. Urbana Community Park

In the stretch of highway from Urbana to Frederick, I-270 would be widened in each direction (see **Figures VI-12** and **VI-13**). Alternates 3A/B and 4A/B expand the highway from two lanes to three lanes (including the HOV lane) in each direction, while Alternates 5A/B/C expand the highway from two lanes to four lanes (including the HOV lane) in each direction. Each of the build alternates requires the acquisition of additional right-of-way. Of the park's 20 acres, 0.15 acre would be impacted in Alternates 3A/B and 4A/B and 0.33 acre would be impacted in Alternates 5A/B/C using a 2:1 slope. Use of a 6:1 slope would result in a 0.32 acre impact to the park with Alternates 3A/B and 4A/B and 0.48 acre impact with Alternates 5A/B/C. Use of 2:1 slopes in the original design has reduced the potential impact to the community park by approximately 0.10 acre. The length of park impact is approximately 500 linear feet from widening the northbound roadway. The impacted area is grassland, and minor shrub vegetation.

Avoidance Option

Alternates 3A/B and 4A/B

A retaining wall along the northbound side of I-270 has been considered to avoid parkland impacts caused by Alternates 3A/B and 4A/B. The retaining wall would eliminate the 0.15 acre impact. The retaining wall would be an average height above ground of one foot or less, 500 feet long, and would be visible from the roadway. The estimated construction cost of the retaining wall is approximately $340,000.

Measures to Minimize Harm

Alternates 3A/B and 4A/B

Two measures have been considered to reduce impact to the Urbana Community Park: steeper slopes and reduced inside shoulder widths. Use of a 6:1 slope would result in a 0.32 acre impact to the park; however, use of a 2:1 slope would reduce park impacts to 0.15 acre (as noted previously). By adding the reduced shoulder width, park impacts are reduced to 0.30 acre (6:1 slope) and 0.13 acre (2:1 slope) respectively.

Alternates 5A/B/C

Three measures have been considered to reduce impact to the community park: steeper slopes, a retaining wall and reduced inside shoulder widths. Use of a 6:1 slope would result in 0.48 acre impact to the park; however, use of a 2:1 slope would reduce park impacts to 0.33 acre (as noted previously). A retaining wall along the northbound side of I-270 would reduce park impacts to 0.03 acre. The retaining wall would be an average height above ground of 4 feet, 500 feet long, and would be visible from the highway only. The estimated construction cost is approximately $780,000.

In addition to the retaining wall, adding the reduced inside shoulder width technique would reduce park impacts to 0.01 acre.

k. Monocacy National Battlefield

The existing I-270 roadway bisects Monocacy National Battlefield, a 1,647-acre park, whose key features include Gambrills Mill Visitors Center, Best Farm, Thomas Farm and Worthington Farm, and the historic Monocacy National Battlefield. The proposed roadway improvements under Alternates 3A/B and 4A/B include the addition of an HOV lane or a general purpose lane between MD 121 and MD 85 to the inside in both the northbound and southbound directions (see **Figures VI-14**, **VI-15** and **VI-16**). This improvement will require the acquisition of 11.74 acres from the battlefield. This impact occurs over a length of 10,100 linear feet (northbound side) and 12,200 linear feet (southbound side). Under Alternates 5A/B the proposed roadway improvements adds an additional general purpose lane on the outside in both the northbound and southbound directions. This improvement will require the acquisition of 17.69 acres from the battlefield. This impact occurs over a length of 10,100 linear feet (northbound side) and 12,200 linear feet (southbound side). Under Alternate 5C the proposed roadway improvements also propose direct access ramps to the MD 85 interchange area. This improvement will require 22.52 acres from the battlefield. Each of the Alternates (3A/B, 4A/B and 5A/B/C) utilizes 2:1 slopes to minimize impacts to the battlefield. The battlefield landscape remains largely unchanged from when the Confederate and Union troops fought. NPS is proceeding with development of a General Management Plan that will include interpretive plans. The Cultural Landscape Inventory and National Register nomination form updates have been submitted to Maryland State Historic Preservation Officer for review and concurrence. In addition, the aforementioned visitor center relocation project is underway with construction scheduled for 2004. The impacted area of the battlefield contains hardwood forest, hedgerows, and farm fields and pasture land that are much the way the landscape appeared at the time of the Civil War battle

fought here. Several layers of vegetation exist, with the canopy mainly comprised of silver maple, black locust, box elder, sassafras, and smooth sumac trees. The hedgerow serves as a moderate-quality buffer between I-270 and the park, and will be completely removed in some locations, based on the proposed design features. The proposed improvements would require the taking of some vegetation. The existing Worthington Trail lies in close proximity to the southbound roadway north of Baker Valley Road. The proposed right of way is to be immediately adjacent but with no physical impact. There are no other impacts to existing or planned amenities.

Avoidance Option

There are no prudent or feasible options to avoid impacts to Monocacy National Battlefield. Because I-270 bisects the park, a shift of the proposed widening to either east or west of the existing alignment would continue to impact the park.

Measures to Minimize Harm

Alternates 3A/B and 4A/B

Three measures have been considered to minimize battlefield impacts: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in a total of 38.12 acres of impacts to the battlefield with 17.89 acres (northbound side) and 20.23 acres (southbound side) respectively. However, use of a 2:1 slope would result in reduced battlefield impacts of 11.74 acres with 6.29 acres (northbound side) and 5.45 acres (southbound side). The 2:1 slope measure was utilized in the original highway design to minimize battlefield impacts.

The second minimization measure employed to reduce battlefield impacts is a retaining wall. Along the northbound side of the proposed I-270 improvements a retaining wall would reduce the 6.29 acres of impacts under alternates 3A/B and 4A/B to 0.39 acre. The retaining wall would occur in nine segments, would be an average height above ground of three feet high, 10,100 feet long, and would be visible from both the park and the road. The estimated construction cost of the northbound roadway retaining wall is approximately $8,570,000. Use of a retaining wall would eliminate the southbound roadway impacts from 5.45 acres (2:1 slope) to zero acres. The retaining wall would be an average height above ground of two feet, 12,200 feet long and would be visible intermittently from either the road or the battlefield. The estimated construction cost of the southbound roadway retaining wall is approximately $8,000,000.

The third minimization measure would add a reduced inside shoulder width to either the steep slope or the retaining wall measures. By adding a reduced inside shoulder width to the 6:1 slope, the battlefield impacts would be reduced from 17.89 acres to 17.45 acres for northbound side while the southbound side would be reduced from 20.23 acres to 19.56 acres. By adding a reduced inside shoulder width to the 2:1 slope, the battlefield impacts would be reduced 6.29 acres to 5.93 acres for the northbound side while the southbound side would be reduced from 5.45 acres to 5.03 acres. In addition to the retaining wall as a minimization mechanism, the inside shoulder of the highway could be reduced to minimize impacts to the parkland on the northbound side. A reduction in the inside shoulder width would reduce the parkland impact of 0.39 acre to 0.29 acre. Since the southbound retaining wall avoids impact to the battlefield it is

not recommended to incorporate a reduced insider shoulder width for the southbound roadway. The inside shoulder of the highway could be reduced to minimize impacts to the parkland on the southbound side. A reduction in the inside shoulder width would reduce the parkland impact of 5.45 acres to 5.07 acres.

Alternates 5A and 5B

Three minimization measures have been considered to reduce impacts to the battlefield: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in 43.68 acres of battlefield impact of which 20.33 acres occurs along the northbound side and 23.35 acres occurs along the southbound side of I-270 respectively. However, use of a 2:1 slope would reduce the battlefield impact to 17.69 acres of battlefield impact with 8.46 acres along the northbound side and 9.23 acres along the southbound side. The 2:1 slope element was incorporated into the original design for Alternates 5A and 5B. Incorporating reduced inside shoulder width with the 2:1 slope minimization measure would reduce the battlefield impact to 16.74 acres (8.02 acres along northbound side; 8.72 acres along southbound side).

The second minimization measure involves use of a retaining wall along I-270 within the battlefield. Use of a retaining wall along I-270 northbound would reduce the 8.46 acres of impacts under Alternates 5A/B to 6.98 acres. The retaining wall would occur in nine segments, and it would be an average height above ground of 5 feet, 10,100 feet long, and would be visible from both the park and the road. The estimated construction cost is approximately $13,780,000. Use of a retaining wall along I-270 southbound would reduce the 9.23 acres of impacts under Alternates 5A/B to 7.41 acres. The retaining wall would occur in 13 segments, and it would be an average height above ground of six feet, 12,200 feet long, and would be visible from both the park and the highway. The estimated construction cost is approximately $15,930,000.

The third minimization measure to reduce battlefield impacts involves the use of reduced inside shoulder width in combination with the northbound and southbound side retaining walls. If both the above described northbound side retaining wall, consisting of nine segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 6.98 acres (retaining wall only) would be reduced to 0.48 acre. If both the above described southbound side retaining wall, consisting of 13 segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 7.41 acres (retaining wall only) would be reduced to 0.07 acre.

Alternate 5C

Three minimization measures have been considered to reduce impacts to the battlefield: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in 49.05 acres of battlefield impact of which 23.49 acres occurs along the northbound side and 25.56 acres occurs along the southbound side. However, use of a 2:1 slope would reduce the battlefield impact to an overall 22.52 acres of impact of which 11.12 acres occurs along the northbound side and 11.40 acres occurs along the southbound side. The 2:1 slope element was incorporated into the original design for Alternate 5C. Incorporating reduced inside shoulder width with the 2:1 slope minimization measure would reduce the battlefield impact to 22.06 acres (10.94 acres along northbound side; 11.12 acres along southbound side).

The second minimization measure involves use of a retaining wall along I-270 at the battlefield. Use of a retaining along I-270 northbound would reduce the 11.12 acres of impacts under Alternate 5C to 6.79 acres. The retaining wall would occur in nine segments, and it would be an average height above ground of 7 feet, 10,100 feet long, and would be visible from both the park and the road. The estimated construction cost is approximately $15,700,000. Use of a retaining wall along I-270 southbound would reduce the 11.40 acres of impacts under Alternate 5C to 6.98 acres. The retaining wall would occur in 13 segments, and it would an average height above ground of 7 feet, 12,200 feet long, and would be visible from both the park and highway. The estimated construction cost is approximately $17,100,000.

The third minimization measure to reduce battlefield impacts involves the use of reduced inside shoulder width in combination with the northbound and southbound side retaining walls. If both the above described northbound side retaining wall, consisting of nine segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 16.79 acres (retaining wall only) would be reduced to 3.29 acres. If both the above described southbound side retaining wall, consisting of 13 segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 6.98 acres (retaining wall only) would be reduced to 2.92 acres.

l. Baker Park

Under the scope of Alternates 3A/B, 4A/B and 5A/B/C, US 15 would be widened to expand the highway from two lanes to four lanes in each direction (see **Figure VI-17**). One of the two lanes will be added to the grass median on the inside of the roadway, and the other will be on the outside shoulder. In order to widen the highway, 1.27 acre need to be acquired for the additional right-of-way required for construction of this project. The design incorporates the use of 2:1 slopes to assist with resource impact minimization. The length of impacted parkland will occur from widening the northbound roadway for approximately 700 linear feet along the park. The impacted land contains grasslands, and a hedgerow. The proposed impact area includes existing right-of-way and property associated with the Schifferstadt historic homestead. A hedgerow (10 to 50 feet wide) is present along the existing right-of-way, containing black locust, red maple, black walnut, and smooth sumac. A defined understory is vegetated with wineberry, box elder, and apple. This hedgerow serves as a low-quality wooded buffer between the homestead and US 15. US 15 is currently visible from most areas of the property. The majority of the proposed impact area is mowed and maintained as fescue, and sparse woody vegetation exists. One significant tree, which is situated in the proposed right-of-way, may be impacted. The tree is a mature weeping willow with poor form and structure, exhibiting a five-forked trunk. The largest trunk measures 27.9” diameter at breast height (DBH).

Avoidance Option

There are no prudent or feasible options to avoid impacts to Baker Park. This is due to the location of Baker Park adjacent to the US 15/Rosemount Avenue interchange. Shifting US 15 west and away from Baker Park would cause the interchange to be completely reconstructed and would impact the surrounding residences.

Measures to Minimize Harm

Two measures have been considered to minimize park impacts: steeper slopes and a retaining wall. Use of a 6:1 slope would result in 2.90 acres of impact to Baker Park; however, use of a 2:1 slope would reduce park impacts to 1.27 acres (as mentioned earlier). By incorporating a retaining wall for northbound US 15 park impacts would be reduced to 0.91 acre. The retaining wall would be an average height above ground of 4 feet, 700 feet long, and would be visible from the park and the historic Schifferstadt dwelling. The existing hedgerow would be impacted due to retaining wall construction. The estimated construction cost is approximately $590,000.

m. <u>Rose Hill Manor Historic Park</u>

Alternates 3A/B, 4A/B and 5A/B/C include the widening of US 15 from two lanes to four lanes in each direction (see **Figure VI-18**). In order to construct the two lanes, one would be added to the inside of the roadway, and the other would be on the outside. Construction of the outside lane requires the acquisition of additional right-of-way, impacting 0.88 acre of the park's 43 acres and would be approximately 550 feet from Rose Hill Manor. The length of impacted parkland will occur from widening the northbound roadway for approximately 1,200 linear feet to 1,600 linear feet along the park. The proposed project will impact grasslands, and a hedgerow. This impacted area is mowed regularly. A hedgerow (10 feet to 30 feet wide) is present in the existing right-of-way and highway clear zone, and is dominated by early successional species. These include red mulberry, tree-of-heaven, white pine, and smooth sumac. Larger white oaks (4" to 12" DBH), scarlet oaks (8" to 12" DBH), and black walnuts (2" to 14" DBH) exist in the hedgerow. The hedgerow serves as a low-quality wooded buffer between Rose Hill Manor Historic Park and US 15. This hedgerow buffer area will be almost completely removed by the proposed design features.

Avoidance Option

There are no prudent or feasible options to avoid impacts to Rose Hill Manor. This is due to the location of Rose Hill Manor adjacent to the US 15/Motter Avenue/Opossumtown Pike interchange. Shifting US 15 west and away from Rose Hill Manor would cause the interchange to be completely reconstructed.

Highway Impact Minimization (with standard diamond interchange – excludes MD 26 impacts)

Two measures have been considered to minimize park impacts: steeper slopes and a retaining wall. Use of a 6:1 slope would result in park impacts of 2.08 acres; however, use of a 2:1 slope would reduce park impacts to 0.88 acre (as mentioned earlier). A retaining wall would reduce park impacts to 0.68 acre of impact. The retaining wall would be an average height above ground of two feet, 1,600 feet long, and would be visible from both the park and the highway. The estimated construction cost is approximately $1,000,000.

5. Historic Resources Impacted

Of the 31 historic resources located within the APE, the Alternates impact five historic resources. Specifically, Alternates 1 and 2 have no historic resource impacts. Alternates 3A/B, 4A/B and 5A/B/C impact the following historic resources.

a. M20/17, England/Crown Farm

Under Alternates 3A/B, 4A/B and 5A/B, a transitway alignment would be constructed through portions of the England/Crown Farm (see **Figures VI-19 and VI-19A**). The transitway would accommodate the operation of either light rail or bus rapid transit vehicles within its own right of way. The transitway alignment impacts approximately 3.6 acres. The distance between the tracks at its nearest point to an historic structure is approximately 380 feet and the hiker/biker path is approximately 450 feet. The right of way required from the England/Crown Farm site is approximately 1,400 feet in length. The February 15, 2002 Effects Determination letter to the Maryland Historical Trust (see **Chapter VII, Section A**) determined the proposed improvements would have an adverse effect as a result of Alternates 3A/B, 4A/B and 5A/B.

Under Alternate 5C, transit service is provided via the use of premium bus service located on the I-270 HOV lanes, thus it does not impact the historic site.

Avoidance Option

There are no prudent or feasible options to avoid impacts to England/Crown Farm under Alternates 3A/B, 4A/B and 5A/B. This is due to the location of the Montgomery County Master Plan alignment and a proposed structure eliminates the possibility of a minor alignment shift away from the England/Crown Farm. As noted in the minimization measures, narrowing the transitway typical section was incorporated into the original design for railroad design criteria and track center offsets.

Measures to Minimize Harm

The proposed transitway alignment located on the England/Crown Farm property is based on the Montgomery County Master Plan alignment reservation and a proposed structure eliminates the possibility of a minor alignment shift away from the England/Crown Farm. Measures to minimize impact are included in the original design incorporating minimum railroad design criteria for typical section elements (i.e. 2:1 slopes, profile grades, level grade for station/platform areas) and track center offsets. In addition, the alignment profile is roughly even with the surrounding topography.

b. M20/21, Belward Farm

Under Alternates 3A/B, 4A/B and 5A/B, components of the transitway alignment would be constructed on portions of the Belward Farm site at its eastern border near Great Seneca Highway (see **Figures VI-20 and VI-20A**). The Decoverly Station parking garage and the hiker-biker trail components would impact the Belward Farm site. The parking garage is proposed to contain approximately 1,200 vehicles on five parking levels. The station site, parking lot and hiker-biker trail would collectively impact 0.64 acre of the approximately 124-

acre historic property. The approximate distance between the historic structure and the transitway alignment at its nearest point is 2,170 feet, the parking lot is 1,730 feet, and the hiker/biker path is 2,140 feet. The sight line is blocked by a grove of large trees. The February 15, 2002 Effects Determination letter to the Maryland Historical Trust (see **Chapter VII, Section A**) determined the proposed improvements would have an adverse effect as a result of Alternates 3A/B, 4A/B and 5A/B.

Under Alternate 5C, transit service is provided via the use of premium bus service located on the I-270 HOV lanes, thus it does not impact the historic site.

Avoidance Option

There are no prudent or feasible options to avoid impacts to Belward Farm under Alternates 3A/B, 4A/B and 5A/B. This is due to the location of the Montgomery County Master Plan alignment as well as the location of a proposed flyover ramp right of way associated with the Sam Eig Highway/Great Seneca Highway interchange. As noted in the minimization measures, narrowing the transitway typical section was incorporated into the original design for railroad design criteria and track center offsets.

Measures to Minimize Harm

The proposed transitway improvements located on the Belward Farm property are based on the Montgomery County Master Plan alignment. Measures to minimize impact include reducing the footprint of the parking garage to eliminate its property impact. The hiker-biker trail and the transitway alignments are located at the historic property boundary. Due to alignment constraints from the proposed Sam Eig Highway/Great Seneca Highway flyover ramp right of way, the transitway alignment is located furthest away from the Belward Farm property. In addition, narrowing the typical section for the transitway was incorporated into the original design incorporating minimum railroad design criteria for typical section elements (i.e. slope grades) and track center offsets.

c. <u>F3-42, Monocacy National Battlefield</u>

All of the build alternatives show that I-270 will be widened in this area from two lanes in each direction to three lanes in each direction, including an HOV lane (see **Figures VI-14, VI-14A, VI-15, VI-15A, VI-16 and VI-16A**). The addition of these lanes requires additional right of way, which will impact this site. The description of impacts has been previously presented in the park impacts portion of this chapter. The February 15, 2002 Effects Determination letter to the Maryland Historical Trust (see **Chapter VII, Section A**) determined the proposed improvements would have an adverse effect as a result of Alternates 3A/B, 4A/B and 5A/B/C.

Avoidance Option

There are no prudent or feasible options to avoid impacts to the Monocacy National Battlefield. Because I-270 bisects the park, a shift of the highway would continue to cause impacts.

Measures to Minimize Harm

Due to the earlier extensive description of impact mitigation for this historic site, please refer to this description under the parkland section.

d. F3-126, Rose Hill Manor

All of the build alternates show that US 15 will be widened in this area from two lanes in each direction to four lanes in each direction (see **Figures VI-18 and VI-18A**). The addition of these lanes requires additional right of way, which will impact this site. The description of impacts has been previously present in the park impacts portion of this chapter. The February 15, 2002 Effects Determination letter to the Maryland Historical Trust (see **Chapter VII, Section A**) determined the proposed improvements would have an adverse effect as a result of Alternates 3A/B, 4A/B and 5A/B/C.

Avoidance Option

There are no prudent or feasible options to avoid impacts to the Rose Hill Manor. As described earlier, this is due to the location of Rose Hill Manor adjacent to the US 15/Motter Avenue/Opossumtown Pike interchange. Shifting US 15 west and away from Rose Hill Manor would cause the interchange to be completely reconstructed.

Measures to Minimize Harm

Due to the earlier extensive description of impact mitigation for this historic site, please refer to this description under the parkland section.

e. F3-134, Birely-Roelkey Farmstead

Alternates 3A/B, 4A/B and 5A/B/C each impact the Birely-Roelkey Farmstead due to the proposed US 15/Biggs Ford Road interchange (see **Figures VI-21 and VI-21A**). The impact for each alternate totals 13.69 acres. The interchange configuration includes a northbound US 15 exit ramp and a northbound US 15 entrance loop ramp each located in the southeast quadrant of the US 15 and Biggs Ford Road intersection. The area affected by the interchange is open field and pastureland located west of the farmstead home. The proposed roadway improvements would be located approximately 160 feet (northbound off ramp) and 620 feet (US 15 northbound) from the Birely-Roelkey Farmstead structure. The existing US 15 northbound is approximately 632 feet from the farmstead. The February 15, 2002 Effects Determination letter to the Maryland Historical Trust (see **Chapter VII, Section A**) determined the proposed improvements would have an adverse effect as a result of Alternates 3A/B, 4A/B and 5A/B/C.

Avoidance Option

A measure to avoid impacts to the Birely-Roelkey Farmstead is to reconfigure the US 15/Biggs Ford Road interchange ramp locations (see **Figure VI-22**). The ramp reconfiguration would place both northbound ramps in the northeast quadrant with a loop off-ramp and a diamond on-ramp. This would eliminate the 13.69 acres of impact. By reconfiguring the interchange ramps, new impacts would result, including acquisition of four businesses and one residence. The

avoidance option would consist of similar pavement areas with the one exception being the increased length of access road. A residence located north of Sundays Lane would gain access via a driveway from Biggs Ford Road. The increased length of access road would increase the construction costs by $550,000.

Measures to Minimize Harm

Steeper slopes have been incorporated into the original design to reduce impacts of the US 15/Biggs Ford Road interchange. The original design incorporated the use of 2:1 slopes to minimize impacts to the farmstead to 13.69 acres. By utilizing 6:1 slopes, the impact to the farmstead would increase to 14.98 acres.

E. CONSULTATION AND COORDINATION

Coordination has been ongoing with the National Park Service, Maryland Historical Trust, Maryland Department of Natural Resources, Maryland-National Capital Parks & Planning Commission and Frederick County Department of Parks & Recreation. Coordination has included requests for information, submittal of cultural resources inventory, park and cultural resource boundaries, and review of the proposed transportation improvements. Coordination will continue with these organizations throughout the NEPA process. Reference should be made to **Chapter VII** for record of this coordination. These letters further chronicle the coordination activities of the Project Team with the Section 4(f) property owners.

The project team has conducted individual coordination meetings with the National Park Service-Monocacy National Battlefield, Maryland Department of Natural Resources-Seneca Creek State Park and with Maryland-National Capital Parks & Planning Commission-Black Hill Regional Park regarding potential impacts to their facilities and to provide an overview of the transportation alternates under consideration. The following discussion is a summary of the consultation and coordination that has taken place to date.

Coordination with the National Park Service (NPS) has occurred throughout the project as they are represented on the Project Team. Team Coordination Meetings are held on a monthly basis to discuss current topics and to review the project's progress and issues. In addition, individual coordination meetings have been held on June 11, 2001 to review the proposed improvements through the battlefield and to discuss the potential impacts, and on November 1, 2001 to review NPS comments to the proposed improvements and their potential impacts to the battlefield. NPS indicated potential mitigation should include replacement lands contiguous to the battlefield and removal of non-native vegetation. View sheds are also a concern of NPS and should be considered as the NEPA process continues.

Coordination with Maryland Department of Natural Resources (DNR) has occurred throughout the project with requests for information and verification of resource boundaries. On July 17, 2001, the Project Team met with DNR to review the possible impacts to Seneca Creek State Park from the improvements. DNR indicated that lands needed for the proposed improvements should be replaced on a 1:1 basis and the land should be contiguous to the state park.

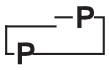
Coordination with Maryland-National Capital Parks and Planning Commission (M-NCPPC) has occurred throughout the project as they are represented on the Project Team. Team Coordination

Meetings are held on a monthly basis to discuss current topics and to review the project's progress and issues. In addition, an individual coordination meeting was held on September 5, 2001 to discuss the potential impacts to Black Hill Regional Park. M-NCPPC indicated they would prefer equal right of way impacts to both the east and west sides of I-270 along the park boundary. M-NCPPC also commented that right of way mitigation should include replacement lands on a 1:1 basis contiguous to the park. A draft memorandum of agreement has been coordinated with the SHPO for adverse project effects to cultural resources (see **Chapter VII**).

LEGEND

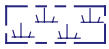
Historic District Boundary

Historic Structure

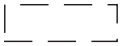


Park Boundary

100 Year Floodplain Boundary


Wetland Area (Surveyed) W-#

Wetland Area
(DNR Nontidal Wetland Areas)


Forested Area Boundary

Existing Right-of-Way

Proposed Right-of-Way

Proposed Retaining Wall


Proposed Construction /
Widening


Separate Planning Study

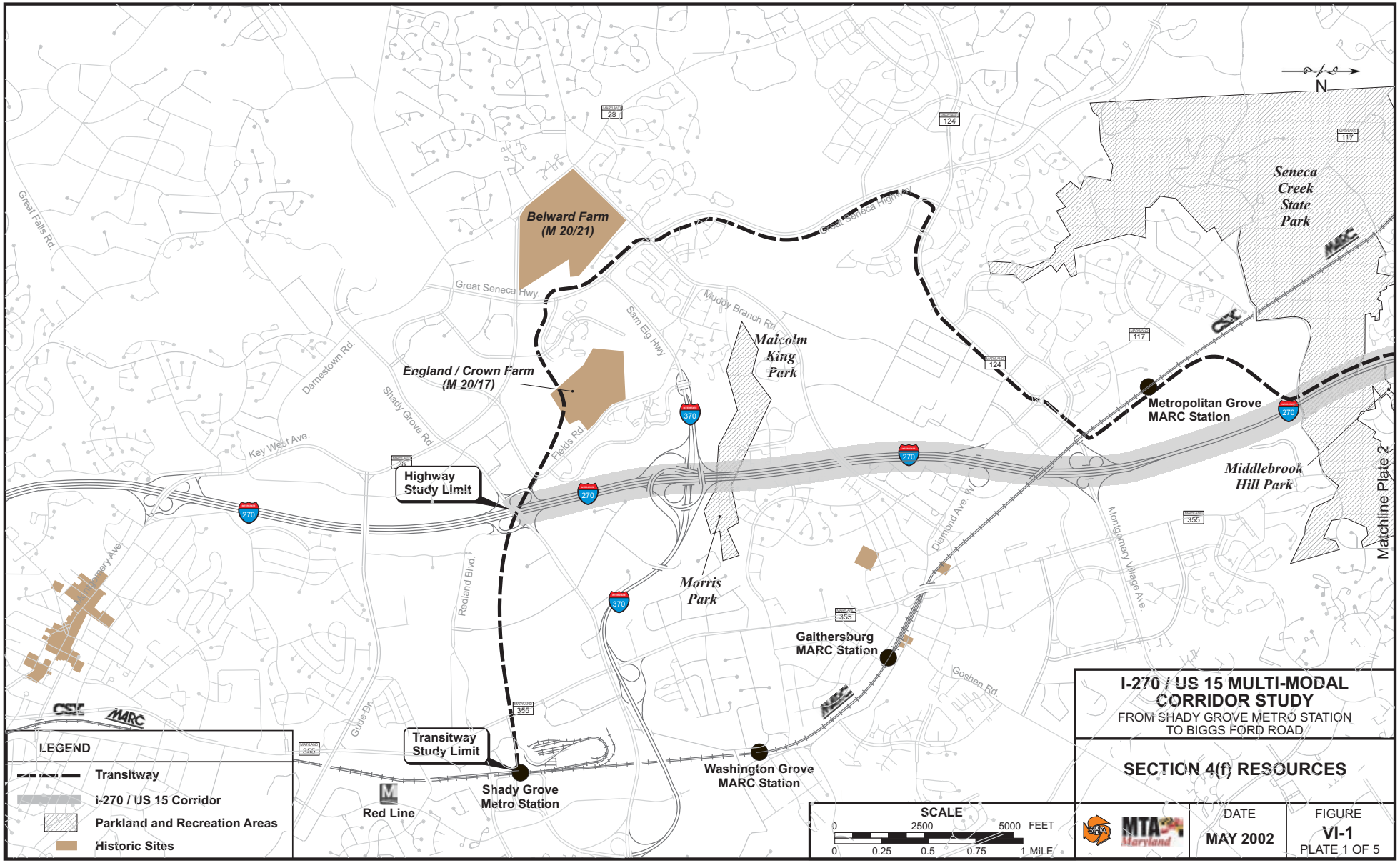

I-270 Corridor Cities Transitway
(Shady Grove to COMSAT)


Hiker / Biker Path

Potential Displacement:

Business and Residential

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY		
SECTION 4(f) EVALUATION		
MTA Maryland	Date: 5/ 02	Figure LEGEND



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

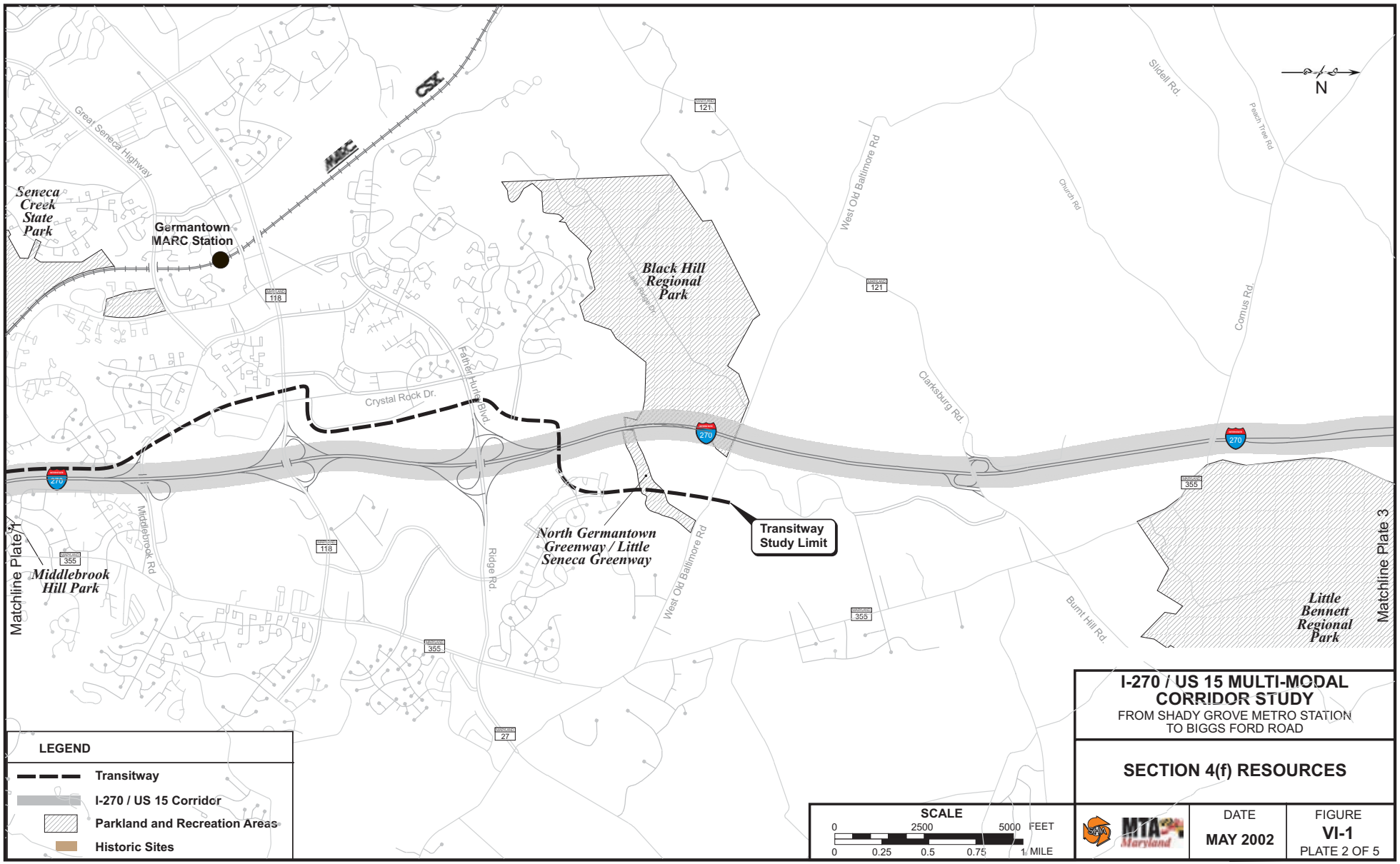
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

SECTION 4(f) RESOURCES

MTA Maryland

DATE
MAY 2002

FIGURE
VI-1
PLATE 1 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

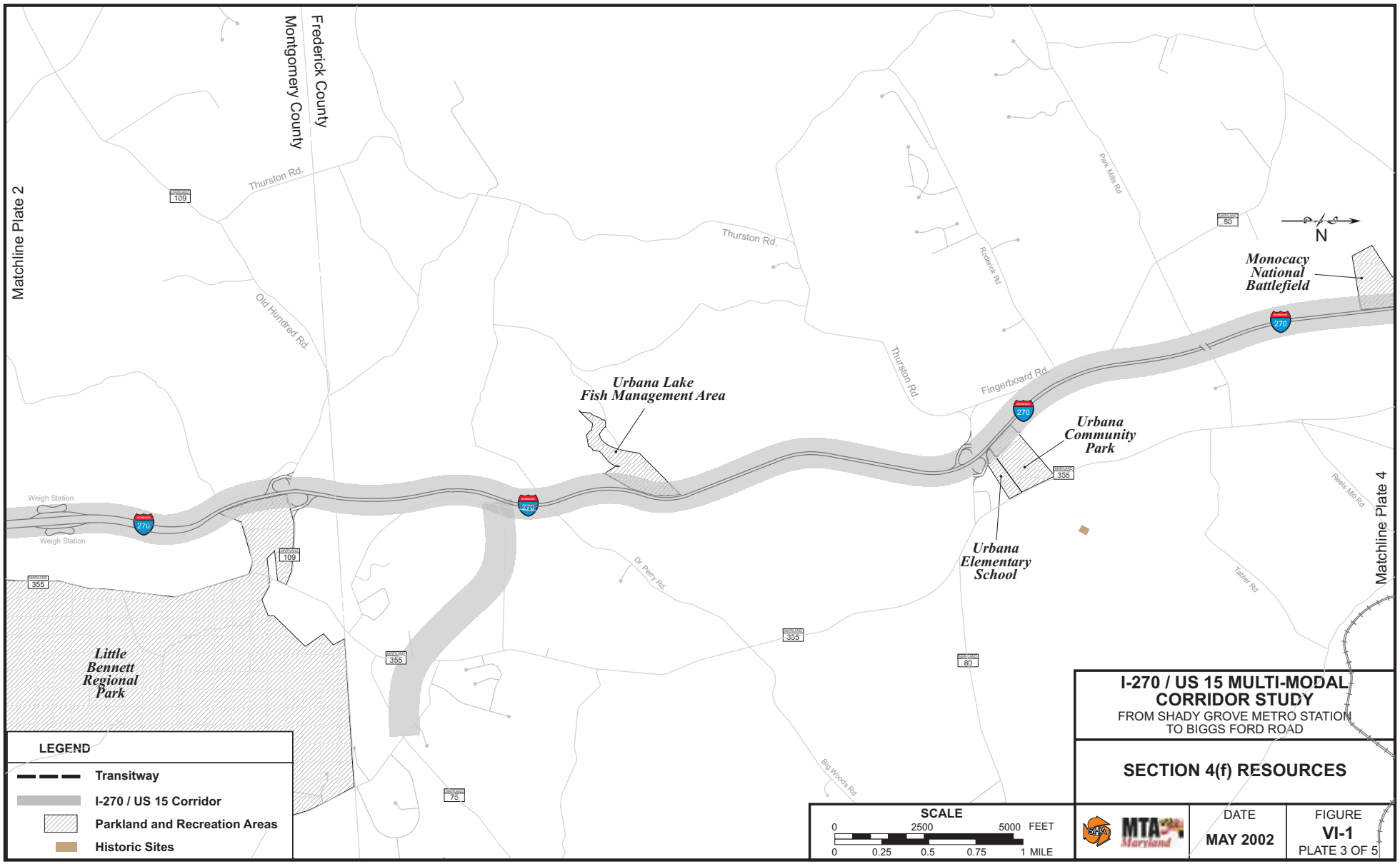
SECTION 4(f) RESOURCES

MTA Maryland

DATE: MAY 2002

FIGURE: VI-1

PLATE 2 OF 5



I-270 / US 15 MULTI-MODAL CORRIDOR STUDY

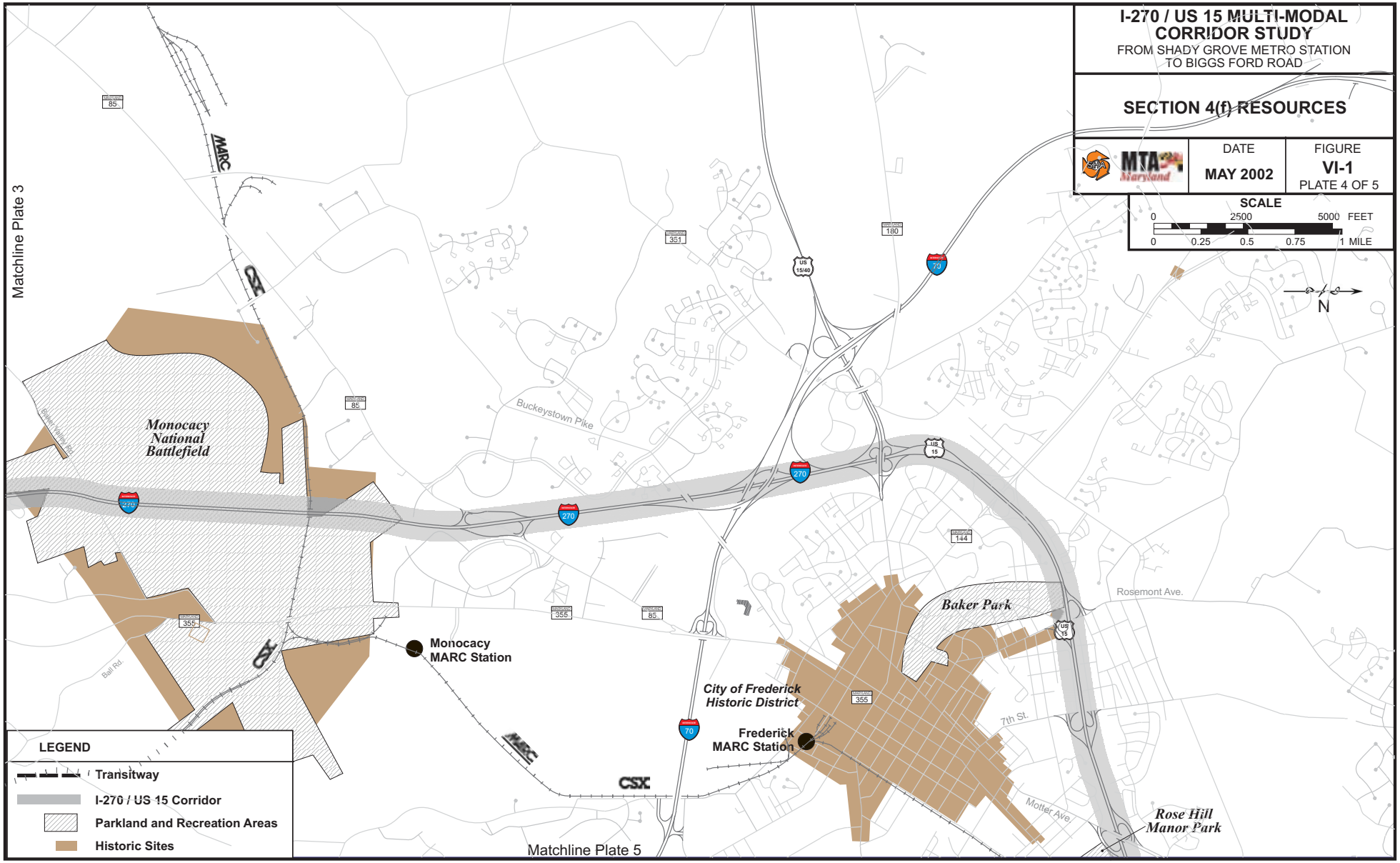
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

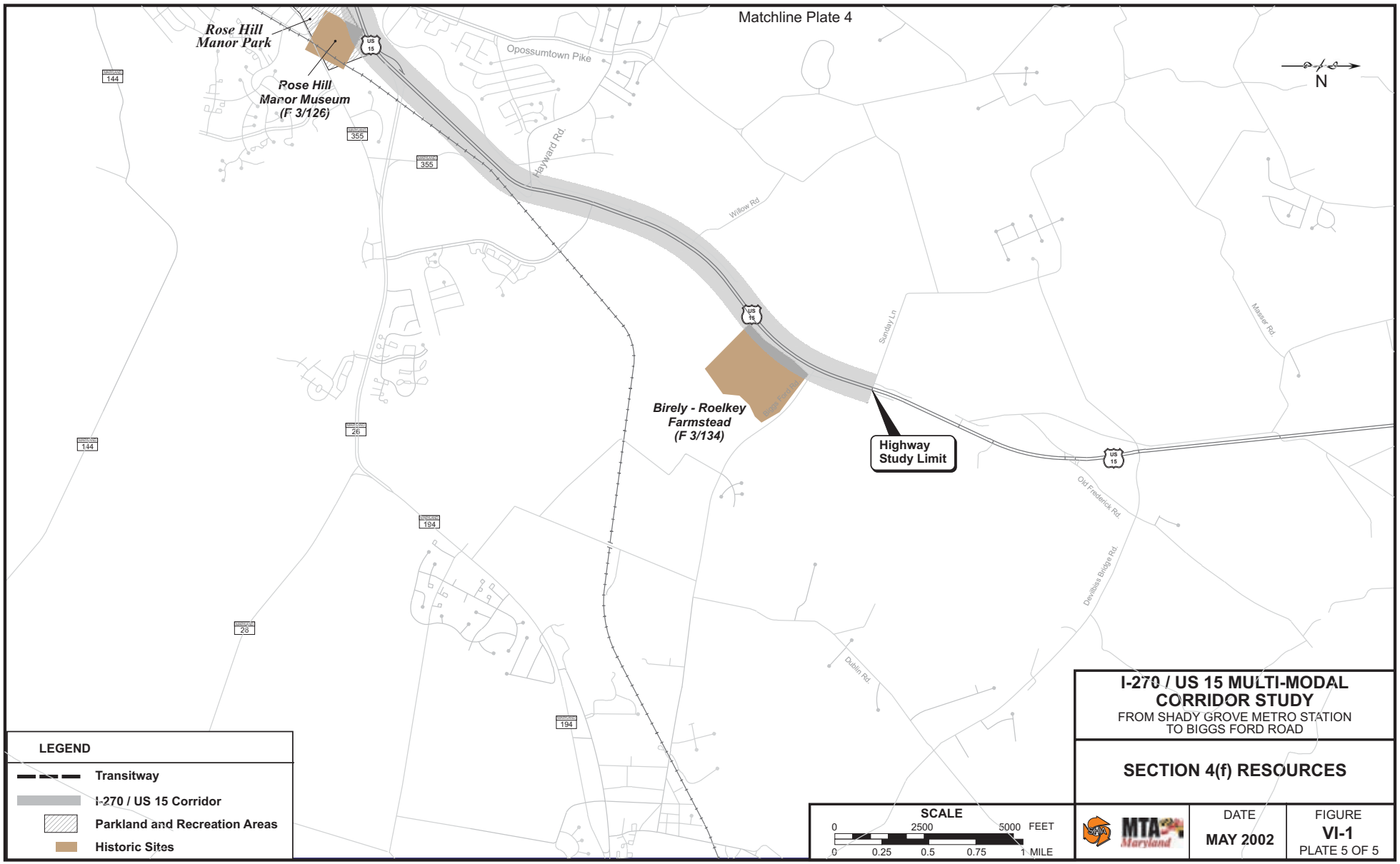
SECTION 4(f) RESOURCES

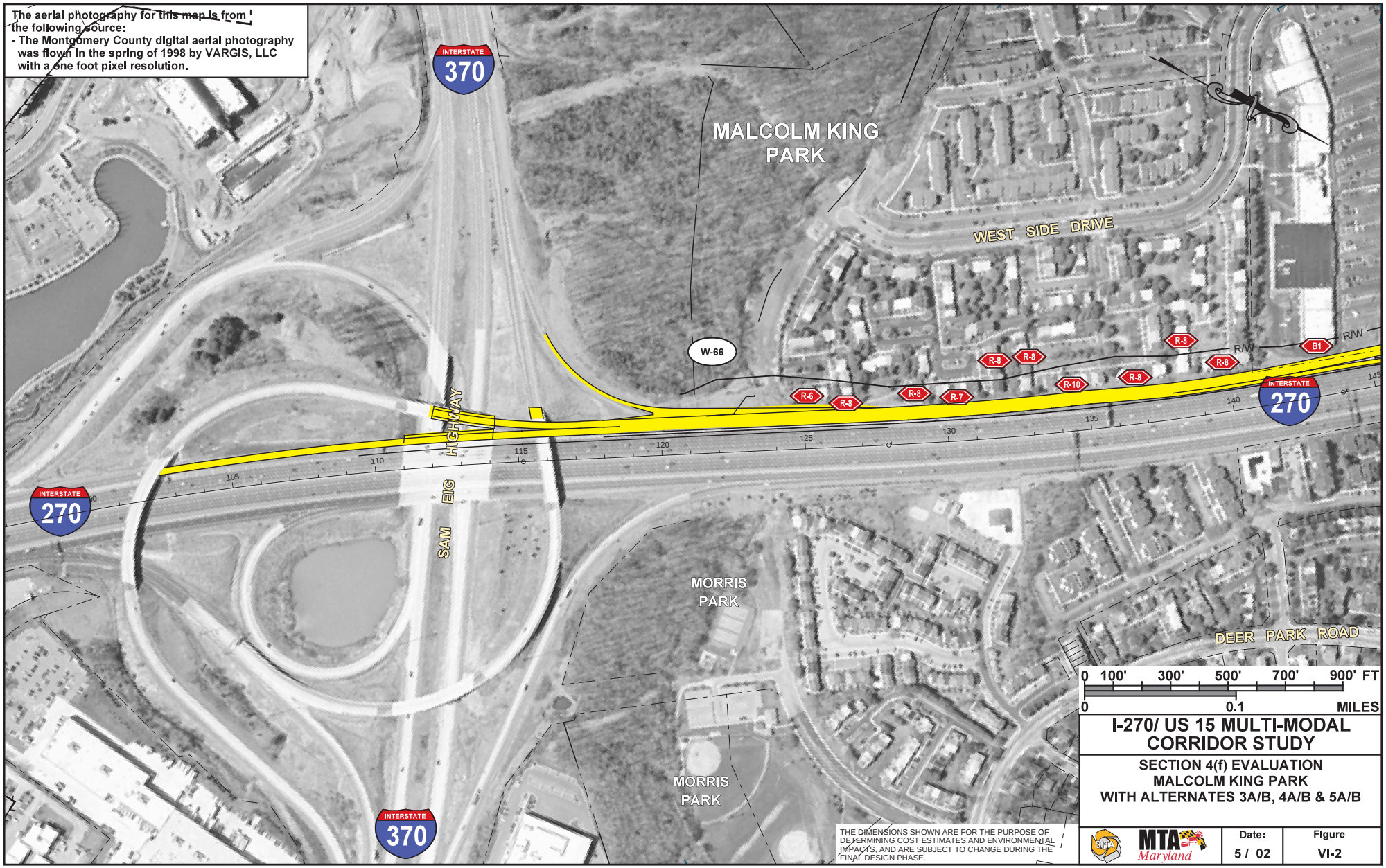
MTA Maryland

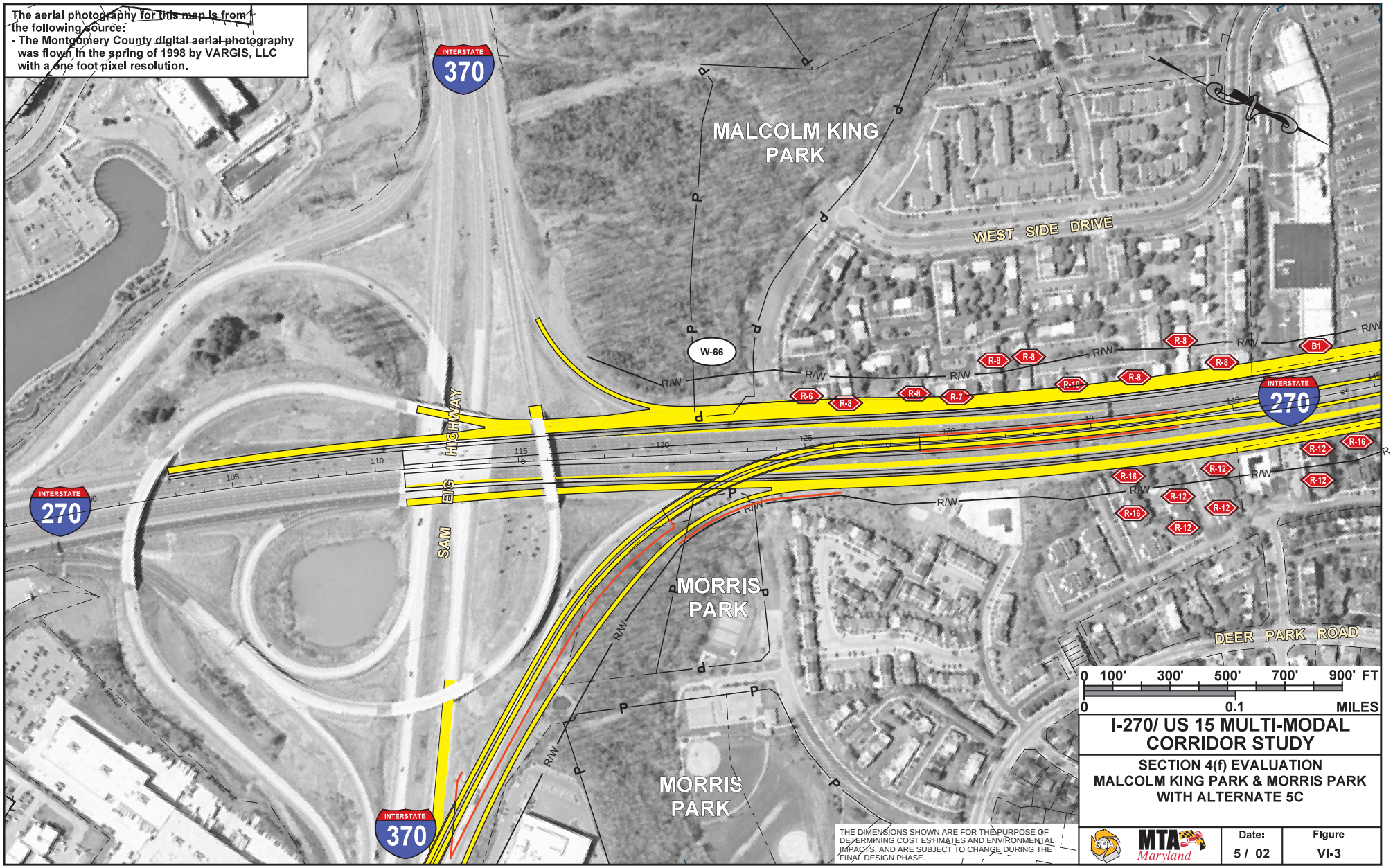
DATE
MAY 2002

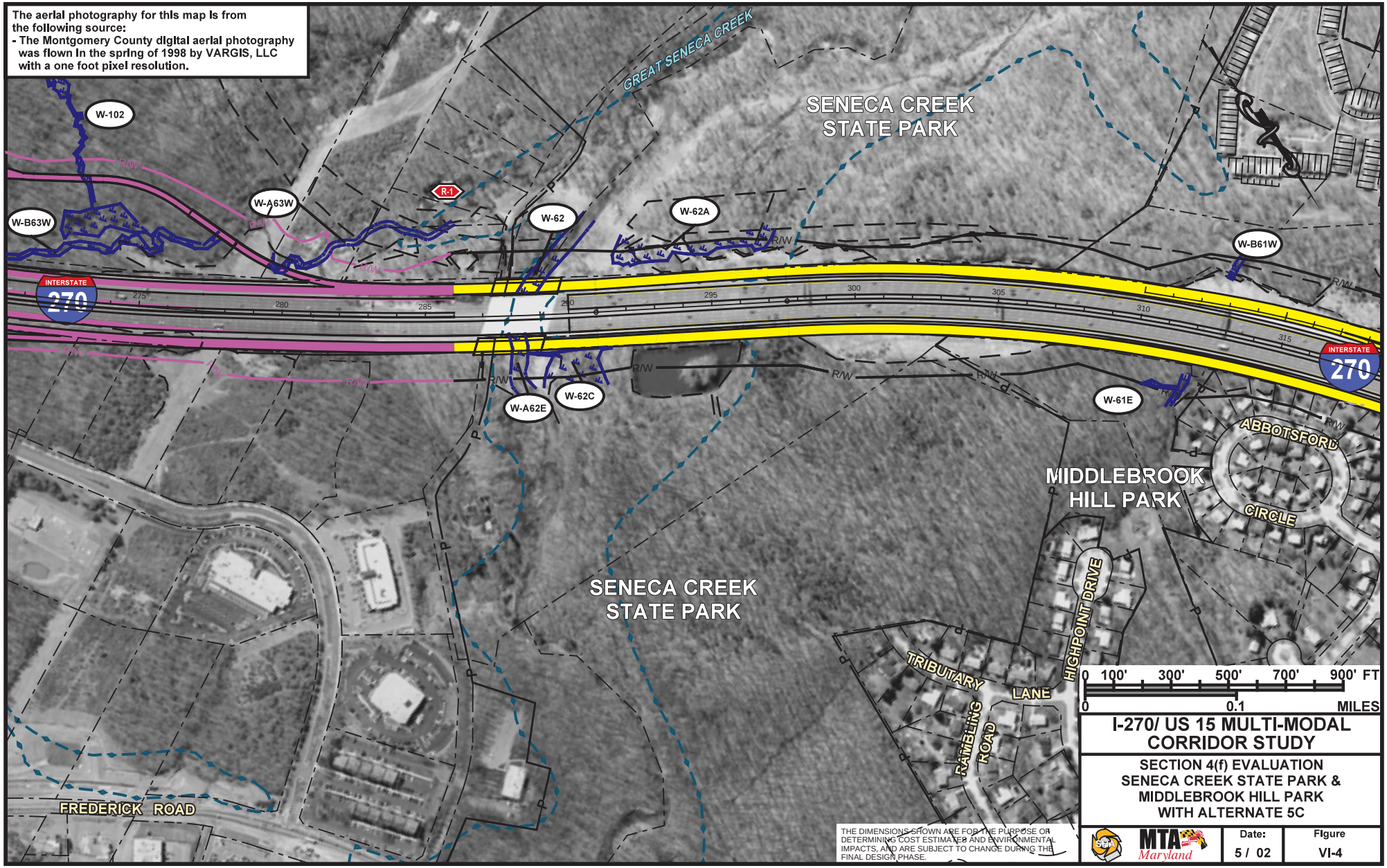
FIGURE
VI-1
PLATE 3 OF 5


I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
SECTION 4(f) RESOURCES
MTA Maryland
DATE
MAY 2002
FIGURE
VI-1
PLATE 4 OF 5
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
N
Matchline Plate 3
Matchline Plate 5
Monocacy National Battlefield
Monocacy MARC Station
Frederick MARC Station
City of Frederick Historic District
Baker Park
Rose Hill Manor Park
Buckeystown Pike
Rosemont Ave.
7th St.
Motter Ave.
Bell Rd.
MARC
CSX
LEGEND
Transitway
I-270 / US 15 Corridor
Parkland and Recreation Areas
Historic Sites


Matchline Plate 4
Rose Hill Manor Park
Rose Hill Manor Museum (F 3/126)
Opossumtown Pike
Hayward Rd.
Willow Rd
Sunday Ln
Masser Rd
Birely - Roelkey Farmstead (F 3/134)
Biggs Ford Rd
Highway Study Limit
Old Frederick Rd.
Devilbiss Bridge Rd.
Dublin Rd.
N
US 15
US 16
MARYLAND 144
MARYLAND 355
MARYLAND 26
MARYLAND 194
LEGEND
Transitway
I-270 / US 15 Corridor
Parkland and Recreation Areas
Historic Sites
SCALE
0 2500 5000 FEET
0 0.25 0.5 0.75 1 MILE
I-270 / US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
SECTION 4(f) RESOURCES
SHA
MTA Maryland
DATE
MAY 2002
FIGURE
VI-1
PLATE 5 OF 5


The aerial photography for this map is from the following source:
- The Montgomery County digital aerial photography was flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
INTERSTATE 370
MALCOLM KING PARK
WEST SIDE DRIVE
W-66
R/W
B1
R-8
R-10
R-7
R-6
INTERSTATE 270
SAM EIG HIGHWAY
105
110
115
120
125
130
135
140
145
MORRIS PARK
MORRIS PARK
DEER PARK ROAD
INTERSTATE 370
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
MALCOLM KING PARK
WITH ALTERNATES 3A/B, 4A/B & 5A/B
MTA Maryland
Date: 5 / 02
Figure VI-2


The aerial photography for this map is from the following source:
- The Montgomery County digital aerial photography was flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
INTERSTATE 370
MALCOLM KING PARK
WEST SIDE DRIVE
W-66
INTERSTATE 270
SAM ELG HIGHWAY
MORRIS PARK
DEER PARK ROAD
INTERSTATE 370
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
MALCOLM KING PARK & MORRIS PARK
WITH ALTERNATE 5C
MTA Maryland
Date: 5 / 02
Figure VI-3

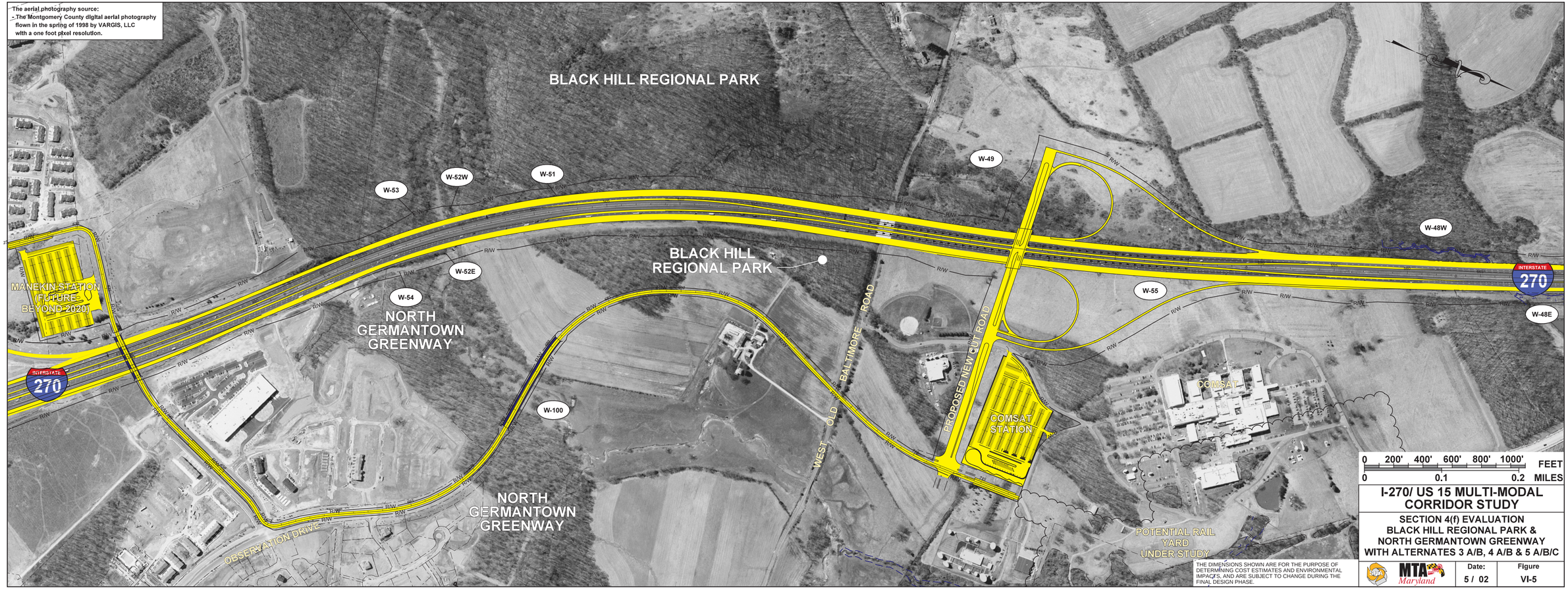


I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

SECTION 4(f) EVALUATION SENECA CREEK STATE PARK & MIDDLEBROOK HILL PARK WITH ALTERNATE 5C

MTA Maryland

Date:	Figure
5 / 02	VI-4


The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
BLACK HILL REGIONAL PARK
W-53
W-52W
W-51
W-49
W-48W
W-48E
W-52E
W-54
W-55
W-100
BLACK HILL REGIONAL PARK
MANEKIN STATION (FUTURE - BEYOND 2020)
NORTH GERMANTOWN GREENWAY
NORTH GERMANTOWN GREENWAY
INTERSTATE 270
INTERSTATE 270
OBSERVATION DRIVE
WEST OLD BALTIMORE ROAD
PROPOSED NEW CUT ROAD
COMSAT STATION
COMSAT
POTENTIAL RAIL YARD UNDER STUDY
R/W
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
BLACK HILL REGIONAL PARK &
NORTH GERMANTOWN GREENWAY
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B/C
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-5


The aerial photography for this map is from the following source:
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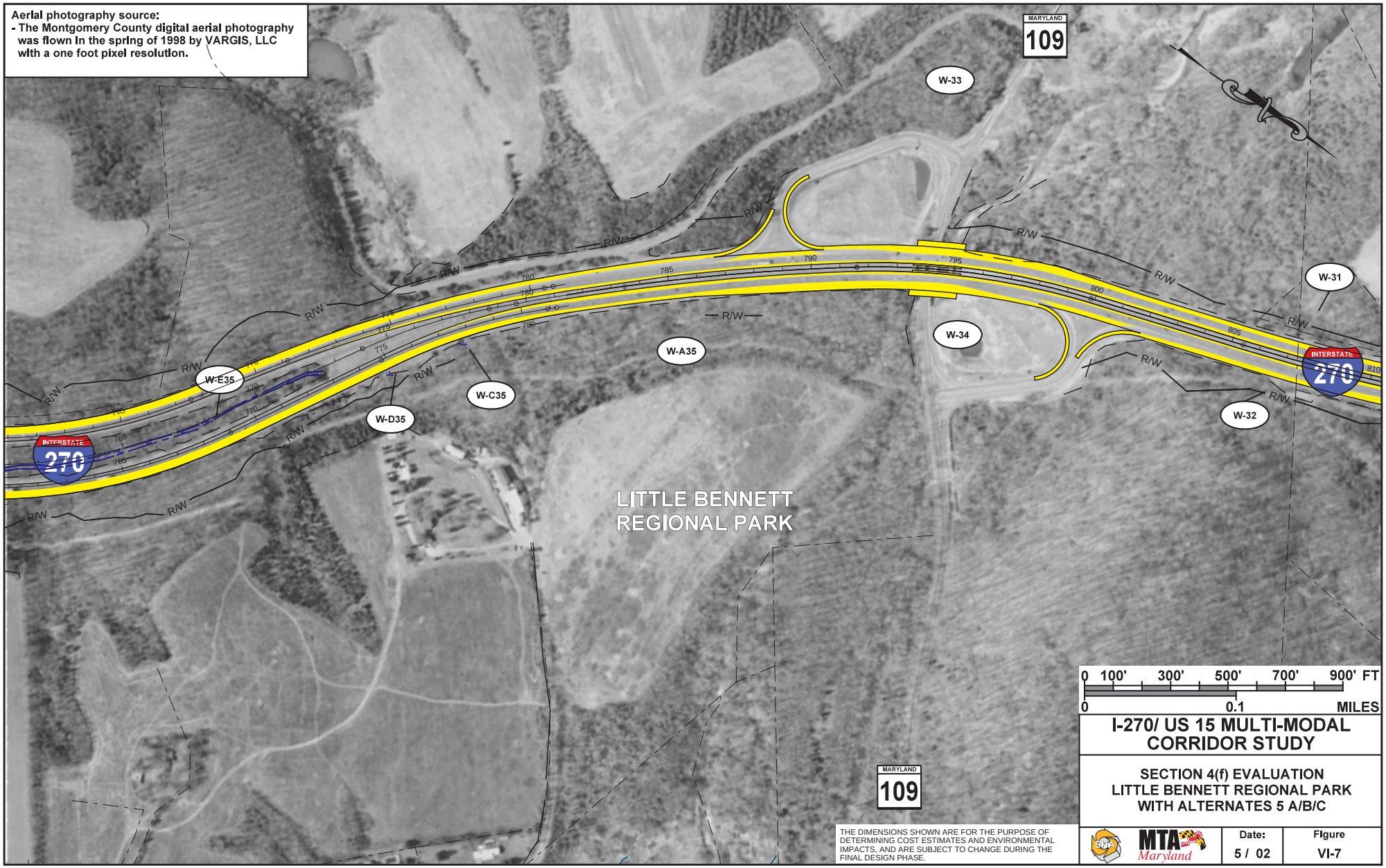
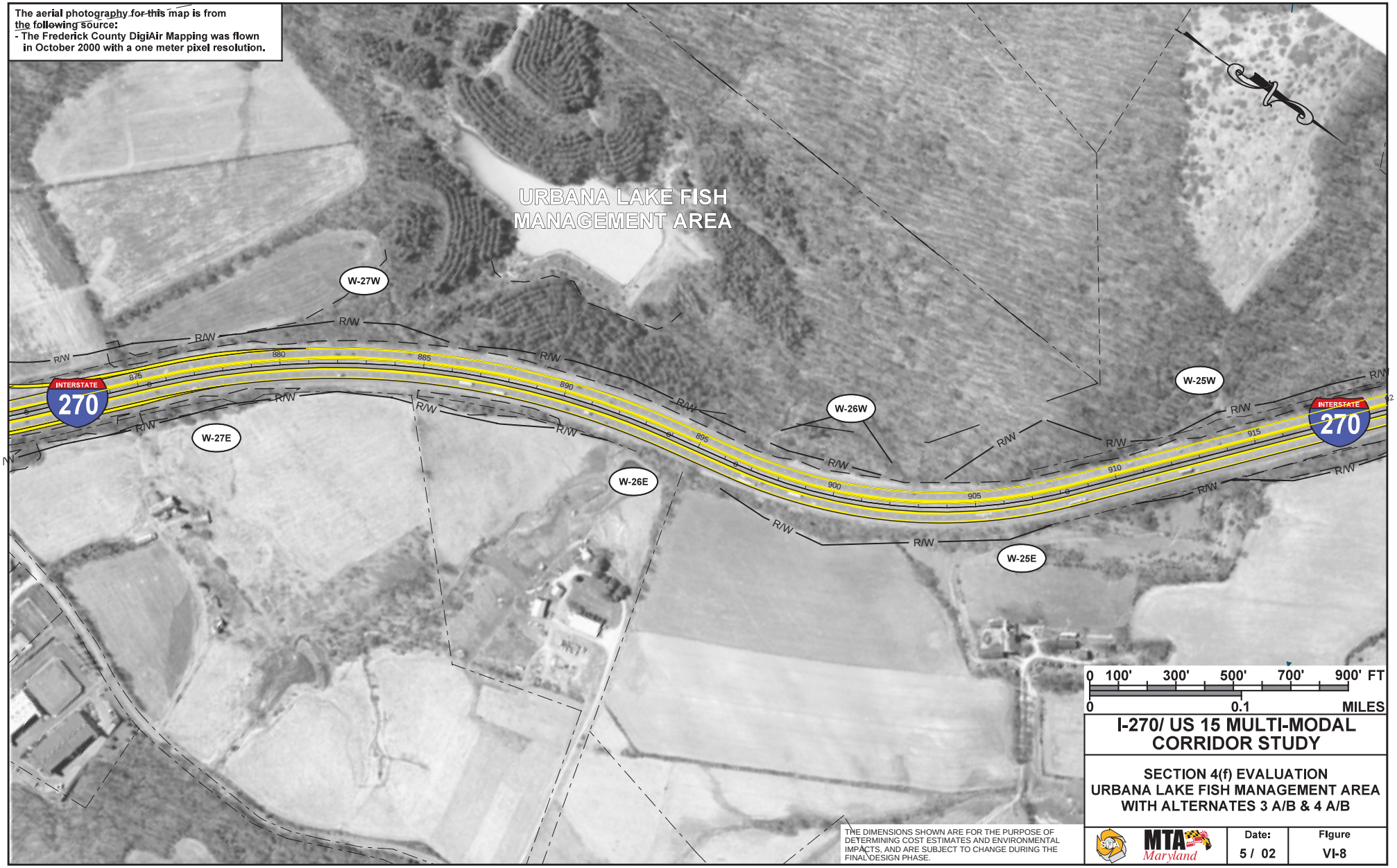
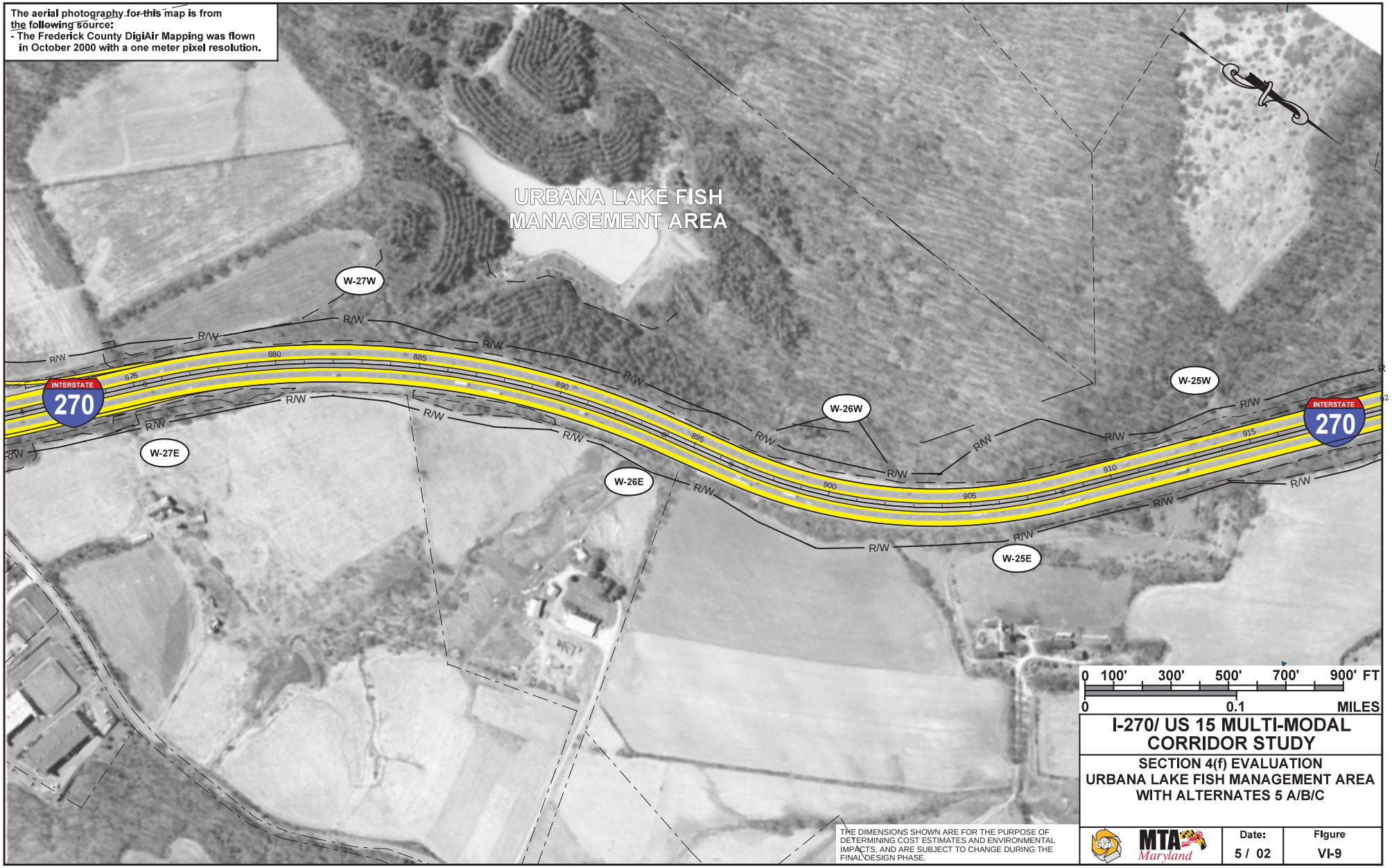
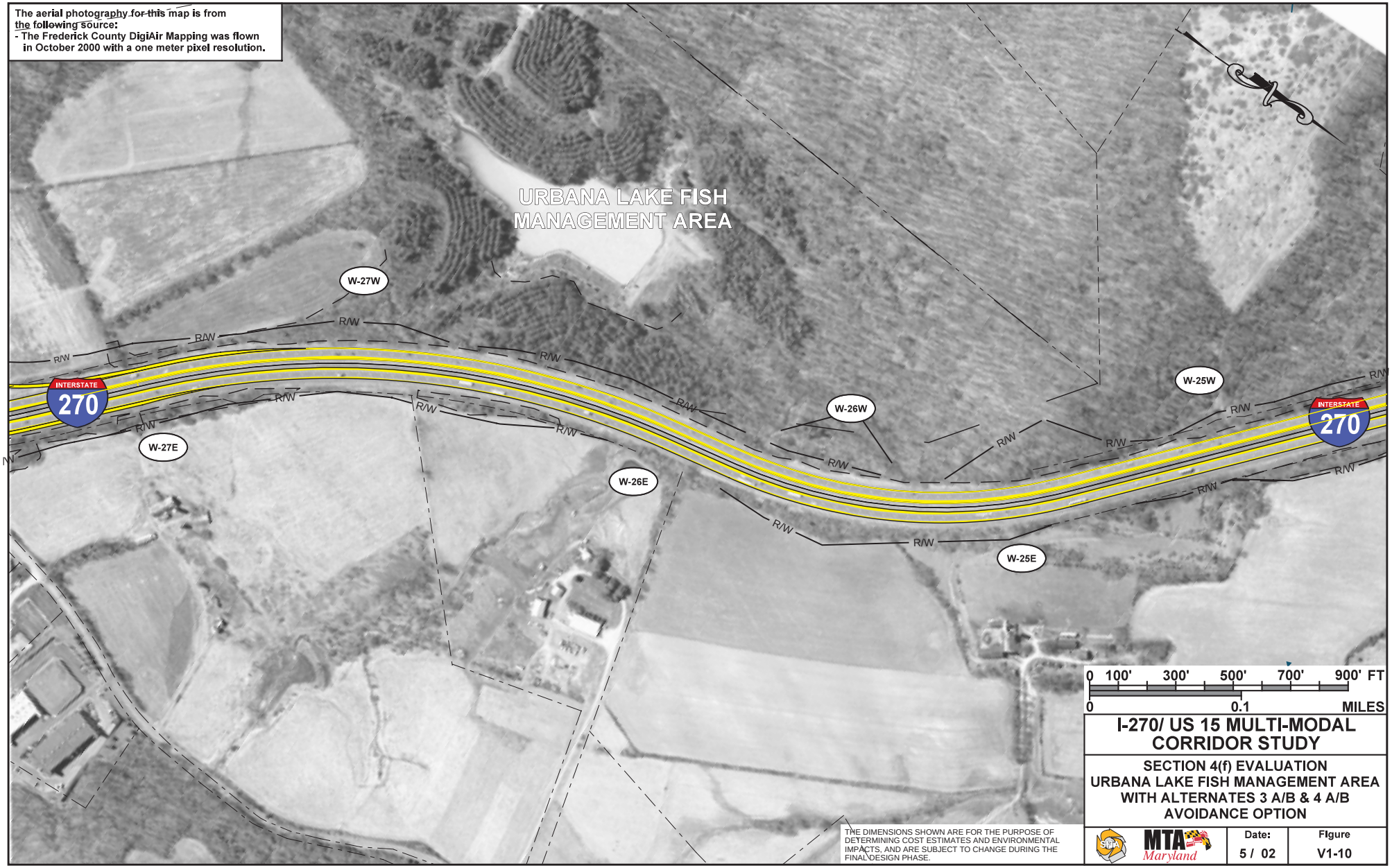
MARYLAND 109
W-33
W-31
W-34
W-A35
W-E35
W-C35
W-D35
W-32
INTERSTATE 270
R/W
LITTLE BENNETT REGIONAL PARK
MARYLAND 109
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
LITTLE BENNETT REGIONAL PARK
WITH ALTERNATES 3 A/B & 4 A/B
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-6

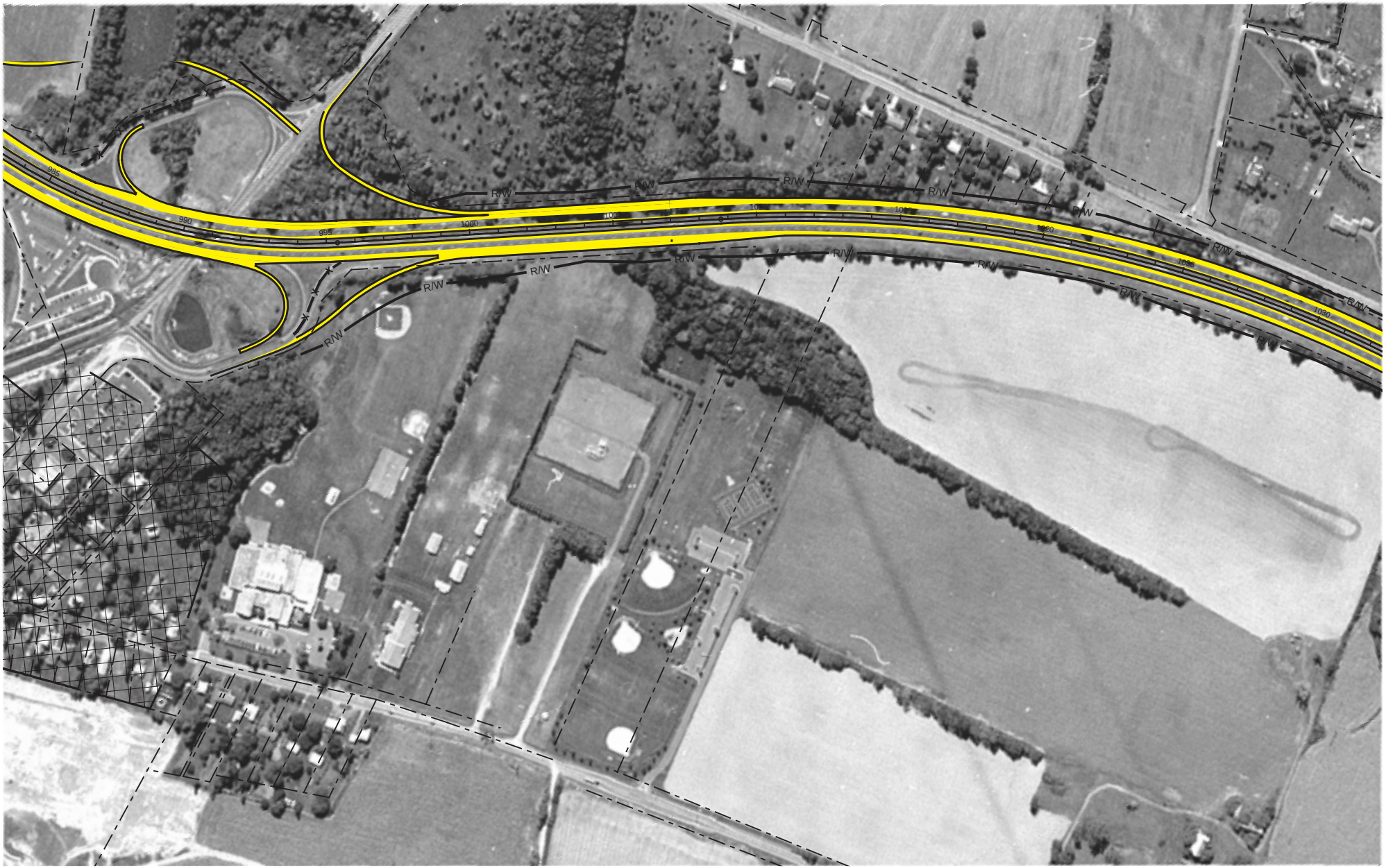

Aerial photography source:
- The Montgomery County digital aerial photography was flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
MARYLAND 109
W-33
W-31
W-34
W-A35
W-C35
W-D35
W-E35
W-32
INTERSTATE 270
R/W
LITTLE BENNETT REGIONAL PARK
MARYLAND 109
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
LITTLE BENNETT REGIONAL PARK
WITH ALTERNATES 5 A/B/C
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-7


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
URBANA LAKE FISH MANAGEMENT AREA
W-27W
W-27E
W-26W
W-26E
W-25W
W-25E
INTERSTATE 270
INTERSTATE 270
R/W
875
880
885
890
895
900
905
910
915
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
URBANA LAKE FISH MANAGEMENT AREA
WITH ALTERNATES 3 A/B & 4 A/B
MTA Maryland
Date: 5 / 02
Figure VI-8


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
URBANA LAKE FISH MANAGEMENT AREA
W-27W
W-27E
W-26W
W-26E
W-25W
W-25E
INTERSTATE 270
INTERSTATE 270
R/W
875
880
885
890
895
900
905
910
915
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
URBANA LAKE FISH MANAGEMENT AREA
WITH ALTERNATES 5 A/B/C
MTA Maryland
Date: 5 / 02
Figure VI-9


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
URBANA LAKE FISH MANAGEMENT AREA
W-27W
W-27E
W-26W
W-26E
W-25W
W-25E
INTERSTATE 270
INTERSTATE 270
R/W
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
URBANA LAKE FISH MANAGEMENT AREA
WITH ALTERNATES 3 A/B & 4 A/B
AVOIDANCE OPTION
MTA Maryland
Date: 5 / 02
Figure V1-10

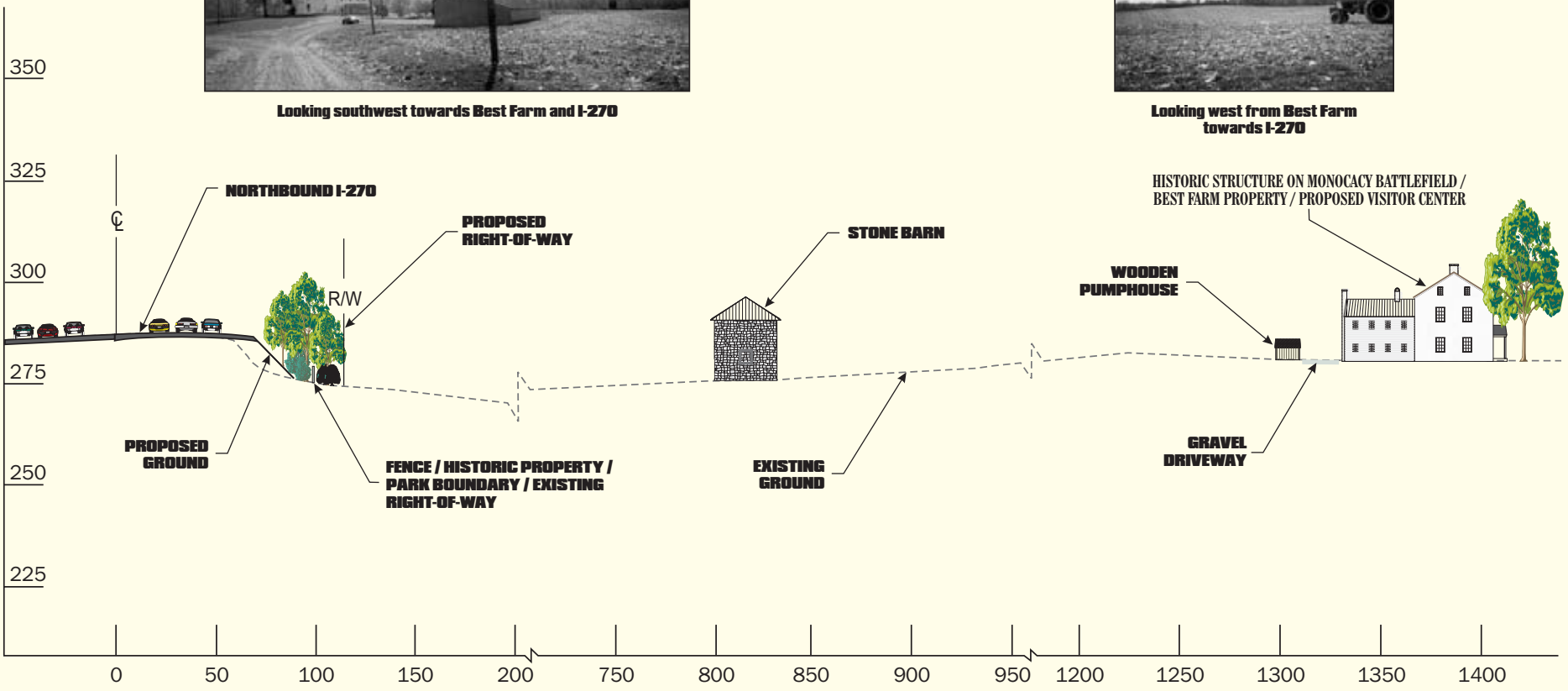

R/W
985
990
995
1000
1005
1010
1015
1020
1025
1030
1035


R/W
985
990
995
1000
1005
1010
1015
1020
1025
1030


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
WORTHINGTON FARM
MONOCACY NATIONAL BATTLEFIELD F3/42
MONOCACY RIVER
W-9W
W-11
W-12W
W-13
W-14W
INTERSTATE 270
W-12E
SCENIC OVERLOOK
W-14E
W-11
W-22
THOMAS FARM
MONOCACY NATIONAL BATTLEFIELD F3/42
W-9E
SECTION @ STATION 1213+22
CSX RAILROAD OLD MAIN LINE
BEST FARM
SHOCKLEY DRIVE
INTERSTATE 270
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
MONOCACY NATIONAL BATTLEFIELD
WITH ALTERNATES 3 A/B & 4 A/B
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-14

Looking southwest towards Best Farm and I-270

Looking west from Best Farm towards I-270



ALTERNATIVES 3A/B, 4A/B, 5A/B

STATION 1213+22

(LOOKING NORTHBOUND)

I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station to Biggs Ford Road

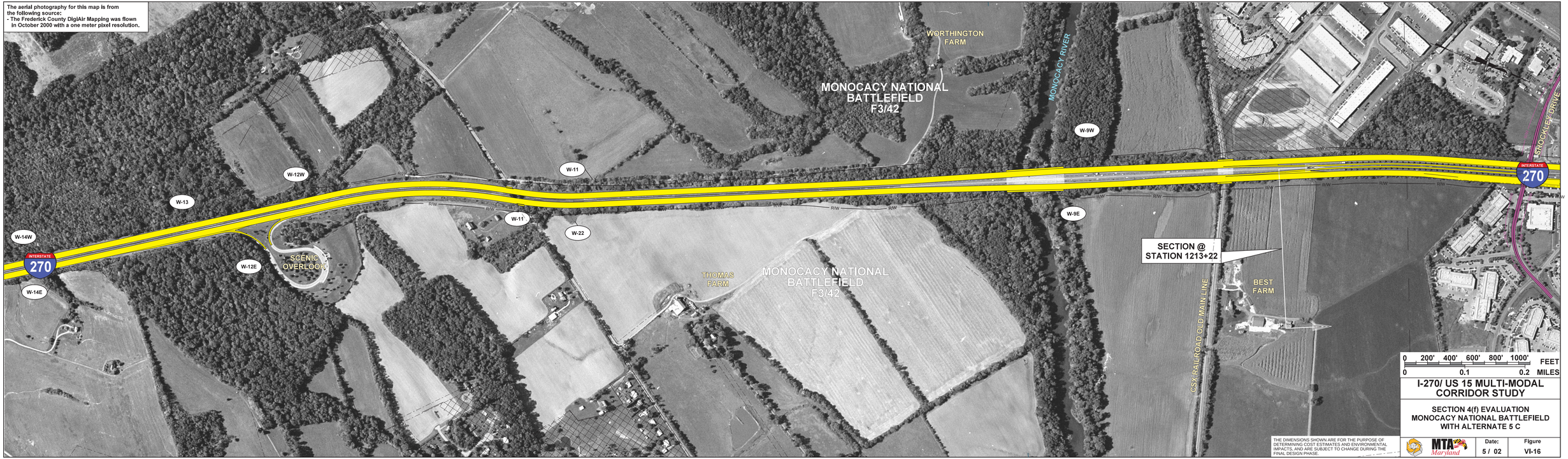
SECTION 4(f) RESOURCE VIEWSHED
MONOCACY BATTLEFIELD / BEST FARM

SHA MTA Maryland

DATE
MAY 2002

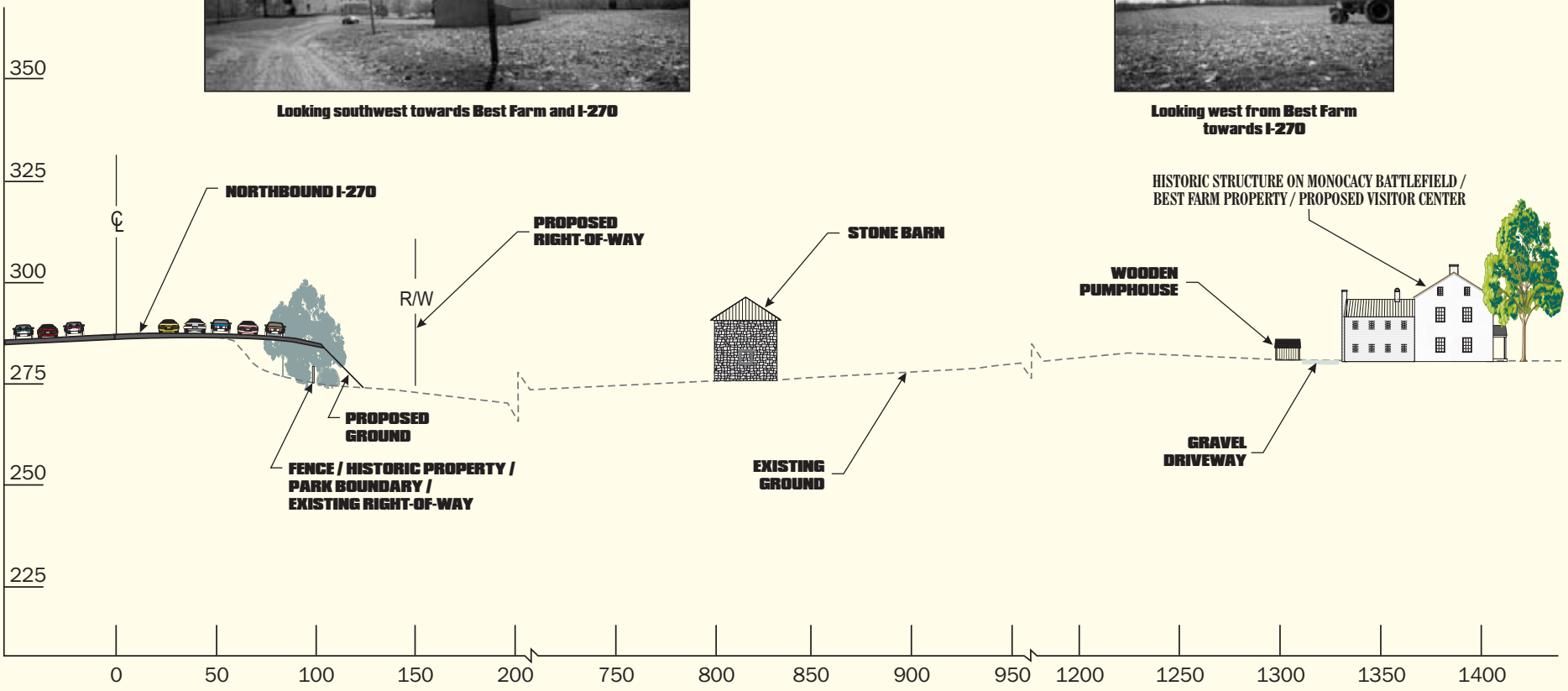
FIGURE
VI-14A/15A


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
WORTHINGTON FARM
MONOCACY NATIONAL BATTLEFIELD F3/42
MONOCACY RIVER
W-9W
W-9E
W-11
W-12W
W-13
W-14W
W-12E
W-14E
W-22
SCENIC OVERLOOK
THOMAS FARM
MONOCACY NATIONAL BATTLEFIELD F3/42
SECTION @ STATION 1213+22
CSX RAILROAD OLD MAIN LINE
SHOCKLEY DRIVE
INTERSTATE 270
INTERSTATE 270
RW
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
MONOCACY NATIONAL BATTLEFIELD
WITH ALTERNATES 5 A/B
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-15


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
WORTHINGTON FARM
MONOCACY NATIONAL BATTLEFIELD F3/42
MONOCACY RIVER
W-9W
W-11
W-12W
W-13
W-14W
W-14E
W-12E
SCENIC OVERLOOK
W-11
W-22
W-9E
THOMAS FARM
MONOCACY NATIONAL BATTLEFIELD F3/42
SECTION @ STATION 1213+22
CSX RAILROAD OLD MAIN LINE
BEST FARM
ASHOCKLEY DRIVE
INTERSTATE 270
INTERSTATE 270
R/W
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
MONOCACY NATIONAL BATTLEFIELD
WITH ALTERNATE 5 C
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-16

Looking southwest towards Best Farm and I-270

Looking west from Best Farm towards I-270



ALTERNATE 5C

STATION 1213+22

(LOOKING NORTHBOUND)

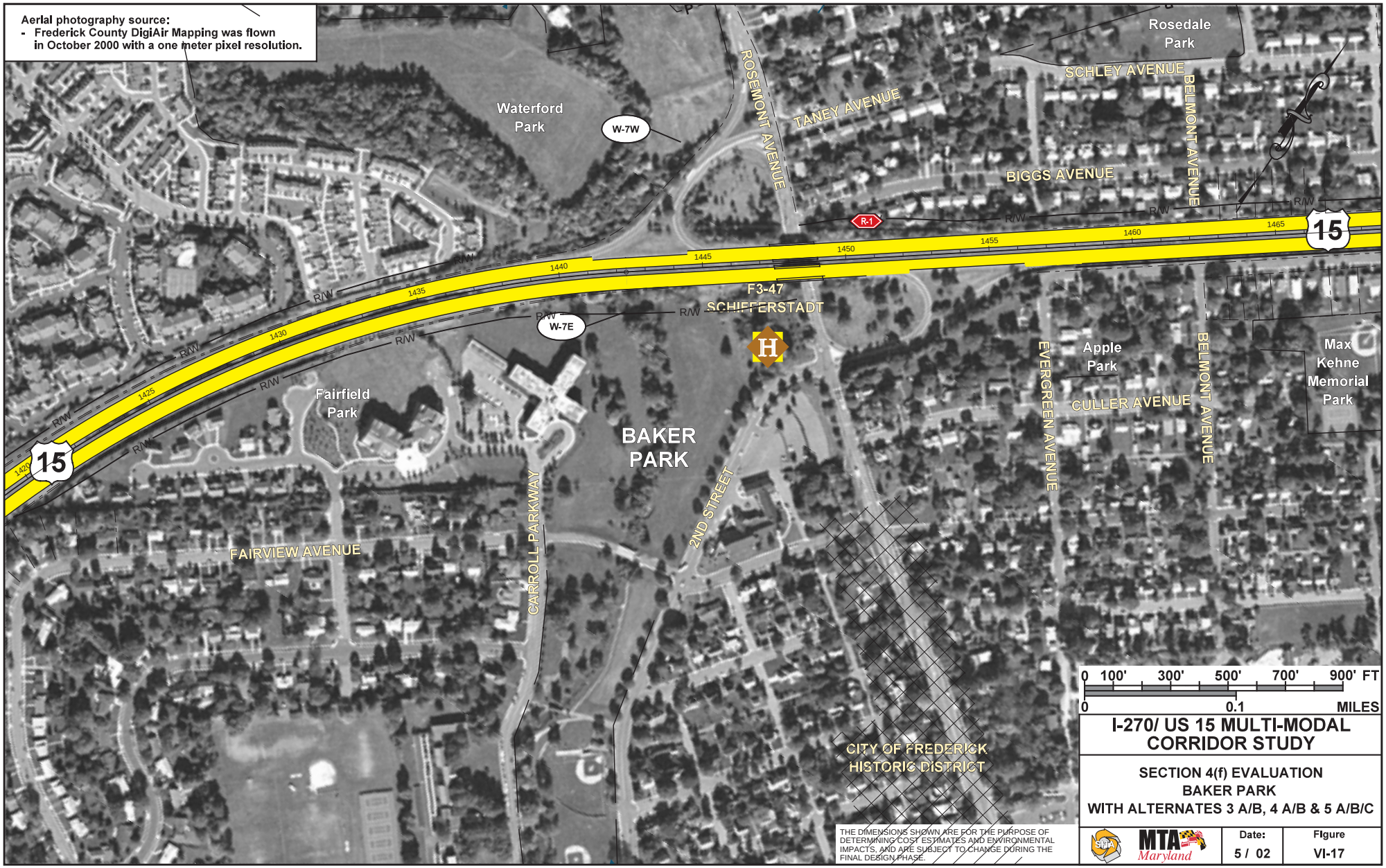
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station to Biggs Ford Road

SECTION 4(f) RESOURCE VIEWSHED
MONOCACY BATTLEFIELD / BEST FARM

SHA MTA Maryland

DATE
MAY 2002

FIGURE
VI-16A

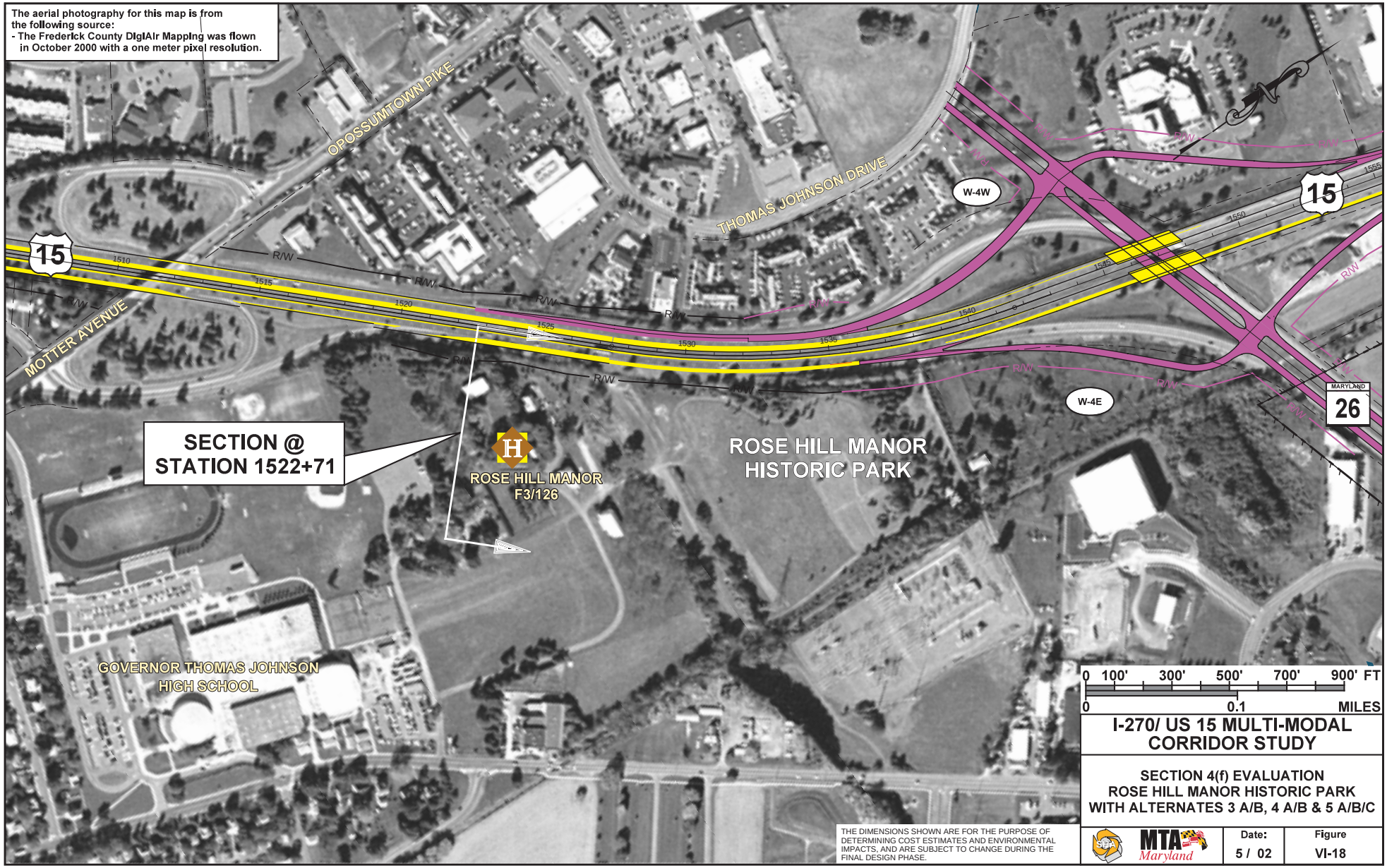


I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

SECTION 4(f) EVALUATION
BAKER PARK
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B/C

MTA Maryland

Date:	Figure
5 / 02	VI-17



I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

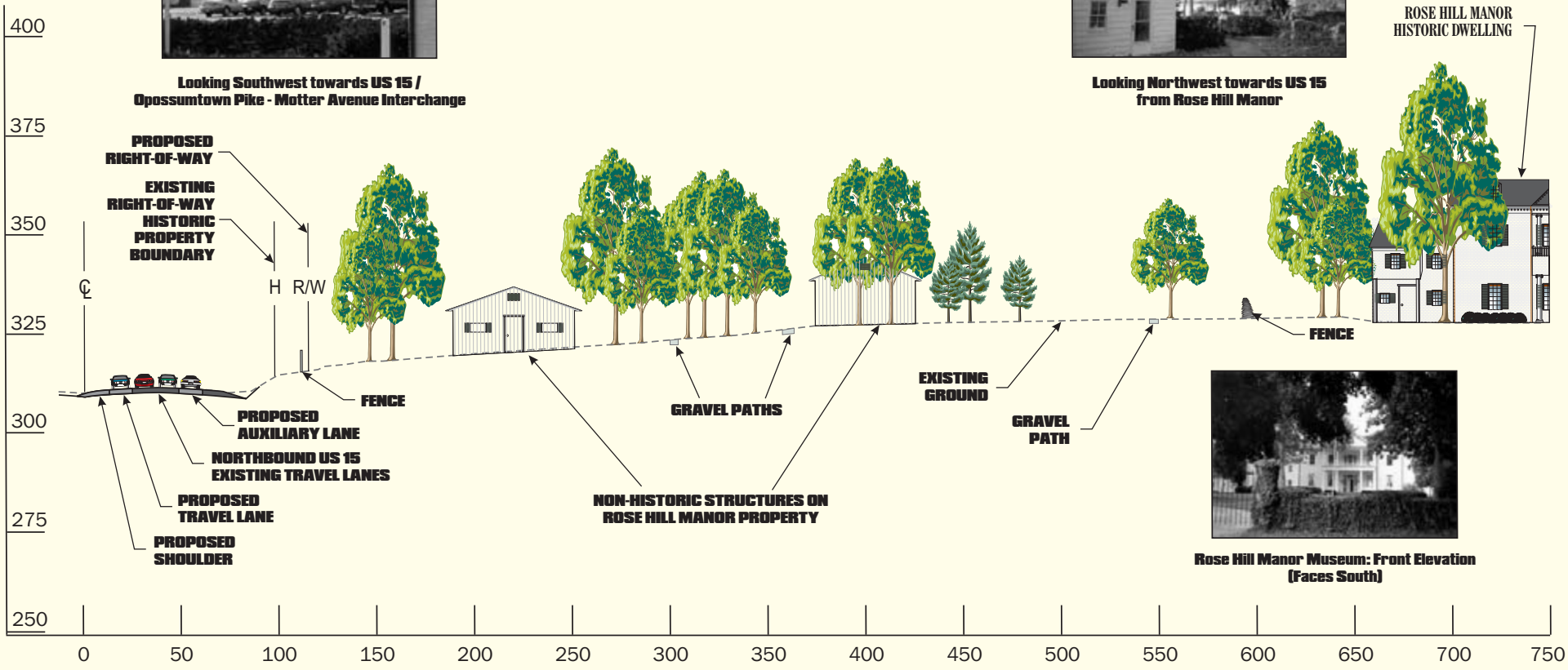
SECTION 4(f) EVALUATION
ROSE HILL MANOR HISTORIC PARK
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B/C

MTA Maryland

Date:	Figure
5 / 02	VI-18

Looking Southwest towards US 15 /
Opossumtown Pike - Motter Avenue Interchange

Looking Northwest towards US 15
from Rose Hill Manor



Rose Hill Manor Museum: Front Elevation
(Faces South)

ALTERNATIVES 3A/B, 4A/B, 5A/B/C

STATION 1522+71

(LOOKING NORTHBOUND)

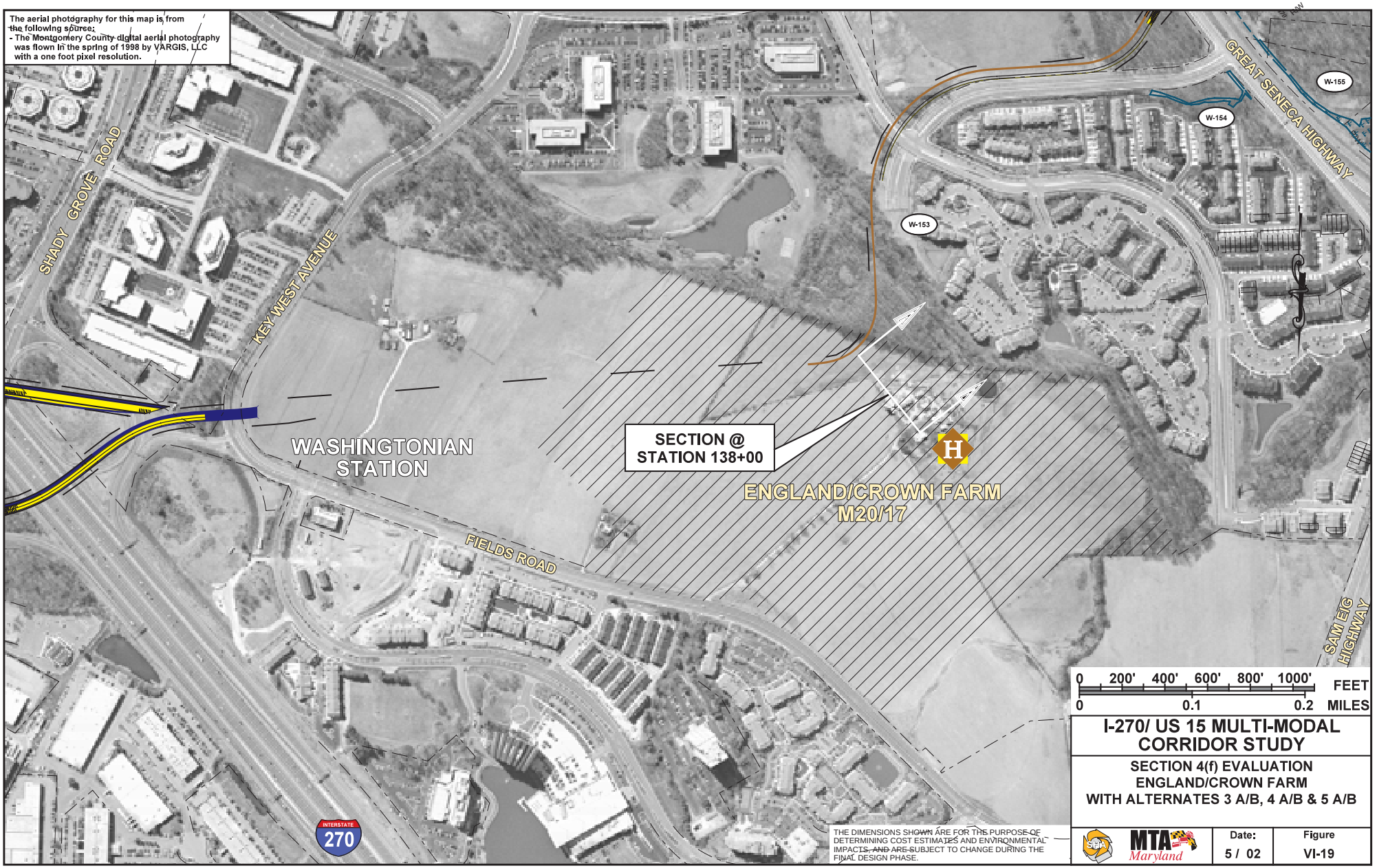
I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station to Biggs Ford Road

SECTION 4(f) RESOURCE VIEWSHED
ROSE HILL MANOR

SHA MTA Maryland

DATE
MAY 2002

FIGURE
VI-18A



I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

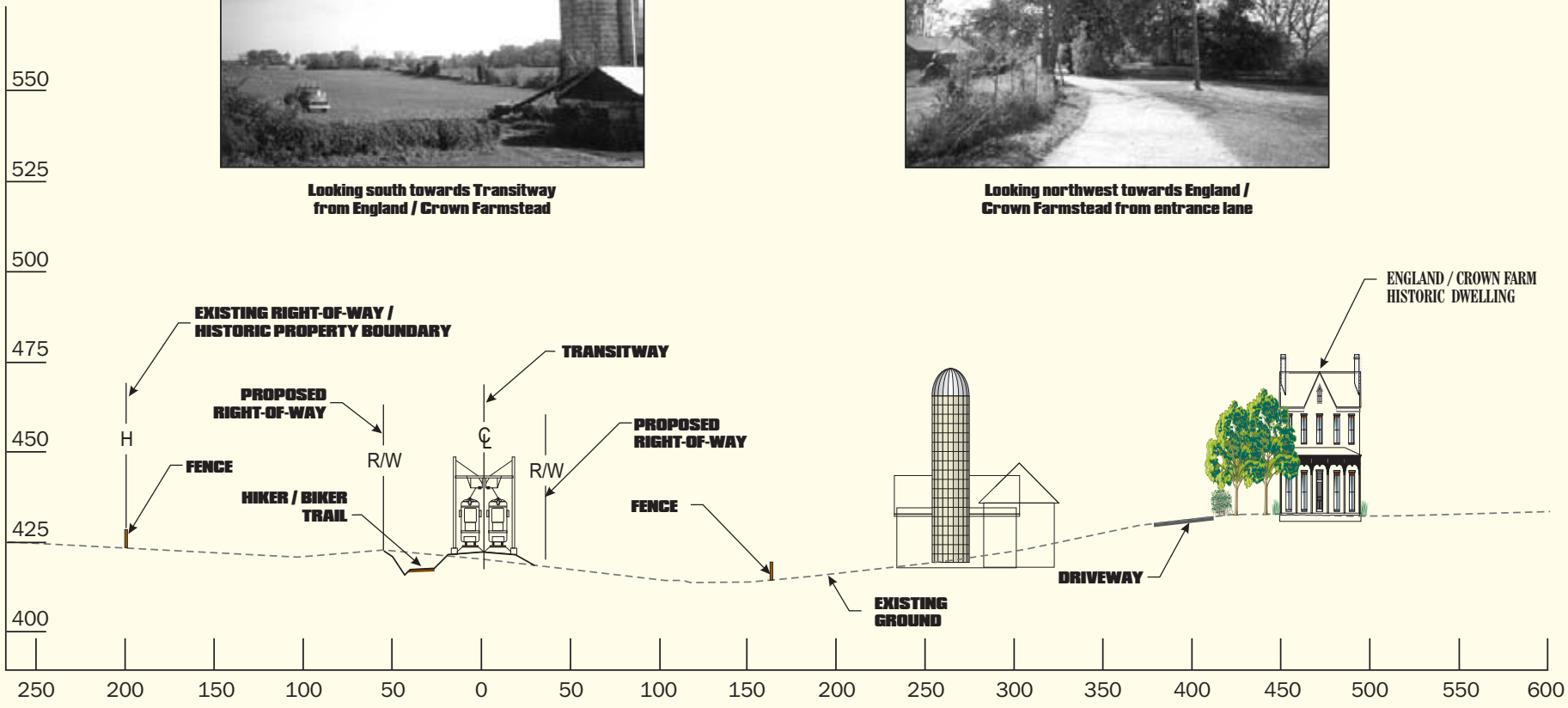
SECTION 4(f) EVALUATION
ENGLAND/CROWN FARM
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B

MTA Maryland

Date:	Figure
5 / 02	VI-19

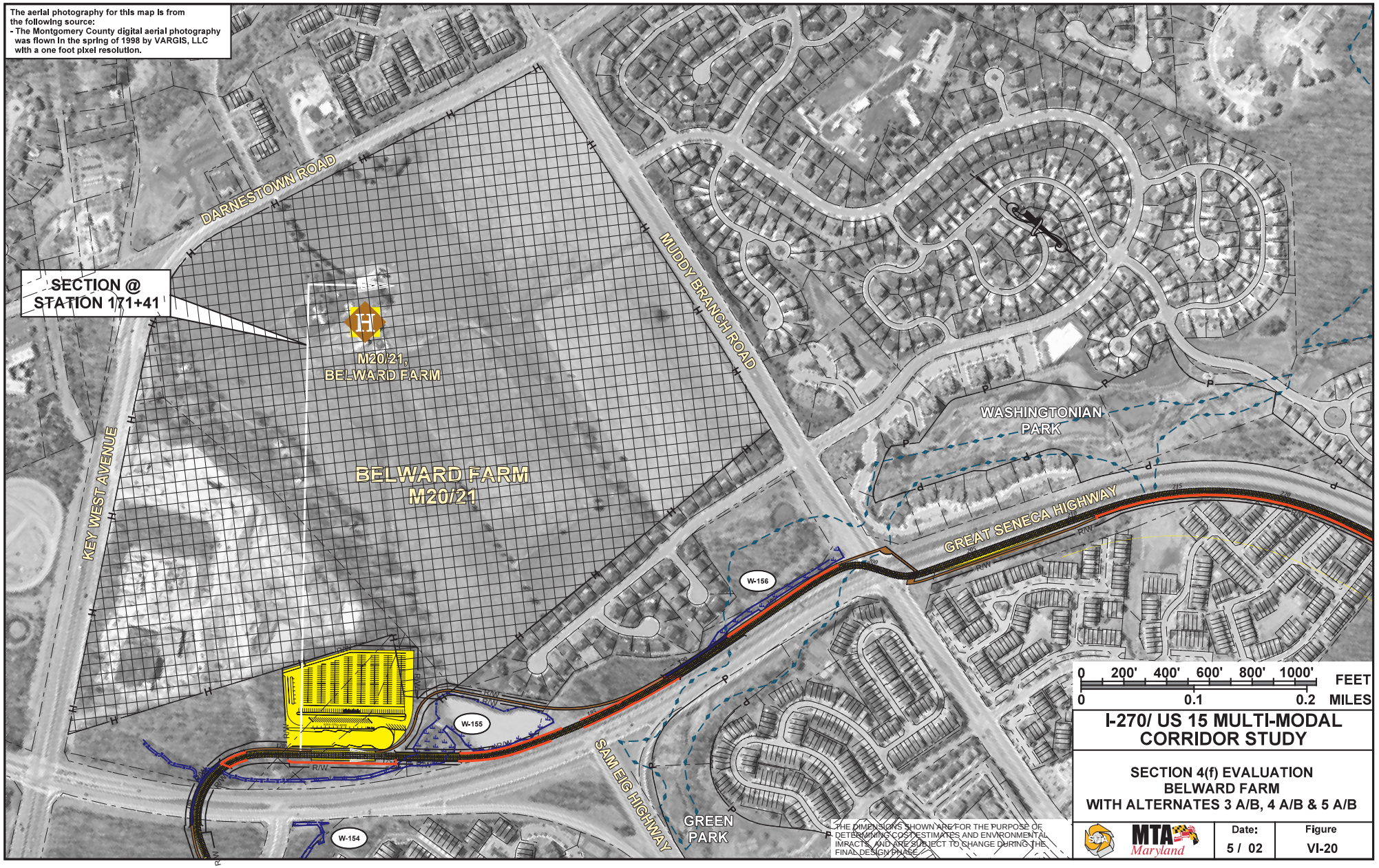
Looking south towards Transitway from England / Crown Farmstead

Looking northwest towards England / Crown Farmstead from entrance lane



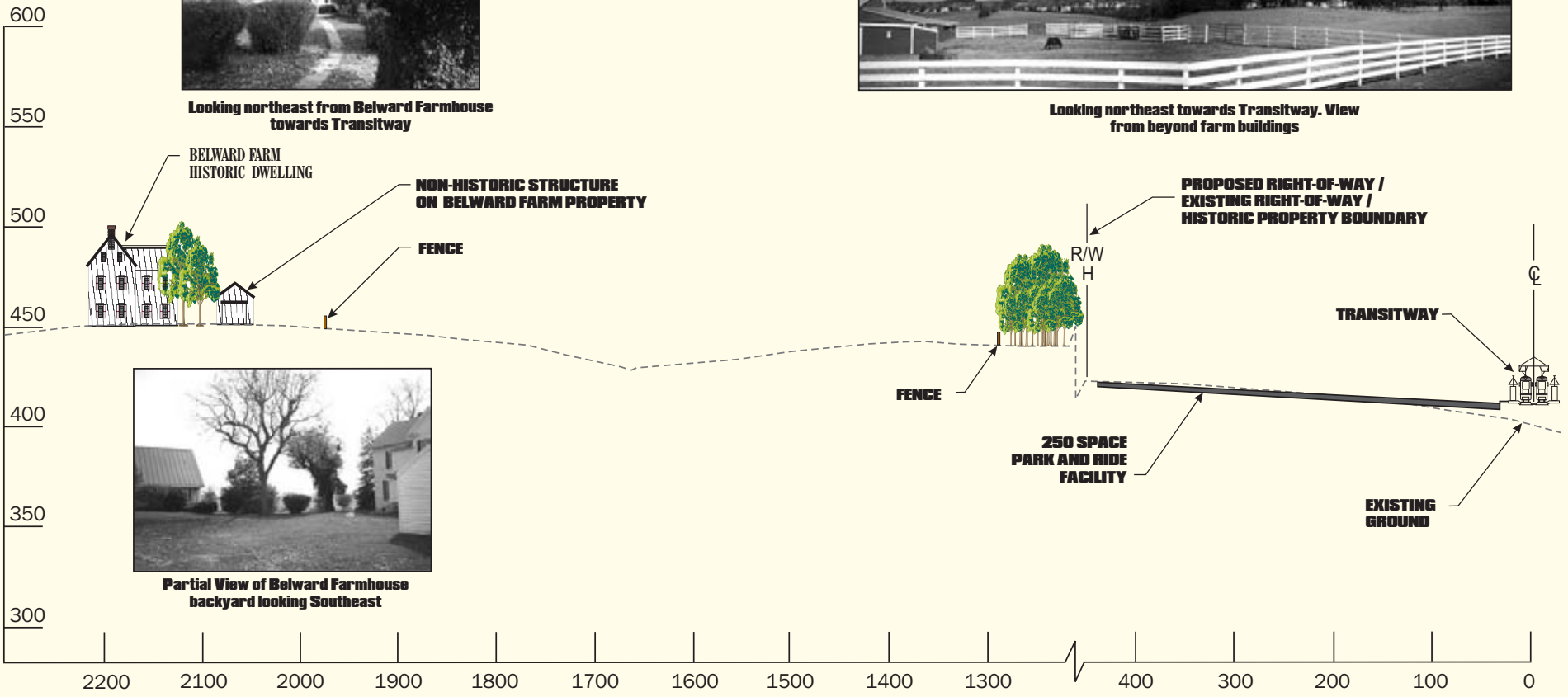
ALTERNATIVES 3A/B, 4A/B, 5A/B
TRANSITWAY STATION 138+00

I-270/US 15 MULTI-MODAL CORRIDOR STUDY From Shady Grove Metro Station to Biggs Ford Road		
SECTION 4(f) RESOURCE VIEWSHED ENGLAND / CROWN FARMSTEAD		
SHA MTA Maryland	DATE MAY 2002	FIGURE VI-19A


The aerial photography for this map is from the following source:
- The Montgomery County digital aerial photography was flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
SECTION @ STATION 171+41
DARNESTOWN ROAD
MUDDY BRANCH ROAD
KEY WEST AVENUE
M20/21, BELWARD FARM
BELWARD FARM M20/21
WASHINGTONIAN PARK
GREAT SENECA HIGHWAY
SAM EIG HIGHWAY
GREEN PARK
W-154
W-155
W-156
R/W
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
BELWARD FARM
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
MTA Maryland
Date: 5 / 02
Figure VI-20

Looking northeast from Belward Farmhouse towards Transitway

Looking northeast towards Transitway. View from beyond farm buildings



Partial View of Belward Farmhouse backyard looking Southeast

ALTERNATIVES 3A/B, 4A/B, 5A/B

TRANSITWAY STATION 171+41

I-270/US 15 MULTI-MODAL CORRIDOR STUDY

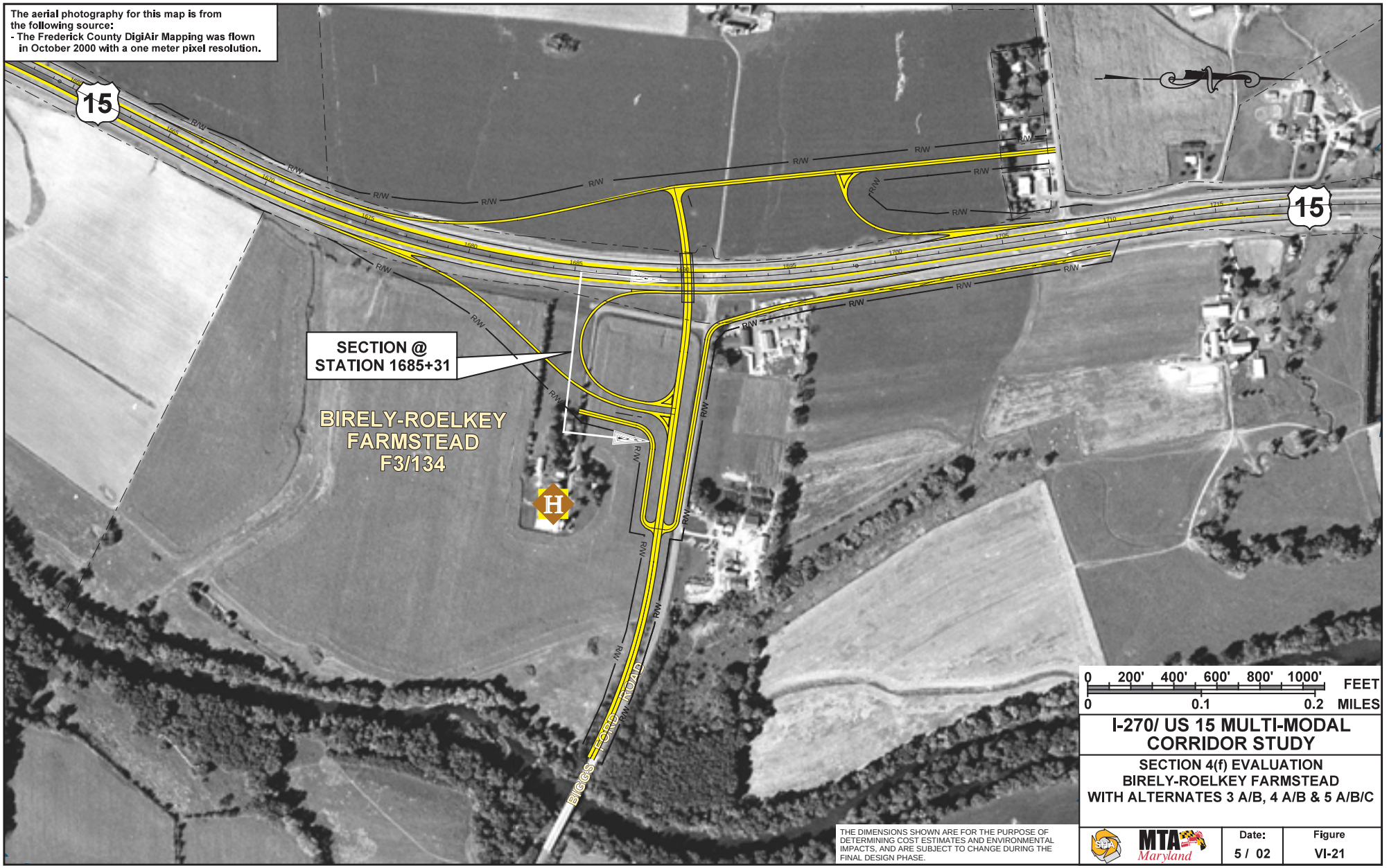
From Shady Grove Metro Station to Biggs Ford Road

SECTION 4(f) RESOURCE VIEWSHED
BELWARD FARM

SHA MTA Maryland

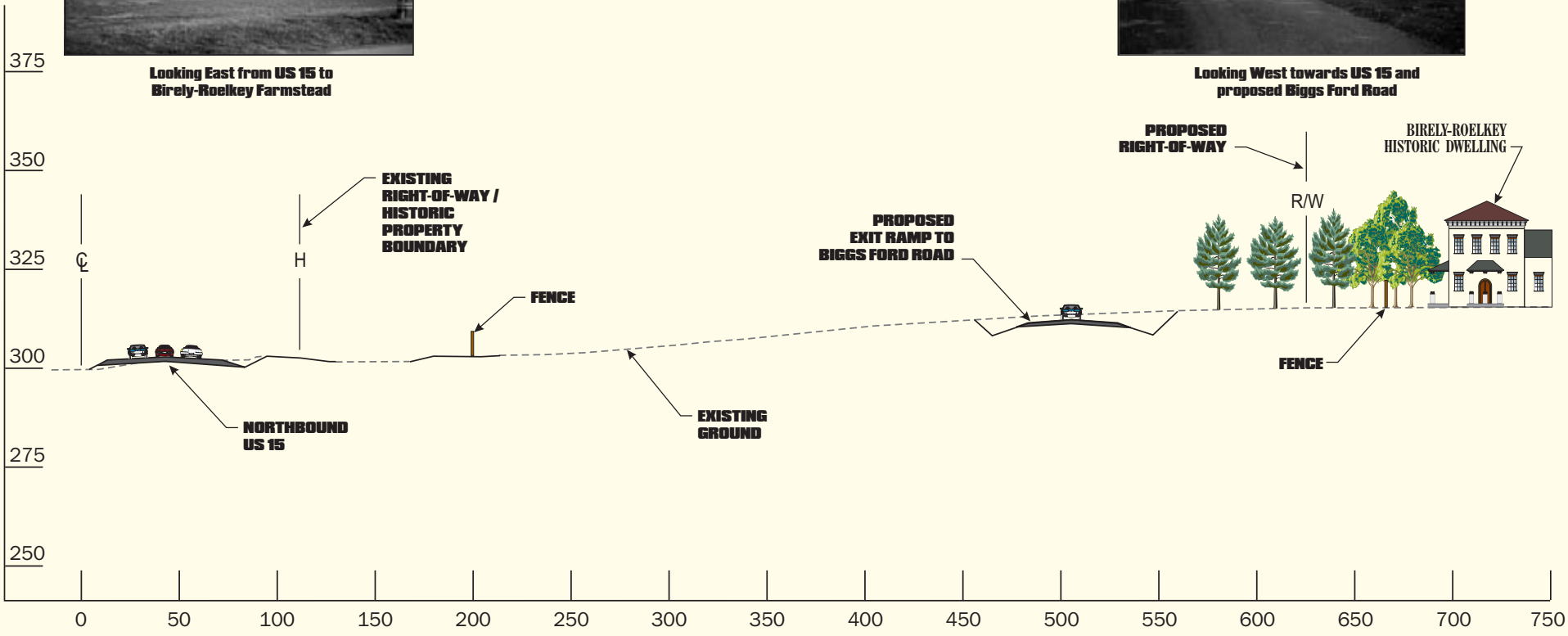
DATE
MAY 2002

FIGURE
VI-20A


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
15
15
SECTION @ STATION 1685+31
BIRELY-ROELKEY FARMSTEAD F3/134
H
BIGGS FORD ROAD
R/W
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
BIRELY-ROELKEY FARMSTEAD
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B/C
MTA Maryland
Date: 5 / 02
Figure VI-21

Looking East from US 15 to Birely-Roelkey Farmstead

Looking West towards US 15 and proposed Biggs Ford Road



ALTERNATIVES 3A/B, 4A/B, 5A/B/C

STATION 1685+31

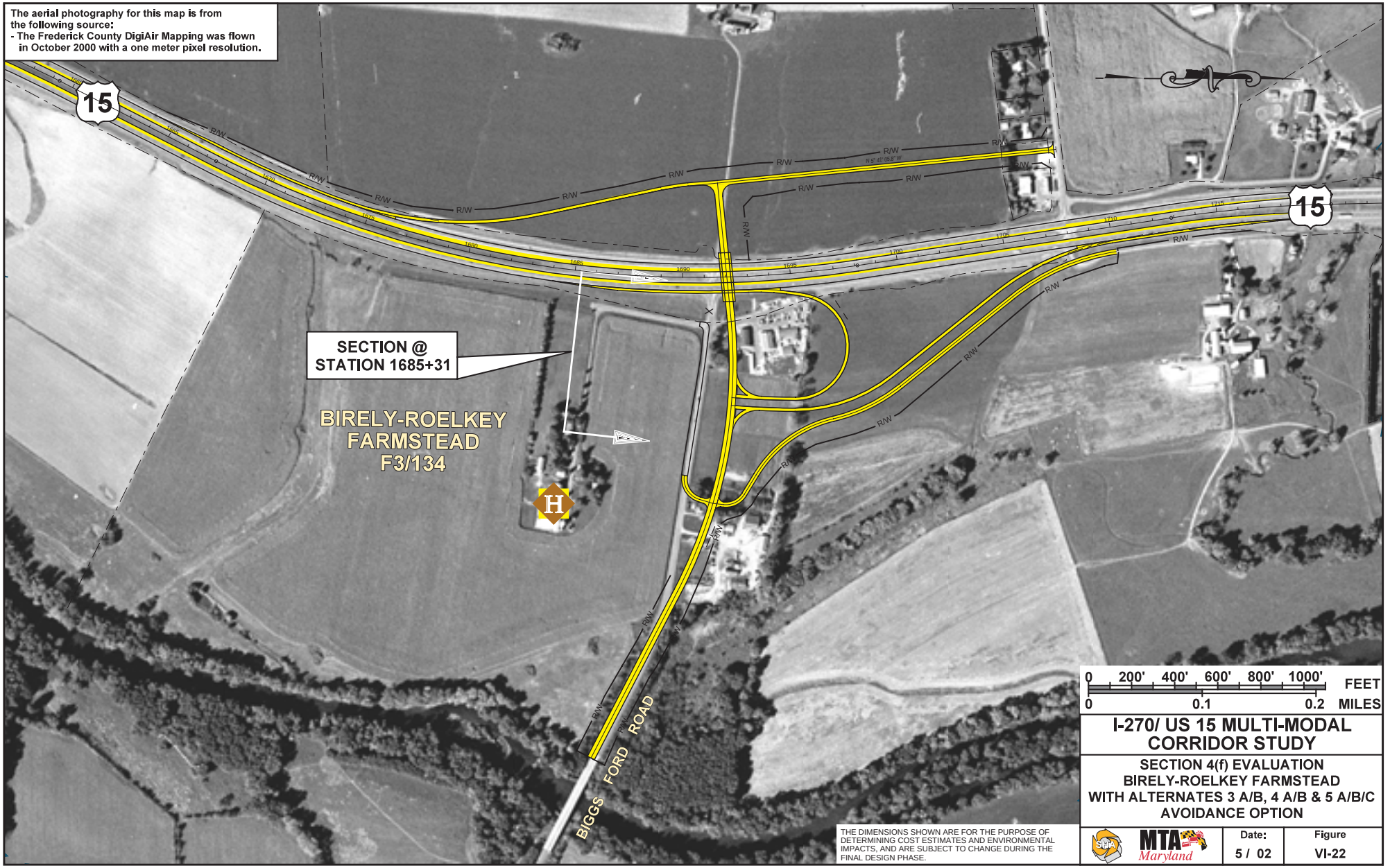
(LOOKING NORTHBOUND)

I-270/US 15 MULTI-MODAL CORRIDOR STUDY
From Shady Grove Metro Station to Biggs Ford Road

SECTION 4(f) RESOURCE VIEWSHED
BIRELY-ROELKEY FARMSTEAD

SHA MTA Maryland

DATE	FIGURE
MAY 2002	VI-21A


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
15
15
SECTION @ STATION 1685+31
BIRELY-ROELKEY FARMSTEAD F3/134
H
BIGGS FORD ROAD
R/W
0 200' 400' 600' 800' 1000' FEET
0 0.1 0.2 MILES
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
BIRELY-ROELKEY FARMSTEAD
WITH ALTERNATES 3 A/B, 4 A/B & 5 A/B/C AVOIDANCE OPTION
MTA Maryland
Date: 5 / 02
Figure VI-22

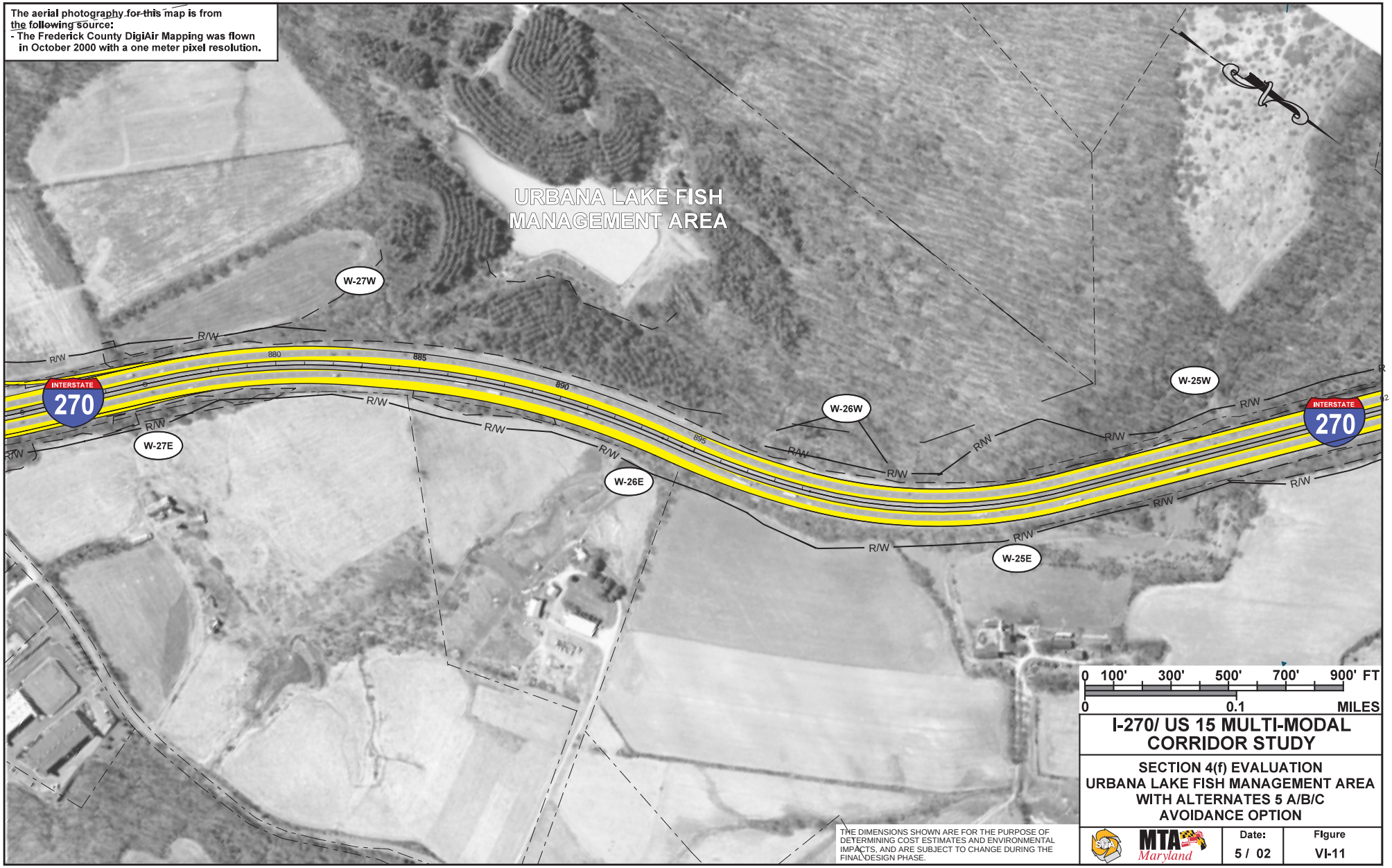
Multi-Modal Corridor Study

Frederick and Montgomery Counties, Maryland

Draft Environmental Impact Statement and Section 4(f) Evaluation

US Department of Transportation
Federal Highway Administration
Federal Transit Administration

Maryland Department of Transportation
State Highway Administration
Maryland Transit Administration


The aerial photography for this map is from the following source:
- The Frederick County DigiAir Mapping was flown in October 2000 with a one meter pixel resolution.
URBANA LAKE FISH MANAGEMENT AREA
INTERSTATE 270
W-27W
W-27E
W-26W
W-26E
W-25W
W-25E
R/W
880
885
890
895
0 100' 300' 500' 700' 900' FT
0 0.1 MILES
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
SECTION 4(f) EVALUATION
URBANA LAKE FISH MANAGEMENT AREA
WITH ALTERNATES 5 A/B/C
AVOIDANCE OPTION
MTA Maryland
Date: 5 / 02
Figure VI-11

VII. COMMENTS AND COORDINATION

VII. COMMENTS AND COORDINATION

INTERAGENCY COORDINATION

There have been seven interagency review meetings regarding the I-270/US 15 Multi-Modal Corridor project.

- On March 15, 1995, the interagency review meeting purpose was one of a series of three kick off meetings fulfilling MIS requirements. Other than the interagency meeting, a separate kick off meeting occurred for both Metropolitan Washington Council of Governments (MWCOG) and the public. The project team prepared the purpose and need in preparation for a May presentation. The project team was defined as consisting of representatives of State Highway Administration (SHA), Maryland Department of Transportation (MDOT), Maryland Transit Administration (MTA), Department of Natural Resources (DNR), Environmental Protection Agency (EPA), US Army Corps of Engineers (COE), Frederick and Montgomery Counties, Maryland National Capital Park and Planning Commission (MNCPPC), Washington Metropolitan Area Transit Authority (WMATA), Federal Highway Administration (FHWA), Maryland Department of the Environment (MDE), National Park Service (NPS), Maryland Historic Trust (MHT), Maryland Department of Planning (MDP), US Fish and Wildlife Service (USFWS), and National Marine Fisheries (NMF). The MIS process was outlined at the meeting as well as a tentative project timeline, including the extent of analysis and agency roles. The qualitative and quantitative Measures of Effectiveness were given in broad categories and their purpose for eliminating some of the proposed strategies was explained. A key emphasis at this meeting was addressing the differences between the current MIS approach and process from previous procedures.

- On June 21, 1995, the interagency review meeting purpose was to present future scenarios in the I-270 corridor, especially the results of a no build alternative. Representatives from SHA, MTA, MDOT, DNR, COE, MNCPPC, FHWA, MDE, NPS, MHT, MDP, USFWS, NMF, MWCOG, and WMATA were in attendance. Travel demand modeling assumptions were discussed, such as the direction of travel relative to the corridor studied. Environmental resources were presented, including wetlands, 100-year flood plain regions, and adjacent parklands to the corridor.

- On November 20, 1996, the interagency review purpose was to detail various elements of the transportation strategies being developed. Representatives from SHA, MTA, MDOT, DNR, COE, MNCPPC, FHWA, MDE, NPS, MHT, MDP, USFWS, NMF, MWCOG, and WMATA were in attendance. The meeting began with an overview of events thus far regarding the I-270/US15 project and overview of previous meetings held. Strategy components eliminated included a light rail transitway to Frederick and Clarksburg. Other options were discusses, such as extending lane widening that would take place south of the project area and possible HOV additions.

- On October 21, 1998, the interagency review meeting included representatives from SHA, MTA, MDOT, MDP, FHWA, FTA, Montgomery and Frederick Counties, the Cities of Rockville, City of Gaithersburg, and City of Frederick, the MNCPPC, WMATA, and MWCOG. The purpose of the meeting was to present the evaluation of the stand-alone transit options following the March 1997 Public Workshop. Alternatives being considered were discussed along with their various transit components. Some concern was raised over preliminary wetland impacts, but this was deemed a worst-case scenario.

- On December 16, 1998, the interagency review meeting purpose was to receive agency comments on the scope and methodologies for the secondary and cumulative effects (SCEA) analysis. Representatives from SHA, MTA, MDOT, DNR, COE, MNCPPC, FHWA, MDE, NPS, MHT, MDP, USFWS, NMF, MWCOG, and WMATA were in attendance. Agency representatives requested a map of SCEA boundaries with an explanation of the boundary selection.

- On January 17, 2001, the interagency review meeting purpose was to update the agency representatives on the alternates retained for detailed study. Representatives from SHA, MTA, MDOT, DNR, COE, MNCPPC, FHWA, MDE, NPS, MHT, MDP, USFWS, NMF, MWCOG, and WMATA were in attendance. The No-Build alternative along with three build alternates were presented in light of their ability to relieve congestion and improve safety.

- On June 20, 2001, the interagency review meeting included representatives from SHA, BMC, EPA, FHWA, MDP, DNR, and COE. The purpose was to present the alternates considered. The alternates had been renamed to simplify and clarify the presentation of each alternate. Only a few comments were raised for clarification of specific alternate components.

INTERAGENCY FIELD COORDINATION

Four Maryland State Highway Administration Interagency Field Review Meetings have been held for the I-270 / US 15 project. Enclosed is a summary of the various field meetings.

- On November 13, 1995, an interagency field review was held to survey the I-270/US 15 corridor and associated environmental and cultural features. In attendance were representatives from US Army Corps of Engineers (COE), Frederick County Department of Planning, Federal Highway Administration (FHWA), SHA and Rummel, Klepper & Kahl (RK&K). Widening alternatives were described along the route with areas of close development along the right-of-way and 100 year flood plain impacts identified. The parks located within the project area were identified as well as transitway alignments in the proximity of the Shady Grove Metro Station located at the southern boundary of the project area.

- On May 1, 1997, an interagency field review was held to review the combination alternates and to identify points of interest for the detailed engineering and environmental assessment. In attendance were representatives from FHWA, SHA, Parsons Brinckerhoff and RK&K. Of primary focus were various I-270 and US 15 interchanges with other major arterial roads. Structures and traffic configurations were also discussed. It was determined that the National Park Service would be contacted regarding Monocacy National Battlefield Park to discuss Section 4(f) issues once I-270 widening impacts had been assessed.

- On July 24, 1997, an interagency field review was held with the purpose to survey the I-270/US 15 Corridor and associated natural, social, and cultural environmental features with respect to the alternates under consideration. In attendance were representatives from Frederick County Planning, Maryland-National Capital Parks and Planning Commission, Montgomery County Department of Public Works, US Fish and Wildlife Service, National Park Service, Maryland Department of the Environment (MDE), Maryland Historic Trust, Maryland Department of Planning, Maryland Department of Transportation, COE, SHA, and RK&K present future scenarios in the I-270 corridor, especially the results of a no build alternative. Travel demand modeling assumptions were discussed, such as the direction of travel relative to the corridor studied. Environmental resources were presented, including wetlands, 100-year flood plain regions, and adjacent parklands to the corridor.

- On April 25, 26 and May 2,3, 2001 an interagency field review meeting was held to discuss potential wetlands mitigation sites. In attendance were representatives from Environmental Protection Agency, COE, Department of Natural Resources, MDE, SHA, and RK&K. Sites reviewed had been proposed as compensation for unavoidable impacts to wetlands and waterways resulting from the subject project. A total of 16 sites on various properties were investigated. A total of 8 prospective sites were given a preliminary estimate of wetland mitigation credits.

Summary of Public Involvement

The State Highway Administration and Maryland Transit Administration have met with citizens to discuss the I-270/US 15 Multi-Modal Corridor Study on several occasions in the form of workshops or focus group meetings that were open to the public. In support of public awareness of these meetings and their purpose, various newsletters and brochures were distributed along with press releases to the general public. At the public meetings, citizens were invited to provide verbal or private written testimony and comments concerning the material presented at the meeting or comments on the project in general.

- At the outset of the project, a public initiation meeting was held in May of 1995. Approximately 104 people were in attendance. The purpose of this meeting was to introduce the process and goals for the project and receive comments on various aspects of the study. The meeting, conducted in workshop format, with details provided about aspects of the project at various information stations, provided information on the environment, regional growth, travel forecasting, land use and transportation strategies, such as HOV lanes, general use lanes and transit. The public was especially interested in

widening of the I-270 corridor as well as new transit and transportation options integrated along the route. A presentation, similar to the one given at this public meeting, was given to the MWCOG Transportation Planning Board on March 15, 1995, as part of the MIS requirement to initiate the project with the MPO. MWCOG concurred on the scope of this project in April 1995.

- Public alternates workshops were held in December of 1995 and January of 1996. Approximately 50 persons attended the first workshop, which was held in December in Montgomery County. In January, the workshop was held in Frederick County where approximately 100 people attended. The meetings shared the progress of the study with the public and gained feedback on the initial results of the transportation strategies analyses (HOV and general use lanes, a Corridor Cities Transitway (CCT) alignment, extended feeder and express bus services, transportation system and demand management strategies, etc.). The analyses showed that no single strategy, alone, would satisfy the transportation needs within the Corridor but a combination of strategies are necessary. Topics such as the purpose and need statement, the preliminary alternates and strategies, economic growth/public investment, mobility/goods movement, and the environment were presented at these meetings.

- Additional alternates workshops were held in March of 1997. The purpose of these meetings was to present the progress of the study to the public and to gain feedback on the additional results of the transportation strategies analyses. These analyses yielded the investigation of additional strategies, such as extended Collector-Distributor (C-D) lanes, premium express bus service, proposed new interchanges and a new roadway called Technology Boulevard in Frederick County (which was later removed from consideration within this study). The workshops were also for receiving official public comment on corridor preservation strategies and right-of-way needs for the future transportation alternates. The public comments reflected approval for multi-modal aspect of the project alternates. Many additional issues the public expressed interest in were Transportation Demand Management options and additional transit and highway expansion and enhancement.

- Two informational public meeting were held for the project in February 2001. The purpose of the meetings was to present recent information regarding the project. This included more detailed engineering plans of highway and transitway alignments, preliminary right-of-way and environmental impacts, preliminary cost estimates, and finally, traffic conditions for the 2020 Build and No Build Scenarios. Public comment was very design oriented with many suggestions about new and enhanced interchange alignments along the I-270 corridor as well as specific right-of-way impacts. Questions about the integration with other local studies, such as express bus and MARC commuter rail were also raised.

Further public interaction has included a focus group of local members of the communities within the project area. A focus group was formed in 1995 to review and offer input for the many transportation improvement options and evaluation measures. The focus group met approximately four times per year with a total of 20 focus group meetings having been held for this project. The focus group convened at intervals throughout the study to review and offer

input for the many transportation improvement options and evaluation measures. The focus group consists of approximately 20 members of business and community representatives in the project area.

Organizations represented in the focus group and others in attendance at the focus group meetings include representatives from SHA, MTA, Maryland-National Capital Parks and Planning Commission, Frederick County Planning, Frederick County TransIT, Montgomery County Department of Public Works, Sierra Club, Maryland Motor Trucking Association, Clarksburg Civic Association, Montgomery County, Urbana Civic Association, Greater Shady Grove Civic Alliance, Worman's Mill Civic Association, Upcounty Citizens Advisory Board, Friends of Monocacy Battlefield, Action Committee for Transit, National Institute of Standards and Technology (NIST), American Automobile Association (Potomac Region), Kentlands Citizen Assembly, Frederick Area Committee on Transportation (FACT) – Highway, Transportation Services Advisory Council (TSAG), Kentlands, Rodgers and Associates, Inc., Germantown Citizens Association, Action Committee on Transit (ACT), Frederick County Chamber of Commerce, Upcounty Regional Services Center, Upcounty Citizens Advisory Board, and Montgomery County Chamber of Commerce

- The initial focus group meeting was held on April 24, 1995 at SHA District 7 office in Buckeystown, Maryland. The purpose of the meeting was to introduce the project team, define the role of the focus group, and familiarize the group with the process and goals of the I-270/US 15 Multi-Modal Study.

- On June 20, 1995, the focus group meeting was held at the Upcounty Government Center in Germantown, Maryland, to discuss master plans and related studies in the I-270 study area. The MTA presented a summary of the MARC Master Plans, including improvements within the I-270 corridor. Montgomery County presented its general plans, transit easements studies, and individual area master plans. The Frederick and Urbana master plans and the Frederick extension of the transit easement study were presented. The focus group agreed that a combination of the alternatives would ultimately be necessary to solve the corridor's transportation problems.

- On August 30, 1995, the focus group meeting was held at the SHA's District 7 office. The Metropolitan Washington Council of Governments (MWCOG) presented an overview of the Congestion Management System (CMS) requirements and how they will be applied in the project corridor. The meeting also served to define and develop the goals and objectives for the study. Subsequently, the project team met to discuss the focus group comments and concerns regarding the goal and objectives, and develop corresponding Measures Of Effectiveness (MOE).

- On September 20, 1995, the focus group meeting was held at the Clarksburg Recreation Center in Clarksburg, Maryland. The purpose of the meeting was to discuss revisions to the project goals and objectives.

- On October 24, 1995, the focus group met to discuss revisions to the project goals and objectives, MOE, and the material to be presented at the December 1995 alternates workshops.

- On December 5, 1996, the focus group meeting was held at the SHA's District 7 office. Discussion topics included a study overview, travel demand analyses, preliminary combination alternatives, design features under construction, an environmental overview, public workshop/hearing plans, project schedule and upcoming meetings.

- On February 19, 1997, the focus group meeting was held at the Upcounty Government Center. The purpose of the meeting was to review the display materials for the alternate workshops.

- On May 21, 1997, the focus group meeting was held at SHA's District 7 office. The purpose of the meeting was to update the focus group on the progress of the study and to obtain feedback from the workshops held in March.

- On July 30, 1997, the focus group meeting was held at the Upcounty Government Center in Montgomery County. The purpose of the meeting was to discuss the assumptions for the travel demand model for the stand-alone transit options. MTA presented the three stand-alone transit options and discussed their methods of evaluation.

- On September 17, 1997, the focus group meeting was held at the SHA District 7 office. The purpose of the meeting was to update the travel demand schedule for modeling and assessment of the stand-alone transit options. A review of goals and objectives, and MOE, were also conducted.

- On February 24, 1998, the focus group meeting was held at the Upcounty Government Center in Montgomery County. The purpose of the meeting was to provide an update for the transit option land use forecasts and travel demand work.

- On April 23, 1998, the focus group meeting was held at the SHA District 7 office. The purpose of the meeting was to discuss the initial results of the transit options. Comments were received on updated MOE tables.

- On July 9, 1998, the focus group meeting was held at the Upcounty Government Center in Montgomery County. The purpose was to discuss the results of the transit options and discuss recommendations for the transit component and for the alternates that should be carried into the more detailed planning studies.

- On December 17, 1998, the focus group meeting was held with the purpose to discuss the alternates retained for detailed study. A review of the project planning process was presented as a benchmark and ongoing environmental activities were reviewed.

- On May 27, 1999, the focus group meeting was held with the purpose to discuss the current alternates considered along with any modifications, review of the travel demand forecasts completed, and ongoing environmental and engineering activities of the project planning study.

- On August 12, 1999, the focus group meeting was held at the Upcounty Government Center in Montgomery County. The purpose of the meeting was to provide and discuss further details on the alternates retained for detailed engineering and environmental studies. Sectional diagrams received comments and travel modeling efforts and transit mode strategies were elaborated.

- On February 3, 2000, the focus group meeting was held at the SHA District 7 office. The purpose of the meeting was to discuss travel demand issues and preliminary results, engineering issues, and future informational public workshops. The concept of value pricing as a method to manage travel demand was also presented.

- On August 1, 2000, the focus group meeting was held at the Upcounty Government Center in Montgomery County. The purpose of the meeting was to review the stages of the complex travel demand effort and next steps and to discuss products in anticipation of upcoming informational public workshops.

- On October 26, 2000, the focus group meeting was held at the SHA District 7 office. The purpose of the meeting was to discuss the preliminary highway and transit designs, traffic, upcoming travel demand modeling assumptions and the project schedule.

- • On May 31, 2001, the focus group meeting was held at the Upcounty Government Center in Montgomery County. The purpose of the meeting was to discuss citizen comments from the February 2001 informational public meetings, modifications to be made and the next step in travel demand modeling.

Newsletters and brochures were distributed in November 1995, November 1996, March 1997, Fall 1997 and January 2001 summarizing the study activities, promoting upcoming public meetings/workshops and updating the study's progress. These newsletters were distributed to the study's mailing list of approximately 3,000 individuals/organizations. In addition, newspaper articles, advertisements, radio/cable television interviews and press releases were utilized to keep the public aware of the study's activities and progress and to increase public awareness.

The I-270/US 15 project team has used various methods of advertising project activities to the public including the following newspapers and periodicals:

- The Baltimore Sun
- The Washington Post
- The Montgomery Gazette
- The Montgomery Journal
- The Afro-American (Washington, DC)
- El Montgomery
- The Asian Fortune
- The Washington Jewish Week
- The Frederick News Post
- The Frederick Gazette

Public notices, as well as posters/postcards at local stores and libraries, were used to announce the public meetings/workshops. Public outreach initiatives were extended to further publicize the study activities to the citizens, civic associations and organizations within the project area. Examples of these groups include the Frederick County Chamber of Commerce, the Urbana Civic Association, the Clarksburg Civic Association, the Shady Grove Alliance, and citizens from the Town of Hyattstown.

Correspondence and Coordination

Correspondence regarding this project is included in this Chapter. The information has been organized into the following categories:

A. Agency Correspondence
B. Community Coordination
C. Streamlined Process Agency Correspondence
D. Elected Officials
E. Minutes.

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A. Agency Correspondence

Date	From	To	Subject	Page #
01.21.96	US Department of the Navy	SHA	Support for HOV lanes and interest in the development of park & ride lots.	VII-A-1
03.12.97	SHA	US Department of the Navy	Response to the 01.21.96 correspondence regarding development of park & ride lots.	VII-A-2
06.24.97	SHA	US Department of the Navy	Montgomery County shuttle bus service, Montgomery County planned park &ride lots associated with a future Corridor Cities Transitway, and potential park & ride locations adjacent to I-270.	VII-A-3
04.17.97	M-NCPPC	SHA	Montgomery County Department of Park and Planning concerns regarding the March 26 draft recommendations: 1) Premium Bus Service in Combination B, 2) Separation of the CCT from the rest of the study, and 3) the ability of MTA to fund and staff development of a DEIS.	VII-A-4
06.17.97	SHA	M-NCPPC	Response to concerns stated in the 04.17.97 correspondence.	VII-A-5
07.31.97	SHA	M-NCPPC	Response to Montgomery County Planning Board concerns.	VII-A-6
10.27.99	M-NCPPC	SHA	Requesting comments on an adjustment made to the CCT alignment in the Shady Grove Planning Area.	VII-A-7
11.08.99	SHA	M-NCPPC	Response to 10.27.99 comments regarding proposed shifts to the CCT alignment.	VII-A-8
07.24.00	M-NCPPC	SHA	Montgomery County Planning Board requests the extension of Metrorail service from Shady Grove to Gaithersburg.	VII-A-9
08.21.00	SHA	M-NCPPC	Response to 07.24.00 Montgomery County Planning Board request to extend Metrorail service from Shady Grove to Gaithersburg.	VII-A-10
06.04.01	M-NCPPC	SHA	Request that New Cut Road Interchange include access to the west to support implementation of the Clarksburg Master Plan.	VII-A-11
06.29.01	SHA	M-NCPPC	Response to 06.04.01 M-NCPPC request for western access at the New Cut Road/I-270 interchange. SHA requests a written commitment from Montgomery County to minimize development outside of the PFA.	VII-A-12
06.17.96	M-NCPPC	SHA	Providing information on the following park and recreation areas: Middlebrook Hill Conservation Area, Black Hills Regional Park, Little Bennet Regional Park, and Ridge Road Recreational Park.	VII-A-13
01.29.02	SHA	M-NCPPC	Response to 06.29.96 letter, providing information on Middlebrook Hill Conservation Area and requesting updated information on all park and recreation resources under M-NCPPC jurisdiction.	VII-A-17
04.08.02	M-NCPPC	SHA	Recommending I-270 crossing locations for the Countywide Park Trails Plan	VII-A-18
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07.22.96	City of Gaithersburg	SHA	Providing information on City parks and facilities.	VII-A-32
12.18.96	City of Gaithersburg	SHA	Providing a map that locates all City of Gaithersburg recreation facilities and parks.	VII-A-33
11.20.97	City of Gaithersburg	SHA	City of Gaithersburg study of additional access from I-270 to MD 117. Requesting traffic volume data for this use in their study.	VII-A-34
12.05.97	SHA	City of Gaithersburg	Response to 11.29.97 letter providing a general project description, project schedule and stating that projections of future traffic volumes by MWCOG will be coordinated with the City.	VII-A-35
07.16.98	City of Gaithersburg	SHA	Clarification of City of Gaithersburg's endorsement of a transit alignment.	VII-A-36
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01.27.99	National Park Service	SHA	Comments on the Secondary and Cumulative Effects Analysis (SCEA) boundary.	VII-A-46
02.12.99	SHA	National Park Service	Antietam National Battlefield comments on the Secondary and Cumulative Effects Analysis (SCEA) boundary.	VII-A-47
03.01.00	National Park Service	SHA	Stating the National Park Service has reviewed the Archaeological report pertaining to Monocacy National Battlefield and has no comments.	VII-A-48
04.17.02	SHA	National Park Service	Regarding the NEPA, Section 4(f) and Section 106 processes and Monocacy National Battlefield.	VII-A-49
12.20.00	USFWS	Project Team.	Comments regarding federally listed or proposed for listing endangered or threatened species within the vicinity of the study area.	VII-A-51
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02.26.99	Maryland Department of Planning	SHA	Comments on the Secondary and Cumulative Effects Analysis (SCEA) scoping approach.	VII-A-95
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03.23.99	USACOE	SHA	Regarding jurisdictional determination conducted April 30th though May 1st and October 22nd and 23rd 1999.	VII-A-105
09.08.99	USACOE	SHA	Regarding jurisdictional determination conducted July 7th and 8th 1999.	VII-A-106
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B. Community Coordination

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05.05.99	SHA	Clarksburg Civic Association	Review of Clarksburg Civic Association comments received at the April 26, 1999 association meeting.	VII-B-19
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C. Streamlined Process Agency Correspondence

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09.05.95	SHA	FHWA	FHWA concurrence on Purpose and Need, November 1, 1995.	VII-C-1
09.05.95	SHA	USACOE	USACOE concurrence on Purpose and Need, September 18, 1995.	VII-C-2
09.05.95	SHA	US Department of the Interior	USFWS concurrence on Purpose and Need, September 23, 1995.	VII-C-3
09.05.95	SHA	US EPA	US EPA concurrence on Purpose and Need, October 23, 1995.	VII-C-4
09.05.95	SHA	MD SHPO	MHT concurrence on Purpose and Need, September 28, 1995.	VII-C-5
10.30.95	Maryland Department of Planning	SHA	Comments regarding the Purpose and Need statement.	VII-C-6
12.19.96	SHA	MD Department of Planning	Response to October 30, 1995 letter addressing Purpose and Need statement and Measures of effectiveness.	VII-C-8
11.04.98	SHA	MDE	MDE concurrence on Alternates Retained for Detailed Study, November 19, 1998.	VII-C-11
12.17.98	SHA	Maryland DNR	DNR concurrence on Alternates Retained for Detailed Study, December 19, 1998.	VII-C-12
Not dated	SHA	US EPA	US EPA concurrence on Alternates Retained for Detailed Study, December 21, 1998.	VII-C-13
11.04.98	SHA	FHWA	FHWA concurrence on Alternates Retained for Detailed Study, December 9, 1998.	VII-C-14
11.04.98	SHA	USACOE	USACOE concurrence (with comments attached) on Alternates Retained for Detailed Study, December 7, 1998.	VII-C-15
12.07.98	USACOE	SHA	USACOE comments regarding the Alternatives Retained for Detailed Study.	VII-C-16
05.19.99	SHA	FHWA	FHWA concurrence (with comments attached) on amendment to Alternates Retained for Detailed Study, June 15, 1999.	VII-C-18
06.15.99	FHWA	FHWA	FHWA internal memorandum regarding HOV and HOT lanes.	VII-C-19
07.13.99	SHA	FHWA	Response to June 15, 1999 comments.	VII-C-20
05.19.99	SHA	USACOE	USACOE concurrence on amendment to Alternates Retained for Detailed Study, June 7, 1999.	VII-C-21
05.19.99	SHA	US EPA	US EPA concurrence on amendment to Alternates Retained for Detailed Study, June 15, 1999.	VII-C-22
05.19.99	SHA	USFWS	USFWS concurrence on amendment to Alternates Retained for Detailed Study, May 25, 1999.	VII-C-23
05.19.99	SHA	National Park Service	NPS concurrence on amendment to Alternates Retained for Detailed Study, May 25, 1999.	VII-C-24
05.19.99	SHA	MDE - Water Management Administration	MDE concurrence on amendment to Alternates Retained for Detailed Study, July 14, 1999.	VII-C-25

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05.19.99	SHA	MD DNR	DNR concurrence (with comments attached) on amendment to Alternates Retained for Detailed Study, June 22, 1999.	VII-C-26
06.22.99	MD DNR	SHA	Response to concurrence: no comments on the amendment.	VII-C-27
04.26.02	EPA	SHA	Response to air quality review	VII-C-28

D. Elected Officials

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11.04.93	SHA	Frederick County Commissioners	Response to comment regarding the improvements at New Design Road.	VII-D-1
08.30.94	US House of Representatives	SHA	Requesting information on long range plans to address the congestive along I-270.	VII-D-2
09.23.94	SHA	US House of Representatives	Response to August 30, 1994 letter.	VII-D-3
10.31.97	Gaithersburg City Council	Governor of Maryland	Regarding Gaithersburg transportation issues including smart growth issues.	VII-D-4
12.04.97	Governor of Maryland	Gaithersburg City Council	Response to October31, 1997 letter.	VII-D-5
02.17.98	SHA	MD House of Delegates	Response to concerns regarding funding for the I-70/I-270 interchange.	VII-D-6
03.12.98	Senate of Maryland	SHA	Concerns with proposed changes to the I-270/MD-124 interchange including park-and-ride lot locations.	VII-D-7
04.08.98	SHA	Senate of Maryland	Response to March 12, 1998 letter.	VII-D-8
04.10.98	City of Rockville	MDOT	Regarding the Corridor Cities Transitway (CCT) alignment in the Shady Grove area of Rockville.	VII-D-9
04.24.98	MDOT	City of Rockville	Response to April 10, 1998 letter.	VII-D-10
05.05.98	SHA	City of Gaithersburg	Regarding city's efforts to revitalize downtown Gaithersburg.	VII-D-11
06.12.98	SHA	City of Gaithersburg	Regarding the proposed I-270/Watkins Mill Road interchange.	VII-D-12
07.31.98	SHA	City of Gaithersburg	Regarding potential for joint use at park and ride lot locations.	VII-D-13
09.09.98	SHA	Senate of Maryland	Review of project milestones schedule.	VII-D-14
11.16.99	SHA	Senate of Maryland	Regarding request for evaluation of an interchange at I-270 and Gude Drive.	VII-D-15
03.18.99	Senate of Maryland	SHA	Request for review and comments regarding the MD-26/US-15 interchange.	VII-D-16
03.16.99	Worman's Mill Civic Association	Senate of Maryland	Request regarding the MD-26/US-15 interchange.	VII-D-17
04.01.99	SHA	Senate of Maryland	Regarding proposed MD-26/US-15 interchange.	VII-D-18
10.10.99	City of Frederick	SHA	Regarding traffic concerns within the City and a MD 26/US 15 interchange.	VII-D-19
10.25.99	SHA	City of Frederick	Response to October 10, 1999 letter.	VII-D-20
10.22.99	SHA	Frederick County Commissioner	Regarding development access to US 15.	VII-D-21

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02.08.00	SHA	Maryland House of Delegates	Regarding HOV lanes.	VII-D-22
04.04.00	SHA	Montgomery County Council	Information regarding long term strategies for improving the congestion along I-270/US 15 corridor.	VII-D-23
04.06.00	MD House of Delegates	SHA	Forwarded citizen email concerning traffic congestion on I-270.	VII-D-24
05.01.00	SHA	MD House of Delegates	Response to April 6, 2000 citizen letter.	VII-D-26
06.22.00	SHA	MD House of Delegates	Response to concerns regarding MD 85 interchange improvements, HOV lanes and transit.	VII-D-28
07.17.00	MD House of Delegates	SHA	Concerns regarding transit, transit ridership and the MWCOG travel projection model.	VII-D-30
08.01.00	MDOT	MD House of Delegates	Response to July 17, 2000 letter.	VII-D-32
07.31.00	SHA	City of Frederick	Concerns regarding traffic operations along US 15 at Hayward Road/Worman's Mill Road; specifically related to recent accident experience and SHA efforts to address this issue.	VII-D-33
11.21.00	SHA	Frederick County State Delegation	Response to concerns regarding the US-40 Alternate project in Middletown and the US 15/MD 26 project.	VII-D-34
Not dated	SHA	Montgomery County Council	Response to question raised at the October 22 briefing to the Montgomery County Council, Transportation and Environment Committee.	VII-D-35
06.01.01	SHA	MD House of Delegates	Review of project history and milestones.	VII-D-37

E. Minutes

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02.21.02	SHA	Internal	07.17.01 Department of Natural Resources Coordination Meeting Minutes	VII-E-23
02.21.02	SHA	Internal	09.05.01M-NCPPC Coordination Meeting Minutes	VII-E-25
08.22.01	SHA	Internal	06.11.01 National Park Service Coordination Meeting Minutes	VII-E-27
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03.01.96	SHA	Internal	11.13.95 Interagency Field Review Meeting Minutes	VII-E-32
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A. Agency Correspondence

DEPARTMENT OF THE NAVY
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND 20889-5600

IN REPLY REFER TO

5090
Ser 0143/1019
January 21, 1996

Maryland Department of Transportation
State Highway Administration
Attn: Mr. Parker F. Williams, Administrator
P.O. Box 717
Baltimore, MD 21203-0717

Dear Mr. Parker:

Recently, we received a letter dated December 1996 regarding the opening of HOV-2 lanes along the I-270 corridor. The National Naval Medical Center (NNMC) in Bethesda, Maryland has a staff of over 6,500 personnel and over 2,500 patients and visitors per day. NNMC welcomes the presence of these HOV-2 lanes since we have high concentrations of staff that commute along this road daily. In fact, the HOV-2 lane empties into Wisconsin Ave, South Bound, the road that more than 5,000 people per day use to enter our facility. National Institutes of Health, located across the street with more than twice the number of employees, has been observed to have similar staff commuting patterns. Together, with Suburban Hospital and Montgomery County Department of Public Works and Transportation, we have been meeting to discuss ways to reduce Single Occupancy Commutes by our combined populations to reduce the demand for parking on each of our facilities in Bethesda.

Express busing from Germantown/Gaithersburg has been discussed during these meetings with a serious consideration of this option a few months ago. The first step to confirm that this would be a good idea was to gather input from staff at NNMC. More than 150 people responded to the survey, indicating their interest. A key factor in the success of an idea like express - busing where people would meet at a point; board a regularly scheduled bus; and arrive at their place of employment - is the existence of abundant and well-placed Park&Ride lots. A review of the map showing I-270 Park&Rides that accompanied your recent letter confirmed the conclusion of the most recent meeting between Montgomery County, NIH, Suburban, and NNMC - usable Park&Ride lots for this idea along I-270 don't exist. Therefore, express busing idea will have to be shelved until something is done about the Park and Ride lot situation.

The most practical Park&Ride Lot, MD 118 @ Crystal Rock Drive in Germantown has 30 spaces. It would be hoped that at least 100 people would take advantage of the express bus service with possible expansion of up to 500 people. 30 spaces will not fit all the cars and does not address the needs of half the people that live east of the I-270 corridor. The only other possibility is the Park&Ride Lot at Lost Knife Rd.. @ Odenhal Ave. While it has sufficient spaces, it is sufficiently far from I-270 as to be out of the way for most NNMC staff.

5090
Ser 0143/1019
January 21, 1996

I recommend that you give this matter some thought. Park&Ride Lots with a few hundred initial spaces and room for future expansion are needed at 2 locations. One location should be where the most Germantown traffic enters I-270; and the second location should be where most Gaithersburg traffic enters I-270 such as at the cloverleaf with I-370. The creation of these two parking areas might go a long way in increasing the volume of the HOV-2 lane. Under this scenario, our staff (1/3 of whom rotate out of the Command each year) could meet at a designated Park&Ride, board an express bus and be at work 20 minutes later. This is much more convenient than trying to maintain a carpool with people who have regularly changing hospital shifts.

Anything that the State Highway Administration could do to facilitate the swift development of convenient Park&Ride lots would be greatly appreciated. The placement of Park&Ride Lots along the I-270 corridor would provide opportunity to experiment with the idea of express busing in a way to maximize its potential of long-term success. Thank you for your consideration of this matter.

Sincerely,

PATRICK F. SPAHN
Head, Environmental Programs Department
By direction

Copy to:
Montgomery County Transportation Coordinator (Mr Thomas D. Pogue)
National Institutes of Health Transportation Coordinator (Mr. Stephen A. Ficca)

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

March 12, 1997

Mr. Patrick F. Spahn
Head, Environmental Programs Department
Department of the Navy
National Naval Medical Center
Bethesda MD 20889-5600

Dear Mr. Spahn:

Thank you for your recent letter regarding the new High Occupancy Vehicle (HOV) lanes on I-270. I appreciate your support of this initiative and understand your concern for appropriate facilities such as park and ride lots.

The Maryland Department of Transportation (MDOT) recognizes that, as the demand for transportation continues to grow, our ability to continue to widen roads to meet that demand diminishes. We have been working closely with Montgomery County throughout the planning and implementation of the HOV lanes on I-270. Unfortunately, it has been very difficult to identify appropriate, available land to construct cost-effective park and ride facilities in this corridor.

Effective park and ride lots must be located with convenient access to the HOV lanes. In the I-270 corridor, this land is difficult to find. We are, however, investigating a variety of potential locations, including some less traditional sites and shared-use lots. In addition, I have asked my staff, working together with Montgomery County staff, to review the two locations you suggest so that we can understand the benefits and costs of these park and ride lots. In the meantime, I hope that the extensive ridesharing promotion network in the region and the cooperation and support from I-270 employers such as the National Naval Medical Center and the National Institutes of Health, will allow us to operate a successful HOV facility.

Again, thank you for your suggestions on potential park and ride lot locations. If you have any further questions or concerns, please call me or the HOV Team Leader, Mr. Robert Ritter, who can be reached at (410) 545-8545 or 1-800-548-5026.

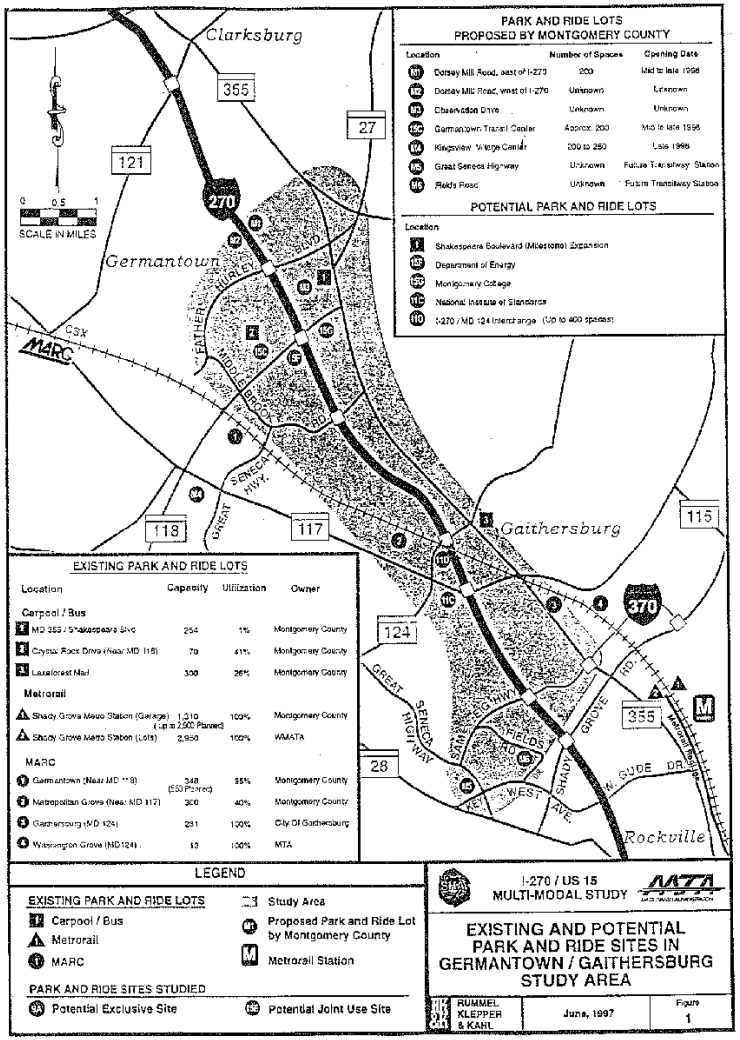
Sincerely,

Parker F. Williams
Administrator

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202



Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

June 24, 1997

Mr. Patrick F. Spahn
Head
Environmental Programs Department
Department of the Navy
National Naval Medical Center
Bethesda MD 20889-5600

Dear Mr. Spahn:

Thank you for your letter regarding the High Occupancy Vehicle (HOV) lane improvements on I-270. It is reassuring to see businesses working together to facilitate commuting options and promote carpooling in this congested area.

In conjunction with both the I-270 HOV implementation and the I-270/US 15 Multi-Modal Corridor Study, the State Highway Administration (SHA) has been investigating areas where additional park and ride facilities could be developed. This effort, coordinated with Montgomery County, has yielded several areas throughout Gaithersburg and Germantown where park and ride lots could be placed within existing interchanges or could share spaces with existing parking lots. We will be working with Montgomery County over the next several months to begin park and ride service at as many of these locations as possible.

Montgomery County is pursuing a shuttle bus service between Gaithersburg and Bethesda, which will be implemented this summer. Montgomery County also has several park and ride lot sites planned for their future Corridor Cities Transitway, as well as for mixed uses within their master plans, which are adjacent to I-270. I have enclosed a map showing these future master plan park and ride sites, as well as the existing park and ride sites and those sites that the SHA will be pursuing over the next year. The SHA will continue to identify potential sites for future park and ride facilities throughout the I-270/US 15 Corridor as part of the alternates development for the I-270/US 15 Multi-Modal Corridor Study, which could identify sites as far north as the City of Frederick.

My telephone number is _____
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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Again, thank you for your letter and for supporting carpooling within the I-270 corridor. I hope that these improvements will prove beneficial for employees at the National Naval Medical Center, as well as for those within the Bethesda area. If I may be of further assistance on this or any other matter, please do not hesitate to contact me or Mr. Neil Pedersen, Director, Planning and Preliminary Engineering, who can be reached at 410-545-0411.

Sincerely,

Elizabeth L. Homer, Deputy for
Parker F. Williams
Administrator

Enclosure
cc: Mr. Neil J. Pedersen, Director, State Highway Administration
Mr. Thomas D. Pogue, Montgomery County Transportation Coordinator
Mr. Stephen A. Ficca, National Institutes of Health Transportation Coordinator

M-NCPPC

MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

April 17, 1997

Ms. Michelle D. Hoffman, Project Engineer
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Ms. Hoffman:

Rick Hawthorne and I have reviewed the March 26 Draft of the Study Team Recommendations for the I-270/US 15 Multi-Modal Corridor Study and have the following concerns/comments:

1) Premium Bus Service in Combination B

The 'Premium Bus Service' is a new proposal that has not received consideration by the Study Team. I first became aware of it at the last Focus Group meeting. There has not been any assessment of the environmental impacts, the property impacts, engineering feasibility, capital costs, or operating costs of this proposal. The public was not given an opportunity to comment on this option as it has not been fully defined.

I-270 will need to be widened by one lane in each direction to accommodate the ramps to provide direct access from the HOV lanes to the station, parking and bus access facilities next to I-270. These stations probably will not be the same locations as those indicated on the area master plans. If they are not on the master plans then they will affect privately held property and buildings. If they are the same sites then the access ramps will cross privately held property and buildings. None of these property owners have any idea of the potential impact of this proposal on their land and buildings.

If SHA wishes to continue with this proposal, they should hold an additional public meeting once they have defined the environmental, property and cost implications to the same level as the other alternatives.

2) Separation of the Corridor Cities Transitway From the Rest of the Study

Although taking a more active role in developing the transit alternatives may be appropriate for MTA, including bus service on the HOV lanes, in our opinion the MIS should not be broken into two separate studies. A combined work program should be developed that maintains the I-270/US 15 Study as a single entity with separate components being worked on, such as the C-D Lanes, the HOV lanes, the interchanges, and the transit alternatives. These separate efforts should proceed concurrently with coordination meetings at key points in the process.

3) The Ability of MTA to Fund and Staff Development of a Draft EIS

My reading of the CTP places the finding of this project in the SHA budget, not that of MTA. If MTA is to assume a more active role in the work on the transit aspects of this project then does an appropriate amount of the funds for the development of the DEIS need to be shifted to MTA? Certainly, some assurance of MTA staff availability is essential.

I look forward to discussing these with you and the rest of the Study Team at out meeting on April 18.

Sincerely,

John Matthias, Coordinator
Transportation Planning Division

JM:djo

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

June 17, 1997

Mr. John Matthias
Planning Coordinator
The Maryland-National Capital Park
and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Mr. Matthias:

Thank you for your letter and comments on the I-270/US 15 Multi-Modal Corridor Study recommendations from March 26. I appreciate your involvement in the I-270/US 15 Study.

Since the March 26 draft recommendations, the Study Team has refined these alternates recommendations further and they now include carrying both Combination Alternate A and Combination Alternate B, along with the Baseline Alternate, forward for further analysis. This eliminates the recent concern over the separation of the Corridor Cities Transitway from the rest of the study, as well as shifting funding between SHA and MTA for this Major Investment Study (MIS) phase of the study.

Combination Alternate B includes the premium bus service along the I-270 High Occupancy Vehicle (HOV) lanes, with special slip ramps into intermodal transit stations along the corridor at Watkins Mill Road, Germantown Road, MD 121, MD 75 Extended and MD 85. While the impacts to the HOV and bus only slip ramps for this premium bus service have not yet been quantified, the Study Team believes that this transit service serves a different market than the County's Corridor Cities Transitway and should be carried forward for further analysis. In addition, while the public was able to review and comment on this premium bus service presented at both the March public meetings and the February Focus Group meeting, they will have additional opportunities to comment on the study. Throughout the alternates development, newsletters, Focus Group meetings, homeowner association meetings and a Public Hearing will all be provided.

My telephone number is (410) 545-0411
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

In the next several months, additional travel demand analyses will be conducted to evaluate these Combination Alternates, as well as to run a transit-based sensitivity test. Transit is an integral component of the I-270/US 15 Multi-Modal Study and we remain committed, that various transit strategies, such as HOV, bus service and a transitway, will be retained for detailed study. In addition, we are recommending that the right-of-way be preserved for the Corridor Cities Transitway between Shady Grove and Frederick. Once these preliminary studies are completed and alternates are recommended for detailed study, a full engineering and environmental assessment will be undertaken. Each of the alternates will be evaluated based on the study goals, which are to enhance mobility, preserve/protect/enhance the environment, support orderly and economic growth, improve goods movement and optimize public investment.

Thank you again and I look forward to your involvement throughout the study. If you have any additional comments, please feel free to call me at (410) 545-8547 or toll free in Maryland at (800) 548-5026.

Very truly yours,

Louis H. Ege, Jr., Deputy Director
Office of Planning and
Preliminary Engineering

by: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

cc: Mr. Suhair Alkhatib, Project Manager, Mass Transit Administration (with incoming)
Mr. Louis H. Ege, Jr., Deputy Director, State Highway Administration
Mr. Harvey Flechner, Planning Director, Mass Transit Administration (with incoming)
Mr. Richard Hawthorne, Transportation Section Chief, Maryland National Capital Park and Planning Commission
Ms. Michelle D. Hoffman, Project Manager, State Highway Administration
Mr. Neil J. Pedersen, Director, State Highway Administration
Mr. Alan H. Straus, Project Manager, State Highway Administration

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

July 31, 1997

Mr. William H. Hussmann
Chairman
Montgomery County Planning Board
The Maryland-National Capital Park
and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Chairman Hussmann:

Thank you for your letter expressing your concerns on the I-270/US 15 Multi-Modal Corridor Study. I would like to take this opportunity to address your concerns.

The purpose of the I-270/US 15 Multi-Modal Corridor Study is to investigate options to relieve congestion and improve safety conditions along the I-270/US 15 Corridor. In response to this need, the study team has been investigating comprehensive solutions in this 30 mile regional corridor for several years. After evaluating a multitude of transportation strategies, we concluded that a combination of these strategies would be necessary to solve the transportation needs in the Corridor. The study team packaged two combination alternates for further consideration, in addition to the baseline or no-build scenario. The I-270/US 15 Multi-Modal Corridor Study does not attempt to, nor will it, solve all of the local transportation needs in the surrounding areas of the Corridor.

At the request of the Montgomery County Planning Board and the Action Committee for Transit (ACT), the study team will also evaluate a stand alone transit option. This evaluation, as well as the travel demand results of the Baseline and Combination Alternates, should be completed late this Fall or Winter. The enclosed draft assumptions for the stand alone transit option have been coordinated with the study team, which includes representatives from both the Montgomery County Department of Public Works and Transportation and the Maryland-National Capital Park and Planning Commission, and will be shared with the citizen Focus Group prior to modeling.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

As indicated on this chart, High Occupancy Vehicle (HOV) lanes have been included in this stand alone transit option. The primary objective of HOV lanes is to provide high-occupancy vehicles with both travel time savings and more predicatable travel times. A significant volume of commuters find this alternate attractive enough to voluntarily switch to using a higher occupancy mode. It is our experience that some HOV users would use another form of transit; however, the majority of these users are car-poolers who would not find transit convenient. The I-270/US 15 Corridor serves various travel markets with needs for both local and long distance trips, originating and destined for points both within and beyond the Corridor. These varying travel markets support the need to consider several different transportation strategies and modes, including HOV lanes.

The Counties' Master Plan Corridor Cities Transitway Alignment has been previously evaluated as an independent transportation strategy with varying termini and did not have sufficient ridership to justify its cost by the design year of 2020. The study team will be evaluating the ridership through Combination Alternate A, and eventually the cost and impacts of implementing a shorter version of the Corridor Cities Transitway in conjunction with improvements to both I-270 and US 15. The study team believes there will be more of a demand for a transitway along the Corridor Cities Transitway alignment beyond 2020 due to the varying transportation needs in this Corridor. Therefore, it is important for the study team to promote the preservation of this right-of-way for the future since this study will not result in the implementation of a transportation facility that will not be needed by the design year of 2020.

The Smart Growth legislation promotes growth in, and connections between, locally designated growth areas and the protection of rural areas by discouraging continued sprawl development. All of the alternates under consideration will be developed in accordance with both the spirit and intent of the Smart Growth legislation and will be evaluated to determine how they support the Smart Growth initiative.

Again, thank you for your letter. If I can be of any further assistance, please feel free to call me or Neil Pedersen, our Planning Director, who may be reached at 410-545-0411.

Sincerely,

Parker F. Williams
Administrator

Enclosure

M-NCPPC

MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

October 27, 1999

Mr. Neil Pedersen, Director
Office of Planning and Preliminary Engineering
State Highway Administration
P.O. Box 717
Baltimore, MD 210203-0717

Dear Mr. Pedersen: Neil

I am writing you to ask that your staff provide us their comments on a minor adjustment to the Corridor Cities Transitway in the Shady Grove Planning Area. Over the summer, we identified an alternative alignment in the vicinity of the intersection of Key West Avenue and Great Seneca Highway as shown on the Vicinity Map. This modification merits serious consideration because of its improved proximity to jobs, easier walk access to and from the stations, as well as reduced environmental impacts. I believe your staff received this proposal in late summer and has included it in its review of the I-270/US 15 Multi-Modal Study.

It is critical that we get your comments by November 5th in time for a Preliminary Plan Hearing on the DANAC/Stiles Property scheduled for mid November. We have asked the developer to revise the layout of the proposed buildings on his property in a manner which will not preclude the possibility of constructing the alternative alignment. In our opinion, it is feasible to do so, however, the developer is resisting because he does not view this alternative as valid and is concerned about the impact of this change on marketing his property.

We identified this alternative in the context of studying the proposed transit station on the Thomas Triangle to the west of Great Seneca Highway. The Master Plan alignment takes the transitway along the south side of Decoverly, over Great Seneca Highway and to a station parallel to Great Seneca Highway. (See Illustration A). The problems with this alignment are that the platform of the station on the west side of Great Seneca Highway will be 10 feet lower than the adjacent bus bays, will be considerably distant from the office and R & D development on the Bellward Campus and has a significant impact on the existing stream and steep wooded slope. In addition, significant modifications to the building layout and grading on the DANAC/Stiles property are required to accommodate the master planned alignment and environmental mitigation will be required in regard to the wetland crossed by the alignment.

The proposed alternative alignment shifts the alignment from the south side of Decoverly Drive to the north side of Key West Avenue. (See Illustration B). This alternative will locate the station on the Thomas Triangle at-grade with the bus bays, will achieve a closer proximity to the 5,150 jobs on the Bellward Campus, and will steer clear of the stream on the Thomas Triangle. In addition it will have benefits related to the DANAC/Stiles property. It will avoid the wetlands on the DANAC/Stiles Property and will also allow a transit stop along Key West Avenue serving approximately 1 million square feet in the Life Sciences Center. The Corps of Engineers has raised concerns regarding the environmental impacts of the master planned alignment of the transitway; this modification would eliminate some of those impacts.

In addition, the shift in the alignment will probably be well received by the residents of the adjacent townhomes north of Decoverly Drive who have consistently opposed the transit alignment along Decoverly Drive.

Although this modification creates important benefits from a planning perspective, we are aware that there are construction and operations issues which need to be taken into account. The additional length will increase construction and operating costs and will add to the trip lengths of some of the passengers. The improved walk access for employees in the area and the reduction of environmental impacts may well compensate for those effects. We would appreciate your staff assisting us by providing an assessment of the costs and benefits of this proposed modification to the alignment from the perspectives of ridership, construction and operations. This information will assist my staff and the Planning Board to determine which alignment to place on the DANAC/Stiles and the Thomas Triangle properties.

Please have your staff contact John Matthias, Transportation Coordinator, at (301) 495-4569 if they have any questions regarding this proposed shift in alignment. Thank you for your assistance.

Sincerely,

Charles R. Loehr
Director

cc: Lorenzo Bryant, Project Engineer, MTA
Michelle Hoffmann, Project Engineer, SHA

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

November 8, 1999

Mr. Charles R. Loehr, Director
Montgomery County Department of
Park and Planning
The Maryland-National Capital Park
and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Mr. Loehr: Charlie

Thank you for your letter regarding the Corridor Cities Transitway (CCT) alignment, part of the I-270/US 15 Multi-Modal Corridor Study. I appreciate the opportunity to review and comment on proposed alignment shifts to the CCT.

As you know, the I-270/US 15 Multi-Modal Corridor Study is a joint effort between both the State Highway Administration (SHA) and the Mass Transit Administration (MTA). The Study Team, which includes representatives from Federal, State and local jurisdictions, is currently conducting detailed travel demand analyses and beginning the detailed engineering and environmental studies for the five alternates under consideration. Some shifts in both highway and transit improvements are being evaluated as part of this effort to avoid and minimize impacts to the natural, social and cultural environment, when feasible.

The shift that has been proposed in your letter offers both positive and negative impacts to the surrounding environment. These aspects will be developed in greater detail over the next year in respect to the entire Corridor. The engineering analysis will be partially completed for the next Informational Public Workshop, tentatively scheduled for March of 2000. The engineering and environmental studies will be compiled and presented in the Draft Environmental Impact Statement and at the Location/Design Public Hearing, tentatively scheduled for the Fall/Winter of 2001. At this time, I will defer to our study partner, the Mass Transit Administration, to respond in more detail to your proposed transitway shift. It is my understanding that their response is forthcoming.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The conclusion of this complex planning study is anticipated by the Winter of 2002, with the recommendation of a selected alternate and Location and Design approvals. Thank you again for your letter. I appreciate you and your staff's close coordination on this multi-modal corridor study. If I can be of any further assistance, please feel free to call me or Michelle Hoffman, the project manager, at 410-545-8547 or toll-free in Maryland at 800-548-5026.

Very truly yours,

Neil J. Pedersen

Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

cc: File No. 4823
Mr. John Matthias, Planning Coordinator, M-NCPPC
Mr. Tony Brown, Division Chief, Mass Transit Administration
Mr. Lorenzo Bryant, Project Manager, Mass Transit Administration
Ms. Michelle D. Hoffman, Project Manager, State Highway Administration
Mr. Henry Kay, Director, Mass Transit Administration
Ms. Cynthia D. Simpson, Deputy Director, State Highway Administration
Mr. Glen Smith, Regional Planner, State Highway Administration
Mr. James L. Wynn, Assistant Division Chief, State Highway Administration

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
8787 Georgia Avenue • Silver Spring, Maryland 20910-3760
(301) 495-4605

Montgomery County Planning Board
Office of the Chairman

July 24, 2000

Neil Pedersen, Director
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
P.O. Box 717
Baltimore Maryland, 21203-0717

Dear Mr. Pedersen:

On behalf of the Montgomery County Planning Board, I respectfully request that you reconsider the decision to exclude extension of Metrorail service from Shady Grove to Gaithersburg from consideration in the your I-270 Multi-Modal Study. Among the networks that should be tested should be an evaluation of a plan that would include both the Corridor Cities Transitway on its planned alignments and an extension of heavy rail service from Shady Grove Road to Metropolitan Grove just north of Gaithersburg.

We are looking for ways to extend the reach of our rail service as soon as we can. In our view, an extension of Metrorail could provide service to a work force necessary for our down-county business districts to succeed. A Metrorail extension to Gaithersburg in the vicinity of Metropolitan Grove would increase the number of residents that can get to Bethesda within a half-hour commuting time. We read in the newspaper of northern Virginia's progress toward extending Metrorail service to the Dulles corridor. We are also aware of the State's decision to fund an extension of Metro service in Prince George's County to Largo. Where is our competitive response to this increase in transit service? If we do not respond in some way to the increased accessibility of northern Virginia, certainly employers will respond by where they choose to locate.

Much of the traffic headed toward Shady Grove comes from the north in the morning. We are surprised that the possibility of intercepting Shady Grove-bound trips north of the existing end-of-line station is unappealing. Traffic bound for Red Line service would exit I-270 two interchanges north of Shady Grove, thus freeing traffic capacity for locally-generated vehicles. We believe that this transit service extension could be an outstanding example of coordination between land use and transportation. With the cooperation of the City of Gaithersburg, the new terminal point could become a model of new transit-oriented development. We cannot determine how such land-use changes would affect your conclusion about insufficient patronage. We are, however, confident that land-use changes which respond to the increased accessibility of transit will produce more riders than assuming the terminus will be the undeveloped Montgomery County Fairgrounds. The cost of transportation projects of this nature must be related to benefits. We would not be surprised if a high degree of benefits could be found in a more in-depth analysis. Just as an aside, it should be noted that the City of Gaithersburg and the area along the right-of-way from Shady Grove is fully within the state's priority funding area.

Your staff has cited adverse community impacts as a reason to exclude the extension up to Gaithersburg. We are not transit engineers, but we are confident in your staff's ability to find a solution which minimizes negative impacts to surrounding communities.

The Metropolitan Grove location is within the municipal boundaries of the City of Gaithersburg. The City's 1997 Master Plan supports planning for transit service along the existing CSX Railroad right-of-way. The County's Master Plan provides for transit service along the same alignment but does not specify whether it should be heavy rail, light rail, or some other mode of transport.

We appreciate hearing your conclusions on this matter.

Sincerely,

William H. Hussmann
Chairman

WHH:JZ:kcw
Encl.

cc: John Porcari
Montgomery County Council
Sidney A. Katz, Mayor of Gaithersburg

ltr to pedersen re metro above sg.wpd

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

August 21, 2000

Mr. William H. Hussmann
Chairman
Montgomery County Planning Board
The Maryland-National Capital Park
and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Mr. Hussmann:

Thank you for your recent letter regarding the consideration of extending Metrorail service from Shady Grove to Gaithersburg as a part of the I-270/US 15 Multi-Modal Corridor Study. I would like to take this opportunity to address some of your concerns. However, I must also refer the questions raised on transit decisions and opportunities for Metrorail service to both the Mass Transit Administration (MTA) and the Washington Metropolitan Area Transit Authority (WMATA). Therefore, I have forwarded your letter both to Mr. Henry Kay, Planning Director, MTA and Mr. Richard White, General Manager, WMATA.

The I-270/US 15 Multi-Modal Corridor Study, initiated in 1994, has evaluated several transit strategies, including bus and light rail to Frederick. At this time combination highway and transit alternates have been retained and are being evaluated in the study. Two of the combined highway and transit improvement strategies include light rail transit and bus rapid transit alternates along the CCT from the Shady Grove Metro Station to COMSAT with feeder bus service to and from Frederick. Another alternate includes increased express bus service that would operate in the I-270 HOV lanes between Frederick and Shady Grove.

A transit extension along the CSX alignment from Shady Grove to Metropolitan Grove was investigated in the early stages of this study. It was not recommended for a variety of reasons, including low 2020 ridership in relationship to high capital and operating costs, as well as environmental consequences, if above ground. Please refer to the enclosure describing these earlier transit options. However, we have agreed to take another look at the issues associated with extending Metrorail to Metropolitan Grove based on your inquiry.

My telephone number is 410-545-0411/1-888-204-4828

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

I appreciate your concerns in this matter. Prior to making any decisions on including the extension of Metrorail to Metropolitan Grove as an alternate, we will discuss with you our conclusions.

Thank you again for your letter. If you have any additional questions or concerns on the I-270/US 15 Study, please do not hesitate to contact me, or Mr. Henry Kay, Director of Planning and Programming at the Mass Transit Administration, at 410-767-3787.

Very truly yours,

Neil J. Pedersen

Neil J. Pedersen
Deputy Administrator
for Planning and Engineering

Enclosure
cc: Ms. Lora Bayla, Transportation Analyst, Washington Metropolitan Area Transit Authority
Mr. Ronald L. Freeland, Administrator, Mass Transit Administration
Mr. Albert Genetti, Director, Montgomery County Department of Public Works and Transportation
Mr. Henry Kay, Director, Mass Transit Administration (with incoming)
Dr. Glenn Orlin, Deputy Staff Director, Montgomery County Council
Mr. Richard White, General Manager, Washington Metropolitan Area Transit Authority (with incoming)
Mr. Parker F. Williams, Administrator, State Highway Administration

M-NCPPC

MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

June 4, 2001

Mr. Neil J. Pedersen
Deputy Administrator for
Planning and Engineering
State Highway Administration
707 North Calvert Street
PO Box 7171
Baltimore, MD 21203

RE: Treatment of Newcut Road Interchange in I-270/US 15 Multi-modal Study

Dear Mr. Pedersen: Neil

I am writing to request that alternatives examined in the I-270/US 15 Multi-modal Study retain the option to provide access to and from the west at the future I-270 interchange with Newcut Road in Clarksburg. At the May 18 project team meeting, SHA proposed to develop a trumpet-style interchange to provide Newcut Road access to and from the east only. Such an interchange would require substantial reconstruction to reconfigure as the full-movement interchange recommended in the 1994 Clarksburg Master Plan.

A full-movement interchange would ultimately be needed to implement the Clarksburg Master Plan recommendations to extend Newcut Road westerly to MD 121, serve future development in the Cabin Branch neighborhood west of I-270, and improve access to Black Hill Regional Park. The Smart Growth Priority Funding Area (PFA) boundary encompasses those portions of the Cabin Branch neighborhood that are zoned for industrial or mixed-use projects, encompassing over two million square feet of anticipated commercial development.

We concur that providing access to and from the east is the highest priority and primary purpose for the proposed Newcut Road interchange. In that context, we would support SHA analysis interchange options, such as a partial diamond configuration, which would initially provide access to and from the east but would not preclude the ultimate extension of Newcut Road to the west. The TPR Task Force will be wrestling with this issue as well over the coming months and will not have a recommendation until December of 2001.

We appreciate your continued consideration of Master Plan recommendations. Please let me know if you have any questions or comments regarding this request.

Sincerely,

Richard Hawthorne

Richard C. Hawthorne, Chief
Transportation Planning

RCH:DKH:kcw

ltr to pedersen re newcut.doc

2

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

June 29, 2001

Mr. Richard C. Hawthorne, Chief
Transportation Planning
Montgomery County Department of Park and Planning
The Maryland-National Capital Park and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Mr. Hawthorne: Rick

Thank you for your recent letter regarding the I-270/US 15 Multi-Modal Corridor Study, specifically the proposed I-270/Newcut Road interchange. I am writing in response to your June 4, 2001 letter regarding the preliminary concepts developed as part of this study and presented at the May 18, 2001 Project Team Meeting.

At the May 18 Project Team Meeting, the State Highway Administration (SHA) presented a trumpet style interchange that would provide access along future Newcut Road extended to/from the east side of I-270, precluding a future extension of Newcut Road west of I-270. This preliminary concept was developed for the following reasons:

- There would be a substantial number of transportation facilities to support planned development in the Clarksburg area (i.e., the proposed Corridor Cities Transitway (CCT) with its northern terminus at COMSAT; the existing I-270/MD 121 interchange; and other proposed local roadway improvements).
- The intent of the Newcut Road interchange is to "help improve access to COMSAT," which is east of I-270 (according to the 1994 Clarksburg Master Plan) ; and
- With two full interchanges at MD 121 and at the proposed Newcut Road location approximately one mile apart in the Clarksburg area the potential for secondary land development impacts in the "upcounty" areas, including the Agricultural Reserve, increases.

The SHA recognizes that the Smart Growth Priority Funding Area (PFA) boundary extends west of I-270 in this area along MD 121 (Clarksburg Road) to the north/west and West Old Baltimore Road to the south. This area encompasses portions of the Cabin Branch neighborhood zoned for industrial or mixed-use development, according to your letter and the June 1994 Clarksburg Master Plan & Hyattstown Special Study Area.

Prior to SHA agreeing to evaluate interchange options that would accommodate a future extension of Newcut Road west of I-270, a written commitment from Montgomery County is requested which identifies the actions that will be taken to minimize development that extends beyond the limits of the PFA boundary along MD 121 (Clarksburg Road) and West Old Baltimore Road, west of I-270. This potential additional development west of the PFA would be inconsistent with the State of Maryland's Smart Growth policies. More specifically, Montgomery County should address the following concerns:

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

- Identify measures to mitigate the potential secondary impacts of the extension of Newcut Road west of I-270. Based on the information in the 1994 Clarksburg Master Plan, substantial ½ acre to ¼ acre lot residential uses and rural residential development are planned for the non-PFA areas, i.e., the area between Shiloh Church Road and MD 121 (Clarksburg Road), and the area south of Old Baltimore Road. Expanded access to this area may also impact the Little Seneca Lake Watershed.
- Limit any expansion of the PFA boundary beyond the existing PFA boundary west of I-270 along MD 121 (Clarksburg Road) and West Old Baltimore Road.
- Limit extension of Newcut Road to MD 121 (Clarksburg Road), and provide that there shall be no new County road improvements connecting MD 121 (Clarksburg Road) and Shiloh Church Road.

Please note that the above issues will be incorporated in the Environmental Impact Statement (EIS) document currently being developed for the study.

Thank you again for your letter. If you should have any questions, please feel free to contact Steve Plano, the project manager, by telephone at 410-545-8547 or toll-free at 1-800-548-5026, or by email at plano@pbworld.com.

Very truly yours,

Neil J. Pedersen
Deputy Administrator for
Planning and Engineering

Enclosure

cc: Mr. Steve Plano, Parsons Brinckerhoff (with incoming)

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
Department of Parks, Montgomery County, Maryland
9500 Brunett Avenue • Silver Spring, Maryland 20901

June 17, 1996

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning & Preliminary Engineering
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Mr. Ege:

I am writing to respond to your letter to Mr. Donald K. Cochran pertaining to contract No. F 192-101-772, I-270: South of Shady Grove Road to I-70 and US 15: I-70 to North of Biggs Ford Road in Frederick and Montgomery Counties, I apologize in the delay in this response.

As indicated in the attached memorandum from Bill Gries, only two parks in the study area were funded with Program Open Space assistance. None of the properties were acquired with Land and Water Conservation Funds.

The following paragraphs describe each of the parks identified in your letter with respect to your questions regarding its function, existing and planned facilities, ultimate master planning goals and function in providing for the overall recreation needs of the community.

1) Middlebrook Hill Conservation Area

- This 11.5 acre conservation parks has no existing or proposed recreation facilities.
- The function of this park is conservation, not recreation and thus the ultimate goal is that it remain in its natural state. In addition to providing an important wild-life habitat area, this park provides passive recreation space for the surrounding community in the form of nature walks and study, birdwatching, etc.

2) Black Hills Regional Park

Existing facilities at the park include:

- 505 acre lake with boating and fishing facilities.

Yours for life
MONTGOMERY COUNTY PARKS

- Picnic shelters with adequate space for groups and nearby restrooms.
- Visitor/Nature center with interpretive programs.
- 2 miles of paved hiker/biker trail
- Many additional unpaved trails for hikers, equestrians, and mountain bicyclers (on a trail basis)
- Park managers offices, Park police substation, Interim maintenance yard
- Proposed facilities include a permanent maintenance yard, accessible fishing pier, and paving of additional trails.
- Ultimate Master Planning goals for the park have not yet been formulated, it is anticipated that this master plan will be completed during the coming year however it can easily be stated that this park serves a very significant function in providing for the overall recreation needs of the surrounding communities.

3) Little Bennet Regional Park

- Existing facilities at this 3,612 acre Regional Park include a campground with 100 campsites, a camp store/nature center building with small adjacent amphitheater, a playground and a small field serve the campground users. There are also shower and restrooms facilities and picnic tables.
- An 18 hole golf course is the newest and largest facility in the park, it has a clubhouse and an all-weather driving range.
- There is a park managers office and a maintenance facility at the park which serves parks in the surrounding vicinity.
- The park has a very large network of unpaved trails approximately half of which are hiking only and half are also open to equestrians.
- Currently proposed facilities include an additional 9 hole instructional golf course
- The ultimate master planning goals for the park will be determined by a master plan for the park to be prepared during the upcoming year.
- Little Bennet Regional Park unquestionably serves a significant function in providing for the overall recreational needs of the surrounding communities.

4) Ridge Road Recreational Park

- This undeveloped park is also located within the study area.
- Although this park currently does not include any recreation facilities, it is

proposed to ultimately be the site of a major active recreation park and thus serve a significant function in providing for the recreational needs of the surrounding community.

- Although the development plan for the park has not been completed, it is currently envisioned to include an indoor ice skating rink athletic fields, tennis and basketball courts and picnic/playground facilities.

I have enclosed maps of each park showing existing recreation facilities, and project development forms which indicate the proposed recreation facilities in the Capital Improvement Program.

If you have any further questions, please don't hesitate to contact me at (301) 650-2864.

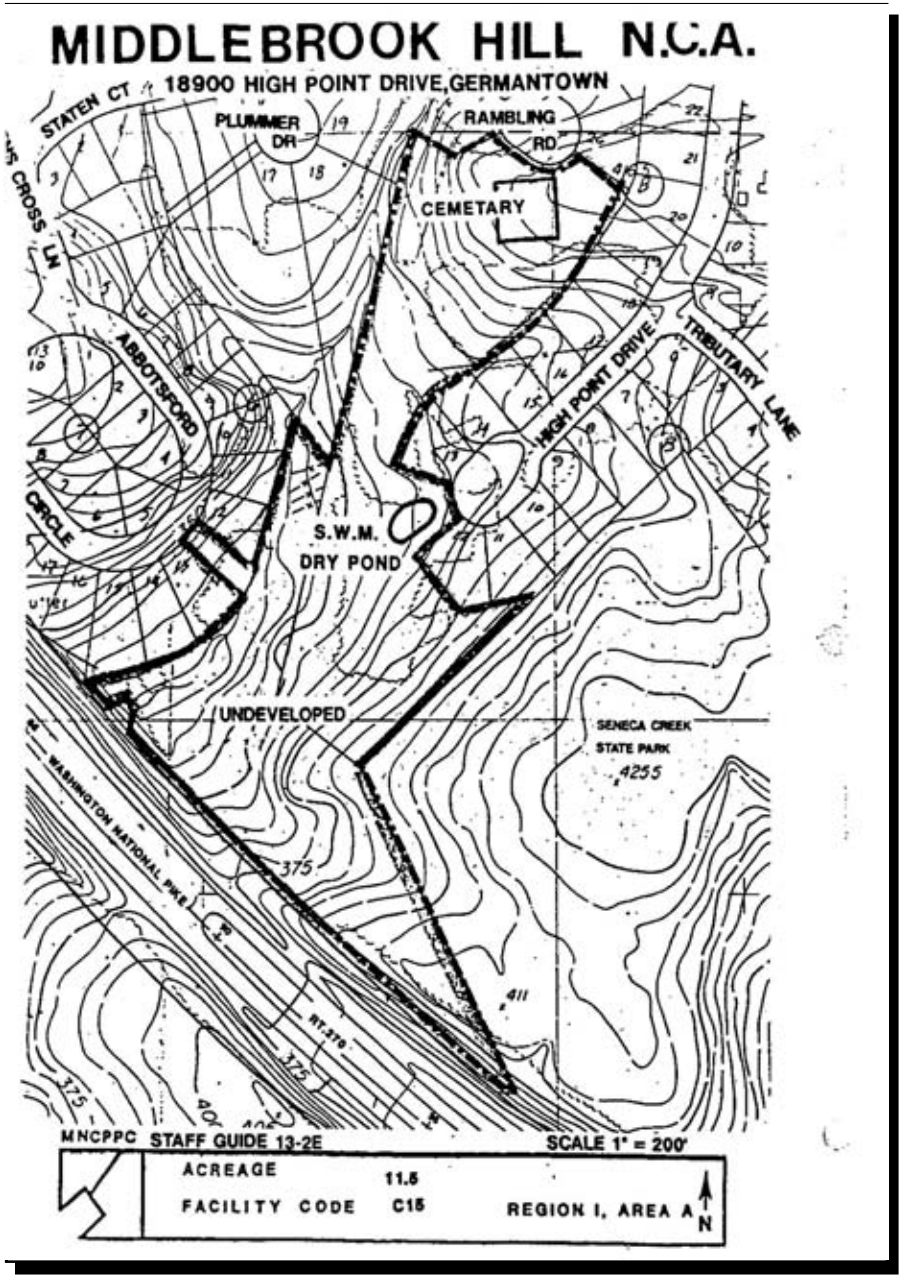
Sincerely,

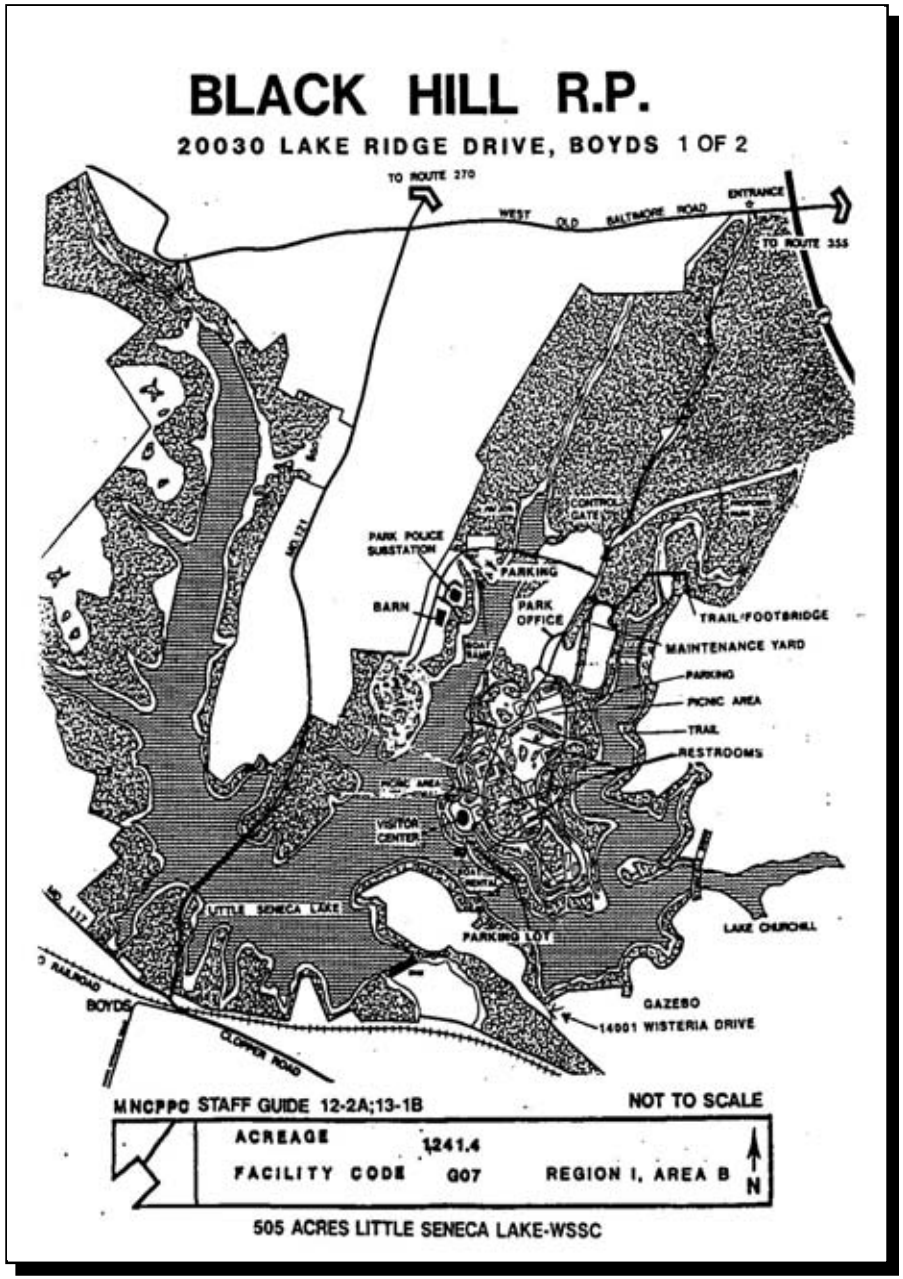
Tanya Schmieler

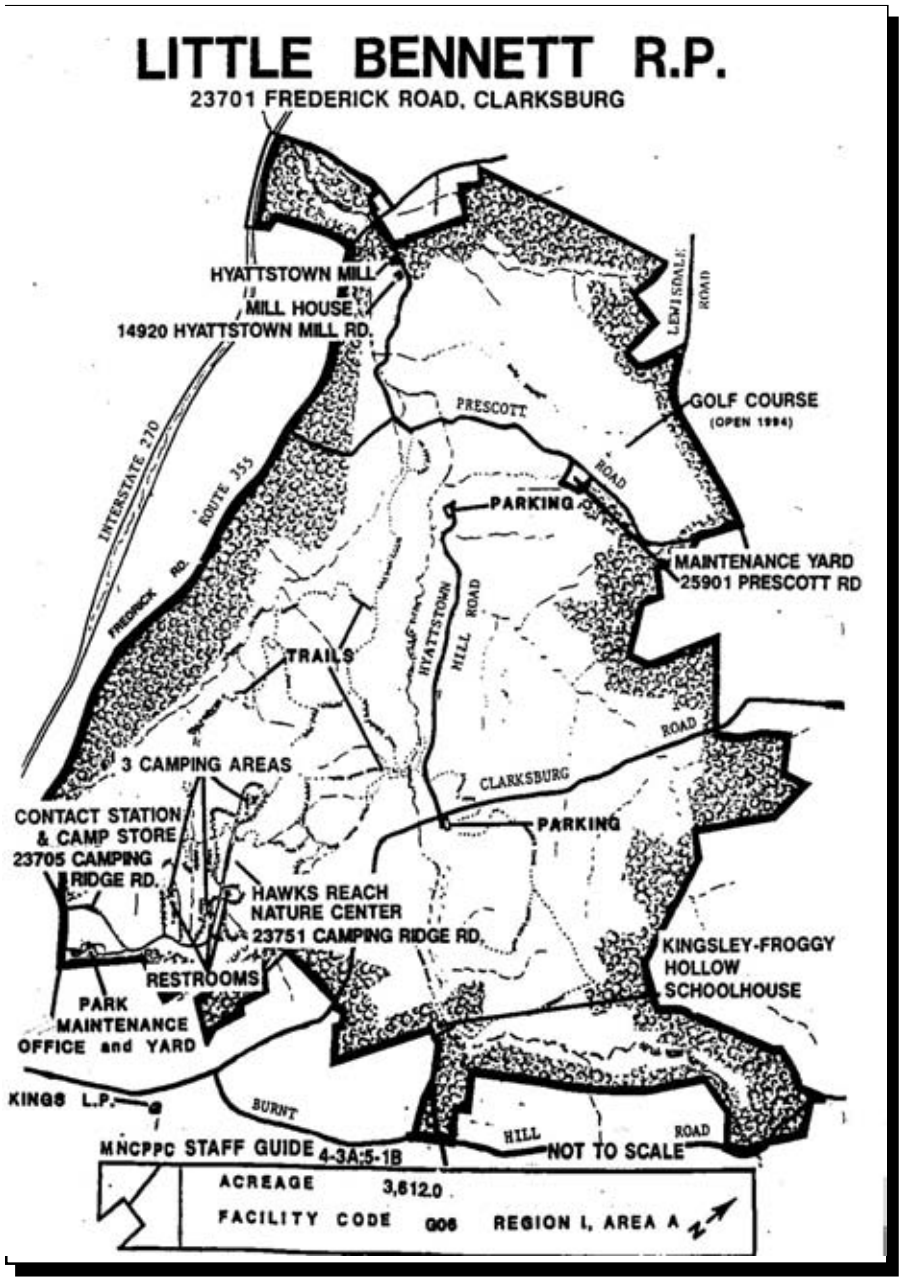
Tanya K. Schmieler
Planning Supervisor

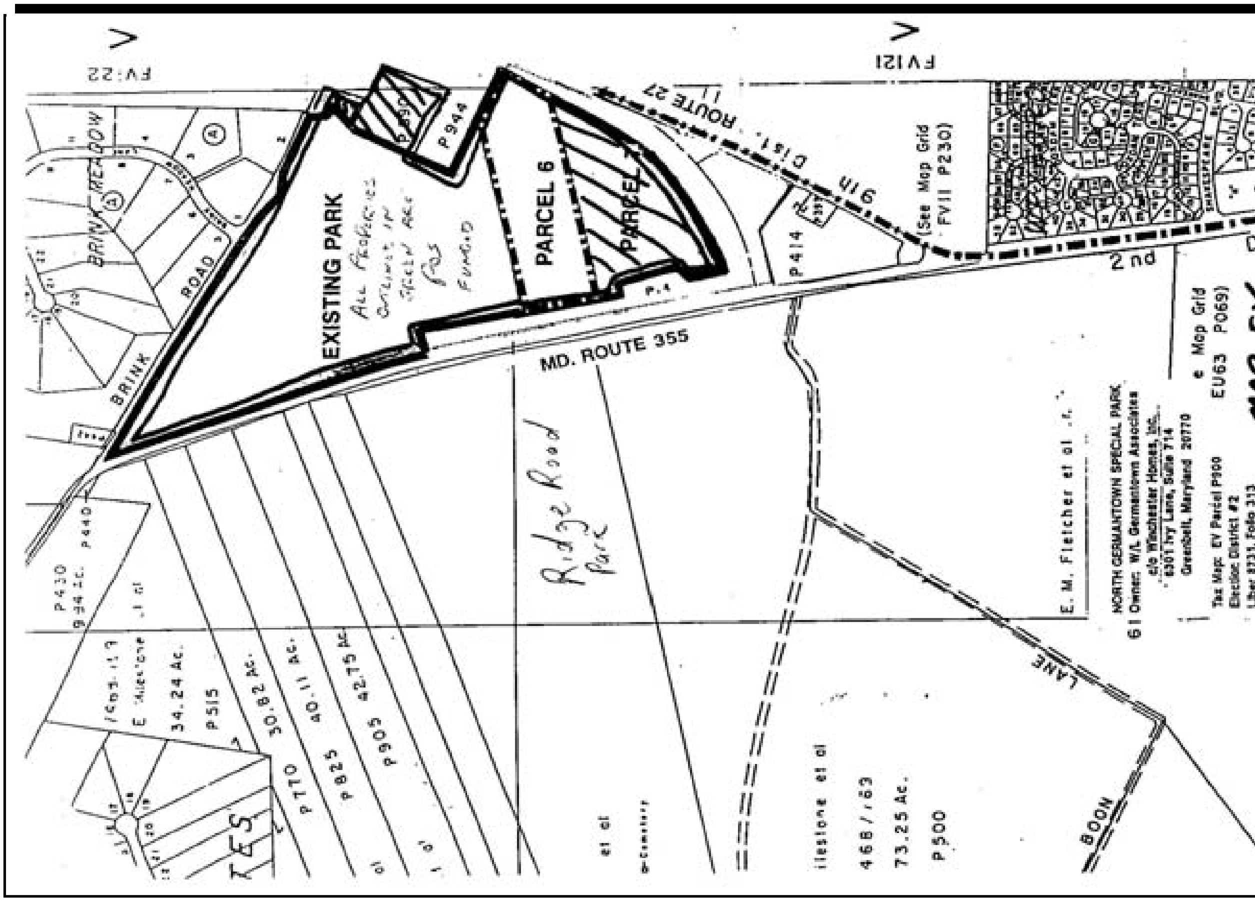
cc: D. Cochran
G. Rosenthal
T. Brooks
W. Gries

KB1/1/TAN




BLACK HILL R.P.
20030 LAKE RIDGE DRIVE, BOYDS 1 OF 2
TO ROUTE 270
WEST OLD BALTIMORE ROAD
ENTRANCE
TO ROUTE 355
PARK POLICE SUBSTATION
PARKING
BARN
PARK OFFICE
TRAIL/FOOTBRIDGE
MAINTENANCE YARD
PARKING
PICNIC AREA
TRAIL
RESTROOMS
VISITOR CENTER
LITTLE SENECA LAKE
PARKING LOT
LAKE CHURCHILL
GAZEBO
14001 WISTERIA DRIVE
BOYDS
CLOPPER ROAD
MNCPPC STAFF GUIDE 12-2A;13-1B
NOT TO SCALE
ACREAGE 1241.4
FACILITY CODE G07
REGION I, AREA B
N
505 ACRES LITTLE SENECA LAKE-WSSC


LITTLE BENNETT R.P.
23701 FREDERICK ROAD, CLARKSBURG
HYATTSTOWN MILL
MILL HOUSE
14920 HYATTSTOWN MILL RD.
LEWISDALE ROAD
GOLF COURSE
(OPEN 1994)
PRESCOTT ROAD
INTERSTATE 270
ROUTE 355
FREDRICK RD.
PARKING
MAINTENANCE YARD
25901 PRESCOTT RD
HYATTSTOWN HILL ROAD
TRAILS
3 CAMPING AREAS
CLARKSBURG ROAD
CONTACT STATION & CAMP STORE
23705 CAMPING RIDGE RD.
PARKING
HAWKS REACH NATURE CENTER
23751 CAMPING RIDGE RD.
KINGSLEY-FROGGY HOLLOW SCHOOLHOUSE
RESTROOMS
PARK MAINTENANCE OFFICE and YARD
KINGS L.P.
BURNT HILL ROAD
MNCPPC STAFF GUIDE 4-3A;5-1B
NOT TO SCALE
ACREAGE 3,612.0
FACILITY CODE G06
REGION I, AREA A



5-1A

A. IDENTIFICATION AND CODING INFORMATION

PDF PAGE NO. 19-

1. Project Number	Agency No.	Update Code
998569	RA: N	ADD

2. Date SEPT 15, 1995
REVISED: MAR 08, 1996

3. Project Name: BLACK HILL REGIONAL PARK
4. Program: REGIONAL/REC PARKS
5. Agency: M-NCPPC
6. Planning Area: 13 CLARKSBURG
7. PREV. PDF PG NO.
8. REQ. ADEQ. PUB. FAC. IDENT.

B. EXPENDITURE SCHEDULE (000's)

Cost Elements	(9) Total	(8) Thru FY95	(10) Estimate FY96	(11) Total 6 Years	(12) Year 1 FY97	(13) Year 2 FY98	(14) Year 3 FY99	(15) Year 4 FY00	(16) Year 5 FY01	(17) Year 6 FY02	(18) Beyond 6 Years
1. Planning, Design and Supervision	608	461	17	130		10	35	50	15	20	
2. Land											
3. Site Improvements and Utilities	1697	1697									
4. Construction	3123	2413	93	617				139	100	378	
5. Furniture and Equipment	194	194									
6. Total	5622	4765	110	747		10	35	189	115	398	
C. FUNDING SCHEDULE (000's)											
CO BONDS	3010	2586	65	367		10	35	85	40	197	
CR-GENRL	50	50									
OTHER FUNDS	2554	2129	45	380				104	75	201	
D. ANNUAL OPERATING BUDGET IMPACT $ (000's)											
DEBT SVC				68		1	3	11	19	34	
MAINTENANCE				55				6	15	34	
ENERGY											
PROG-STAFF											
PROG-OTHER											
COST SAVINGS											
OFFSET REVS											
NET IMPACT				123		1	3	17	34	68	
STAFF (WKYRS)											

F. APPROPRIATION AND EXPENDITURE DATA (000's)

Date First Appropriation	FY 6
Initial Cost Estimate	5187
First Cost Est Current Scope (FY 97)	5597
Last FY's Cost Estimate	5706
Present Cost Estimate (FY 97)	5622

Cumulative Appropriation	Expenditures/Encumbrances	Unencumbered Balance
487	4797	78

G. RELOCATION IMPACT:

H. MAP Map Reference Code:

SEE MAP NEXT PAGE

E. DESCRIPTION AND JUSTIFICATION — PROJECT NO. 998569 — PROJECT NAME Black Hill Regional Park

DESCRIPTION: This project will provide for development of a proposed regional park located north of Boyds along either side of Route 121.

JUSTIFICATION: PROS PLAN AND OTHER STUDIES: Hiker-biker trails in this project are considered important elements of a regional park by the PROS Plan.

DEVELOPMENT: Development scheduled beyond FY 96 may be amended as the project undergoes review. Development in FY 2000 and 2001 is contingent upon Program Open Space funding.

In FY 99: Complete master plan; prisoner restroom; fishing pier meeting ADA requirements.
In FY 00: Pave trail from parking lot 1 to Spinning Wheel Drive.
In FY 01: Pave trail from parking lot 1 to lot 6.
In FY 02: Pave gravel parking at boat ramp and trail connectors at Water's Landing; begin reconstruction of hiker-biker trail Water's Landing to Churchill; replace 40' x 8' bridge at Waters Landing.
In FY 03: Complete construction of hiker-biker trail, Water's Landing to Churchill.

COST/SCOPE CHANGES: Completion of master plan, prisoner restroom and ADA fishing pier were carried over from FY 95 to 96. Replacement of boat rental building was removed from FY 2000. A new request for beginning the reconstruction of the Waters Landing hiker-biker trail was added to FY 2002.

COORDINATION AND OTHER INFORMATION: Other CIP activities at this site:

I. COORDINATION & OTHER INFORMATION (INCL SUBPROJS & WORK PRGM LISTS)
Site plan was coordinated with SCS & USSC.

5-2

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

January 29, 2002

RE: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Frederick and Montgomery Counties, Maryland

Dr. John Hench
Maryland-National Capital Park
and Planning Commission
1109 Spring Street
Suite 802
Silver Spring, MD 20910

Dear Dr. Hench:

As indicated in previous correspondence with you dated June 17, 1996 (attached), the Maryland State Highway Administration (SHA) and the Maryland Transit Administration (MTA) are proceeding with a joint project planning study for the I-270/US 15 Multi-Modal Corridor Study in Frederick and Montgomery counties from Shady Grove Metro Station to Biggs Ford Road. Included within the scope of the proposed improvements is the widening of northbound I-270 in the project area which may require up to 3 acres from Middlebrook Hill Conservation Area (attached). We are requesting that you provide SHA with the following updated information concerning Middlebrook Hill Conservation Area.

- Your determination regarding the primary and any secondary functions of the facility.
- Your determination as to whether the right of way required from Middlebrook Hill Conservation Area for the highway widening affects any public recreational uses associated with the facility.
- Mapping, including metes and bounds, and/or CADD files showing boundaries (existing and proposed) and outdoor recreation facilities;
- Types of outdoor recreational facilities (existing and proposed) within the property;
- Frequency of public use of these facilities;
- A site plan (existing and proposed), if available;

My telephone number is _____
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

- Your determination as to whether this facility serves a "significant" function in providing for the overall recreational needs of the communities in the area. The Federal Highway Administration defines "significant" as: "In comparing the availability and use of recreation and park facilities with the needs of a community, the land in question plays an important role in meeting these needs." If it is found that this facility is not significant, SHA would require a written determination of this from the official with jurisdiction over the facility, in order to support a determination of the non-applicability of Section 4(f) of the U.S. DOT Act.

Due to the lapse of time since our last correspondence, we are also requesting that you provide SHA with the following updated information for all resources within your jurisdiction, including but not limited to Black Hills Regional Park and Little Bennett Regional Park:

- Ultimate master planning goals and site plans, including metes and bounds, and/or CADD files showing boundaries and total acreage (existing and proposed);
- Facility function including outdoor recreation amenities (e.g. ball field, tennis court, track, etc.). Please include frequency of public use for any specific amenities as well as for the facility as a whole;
- Current funding information/mapping for parcels acquired/developed with Program Open Space or Land and Water Conservation Funds.
- Significance determination (see above).

As a result of our preliminary design, up to 7 acres of right of way may also be required from Black Hills Regional Park, and up to 1.5 acres from Little Bennett Regional Park. Your response is requested by March 1. Thank you in advance for your expedited review. Should you have any questions or need additional information, please contact the environmental manager, Anne Elrays at 410-545-8562 or toll free at 866-527-0502.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: _____
Joseph R. Kressler
Assistant Division Chief
Project Planning Division

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

April 8, 2002

Cynthia D. Simpson
Deputy Director
Office of Planning and Preliminary Engineering
Maryland Department of Transportation
P.O.Box 717
Baltimore, MD 21203-0717

Dear Ms. Simpson:

Please find attached comments from the Park Planning and Resource Analysis Unit on the widening of I-270 and Corridor Cities Transitway implementation evaluated in the I-270/US15 Multi-Modal Corridor Study and the anticipated impacts to Middlebrook Hill Neighborhood Conservation Area, Black Hill Regional Park, North Germantown Greenway and Little Bennett Regional Park in Montgomery County. This is in response to your letter of January 29, 2002 and your request, which was clarified in our meeting at the Historical Preservation Unit. We trust that we responded accordingly.

Summary of Recommendations

Further to our review of the October 19, 2001 version of the Draft Environmental Impact Statement (DEIS), we have identified primary and secondary impacts to the affected parklands. We have also begun identifying mitigation measures that the Maryland State Highway Administration (SHA) and the Maryland Transit Administration (MTA) might consider in preparing the Final Environmental Impact Statement. These measures include: replacement parkland, noise mitigation, stream stabilization, stormwater management, wetlands mitigation, reforestation, and safe trail crossings of the I-270 roadway.

This Unit believes that the I-270 project presents the opportunity to fulfill a Countywide Park Trails Plan objective for safe crossings of the I-270 roadway. This might best be done at the Ten Mile Creek crossing just south of Comus Road as well as at other locations shown on the attached Countywide Park Trails Plan, approved by the Planning Board in 1998. Consideration might also be given to improving the existing I-270 crossing at Seneca Creek to make it a safe, grade-separated crossing suitable for hiking and equestrian use. In that regard SHA and MTA should coordinate the I-270 crossing of Seneca Creek State Park, as well as potential trail crossings in other areas, with appropriate State Park and Montgomery County Department of Park and Planning staff, respectively.

We look forward to reviewing the signed edition of the DEIS when it is available. We expect that these or similar mitigation measures will be incorporated in the Planning Board comments on the DEIS this summer. In the interim, please feel free to contact Michael Zamore at 301-650-4362 if you have any questions regarding this material.

Sincerely,

Jeff Zyontz
Chief, County-Wide Planning Division

JZ/MZ:ss\D:\Letters\LtrSimpson
Attachment

pc: John E. Hench
Rick Hawthorne
Daniel Hardy
Rob Gibbs
Lyn Coleman
Jim Sorenson
Gordon Rosenthal
Jamie Christianson
Jim McMahon
Wendy Hanley

G:\DATA\Middlebrook.doc

ATTACHMENT 1

PROPOSED WIDENING OF I-270 AND ANTICIPATED IMPACTS TO MIDDLEBROOK HILL NEIGHBORHOOD CONSERVATION AREA, BLACK HILL REGIONAL PARK, NORTH GERMANTOWN GREENWAY AND LITTLE BENNETT REGIONAL PARK

1. MIDDLEBROOK HILL NEIGHBORHOOD CONSERVATION AREA

Primary and Secondary Functions

The Middlebrook Hill Neighborhood Conservation Area contributes to the green space of Montgomery County and serves the functions of recreation, stream protection, and wildlife habitat. The stormwater management pond for nearby housing on High Point Drive and Tributary Lane is located on the facility. There is a mid-nineteenth century (Ricketts family) cemetery located on the northern part of the area, and forested knolls overlooking the small stream at the northern and southern corners of the property might be Native American archaeological sites.

The southern half of the site contains a high quality mixed oak forest. White oak (*Quercus alba*), chestnut oak (*Quercus prinus*) and tulip-poplar (*Liriodendron tulipifera*) are the most common species with dominant trees ranging from 16 to 31 inches in diameter at breast height (dbh). Other tree species noted included red maple (*Acer rubrum*), red oak (*Quercus rubra*), and black cherry (*Prunus serotina*). Due to its proximity to Seneca Creek State Park, its location and the high quality forest that it contains, the area plays a particularly significant role in meeting the immediate outdoor recreation and aesthetics needs of the nearby community.

Anticipated Impacts to Middlebrook Hill Neighborhood Conservation Area

The widening of I-270 as proposed, will have the following environmental and other impacts:

Primary Impacts

1. Loss of approximately 2 acres of mixed hardwood forest that might include some of the largest trees on the site.
2. Increased noise impact (following northward relocation of the existing noise walls).
3. Quantity and quality impacts to the tributary and headwater seep of Seneca Creek along the northwestern edge of the site (shown on the attached map).

4 Reduction in available space for outdoor recreation (particularly by neighborhood children)

Secondary Impacts

1. Erosion impact to parts of the area not previously exposed to stormwater impacts from the I-270 roadway.

2. Quality and quantity impacts to a small spring near the I-270 road right-of-way (R-O-W) (shown on attached map).
3. Increased white-tailed deer contact/impact with residents of the area.

Recommendations

1. Lands taken from Middlebrook Hill Neighborhood Conservation Area should be replaced with equivalent acreage of equivalent natural value, preferably at or near the Ten Mile Creek crossing of the I-270 roadway. SHA and MTA should coordinate with Montgomery County Department of Park and Planning staff to determine how best to use the opportunity presented by the I-270 project to fulfill a Countywide Park Trails Plan objective for safe, grade-separated trail crossings of the I-270 roadway.
2. In the event that the road widening project develops as planned, it is recommended that SHA should consider the following site improvements for Middlebrook Hill Neighborhood Conservation Area:
   - Repairs to, and landscaping of, the stormwater management (SWM) pond and outlet near High Point Drive
   - Construction of a bridge over the creek at the north-western edge of the property to facilitate access to Middlebrook Hill Neighborhood Conservation Area and Seneca Creek State Park for Abbotsford Circle and Plummer Drive/High Point Drive residents.
   - Exploratory archeological/cultural work to determine whether the two forested knolls overlooking the creek are Native American archeological sites.

2. BLACK HILL REGIONAL PARK AND NORTH GERMANTOWN GREENWAY

Observations

1. The portion of Black Hill Regional Park on the western side of Interstate 270 contains a relatively high quality mixed oak forest. Chestnut oak, white oak, and red oak are the most common oak species with dominant trees ranging from 16 to 28 inches in diameter. Other tree species noted included red maple, black cherry, American beech (*Fagus grandifolia*), hickory (*Carya glabra* and *C. tomentosa*), and tulip-poplar. Understory trees and shrubs noted include dogwood (*Cornus florida*), mountain laurel (*Kalmia latifolia*), high-bush blueberry (*Vaccinium corymbosum*), low-bush blueberry (*Vaccinium vacillans*), and American chestnut (*Castanea dentata*).

   A preliminary recording of large trees on the road R-O-W revealed several significant-sized trees. These included 25", 26" and 29" diameter at breast height (dbh) red oaks, a 22", a 21", and a 21½" dbh white oak, two 28", a 29", a 30" dbh tulip-poplar, and a 26½" dbh American beech (in perfect condition).

   The forest is relatively free of non-native invasive species and, despite the obvious signs of deer browse, there is good regeneration of hardwood species, especially chestnut oak,

in the understory. The forest floor is covered with leaf and woody litter. There are many ferns of different species including cinnamon fern (*Osmunda cinnamomea*), Christmas fern (*Polystichum acrostichoides*), rattlesnake fern (*Botrychium virginianum*), interrupted fern (*Osmunde claytonia*), lady fern (*Athyrium filix-femina*), ebony spleenwort (*Asplenium platyneuron*), maidenhair fern (*Adiantum pedatum*), and hay-scented fern (*Dennstaedtia punctilobula*).

There is one area of palustrine wetlands towards the main stem of Little Seneca Creek, one small area of wetlands within the road R-O-W immediately south of West Old Baltimore Road, and several wet communities of skunk cabbage (*Symplocarpus foetidus*) and Jack-in-the-pulpit (*Arisaema triphyllum*), throughout the length of the R-O-W between West Old Baltimore Road and Little Seneca Creek (see attached map).

If the area were to be assessed as to priority for a Forest Stand Delineation study, it would be rated a "1" – High Priority.

2. There is evidence of heavy erosion from drainage pipes and past erosion control work along approximately 400 feet of the R-O-W (Area "B" on attached map) on Black Hill Regional Park. This has resulted in some localized movement of undersized or poorly placed rip-rap boulders, severe flooding and silt deposition towards the main stem of Little Seneca Creek (Area "B" on attached map), and further modification of the stream channel. Some tree mortality has also occurred in that area. Erosion control work needs to be initiated in those areas.

3. The proposed transitway between Observation Drive and Newcut Road (proposed) on the eastern side of I-270 bisects the North Germantown Greenway (through existing R-O-W) and crosses wetlands and a tributary of Little Seneca Creek.

4. There will be wetlands impact at North Germantown Greenway within the road R-O-W.

5. Stormwater management facilities are not shown on the plan.

Anticipated Impacts to Black Hill Regional Park and North Germantown Greenway

Widening of both eastern and western sides of Interstate 270 (between West Old Baltimore Road and Little Seneca Creek) will result in the following:

Primary Impacts

1. Loss of a high quality stand of hardwood forest with significant-sized trees and associated biodiversity along the western road R-O-W.

2. Loss of palustrine wetlands and wetland buffers at Black Hill Regional Park and North Germantown Greenway.

3. The loss of approximately 2 acres from North Germantown Greenway and an estimated 17 acres from Black Hill Regional Park. (Widening on the eastern side only will result in the loss of 2-3 acres from North Germantown Greenway and approximately 7 acres from Black Hill Regional Park).

4. Westward relocation of the small tributary of Little Seneca Creek (at the point 'C' on the attached map). Given the existing slope, relocation will have high cost and high impact.

5. The loss of an informal trail in Black Hill Regional Park immediately west of I-270, near Old Baltimore Road.

Cumulative Impacts

Hook up of the Regional Park sewer line to the new WSSC sewer line will result in forest loss. Earth movement during the pipe laying operation will lead initially to some erosion and siltation of Little Seneca Creek that will persist until the situation stabilizes.

Secondary/Cumulative Impacts

1. There is potential for groundwater loss (along the gravel bed of the proposed WSSC sewer system) and subsequent impact on Little Seneca Creek.

2. The project is likely to cause further introduction and spreading of non-native invasive plants into Black Hill Regional Park.

3. The combination of westward widening of Interstate 270 and construction of the proposed sewer line (to WSSC's Crystal Rock Pumping Station) will magnify the impact of forest fragmentation on that part of Black Hill Regional Park.

4. Increased storm water from road widening will impact negatively on fish and macroinvertebrates in Little Seneca Creek (impact is always greatest if storm water management facilities are not properly built).

5. Forest interior dwelling birds (FIDBs), amphibians, reptiles and small mammals, will migrate westward away from new forest edge created by the road widening operations. FIDBs in particular, might become more susceptible to nest predation by species such as raccoons and foxes, and to nest parasitism by brown-headed cow-birds. These predatory species are commonly found along forest edges.

Recommendations

1. Loss of lands from Black Hill Regional Park and North Germantown Greenway should be replaced with equivalent acreage of equivalent natural value, preferably at or near the Ten Mile Creek crossing of the I-270 roadway.SHA and_MTA should coordinate with Montgomery County Department of Park and Planning staff to determine how best to use the opportunity presented by the I-270 project to fulfill a Countywide Park Trails Plan objective for safe, grade-separated trail crossings of the I-270 roadway.

2. Section 4(f) of the U.S. DOT Act should apply for the area.

3. Consideration should be given to having the entire road widening operation confined to the eastern side of Interstate 270, between the main stem of Little Seneca Creek and West Old Baltimore Road (Area "D" on attached map). Among other things, this option will:

    a. Limit all impact of road construction to the less sensitive eastern road R-O-W,

b. Eliminate the need for relocating the tributary of Little Seneca Creek that flows parallel to, and just west of Interstate 270,

c. Result in the loss of fewer acres of forest and,

d. Ensure that there is no loss of wetlands on the western side of I-270.

4. Following from '1' above, part of the Linthicum property immediately east of Interstate 270 should be purchased for road R-O-W. The property should be purchased now while it is still undeveloped and relatively inexpensive. This purchase would accommodate construction staging areas for the Interstate 270 project.

5. In the event that a decision is taken to widen both eastern and western sides of Interstate 270 where it runs between West Old Baltimore Road and Little Seneca Creek, then;

   a. A retaining wall along the western road R-O-W is preferable since it will, among other things, result in the loss of fewer acres of forest;

   b. All storm water management facilities should be located within the less sensitive eastern road R-O-W;

   c. The tributary of Little Seneca Creek will need to be relocated westward. During this operation, care should be taken to maintain the natural stream channel to the extent possible. Piping is not recommended.

3. LITTLE BENNETT REGIONAL PARK

Observations

Little Bennett Regional Park is an important component of the stream valley greenway connecting the Monocacy River watershed in Frederick County to nearby Damascus Recreational Park and the Magruder Branch Stream Valley Park. There are no facilities in the part of Little Bennett Regional Park that will be affected by widening of I-270. The area consists of mixed hardwood forest dominated by sycamore (*Platanus occidentalis*), American beech, white oak, red oak and tulip-poplar. There is an understory of dogwood, red maple and hornbeam, and a shrub layer of blueberry and spicebush. Some multiflora rose (*Rosa multiflora*) is present.

The entire area to be impacted by the proposed I-270 widening is within the stream buffer of either Little Bennett Creek or its tributary (Soper Branch). There is evidence of heavy erosion and channeling from three 14-inch pipes draining the I-270 roadway (shown as 1, 2 and 3 on the attached map), as well as silt deposition into the small tributary of Little Bennett Creek. Erosion control work needs to be initiated in those areas as a matter of some urgency.

There are signs of very high white-tailed deer usage of the area. Also, there is a gas pipeline within the stream buffer on the northern side of the tributary.

Anticipated Impacts to Little Bennett Regional Park

Widening of I-270 and northward relocation of the roadway will have the following environmental and other impacts:

Primary Impacts

1. Loss of 1½ acres of forest and direct stream buffer impact.

2. Possible modification of part of the small tributary to Little Bennett Creek flowing roughly parallel to the I-270 roadway.

3. Stressing of aquatic life (fish and macroinvertebrates) in Little Bennett Creek and its tributary by accelerated silt loads from I-270 roadway storm water.

Secondary Impacts

1. Further introduction and spreading of non-native invasive plants into Little Bennett Regional Park.

Recommendations

1. Lands taken from Little Bennett Regional Park should be replaced with equivalent acreage of equivalent natural value, preferably at or near the Ten Mile Creek crossing of the I-270 roadway. SHA and MTA should coordinate with Montgomery County Department of Park and Planning staff to determine how best to use the opportunity presented by the I-270 project to fulfill a Countywide Park Trails Plan objective for safe, grade-separated trail crossings of the I-270 roadway.

2. Due care should be taken during stream restoration work undertaken in Little Bennett Regional Park given its designation as nontidal wetlands of special State concern (as listed in COMAR 26.23.06.01).

U.S. Department of Transportation
Federal Highway Administration

Region 3
Maryland Division

The Rotunda
Suite 220
711 West 40th Street
Baltimore, Maryland 21211-21

October 13, 1998

IN REPLY REFER TO:

I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road
Draft Alternates Retained for Detailed Study and
Congestion Management Systems (CMS) Package

Mr. Parker F. Williams
State Highway Administrator
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Williams:

FHWA has reviewed the referenced draft package handout distributed at the Interagency Review Meeting held on September 16, 1998 and has the following comments. Please note that some of the comments may be best addressed during the NEPA studies and are provided here for informational purposes.

I. Background/Project Area
1. Program Status: The process of inclusion in the Constrained Long Range Plan (CLRP) should be reworded to reflect that a preferred alternative can be identified for placement in the CLRP; however, an alternative can not be selected until it is actually included in the CLRP.

Section II. Purpose and Need
1. Land Use Patterns: Please provide a brief discussion of the Smart Growth/Neighborhood Conservation Initiative and how this legislation my affect land use pattens and growth projections in the study area. Also, the document should provide data to support any expectations and claims made. For example, there should be references to support the statements that the land west of I-270 is expected to remain rural and the City of Frederick expects a the number of residential households to almost double.

2. Existing Traffic Conditions: Please provide an explanatory note why the traffic data are from 1993, rather than more current information, and how the 2020 ADT volumes are projected. Note the current peak periods of traffic congestion in the study corridor.

3. Safety: Please provide the accident statistic data and state the years it was collected.

Section III. Congestion Management Strategies Considered
This section is very general and needs substantial revisions to be considered the CMS report for the project area. Please revise this discussion to include information on the final rule CMS planning regulations as published in the Federal Register December 1996; the Statewide CMS

Corridor analyses underway and status of this study; how the strategies illustrated in Appen were developed; and the relationship/process by which these strategies were adopted for implementation as shown in Table 3.

IV. Public Involvement
Please note, where appropriate, that alternates presented to the public were "preliminary".

VI. Study Team Recommendations
1. Transit Option Evaluation: Please briefly summarize the rationale for the selection of the options retained and those not recommended for retention, as outlined in Appendix F.

2. Alternates Retained for Detailed Study: Please describe the terms "express bus" and "pre bus" service.

VII. Environmental Overview
Cultural Resources: Please note that the Monocacy National Battlefield Park is a National Historic Landmark, although boundaries may not coincide. The list of cultural resources th have potential Section 4(f) right-of-way impacts appears to include recreational and wildlife management areas. Please correct or modify the intent of the list to include these types of S 4(f) lands. Also, the list should note potential Section 4(f) resources that include "~~proximity~~ impacts" in addition to direct use.
constructive use

Appendix G
Monocacy National Battlefield Park: Please add a brief discussion of FHWA's responsibiliti under Section 110 of the National Historic Preservation Act and the required involvement u Section 106 by the Advisory Council on Historic Preservation on the consultation of advers effects for National Historic Landmarks, pursuant to 36 CFR 800.10.

Specific Engineering Comments:
MONTGOMERY COUNTY
1. IAPA will be required.
2. The slip ramp from the CD to mainline under Watkins Mill Road should be moved furth north but the gore should be south of the NB on ramp from Watkins Mills Road. Also t ramp from mainline to the CD at W.M.'s should be moved north.
3. Is CD road between Watkins Mills and Middlebrook justifiable in view of 4f at Seneca S Park.
4. The document should state that if Option 3 is selected, IAPA for Watkins Mill interchar unlikely.
5. The document should state that if Option 3 is selected, no NB on ramp could be added Middlebrook Road interchange in the future due to the short distance to MD118.
6. Recommend preparing these map with Options 1, 2, and 3 separated.
7. If Option 3 is selected, do not shorten weave between MD118 and Father Hurley.

8. Drop the NB off-ramp in the SE quadrant and the SB on-ramp in the SW quadrant from option 5 at the proposed Newcut interchange.
9. The document should define Option 5 as including a CD starting from south of Newcut to north of MD121, due the length of 0.95 miles between the interchanges.
10. The document should define option 6 to include closing the NB on-ramp and the SB off ramp at MD 109. They could remain as locked gate access points for emergency vehicles if required.
11. Based on traffic, do we really need direct access HOV on and off ramps at MD 75?
12. Are the radii of the NB and SB MD 121 off-ramps radii too tight. We would prefer to straighten out the radius if no serious impacts.

FREDERICK COUNTY

1. Need to show the interim improvement on I-270/MD 80 interchange.
2. The NB on ramp from MD 80 to I-270 North seems to be on a tight curve, will need improvement
3. The concept provides for a new outside I-270 northbound lane from south of I-270/MD-85 interchange to I-70 eastbound to eliminate complex interaction of traffic between the I-270/MD 85 and I-270/I-70 interchanges. This satisfies the condition for the IAPA for phase 1 and 1A.
4. The loop ramp from US 15/340 to US 15/40 has been eliminated. Can we eliminate the N-W loop from Jefferson to US 40 southbound.
5 Fencing control is desired along the right-of-way line through Frederick, unless noise wall is specified. It appears to be missing in many locations now.
6. Considerable weaving areas appear to occur between Jefferson Street and Biggs Ford road. C-D lane should be considered
7. We recommend a single point urban diamond for Patrick Street/US 40 interchange.
8. Biggs Ford road old entrances need to be clearly marked closed.
9. Could we move the southbound roadway near Willow Road into the median to create a frontage road between Willow Road and Trading lane. The soundbound on ramp at Biggs Ford could be moved to the NW quadrant.

Please feel free to call Pam Stephenson, of my staff at 962-4342, ext 145, for questions on the MIS/NEPA process or Albert Hinojosa (Montgomery County), ext. 127, and Edwin Okonkwo (Frederick County), ext. 131 for questions on engineering.

Sincerely yours,

Nelson Castellanos
Division Administrator

cc: Hoffman/Elrays/Olsen, SHA C-301

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

Re: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Montgomery and Frederick Counties, MD

Mr. Nelson J. Castellanos
Division Administrator
Federal Highway Administration
The Rotunda-Suite 220
711 West 40th Street
Baltimore MD 21211

Attention: Mr. Dan Johnson

Dear Mr. Castellanos:

Please advise the Advisory Council on Historic Preservation (ACHP) of the determination that the proposed State Highway Administration (SHA) improvements to I-270 and US 15 will have adverse effects to historic properties, including unidentified archeological resources. In addition, we request that you review the attached draft Memorandum of Agreement (MOA) and provide it to the ACHP for its review. The State Historic Preservation Officer (SHPO) was provided with the effect determination and draft MOA March 14, 2002. We will advise you as soon as the SHPO has responded to our request that he concurs in our effect determination and in the provisions of the draft MOA. In accordance with Section 106 of the National Historic Preservation Act 800.11(e), we are providing the following information.

Status-Section 106 Coordination

The SHA presented Alternates Retained for Detailed Study (ARDS) and a brief history of our prior Section 106 consultation to the SHPO in a September 5, 2001 letter (**Attachment 1**). His concurrence on November 26, 2001, along with agreements made in prior consultation letters of October 2, 1996, April 24, 1997, and November 5, 1999, enables SHA to move forward in assessing impacts to National Register of Historic Places (NHRP) eligible or listed standing structures, historic districts, and the Monocacy National Battlefield - the only National Historic Landmark (NHL) within the Area of Potential Effects (APE).

Furthermore, the SHPO agreed on November 26, 2001 with SHA's intention to defer archeological survey for unknown archeological sites that may be affected by modifications to the undertaking developed after 1999. SHA intends to perform identification and evaluation in sensitive areas associated with park and ride lots, wetland mitigation sites, and transit rail

My telephone number is 410-545-7412

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

yard/shop facilities and passenger stations as plans become better defined and the range of alternates has been reduced. For the purposes of Section 106, SHA accepts that the undertaking may have adverse effects on unidentified subsurface archeological resources in sensitive areas not subject to prior identification and evaluation studies.

Area of Potential Effects

The APE for this project is defined broadly enough to encompass worst case impacts anticipated under all alternatives and options for the proposed modifications. It anticipates direct and indirect construction, viewshed, and landuse impacts, and is indicated on the attached USGS 7.5" *Frederick, Urbana, Germantown,* and *Rockville, MD,* quadrangle maps (Attachment IIA-X of the 9/5/2001 letter). For archeology, the APE is defined by the anticipated limits of ground disturbance within proposed and existing right or way and/or easements, as depicted on the plans (Attachment 1 to the 9/5/2001 letter), and aerial photographs (wetland sites, Attachment IIIA-I, to the 9/5/2001 letter).

The current APE for transit stations, rail yard/shop facilities, CCT alignment extension, park and ride lots, and possible wetland mitigation sites, for this project was documented in our previous correspondence of September 5, 2001 (on Attachments I through III of that letter). There have been no changes to the APE for these facilities. Some changes have occurred in the mainline and transitway alternates, thus we have refined the mainline APE for historic structures in **Attachment IIA** based on the current plans. A current location map for the mainline and transit alternatives is included as **Attachment IIB**. Due to the nature of the improvements anticipated for the upgrading of I-270 mainline, which would result in minimal changes confined to the immediate environs of the right-of-way, the extent of the APE has contracted and the number of historic standing structures included in the APE reduced accordingly.

The SHPO concurred in the results of identification and evaluation efforts for architecture and archeology, as presented in the SHA letter of September 5, 2001 to the SHPO. From the list included in that letter, only the following historic standing structures or battlefield landscapes (NRHP or NHL listed and eligible Structures/Districts) are within the current APE. A list of the sites identified for the study before the APE was refined is included as **Attachment III.**

M20/17, England/Crown Farm

The England/Crown Farm, located within the Gaithersburg City limits, is eligible for listing in the NRHP under Criterion C for its association with the agrarian history of Montgomery County. The dwelling is part of a well preserved early to mid twentieth century farm complex, originating with the England family in the late nineteenth century. In addition, it exhibits architectural significance because of its detailing, and the presence of a log dwelling, possibly originating as a tenant house during the ownership by the Hunter family predating the England family ownership. The Crown farm has been identified as a rare link to the agrarian past of the Gaithersburg area, which is increasingly overrun by subdivision construction.

M20/21, Belward Farm
The Belward Farm, located on the north side of MD 28 west of Key West Avenue in the vicinity of Gaithersburg, is eligible for the NRHP. It is significant under Criterion A for its strong association with the agrarian history of Montgomery County. The historic site is a remnant of a dairy farm, continuously operated by members of the same family who established it in the mid-nineteenth century. In addition, the farmhouse is an excellent example of an 1890's Victorian frame dwelling.

F3/22, Spring Bank
Spring Bank, located north of Frederick, is listed on the NRHP. It is primarily significant for its architecture under Criterion C as a well preserved example of a late nineteenth century dwelling combining Gothic and Italianite influences in a rural Frederick County setting. A number of large brick farmhouses displaying this interplay of conservative form and stylish ornament can be found in Frederick County and adjacent Carroll and Washington Counties, but Spring Bank stands out because of its excellent state of preservation.

F3/42, Monocacy National Battlefield
Monocacy National Battlefield Monument, a NHL, is located in the lower part of Frederick County. The battlefield retains much of the rural character of the mid-nineteenth century when it gained significance under Criterion A as the location of an important Civil War battle. This July 9, 1864 engagement of Union and Confederate forces bought the time necessary for the Union army to successfully fortify Washington, D.C. against Confederate capture.

F3/47, Scheifferstadt
Scheifferstadt, located in Frederick, is listed on the NRHP under Criterion C because it embodies the distinctive characteristics of German building traditions transported to Maryland. This large stone house is outstanding architecturally as an exceptionally well preserved example of a vernacular building tradition, providing a palpable link to the traditions and patterns of early German settlement in this region.

F3/126, Rose Hill Manor
Rose Hill Manor Museum, located in Frederick, is listed on the NRHP. This large, imposing, porticoed country mansion built near the turn of the nineteenth century is significant architecturally under Criterion C for its late Georgian-Greek Revival transitional style. It is also historically important as the home of Maryland's first elected governor, Thomas Johnson. thus it would meet the requirement of Criterion B for its association with an important person.

F3/134, Birely-Roelkey Farmstead
Birely-Roelkey Farmstead, eligible for listing on the NRHP, is located north of Frederick near the Pennsylvania state line. It was built about 1851 by John W. Birely, a prominent local businessman and cashier of the Farmers and Mechanics National Bank in the late nineteenth century. The property constitutes an important link to the agrarian tradition of Frederick County and thus qualifies for the Register under Criterion A for its association with the broad patterns of American history. Most of the contributing outbuildings date from the periods of the Birely and Roelkey ownerships. It is significant under Criterion C for the buildings, for the architectural style of the main dwelling and an increasingly rare type of agricultural outbuilding, the blacksmith shop.

M 10/13, Browningsville Historic District
The Browningsville Historic District, is eligible for listing on the NRHP under Criterion C as it embodies the distinctive characteristics of a mostly nineteenth century rural village. The district is a small remnant of a nineteenth century crossroads community that was a local center of transport, trade and industry for northern Montgomery County. It represents a significant pattern of settlement, as the community grew around a mill which was an important industry in the area.

Determination of Effects

On February 15, 2002 we advised the SHPO of the five alternates are under consideration: Alternate 1 (No-Build), Alternate 2 (TSM/TDM), Alternate 3A/B (Master Plan HOV/LRT or BRT), Alternate 4A/B (Master Plan - General Purpose/LRT or BRT), Alternate 5A/B/C (Enhanced Master Plan/HOV/LRT or BRT or Premium Bus). Plans are included as **Attachment IV**. All NRHP or NHL properties, or potentially significant archeological sites requiring further identification and/or evaluation in the current APE, are indicated on the attached effects table (**Attachment V**). The impacts discussion is followed by specific suggestions for possible mitigation measures to address the adverse effects.

Standing Structures

Of the 31 properties listed in or eligible for the NRHP or NHLs initially identified, seven are currently within the APE of the mainline or transit alternates retained in the study, with one, the Browningsville Historic District (M 10/13) within the APE for wetlands and discussed in the previous correspondence of September 5, 2001.

Specifically, Alternates 1 and 2 have no historic resource impacts. The mainline or transit alternates (Alternates 3A/B, 4A/B and 5A/B) impact the following historic resources. (The discussion below concerning the Belward Farm (M 20/21) assumes the original boundary, and not that which is currently being advanced for your approval.)

a. **M20/17, England/Crown Farm**

Under Alternates 3A/B, 4A/B and 5A/B, a transitway alignment would be constructed through portions of the England/Crown Farm (Attachment IV, Figure VI-24). The transitway would accommodate the operation of either light rail transit or bus rapid transit vehicles within its own right of way. The transitway alignment impacts approximately 3.6 acres. The distance between the tracks at its nearest point to an historic structure is approximately 380 feet and the hiker/biker path is approximately 450 feet. The right of way required from the England/Crown Farm site is approximately 1,400 feet in length. There would be an adverse impact from these alternates.

Under Alternate 5C, transit service is provided via the use of premium bus service located on the I-270 HOV lanes. A line of sight drawing and plan sheet are included as **Attachment VI.**

Possible Transitway Impact Mitigation

The proposed Corridor Cities Transitway (CCT) alignment located on the England/Crown Farm property is based on the Montgomery County Master Plan alignment reservation. Measures to minimize impact are limited as a result of the original design incorporating minimum railroad design criteria for typical section elements (i.e. slope grades) and track center offsets. In addition, the alignment profile is roughly even with the surrounding topography.

b. **M20/21, Belward Farm**

As noted above, further development of a biotechnology park at the Belward Farm (M 20/21) has further encroached upon the historic resources, with deleterious results. We have coordinated with your office on numerous occasions concerning this project [as part of MO528B22 (MD 28: Riffleford Road to Great Seneca Highway, Montgomery County)].

Under Alternates 3A/B, 4A/B and 5A/B, components of the transitway alignment would be constructed on portions of the Belward Farm site at its eastern border near Great Seneca Highway (Attachment IV, Figure VI-25). The Decoverly Station parking garage and the hiker-biker trail components would impact the Belward Farm site. The parking garage is proposed to contain approximately 1,200 vehicles on five parking levels. The station site, parking lot and hiker-biker trail would collectively impact 0.64 acres of the approximately 124-acre historic property. The approximate distance between the historic structure and the transitway alignment at its nearest point is 2,170 feet, the parking lot is 1,730 feet, and the hiker/biker path is 2,140 feet. Despite the acquisition of this minimal amount of right-of-way, and because of the considerable distance of the improvements from the historic buildings and their location behind industrial complexes, this site would not be impacted. A line of sight rendering and plan sheet is included as **Attachment VII.** The existing historic site boundary, and that which we currently propose, are shown on Attachments IIA and IIB.

Possible Transitway Impact Mitigation:

The proposed Corridor Cities Transitway (CCT) alignment located on the Belward Farm property is on the Montgomery County Master Plan alignment. Measures to minimize impact include reducing the footprint of the parking garage to eliminate its property impact. The hiker-biker trail and the transitway alignments are located at the historic property boundary. Due to alignment constraints from the proposed Sam Eig Highway/Great Seneca Highway flyover ramp right of way, the transitway alignment is located furthest away from the Belward Farm property. In addition, narrowing the typical section for the transitway was incorporated into the original design incorporating minimum railroad design criteria for typical section elements (i.e. slope grades) and track center offsets.

c. **F3-42, Monocacy National Battlefield**

The existing I-270 roadway bisects Monocacy National Battlefield, a 1,647-acre park, whose key features include Gambrills Mill Visitors Center, Best Farm, Thomas Farm and Worthington Farm. The proposed roadway improvements under Alternates 3A/B and 4A/B include the addition of either an HOV lane or a general-purpose lane between MD 121 and MD 85 to the inside in both the northbound and southbound directions (Attachment IV, Figures VI-19, through VI-21). This improvement will require the acquisition of 11.74 acres from the battlefield. This impact occurs over a length of 10,100 linear feet (northbound side) and 12,200 linear feet (southbound side). Under Alternates 5A/B the proposed roadway improvements adds an additional general-purpose lane on the outside in both the northbound and southbound directions (resulting in four lanes both northbound and southbound). This improvement will require the acquisition of 17.69 acres from the battlefield. This impact occurs over a length of 10,100 linear feet (northbound side) and 12,200 linear feet (southbound side). Under Alternate 5C the proposed roadway improvements add direct access ramps to the MD 85 interchange area at the proposed Shockley Drive/Spectrum Drive overpass. The proposed Shockley Drive/Spectrum Drive overpass is included in the draft Frederick County master plan, and is not part of the I-270/US 15 Multi-Modal Corridor Study. This improvement will require 22.52 acres from the battlefield. Each of the Alternates (3A/B, 4A/B and 5A/B/C) utilizes 2:1 slopes to minimize impacts to the battlefield. The battlefield remains largely undeveloped, with the impacted battlefield containing hedgerows that serve as a moderate-quality buffer between I-270 and the boundary trail of the park, and will be completely removed in some locations, based on the proposed design features. While the proposed improvements would require the taking of some vegetation, there are no impacts to existing or planned amenities. The line of sight rendering plus plan sheet are included as **Attachment VIII.**

All of the build alternates show that I-270 will be widened in this area from two lanes in each direction to either three or four lanes in each direction. The addition of these lanes requires additional right of way, which will affect this site. Under Alternates 3A/B and 4A/B, 11.74 acres of this historic battlefield will be impacted, and the highway would also be 1,264 feet away from historic structures at Best Farm on the site. Alternates 5A/B will impact 17.69 acres of the

battlefield, and the pavement would be 1,252 feet away from historic farm structures, and Alternate 5C would impact 22.52 acres where the edge of pavement would be 1,224 feet away from the historic farm buildings.

Possible Highway Impact Mitigation

Alternates 3A/B and 4A/B

One measure has been considered to avoid impacts to the battlefield: a retaining wall. Use of a retaining wall would reduce the southbound roadway impacts from 5.45 acres (2:1 slope) to zero acres. The retaining wall would be an average height above ground of two feet, 12,200 feet long and would be visible intermittently from either the road or the battlefield.

Three measures have been considered to minimize battlefield impacts: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in a total of 38.12 acres of impacts to the battlefield with 17.89 acres (northbound side) and 20.23 acres (southbound side) respectively. Use of a 2:1 slope would result in reduced battlefield impacts of 11.74 acres with 6.29 acres (northbound side) and 5.45 acres (southbound side). A 2:1 slope was utilized in the original highway design to minimize battlefield impacts.

The second minimization measure employed to reduce battlefield impacts is a retaining wall. Along the northbound side of the proposed I-270 improvements a retaining wall would reduce the 6.29 acres of impacts under alternates 3A/B and 4A/B to 0.39 acres. The retaining wall would occur in nine segments, would be an average height above ground of three feet high, 10,100 feet long, and would be visible from both the park and the road.

The third minimization measure would add a reduced inside shoulder width to either the steep slope or the retaining wall measures. By adding a reduced inside shoulder width to the 6:1 slope, the battlefield impacts would be reduced from 17.89 acres to 17.45 acres for northbound side while the southbound side would be reduced from 20.23 acres to 19.56 acres. By adding a reduced inside shoulder width to the 2:1 slope, the battlefield impacts would be reduced 6.29 acres to 5.93 acres for the northbound side while the southbound side would be reduced from 5.45 acres to 5.03 acres. By adding a reduced inside shoulder width to the retaining wall measure, the battlefield impacts would be reduced from 0.39 acres to 0.29 acres for the northbound side. Since the southbound retaining wall avoids impact to the battlefield it is not recommended to incorporate a reduced insider shoulder width for the southbound roadway. The inside shoulder of the highway could be reduced to minimize impacts to

the parkland on the southbound side, as described above with both 6:1 and 2:1 slope options. It is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width in the vicinity of emergency vehicle crossovers.

Alternates 5A and 5B

Three minimization measures have been considered to reduce impacts to the battlefield: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in 43.68 acres of battlefield impact of which 20.33 acres occurs along the northbound side and 23.35 acres occurs along the southbound side of I-270 respectively. However, use of a 2:1 slope would reduce the battlefield impact to 17.69 acres of battlefield impact with 8.46 acres along the northbound side and 9.23 acres along the southbound side. The 2:1 slope element was incorporated into the original design for Alternates 5A and 5B. Incorporating reduced inside shoulder width with the 2:1 slope minimization measure would reduce the battlefield impact to 16.74 acres (8.02 acres along northbound side; 8.72 acres along southbound side).

The second minimization measure involves use of a retaining wall along I-270 within the battlefield. Use of a retaining wall along I-270 northbound would reduce the 8.46 acres of impacts under Alternates 5A/B to 6.98 acres. The retaining wall would occur in nine segments, and it would be an average height above ground of 5 feet, 10,100 feet long, and would be visible from both the park and the road. Use of a retaining wall along I-270 southbound would reduce the 9.23 acres of impacts under Alternates 5A/B to 7.41 acres. The retaining wall would occur in 13 segments, and it would be an average height above ground of six feet, 12,200 feet long, and would be visible from both the park and the highway.

The third minimization measure to reduce battlefield impacts involves the use of reduced inside shoulder width in combination with the northbound and southbound side retaining walls. If both the northbound side retaining wall, consisting of nine segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 6.98 acres (retaining wall only) would be reduced to 0.48 acres. If both the southbound side retaining wall, consisting of 13 segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 7.41 acres (retaining wall only) would be reduced to 0.07 acres. It is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width in the vicinity of emergency vehicle crossovers.

Alternate 5C

Three minimization measures have been considered to reduce impacts to the battlefield: steeper slopes, a retaining wall and a reduced insider shoulder width. Use of a 6:1 slope would result in 49.05 acres of battlefield impact of which 23.49 acres occurs along the northbound side and 25.56 acres occurs along the southbound side. However, use of a 2:1 slope would reduce the battlefield impact to an overall 22.52 acres of impact of which 11.12 acres occurs along the northbound side and 11.40 acres occurs along the southbound side. The 2:1 slope element was incorporated into the original design for Alternate 5C. Incorporating reduced inside shoulder width with the 2:1 slope minimization measure would reduce the battlefield impact to 22.06 acres (10.94 acres along northbound side; 11.12 acres along southbound side).

The second minimization measure involves use of a retaining wall along I-270 at the battlefield. Use of a retaining along I-270 northbound would reduce the 11.12 acres of impacts under Alternate 5C to 6.79 acres. The retaining wall would occur in nine segments, and it would be an average height above ground of 7 feet, 10,100 feet long, and would be visible from both the park and the road. Use of a retaining wall along I-270 southbound would reduce the 11.40 acres of impacts under Alternate 5C to 6.98 acres. The retaining wall would occur in 13 segments, and it would an average height above ground of 7 feet, 12,200 feet long, and would be visible from both the park and highway.

The third minimization measure to reduce battlefield impacts involves the use of reduced inside shoulder width in combination with the northbound and southbound side retaining walls. If both the northbound side retaining wall, consisting of nine segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 16.79 acres (retaining wall only) would be reduced to 3.29 acres. If both the southbound side retaining wall, consisting of 13 segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 6.98 acres (retaining wall only) would be reduced to 2.92 acres. It is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width in the vicinity of emergency vehicle crossovers.

d. **F3-47, Schifferstadt**

Under the scope of Alternates 3A/B, 4A/B and 5A/B/C, US 15 would be widened to expand the highway from two lanes to four lanes in each direction. One of the two lanes will be added to the grass median on the inside of the roadway, and the other will be on the outside shoulder. A hedgerow (10 to 50 feet wide) is present along the existing right-of-way line with US 15 and serves as a low-quality wooded buffer between the homestead and US 15. US 15 is currently visible from most areas of the property. In order to widen the highway, the hedgerow would be removed. The distance from Schifferstadt to the nearest travel lane will decrease from

170 feet to 157 feet. The plan sheet and rendering of the line-of-sight is included as **Attachment IX**.

Possible Highway Impact Mitigation

The impact to Schifferstadt is visual not physical or a property acquisition. Measures to minimize impacts to the resource include replanting the vegetative buffer and hedgerow.

e. **F3-43 Rose Hill Manor Historic Park**

Alternates 3A/B, 4A/B and 5A/B/C include the widening of US 15 from two lanes to four lanes in each direction (see Figure VI-24). In order to construct the two lanes, one would be added to the inside of the roadway, and the other would be on the outside. Construction of the outside lane requires the acquisition of additional right-of-way, impacting 0.88 acres of the park's 43 acres. The length of impacted parkland will occur from widening the northbound roadway for approximately 1,200 linear feet to 1,600 linear feet along the park. The proposed project will impact grasslands, and a hedgerow, which serves as a low-quality wooded buffer between Rose Hill Manor Historic Park and US 15. This buffer area will be almost completely removed by the proposed design features. The plan sheet and rendering of the line-of-sight is included as **Attachment X**.

Possible Highway Impact Mitigation

Two measures have been considered to minimize park impacts: steeper slopes and a retaining wall. Use of a 6:1 slope would result in park impacts of 2.08 acres; however, use of a 2:1 slope would reduce park impacts to 0.88 acres (as mentioned earlier). A retaining wall would reduce park impacts to 0.68 acres of impacts. The retaining wall would be an average height above ground of two feet, 1,600 feet long, and would be visible from both the park and the highway.

f. **F3-22, Spring Bank**

Alternates 3A/B, 4A/B and 5A/B/C include the widening of US 15 from two lanes to three lanes in each direction north of the US 15/MD 26 interchange (see **Figure VI-26**). The additional lane would be added to the outside of the roadway. Construction of the outside lane would not require acquisition of right of way from Spring Bank. The plan sheet and rendering of the line-of-sight is included as **Attachment XI**.

g. **F3-134, Birely-Roelkey Farmstead**

Alternates 3A/B, 4A/B and 5A/B/C each impact the Birely-Roelkey Farmstead due to the proposed US 15/Biggs Ford Road interchange (Attachment IV, Figure VI-27). The impact totals 13.69 acres. The interchange configuration includes a northbound US 15 exit ramp and a northbound US 15 entrance loop ramp each located in the southeast quadrant of the US 15 and

Biggs Ford Road intersection. The area affected by the interchange is open field and pastureland located west of the farmstead home. The proposed roadway improvements would be located approximately 160 feet (northbound off ramp) and 620 feet (US 15 mainline) from the Birely-Roelkey Farmstead structure. The plan sheet plus rendering of the line-of-sight is included as **Attachment XII.**

Possible Highway Impact Mitigation

Two measures have been incorporated or investigated to reduce impacts of the US 15/Biggs Ford Road interchange: steeper slopes and reconfiguration of the movements into a diamond interchange. The original design incorporated the use of 2:1 slopes to minimize impacts to the farmstead to 13.69 acres. By utilizing 6:1 slopes, the impact to the farmstead would increase to 14.98 acres.

A reconfigured interchange would relocate the northbound on-ramp in the northeast quadrant of the existing intersection as a diamond on-ramp and relocate the northbound off-ramp closer to US 15. This would reduce the impacts from 13.69 acres. As a result, the northbound on ramp would cause the acquisition of three businesses.

b. Brownsville Historic District (M 10/13).

The impact to this property cannot be assessed at this time due to the incomplete nature of the studies relating to this possible wetland mitigation site. Further coordination will occur to determine the Section 106 effects when appropriate, in accordance with the process outlined in the draft MOA.

Archeological Sites

Phase I archeological identification investigations were conducted for the mainline improvements for the project in 1999. The survey resulted in the identification of seven prehistoric archeological sites (18FR744, 18FR745, 18FR747, 18FR748, 18MO471, 18MO472, 18MO473) and one historic archeological site (18FR746). Previously identified prehistoric sites 18FR147, 18FR148, 18FR110, 18MO182, 18MO406, and historic sites 18FR30 and 18FR134 were reinvestigated. Additionally, a spatially discreet historic component of 18FR148 was newly identified and designated 18FR148A. None of the eight newly identified sites 18FR744, 18FR745, 18FR746, 18FR747, 18FR748, 18MO471, 18MO472, 18MO473) were considered significant by virtue of their low research potential and lack of integrity. Sufficient testing was also conducted at reinvestigated sites 18FR147 and 18MO406 to confirm their low research potential and lack of integrity as well.

Regarding other previously reported sites that were re-investigated in 1999, no archeological deposits associated with sites 18FR134 (Schiefferstadt), 18FR30 (Monocacy Battlefield), or 18FR110, were found to extend into the APE. Consequently, these sites will be avoided. 18MO182 was found to be destroyed. Deposits associated with the prehistoric component of 18FR148 were found to be concentrated on the surface with very low densities

recovered from shovel test pits within the APE. The historic component of the site (18FR148A) will be avoided by the undertaking. The technical report detailing the findings and recommendation of the Phase I survey for the mainline alternates is included as **Attachment XIII**

The SHPO concurred with these findings in their letter of November 5, 1999 (**Attachment XIV**), and agreed that no additional archeological investigations were warranted for the project. As documented in **Attachment XV**, the National Park Service has also commented on the results of our previous archeological identification investigations conducted within the Monocacy National Battlefield (18FR30), and has concurred in our recommendation for no additional work. Based on review of current project plans for the mainline improvements, no new impacts to any of the previously identified and/or evaluated archeological resources are anticipated. Archeological sites that have been previously identified and which may be subject to impacts under the current undertaking include 18FR350 (**Attachment XVI**), 18FR351 (**Attachment XVI**), 18FR106 (**Attachment XVII**), 18FR178 (**Attachment XVII**), and 18FR607 (**Attachment XVIII**). As indicated in the attached draft MOA, (**Attachment IX**) under Stipulation III, SHA will conduct identification and/or evaluation studies prior to the implementation of any plan, which may impact these resources. Although potentially significant archeological site 18FR148A, and significant archeological deposits associated with National Landmark 18RF30 (Monocacy National Battlefield) are avoided by current project plans, SHA will ensure avoidance and protection of significant archeological deposits through monitoring and oversight of the project's design. Although the current draft MOA does not stipulate avoidance and fencing for 18FR30, the MOA will be amended to state such.

As indicated in the attached draft MOA under Stipulation IV, SHA is committed to undertaking Phase I and/or Phase II archeological investigations within sensitive areas not previously investigated for the project. These areas are: Watkins Mill Rail Yard/Shop Facility, the Comsat Station and Comsat Rail Yard/Shop Facility, Park and Ride Lots 15-2, 14-41, 14-16, 15A/B/C-12, 15A/B/C-13, and Wetland Mitigation Sites UBEC5 (#5), HRRFR28 (#28), LBUC11 (#11), SFLCW16 (#16), SFLCWB18 (#18), LICCR23 (#23), LICCR25 (#25).

Should NRHP archeological resources be identified, SHA will consult with the MHT to develop a plan for their protection or recovery if avoidance is not possible.

Public Participation with the Section 106 Process

Extensive public outreach for this project has occurred along with, coordination with local preservation organizations and interested parties. We have also extensively coordinated with the National Park Service, which is a signatory to the MOA. In addition, we have invited the Frederick County Historic Preservation Commission, the Frederick County Historical Trust, the Montgomery County Historic Preservation Commission, Montgomery Preservation, Inc., the Gaithersburg Historic District Commission, the National Park Service, and the Planning Departments of the cities of Gaithersburg and Frederick, as appropriate, to provide further

Mr. Nelson J. Castellanos
I-270/US 15 Multi-Modal Corridor Study
Page Thirteen

comments and to further participate in the Section 106 process. Copies of the draft MOA have been submitted to those parties by regulation are signatures to the MOA or have already indicated an interest in further participation in the Section 106 process.

Your participation in a meeting is requested to discuss the terms of the MOA with the ACHP and representatives of the NPS, SHPO and SHA, as soon as possible. You will be contacted shortly to arrange a time for this meeting. If you have any questions, please feel free to call Ms. Rita M. Suffness, Architectural Historian for this project, at 410-545-8561, Ms. Mary F. Barse, Archeologist, at 410-545-2883, or Ms. Anne Elrays, Environmental Manager, at 410-545-8562.

Sincerely,

Parker F. Williams
Administrator

by:
Douglas H. Simmons, Director
Office of Planning and
Preliminary Engineering

Attachments (16)
Attachments: I) SHA/MHT Correspondence, September 5, 2001.
II) (1A) Structures APE (I-270 Mainline, Transitway, (1B) Location Map
III) Historic Structures/Districts/Landmarks within the original APE
V) Effect Table, Revised 3/8/2002
VI) England Crown Farm (M 20/7), Line-of- Sight Rendering and Plan
VII) Belward Farm (M 20/21) "
VIII) Monocacy Battlefield (F-3-42) "
IX) Schifferstadt (F-3-47) "
X) Rose Hill Manor (F-3-42) "
XI) Spring Bank (F-3-3-22) "
XII) Birely-Rockey Farm (F-3-134) "
XIII) Phase I Archeological Identification Survey Report
XIV) SHPO Consultation Letter of November 5, 1999
XV) NPS Consultation Letter of March 1, 2000
XVI) Cultural Resources Map showing Locations of Sites 18FR350 and 18FR351
XVII) Cultural Resources Map showing Locations of Sites 18FR106 and 18FR178
XVIII) Cultural Resources Map showing Location of Site 18FR607
IX) Draft Memorandum of Agreement

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TRANSIT Services of Frederick County

Public Transit • Paratransit • Commuter Assistance

August 8, 1997
98A-029

Ms. Michelle Hoffman
Project Manager
Project Planning Division
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, MD. 21203-0717

Dear Michelle:

Thank you for the opportunity to provide input on the stand-alone transit option which was presented at last week's I-270/US 15 Multi-modal Corridor Study focus group meeting.

In identifying the best solutions for this busy corridor, plans which encourage people to use alternatives to the single-occupant vehicle appear most beneficial. Any plan which promotes the continued use of the single-occupant vehicle would, at best, provide traffic congestion relief for a short period of time.

Instead, a plan that involves strategies which encourage people to use transportation options other than the single-occupant vehicle would provide an ideal solution for all commuters: both those using these options, and those who cannot because of their commute pattern.

Thus, a combination of alternatives including a light rail system to Frederick City, extension of HOV lanes to I-70, and adequate park-and-ride lots along US 15 and I-270 will encourage people to use mass transportation or carpool and vanpool. These are better options than continuing to widen I-270 which enables more commuters to drive alone.

Thanks again for the opportunity to comment on this important planning project.

Sincerely,

Dan Dalton
Assistant Director

520 North Market Street
Frederick, Maryland 21701

Sherry C. Burford, Director
Phone: (301) 694-2065
FAX: (301) 696-2906

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Gaithersburg

July 22, 1996

Joseph R. Kresslein
Assistant Division Chief
Project Planning Division
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

RE: Contract No. F 192-101-772
I-270 south of Shady Grove Road

Dear Mr. Kresslein,

In response to your inquiry, I am enclosing a complete chart of all City parks and facilities. The chart contains pertinent information about the parks including size, amenities and address. It appears to me from the map of the project area, that all of these parks and facilities are within the project study area. Each and every park and facility in the system is significant - either serving a City-wide function, or a particular neighborhood. The following parks were constructed with the assistance of Program Open Space funds: Diamond Farms Park, Kelley Park, Malcolm King Park, Morris Park, Robertson Park, Summit Hall Farm Park, Walder Park and Washingtonian Woods Park. Casey Community Center was also supported by POS funds.

In regard to your specific inquiry about the City-owned land that you have referred to as "Metropolitan Grove Road Park," it is our understanding that the open space was given to the City when the State Department of Transportation concluded that the land was not needed during the design and construction of the I-270/MD 124 interchange. The property in question, which is also known as the Browns Station park, has not been developed as an active recreational facility. The property is zoned MXD Mixed Use Development and the City's Master Plan has given the westerly portion of the area a land use designation of Commercial-Office-Residential in conjunction with the proposal for high density mixed-use development centered

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(301) 258-6350 • FAX (301) 948-6364 • TDD (301) 258-6353

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COUNCIL MEMBERS
Stanley L. Alster
Geraldine E. Edens
Sidney A. Katz
Gertrude M. Rilder

CITY MANAGER
David B. Humpton

around the Metropolitan Grove MARC Station and the future Shady Grove-Clarksburg Transitway. The Master Plan designates the easterly portion of the property along I-270 as Open Space in recognition of the need to protect this environmentally sensitive landscape and to provide for a substantial buffer to remain in place along I-270 in anticipation of future development.

Please do not hesitate to contact me at 258-6356 if further information is required.

Sincerely,

Priscilla Chambers

Priscilla Chambers
Assistant Director
Department of Parks and Recreation

Gaithersburg

Dec. 18, 1996

State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Ms. Elrays.

Enclosed is a map which locates all City of Gaithersburg recreation facilities and parks. Please contact me at 301-258-6356 if further information is needed.

Sincerely,

Priscilla Chambers

Priscilla Chambers
Assistant Director
Dept. of Parks and Recreation

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CITY MANAGER
David B. Humpton

Gaithersburg, Maryland

City Recreational Facilities	Tot Lot	Playground	Food Sales	Kitchen	Rest Rooms	Parking Lot	Meeting Room	Volley Ball	Picnic Tables	Pay Phones	Telephone Number
1. Casey Community Center 810 South Frederick Avenue	•	•		•	•	•	•			•	(301) 258-6356
2. Gaithersburg Teen Center 402 B East Diamond Avenue		•	•	•	•	•					(301) 258-6440
3. Gaithersburg Upcounty Senior Center 80A Bureau Drive			•	•	•	•	•			•	(301) 258-6380
4. Gaithersburg Aquatic Center (indoor pool) 2 Teachers Way	•	•			•	•				•	(301) 258-6345
5. Kentlands Mansion 320 Kent Square				•			•				(301) 258-6425
6. Summit Hall Farm Park Miniature Golf 510 B S. Frederick Avenue			•		•	•					(301) 258-6420
7. Summit Hall Farm Park Pool (outdoor pool & water slides) 510 S. Frederick Avenue	•		•	•		•		•	•	•	(301) 258-6445

City Parks	Tot Lot	Playground	Food Sales	Ball Field	Rest Rooms	Parking Lot	Basketball Courts	Volley Ball	Picnic Tables	Pay Phones	Fishing Ponds	Grills	Tennis	Shelters	Bike Trails
Christman Park 266A West Deer Park 3.6 acres											•				
1. City Hall Park/Sanford W. Daily Municipal Ctr. 31 S. Summit Avenue 5.2 acres	•	•		•	•	•	1/2		•	•		•	•	•	•
2. Constitution Garden Brookes and Park Avenues .75 acre						•									
Diamond Farms Park 837 Quince Orchard Boulevard 23 acres		•					•		•				3		
3. Duvall Park Holly Drive off Calvert Street 3 acres	•	•					•		•						
3. Green Park Bickersteff Way 10 acres	•	•					•						1		•
4. Kelley Park 400 Victory Farm Drive 11 acres	•	•	Concession Stand (optional)			•	1/2						2		
5. Lee Street Park Lee Street and Park Avenue 1 acre		•				•	•		•						
Malcolm King Park 1200 West Side Drive 64 acres	•	•					•						2		•
7. Morris Park 421 Summit Hall Road 26.5 acres	•	•	Concession Stand (optional)	•	•	•	•		•			•	3	•	
8. Robertson Park 801 Rabbit Road 23 acres	•		Concession Stand (optional)	•	•	•									
9. Summit Hall Farm Park 502 S. Frederick Avenue 58 acres		•		•	•	•			•			•	•	•	
10. Walker Park 302 Cedar Avenue 2.8 acres	•	•					1/2		•			•		•	
11. Washingtonian Woods Park Upshire Court 22.78 acres		•					1/2							•	•

Gaithersburg
A CHARACTER COUNTS! CITY

November 20, 1997

Ms. Michelle Hoffman
SHA Project Manager
707 North Calvert Street
Baltimore, MD 21202

Dear Ms. Hoffman:

The City of Gaithersburg has undertaken a study to evaluate additional access from I-270 to MD 117 east of the interchange. Today the interchange primarily serves the National Institute of Standards and Technology (NIST) located in the southwest quadrant, and communities and businesses along MD 117 to the west of I-270. The City is evaluating an additional ramp from northbound I-270 (collector-distributor road) to Perry Parkway, which would provide access from northbound I-270 to Gaithersburg and the Fairgrounds area, and would reduce traffic volumes on the existing ramp from northbound I-270 to MD 124.

Our consultant, Rummel, Klepper & Kahl, has developed forecasts with traditional procedures (growth rates, trip generation/distribution, etc.) For use in preparing an Access Point Approval report for the Federal Highway Administration. However, these forecasts were developed considering the study area traffic growth only, and since I-270 serves a large region, we believe that a more appropriate method to develop forecasts would be to use a regional traffic model.

RK&K has been in contact with several firms that have studies underway in the area, to obtain traffic forecasts for use in the MD 117 study. RK&K has indicated that the SHA/MWCOG has recently approved the existing traffic for the region (including the MD 117 interchange), and are using these counts to calibrate the travel demand model. The latest estimate is that forecasts will be available in Spring of 1998.

City of Gaithersburg • 31 South Summit Avenue, Gaithersburg, Maryland 20877-2098
301-258-6300 • FAX 301-948-6149 • TDD 301-258 6430 • www.gaithersburg.inter.net

MAYOR
W. Edward Bohrer, Jr.

COUNCIL MEMBERS
Stanley I. Alster
Charles F. Davis
Geraldine E. Edens
Sidney A. Katz
Henry F. Marraffa, Jr.

CITY MANAGER
David B. Humpton

Traffic volumes developed for our study of the MD 117 must be consistent with the ongoing study of I-270. Therefore, we have delayed the Access Point Approval report until forecasts are available for MD 117 from the I-270 study. However, the need for this ramp is immediate, and we would like to complete our study as soon as possible. Please contact me to discuss this issue, indicating your latest schedule and prediction of when volumes may be available to use in the MD 117 study. Your cooperation is greatly appreciated.

Sincerely,

David B. Humpton
City Manager

DBH/cac

cc: Ruth Crone, WMCOG
Parker Williams, SHA
Graham Norton, MCDOT
Larry Marcus, WMCOG
Mayor W. E. Bohrer Jr.
Ollie K. Mumpower

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

December 5, 1997

Mr. David B. Humpton
City Manager
City of Gaithersburg
31 South Summit Avenue
Gaithersburg MD 20877-2098

Dear Mr. Humpton:

Thank you for your letter on the I-270/US 15 Multi-Modal Corridor Study, specifically regarding improvements at MD 117. The I-270/US 15 Study will be completing the preliminary planning study phase later this Winter. Although several transportation strategies have been investigated over the past two years, the Study Team anticipates proceeding forward with several combination alternates. Some of these transportation strategies which will likely be included in these combination alternates include a transitway (busway or light rail transit), park and ride lots, telecommuting, hiker/biker paths, ramp metering, extended feeder and express bus services, High Occupancy Vehicle (HOV) lanes, general use lanes, Collector/Distributor (C/D) lanes and interchange improvements. These combination alternates are necessary since earlier analyses showed that no transportation strategy alone, would solve the transportation needs in the I-270/US 15 Corridor.

Following the completion of this preliminary planning stage, future traffic numbers will be projected. The State Highway Administration (SHA), in coordination with the Metropolitan Washington Council of Governments (MWCOG), will coordinate with Mr. Glen Mlaker, your representative on the I-270/US 15 Multi Modal Corridor Study, and yourself at this time. After a full engineering and environmental assessment of the alternatives, a public hearing will be held, tentatively in 1999, and a preferred alternate recommended.

Thank you again for your letter and coordination on this issue. Please feel free to call me if you should have any further questions. I can be reached at (410) 545-8547 or toll-free in Maryland at (800) 548-5026.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

cc: Ms. Ruth Crone, MWCOG
Mr. Larry Marcus, MWCOG
Mr. Glen Mlaker, City of Gaithersburg
Mr. Graham Norton, MCDPW&T
Mr. Neil J. Pedersen, SHA
Mr. Glen Smith, SHA
Mr. Parker Williams, SHA

Gaithersburg
A CHARACTER COUNTS! CITY

July, 16, 1998

Ms. Michelle Hoffman
Maryland Department of Transportation
State Highway Administration
707 Calvert Street
PO Box 717
Baltimore, Maryland 21203-0717

Dear Ms. Hoffman:

Please allow this letter to clarify statements that I made at the recent I-270 Multi-Model Corridor Study meeting concerning the City's endorsement of a transit alignment. The City of Gaithersburg has not yet made a formal recommendation on the two proposed transit alignments (CSX versus the Corridor City's Alignment). Gaithersburg's Land Use Plans have reserved rights-of-way for both alignments and a formal endorsement of one over the other has not been determined. The City's Master Plan supports both alignments equally without placing one at a higher priority then the other. The Mayor and City Council will be exploring this subject at a work session scheduled sometime in the Fall. Until that time, the City of Gaithersburg has not formally endorsed either option.

The Planning and Code Administration staff has had input into these discussions for several years relative to this topic. Our recommendation to the Mayor and City Council, as I stated at the recent meeting, will be to support both alignments. We do not wish to eliminate any possibility of heavy rail extending from Shady Grove, or a light-rail/busway along the CSX alignment. Our recommendation will be based on forecast numbers for expected growth relative to our established land use plans. We do have concerns with the western alignment, in that is does not efficiently connect with two major density nodes: Market Square in Kentlands/Lakelands and Washingtonian Center. We believe that these two connections will provide increased ridership for the system. It is our understanding that the exact alignment through the City of Gaithersburg has not yet been finalized and our staff would like to explore the possibility of improving the connections to these developments. The Planning Staff recommendation will be presented to the Mayor and City Council at an upcoming work session. The Mayor and City Council may chose to accept Planning Staff's recommendation or modify it based on public input.

The City of Gaithersburg fully supports the I-270 Multi-Modal Corridor Study, and we will continue to work with you and your staff to complete this important project. Please contact me at 301-258-6330 or by e-mail (gmalker@ci.gaithersburg.md.us) if you have further questions.

Sincerely,

Glenn Malker
Senior Planner

City of Gaithersburg • 31 South Summit Avenue, Gaithersburg, Maryland 20877-2098
301-258-6300 • FAX 301-948-6149 • TDD 301-258-6430 • www.gaithersburg.inter.net

MAYOR
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CITY MANAGER
David B. Humpton

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

August 25, 1998

Mr. Glenn Mlaker
Senior Planner
City of Gaithersburg
31 South Summit Avenue
Gaithersburg MD 20877-2098

Dear Mr. Mlaker: Glenn

Thank you for your involvement in the I-270/US 15 Multi-Modal Study. The involvement of the City of Gaithersburg on the I-270/US 15 Multi-Modal Corridor Study Team has been helpful.

The State Highway Administration (SHA) and the Mass Transit Administration (MTA), in coordination with the multi-jurisdictional I-270/US 15 Multi-Modal Corridor Team, has recommended that the Corridor Cities Transitway Alignment (CCT) or western alignment, as either a busway or light rail transitway, be considered further in the combination alternates for the detailed planning studies. This recommendation, which is consistent with the Study Team's vision for the Corridor, is based on that financial realities will not permit us to implement more than one transitway alignment in the foreseeable future, as well as being based on the priorities expressed by Montgomery County and City of Rockville representatives. It is the desire of the state and regional agency representatives to avoid transit redundancies with the existing MARC system and High Occupancy Vehicle (HOV) lanes. This recommendation, however, would not preclude the City of Gaithersburg's long term plans for a future Metrorail extension to Metropolitan Grove along the CSX or eastern alignment. In addition, we will through the more detailed engineering and environmental studies, evaluate the appropriate transit stations along the Corridor Cities Transitway for the design year of 2020. Any stations that were not included by the design year of 2020 could still be valid for the transitway beyond the design year of this study.

My telephone number is 410-545-0411/888-204-4828
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

I look forward to the City of Gaithersburg's input on this transitway alignment in the near future. Thank you again for your continued participation in this study. If you have any further questions, please feel free to call me or Michelle Hoffman, the project manager for this study. Michelle can be reached at 410-545-8547, or toll free in Maryland, at 1-800-548-5026.

Very truly yours,

Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

cc: The Honorable W. Edward Bohrer, Jr., Mayor
Mr. Joseph Finkle, State Highway Administration
Ms. Anne Elrays, State Highway Administration
Ms. Michelle Hoffman, State Highway Administration
Mr. Charlie Watkins, State Highway Administration
Mr. James L. Wynn, State Highway Administration

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

JUN 17 1997

Mrs. Susan J. Binder
Division Administrator
Federal Highway Administration
The Rotunda Suite 220
711 West 40th Street
Baltimore, MD 21211

Dear Mrs. Binder:

This letter is in response to your request for the Environmental Protection Agency (EPA) to participate as a Cooperating Agency in the preparation of an Environmental Impact Statement for the I-270/U.S. 15 Multi-Modal Study, Shady Grove Metro Station to Biggs Ford Road.

We welcome the opportunity to participate as a Cooperating Agency in the development of this project. Our role as a Cooperating Agency will consist of providing expanded scoping comments on general National Environmental Policy Act (NEPA) compliance and Section 404 issues. Generally, EPA is requested as a Cooperating Agency due to our Special Expertise in the areas of NEPA compliance and the Section 404 (B) (1) Guidelines. EPA also has discretionary veto authority for the Section 404 permit under Section 404 (c) of the Clean Water Act. Our responsibilities as a Cooperating Agency do not preempt our regulatory and review responsibilities under Section 309 of the Clean Air Act and Section 404 of the Clean Water Act.

Thank you for your request and if you have any questions on this matter please contact me at 215-566-2721 or Danielle Algazi of my staff at 215-566-2722.

Sincerely,

Roy E. Denmark, Jr., Deputy Chief
Environmental Programs Branch

TOTAL P.01

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United States Department of the Interior

NATIONAL PARK SERVICE
Antietam National Battlefield
Monocacy National Battlefield
P.O. Box 158
Sharpsburg, MD 21782-0158

IN REPLY REFER TO

November 6, 1996

Mr. Louis Ege
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, MD 21202

Mr. Ege,

At the request of Ms. Anne Ellray of your staff we are forwarding a variety of planning documents and general information concerning Monocacy National Battlefield. This information will hopefully assist you and your staff in the evaluation of potential alternatives and impacts of the I-270 Corridor Study.

As I am sure you are aware Interstate 270 passes directly through the center of the National Battlefield, and any of the alternatives identified in your planning work will impact this national historic area in a negative fashion. If we can provide additional information on the battlefield, or possibly a site visit using one of our Historians to provide additional information please feel free to contact me .

I have provided the following information as requested:

a. Monocacy NB Segment/Lands Map
b. Interpretive Plan for Monocacy NB
c. Wayside Exhibit Plan-Monocacy NB
d. 1976 General Management Plan (Outdated)
e. Historic Battle Action Map (Copy)

We have recently completed a vegetation study of the areas north of Route 355 within the Battlefield, and have contracted this year for a study of the Areas south of Interstate 270(Worthington Farm/Brooks Hill). We hope for a report from this study by March or April 1997. This work is being conducted by the Maryland Department of Natural Resources- Natural Heritage Commission.

I hope this information is helpful in your work, if we may be of further assistance please feel free to contact me on 301-432-7648.

Sincerely

J.W. Howard
Superintendent

MONOCACY NATIONAL BATTLEFIELD

FREDERICK, MARYLAND

GAMBRILL'S MILL

The Araby Mills, located along Bush Creek, were established in 1830 by Col. John McPherson. They consisted of Gambrill's Mill and Reels' Mill. James H. Gambrill, a native of Howard County who moved to Frederick in 1849, purchased the mill sites in 1856. (Court records indicate that Gambrill's deed was recorded on Aug. 12, 1857. Joshua Dill purchased the property from McPherson and William J. Ross acquired it on Mar. 13, 1845.)

The description of the mills from William's History of Maryland seems to indicate that the mills were almost identical. They were said to have machinery run by undershot waterwheels with a maximum 30 horsepower. Six to eight coopers were employed to produce barrels for the mill products. The output of the mills is [illegible] at sixty barrels per day. A newspaper article written by J.W. Dixon dated November 22, 1924 further describes Gambrill's as follows:

> "By far, the Gambrill's Mill did the most extensive business of all, both in grist and wheat. Its products were first class and known far and wide as such. The neat, well-appointed mill was up-to-the-minute, and its output was greatly appreciated in the homes of a considerable radius. It was pleasure to accompany the big wagon team on its stated trips to Gambrill's. The squat neat old mill sitting well down on level from the sharp elevation to the east; the well-whitewashed dwelling back against the hill, bright as a new pin; the more than comfortable atmosphere of the place; and, last but not least; the handsome jolly miller, all these combined to make one's visits a genuine pleasure."

During the Battle of Monocacy Union forces retreated through the mill area and Confederate troops camped on the grounds at the conclusion of the battle. Three local men took refuge in the mill after escaping their impressment in the Federal forces. The mill was also used as a field hospital. Major General Lew Wallace described it in his autobiography: "...the surgeons of the division had established a field-hospital intending, as I was told, to use the building for shelter of the wounded. The place appeared well selected for the purpose, its one inconvience being that it was under fire."

An early photo of the mill shows that it did have an upper story with an "A frame" type roof. The mill has undergone extensive remodeling and the upper story has been removed and a pyramid type roof substituted.

MONOCACY NATIONAL BATTLEFIELD

FREDERICK, MARYLAND

THE WORTHINGTON FARM

The Worthington house, built circa 1851, is a brick structure of federal style. It is typical of a Maryland farmhouse of the period. The house and accompanying 278 acres were purchased by John T. Worthington in 1862. The Worthington family remained owners until 1953. The house was acquired by the National Park Service in 1982, and was stabilized as a historic preservation training exercise. Restoration is expected in the future.

During the Battle of Monocacy, the Confederates mounted three attacks from the Worthington fields in the heaviest fighting of the day. In the latter phase of the battle Major General John C. Breckinridge viewed the action from the front yard and conversed with Mr. Worthington. Meanwhile, Worthington's six-year-old son, Glenn, watched the fighting from a boarded up cellar window. When he became an adult, Glenn Worthington wrote a book about the Battle of Monocacy entitled Fighting for Time. It remained the only book-length account of the battle for 130 years.

MONOCACY NATIONAL BATTLEFIELD

FREDERICK, MARYLAND

THE THOMAS FARM

The Thomas farm, which is currently in private ownership, was the scene of the heaviest fighting during the Battle of Monocacy. The home still bears it's original name, "Araby", which comes from a tract of land in Scotland. The house was built in 1780 by James Marshall and was purchased in 1860 by Col. C.K. Thomas of Baltimore.

During the Battle of Monocacy (1864) the Thomas house was used by Federal sharpshooters and was captured and recaptured several times by both armies. A Confederate gun was set up at the nearby Worthington farmhouse and was responsible for severe damage to Araby. Mr. Thomas and his family took refuge in the cellar during the entire battle. Three hundred soldiers killed in action at Monocacy were buried on the grounds and were later removed. Later that summer, Lieutenant General U.S. Grant met with several Federal generals there, including Phil Sheridan, to map out plans for the Shenandoah Valley campaign. Also during the Civil War, members of the 14th New Jersey Regiment, which was assigned the duty of guarding Monocacy junction, were frequent visitors to the Thomas farm. Other important military figures visited the Thomas house, including Major General Winfield Scott Hancock who established the headquarters of the Union Second Corps there for three days in 1863 while enroute to Gettysburg.

An estate sales brochure for "Araby" published in the 1950's describes the house as follows: "Ground floor-central hall, large double living room with twin fireplaces, dining room, bath, kitchen, telephone room, and den. Second floor-central hall, three bedrooms, bath, and office. Remodeled in 1950 "without detriments to antiquities," ten fireplaces throughout, large attic and basement, and a "colonaded summer porch".

MONOCACY NATIONAL BATTLEFIELD

FREDERICK, MARYLAND

BEST FARM

South Hermitage

South Hermitage farm, located south of Frederick City, was owned by Colonel Charles E. Trail. The property was leased to John T. Best, who erected an elegant mansion on the tract at the cost of $17,000. The year 1864 was John Best's first year as an independent farmer. It proved to be a disaterous one. During the Battle of Monocacy in July of that year, the Best farm was the location of two Confederate artillery batteries. These two batteries hammered away at Union troops guarding a covered wooden bridge crossing the Monocacy River on the Georgetown Pike (Rt. 355). In defense of their troops, Union artillery returned this fire, igniting a blaze that destroyed Best's barn, grain, hay, tools, and farming implements.

Throughout the Civil War, both the Union and Confederate armies moving through Frederick City would often camp at the Best farm. During the 1862 Maryland Campaign, Lee's lost order No. 191 (which outlined the army's movements), was found in a grove of trees on the property at a recently abandoned Confederate camp. The order, wrapped around cigars, was found by Corporal Barton Mitchell of the 27th Indiana. Amazingly enough, Union General George McClellan chose not to use the orders to his advantage in planning his strategy against Lee in what would become known as the battle of Antietam.

ADMINISTRATIVE HISTORY OF MONOCACY NATIONAL BATTLEFIELD

Monocacy National Battlefield was created in 1934 by an Act of Congress (48 Stat. 1198) as Monocacy National Military Park. It was established to "commemorate the Battle of Monocacy, Maryland, as to preserve for historical purposes the breastworks, earthworks, walls, or other defenses or shelters used by the armies therein." The act authorized the appropriation of some development monies with the understanding that any necessary land would be donated to the Government at no cost. However, no land was donated and, consequently, no development took place.

In 1975, the Battlefield was placed on the National Register of Historic Places as a national landmark, thereby making it subject to the provisions of the National Historic Preservation Act of 1966. During the same year, new legislation for the authorization of acquisition and development monies was introduced by Representative Goodloe Byron. This effort resulted in 1976 in Public Law 94-578 (90 Stat. 2732), which authorized acquisition of up to 1,000 acres with appropriated funds. The bill required submission of a master plan to Congress within 3 years, and changed the park's name to Monocacy National Battlefield.

Since that time, the boundary was expanded to include 1647 acres and more monies were appropriated for land acquisition. The National Park Service currently owns about 1100 acres in fee and about 165 acres in scenic easements. The park opened to the public for the first time in 1991 and has an annual visitation of approximately 12,000. The FY 1995 budget was $303,000 and a full-time staff consists of an Assistant Superintendent/Site Manager, 2 interpretive Park Rangers, 1 natural resources/law enforcement Park Ranger and 1 maintenance worker.

The visitor center is housed in the Gambrill Mill, an adapted historic structure. An electric map provides a brief orientation to the site and events which occurred there on July 9, 1864. An interactive computer complements the map by adding a layer of social history to the interpretation of the site. An artifacts exhibit also adds to the visitor experience at Monocacy. Educational and outreach programs as well as special events are valuable in reaching diverse audiences.

Although the National Park Service owns 4 of the 5 farms which existed at the time of the Battle of Monocacy, accessibility to the battlefield is somewhat limited. Most of the land is maintained by leasing it to area farmers. One trail near the Gambrill Mill was opened in 1995. Interpretive markers are currently under production. An Interpretive Prospectus (a plan for future trails, exhibits and programs) will determine upcoming projects for the park.

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United States Department of the Interior

NATIONAL PARK SERVICE
Antietam National Battlefield
Monocacy National Battlefield
P.O. Box 158
Sharpsburg, MD 21782-0158

IN REPLY REFER TO

L1425(MONO)

February 25, 1998

Ms. Michelle D. Hoffman
Maryland State Highway Administration
707 North Calvert Street
Mail Stop C 301
Baltimore, MD 21202

Dear Ms. Hoffman:

I recently received a letter from your office concerning the upcoming environmental analysis for the I270/US 15 Corridor. I would like to request two weeks notification prior to any SHA employee or consultant entering Monocacy National Battlefield, as we will need to make arrangements to unlock gates for access to battlefield property. This includes the Geisbert farm along Baker Valley Road, which is owned by the National Park Service but has a life estate retained by Mrs. Betty Geisbert.

In addition, an Archeological Resources Protection Act (ARPA) permit will be required before any excavations are conducted within Monocacy National Battlefield (including the Geisbert Farm). An application for this permit can be obtained from Dr. Stephen Potter, regional archeologist for the NPS, who can be contacted at (202) 619-7280. It should be filled out by whomever will be conducting the archeological testing and submitted to Dr. Potter. Approximately 45 calendar days will be required to review the application. Any other ground-disturbing activities such as wetland and hazardous materials assessments will require archeological clearance as well.

Particular care needs to be taken with agricultural fields on the Best Farm, located on the north side of I270, as it is planted with a cover crop at the present time. Finally, I request that any vegetation removal be kept to a minimum. If you have any questions concerning any of the above, please do not hesitate to contact me at (301) 432-7648.

Sincerely,

John W. Howard
Superintendent

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

March 17, 1998

Mr. John W. Howard
United States Department of the Interior
National Park Service
P. O. Box 158
Sharpsburg MD 21782-0158

Dear Mr. Howard:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study and for sharing your concerns regarding the historical and archeological considerations. I want to assure you that the State Highway Administration (SHA) will be sensitive of the environmental surroundings, including historic sites, throughout the development of this study.

The purpose of the I-270/US 15 Multi-Modal Corridor Study, from the Shady Grove Metro Station to Biggs Ford Road, is to relieve congestion within the Corridor due to existing and projected growth. Since the I-270/US 15 Multi-Modal Corridor Study is currently in the preliminary planning stage and no single strategy could solve the transportation needs in the I-270/US 15 Corridor, the Study Team is considering combination alternates. These Combination Alternates A and B are in addition to a Baseline, or No-Build, Alternate and a potential stand alone transit option. Both Combination Alternates A and B include enhanced express/feeder bus services, additional park and ride lots, the extension of High Occupancy Vehicle (HOV) lanes, a light rail transitway or busway between Shady Grove and Metropolitan Grove (with an option to extend further north), additional general use lanes, the extension of the local or Collector/Distributor (C/D) lanes, new and/or improved interchanges and structures throughout the Corridor, and a new roadway alignment option in Urbana called Technology Boulevard.

The letter you received was mailed to all residents within 150 feet on both the east and west side of I-270 and US 15. The purpose of that letter is to inform the property owners that the SHA and its staff will be in the I-270/US 15 Corridor to collect environmental data. These environmental data include identification of wetlands, floodplains, and archeological sites, as well as any endangered plants or animals. The SHA will not need to enter everyone's property; only a select few will need to be investigated. At most, a few small soil samples will be taken, and the SHA and its staff will return the land to its original condition. This minimally invasive process will further aide in the development of the alternates. The SHA appreciates your reply and will be applying for a permit in the near future and will coordinate with the Monocacy Battlefield through Charlie Hall, the SHA's archeological representative. As per your request, SHA will give you 2 weeks notification prior to entry onto the Monocacy Battlefield.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

As the study progresses to the more detailed planning stage, alternates and impacts will be examined to a greater level of detail. Information on the development of these alternates, including impacts, benefits, and costs, will be presented in an Environmental Document at a Public Hearing, tentatively scheduled for late in 1999.

Thank you again for your interest in the I-270/US 15 Multi-Modal Corridor Study. Please feel free to call me at (410) 545-8547 or toll-free in Maryland, at (800) 548-5026, or Suhair Alkhatib of the Mass Transit Administration at (410) 767-3751, if you should have any further questions or comments.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

LHE:MDH:rt
cc: File (with incoming)
Mrs. Betty Geisbert
Ms. Anne Elrays, SHA
Mr. Charles Hall, SHA
Mr. James L. Wynn, SHA

To: internet:Susan_Trail@nps.gov
Date: 10/29/98 10:58am
Subject: NPS Comments -Reply

Susan - Thank you for the comments.

Michelle

>>> Susan Trail <Susan_Trail@nps.gov> 10/23/98 09:19am >>>
Michelle and Ann:

Thank you again for the opportunity to comment on the draft I-270/US 15 Multi-Modal Corridor Study. I would like to emphasize again the points that I raised the other day:

1. Given that Monocacy National Battlefield is both a National Historic Landmark and a National Park, it should be given a higher level of Section 106 review, and should be put in a separate category from other sites listed on or eligible for the National Register.

2. Given the fact that I-270 effectively bisects the park, our concerns extend beyond the limits of the ROW corridor to include visual and audio impacts. We are particularly concerned about any impacts widening would have upon the overall battlefield cultural landscape.

3. On page 15, Monocacy NB needs to be added to the list of cultural resources to be studied for potential Section 4(f) impacts.

4. For any archeological assessments conducted within the park, we would like the opportunity to review the scope of work before any contract is awarded. We have found that traditional archeological surveys are not effective for recovering materials associated with battles, and would like to see a metal-detector survey added. We can talk more about this later.

5. As we had expressed in our meeting with you several months ago, we continue to be concerned about the potential pressure that construction of Technology Blvd. in Urbana will have toward widening Rt. 355 through the park. We would like to see this addressed as a potential impact in the EIS when it is prepared.

I contacted the National Register office concerning a map showing the NHL boundaries for Monocacy. They were going to check and send it to me if they had one. The nomination was done a number of years ago, and there may not even be a map associated with it. For the time being, I would use the present NPS boundary to define the NHL boundary. I will let you know next week if there are any differences.

If you have any questions, please call me at (301) 432-7648. Thanks.

Susan Trail

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United States Department of the Interior

NATIONAL PARK SERVICE
Antietam National Battlefield
Monocacy National Battlefield
P.O. Box 158
Sharpsburg, MD 21782-0158

IN REPLY REFER TO:

January 27, 1999

Ms. Gay Olsen
Project Planning Division
Maryland Dept. of Transportation
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Ms. Olsen:

We have completed our review of the map and justification for the Secondary and Cumulative Effects Analysis and have the following comments to offer:

1. Monocacy National Battlefield is not shown on the SCEA Boundary Area map. It definitely should be included as a Park/Conservation Area and its exclusion is a serious oversight.

2. In the written justification for the geographic boundaries, it is unclear to what extent Monocacy National Battlefield is included within this boundary. Although its inclusion is implied on the map, it should be stated in the document.

3. As written, the document is confusing and difficult to follow. Some areas appear to be included because of proposed development (i.e., the area of proposed growth in Urbana between MD 355 and I-270), while others seem to be included because no development is proposed (i.e., the area between I-270 and the Sugarloaf Mountain natural area). It would be helpful if justifications for inclusion/exclusion were clarified.

Finally, though not a part of the document review, it would be very helpful if all correspondence in the future was sent to Antietam National Battlefield, P.O. Box 158, Sharpsburg, MD, 21782, rather than to our regional office in Washington, D.C.

We thank you for the opportunity to comment on this document, and would like to reiterate our continued interest in all environmental analyses pertaining to the I-270/U.S. 15 corridor project.

Sincerely,

John W. Howard
Superintendent

Susan W. Trail
Assistant Superintendent

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 12, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. John Howard
National Park Service
Antietam National Battlefield
P.O. Box 158
Sharpsburg MD 21782

Dear Mr. Howard:

Thank you for your comments (see enclosure) regarding the map showing the preliminary Secondary and Cumulative Effects Analysis (SCEA) boundary and written justification for the time frame and geographic parameters to be used in the analysis for the I-270/US 15 Multimodal Project.

We have provided the following responses to your comments in the same order discussed in your letter:

1. The purpose of the map is to review the location and extent of the SCEA boundary. Only parks whose boundaries were used to define the SCEA boundary area are shown on this map. The mapping in the Environmental Impact Statement will include the Monocacy National Battlefield as a Park/Conservation Area.

2. The entire Monocacy National Battlefield is included within the SCEA boundary. This information will be illustrated and included in the environmental document.

3. The SCEA boundary extends east of I-270 to include proposed development located within the Urbana Planning Area between MD 355 and I-270. You are correct in noting that generally, the SCEA boundary was extended as much as six miles east/west of I-270 to include areas where the potential for future proposed development is expected based on current 20-year projections. The SCEA boundary does not include large conservation areas such as Sugarloaf Mountain Natural Area where the potential for development is limited.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Should you have any questions, please feel free to call the Project Manager, Ms. Michelle Hoffman at 410-545-8547 or the Environmental Manager, Ms. Anne Elrays at 410-545-8562, or toll free in Maryland at (800) 548-5026.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

LHE:AE
Enclosure
cc: Mr. Terry Clark, MDE
Mr. Ray Dintaman, DNR
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays
Mr. Elder Ghigiarelli, MDE
Ms. Michelle D. Hoffman
Mr. William Hoffman, EPA
Mr. Joseph R. Kresslein
Mr. J. Rodney Little, MHT
Ms. Diane Ratcliff, MTA
Mr. Robert Sanders
Ms. Pamela stephenson, FHWA
Mr. David Sutherland, USFWS
Ms. Bihui Xu, MOP

United States Department of the Interior

NATIONAL PARK SERVICE
Antietam National Battlefield
Monocacy National Battlefield
P.O. Box 158
Sharpsburg, MD 21782-0158

IN REPLY REFER TO

H42(MONO)

March 1, 2000

Ms. Mary Barse
State Highway Administration
Maryland Dept. of Transportation
P.O. Box 717
707 N. Calvert St.
Baltimore, MD 21203

Dear Ms. Barse:

I have reviewed the sections of the I270 corridor archeolo report pertaining to Monocacy National Battlefield, and ha comments. The fieldwork appears to have been adequate for area in question, and followed the provisions of the Natic Park Service permit.

Sincerely,

Susan Trail

Susan W. Trail
Assistant Superintendent

Cc: Dr. Stephen Potter, NCR Regional Archeologist

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

April 17, 2002

RE: Project No. FR192B11
I-270/US 15 Multi-Modal Study
Montgomery and Frederick Counties, Maryland

Mr. J. W. Howard
Superintendent
US Department of the Interior
National Park Service
P.O. Box 158
Sharpsburg MD 21782-0158

Dear Mr. Howard:

Thank you for your letter of March 25, 2002 to Ms. Cynthia Simpson. The State Highway Administration (SHA) appreciates your thoughtful comments and suggestions for improving our Draft Environmental Impact Statement and Section 4(f) Evaluation (DEIS/4(f)) for the I-270/US 15 Multi-Modal Study, and facilitating our Section 106 consultation. We look forward to working with you in a meaningful manner to address your concerns and develop measures that will mitigate the impact of our widening of I-270 on the Monocacy Battlefield National Historic Landmark.

SHA is currently refining our consideration of the range of types of additional effects that our project might have on the battlefield, and further assessing ways in which these may be addressed in a constructive manner. Toward that goal, we will be convening a meeting of our respective offices, the Federal Highway Administration, the Advisory Council on Historic Preservation, State Historic Preservation Office (SHPO) and other interested parties, to consider these effects and strategies with which they may be mitigated.

We are cognizant that the Monocracy National Battlefield properties form a significant cultural resource reflecting three centuries of occupation of a cohesive historic landscape, occupied by diverse groups that blended and interacted on the five farms that make up the Battlefield. Onto this rural landscape was overlaid the travails of the Civil War, played out over three successive summers in 1862, 1863 and climaxing with the battle that interrupted and stymied the Confederate march on the capital of the United States, thus saving Washington DC in 1864.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

To allay your concerns, SHA is well aware that the Monocacy Battlefield National Historic Landmark is indeed a precious historic resource and a sublime cultural landscape. Because of its outstanding landscape values, comprising an oasis inviting contemplation and true appreciation of the significance of the battle and the concomitant loss of life, it has immeasurable meaning for the American public. Certainly we do not debase the beauty of this grand sweep of land by thinking of it merely as empty "undeveloped" acres lacking existing or planned amenities. We are very respectful that its lack of "development," in the common meaning of the word, provides the outstanding integrity that enables people to associate with the events that occurred there and with the lifeways that were interrupted on that fateful day in July, 1864.

In response to your comments regarding archeological resources, we agree that 18FR30 (Monocacy National Battlefield) is a highly significant archeological resource. However, we do not believe the current project will alter the site's ability to provide important information in history.

SHA conducted Phase I Archeological Identification investigations within the Area of Potential Effects (APE) on the Monocacy National Battlefield property in 1999. No archeological resources were identified within the APE. Prior to the initiation of this work, Dr. Stephen Potter and Mr. Bob Sonderman of your staff were consulted in 1998 regarding the project's research design. We subsequently obtained a permit from the National Park Service (NPS) to conduct identification investigations in compliance with The Archeological Resources Protection Act (P.L. 96-95). Dr. Stephen Potter and Dr. Susan Trail reviewed the resulting technical report detailing the findings and recommendations of the survey that included the Monocacy National Battlefield (Attachment 1). Comments on the report by the NPS are provided as Attachment 2. Please note that Dr. Susan Trail commented that the fieldwork was adequate for the area in question, and followed provisions of the NPS permit. SHA believes appropriate consultation was conducted with your agency for this aspect of the project.

The extent of the project's APE within the Monocacy National Battlefield has not changed substantially since the Phase I Archeological Identification survey. Extremely minor changes in the proposed right of way are apparent in a few places, but we do not believe this affects the efficacy of our previous Section 106 Identification efforts. The minor nature of these changes are evident when Figure 23 of the attached report indicating the APE surveyed in 1999, is compared to alternates mapping provided in the January 14, 2002 version of the DEIS/4(f). As the APE has not changed sufficiently to warrant additional investigations, we believe the results remain valid. The project will have no impacts on archeological sites 18FR30 (Monocacy National Battlefield) or 18FR110. However, we acknowledge that there are deficiencies in the project's current documentation that are being addressed.

The SHPO reviewed and concurred in the findings and recommendations of the Phase I archeological survey in a letter of November 5, 1999 (Attachment 3). We failed to adequately address SHPO comments regarding the Monocacy National Battlefield (18FR30) in the project's final report. As instructed by the SHPO, we are amending Table 2 of the final report (Attachment 1), to include 18FR30. In addition, we will revise the report's Summary and Recommendations chapter to clearly state the significance of 18FR30, and a recommendation for temporary fencing during construction to ensure avoidance of archeological deposits beyond the limits of the previously surveyed APE. The draft Memorandum of Agreement (MOA) will be revised to include 18FR30 in Stipulation VIII - Identified Archeological Resources, with provisions for monitoring and oversight of the design of the selected alternate by qualified personnel meeting qualifications set forth in 36 CFR 61, and temporary fencing during construction to ensure protection of archeological resources in areas beyond the previously surveyed APE.

We appreciate the information transmitted in your letter regarding the ongoing archeological identification and evaluation efforts by the NPS at the Best Farm. The documentation provided on your investigations indicates that Confederate artillery was recorded by Hotchkiss (1864) in the vicinity of the APE. Although your scaling of the map appears extremely precise, it is difficult to determine the exactness with which Hotchkiss implemented its placement on the original map. As is evident from Figure 4 in the attached report, the project's research design did consider this feature's proximity to the APE. Shovel testing and metal detector swipes were conducted within the APE in that area as Transect E. No artifacts or features were identified. Given the results of our prior survey, we do not believe the project will impact the Confederate artillery placement indicated by Hotchkiss' (1864) map.

Testing was also implemented during our Phase I archeological survey within the APE south of the CSX rail line where 18FR110 was previously recorded, and where recent surveys have identified resources associated with the Best Farm. Transect E extended over the area of 18FR110 and also the area recently identified by your staff south of Best Farm, within the APE. The 2001 field walkover conducted by NPS recovered diagnostic artifacts at densities ranging from 3 to 24 artifacts per acre. However, shovel testing and metal detector sweeps within this portion of the APE failed to recover any artifacts and no subsurface features were noted. Given this data, it is evident that the significant archeological deposits identified in the NPS walkover will be avoided by the undertaking as planned.

SHA looks forward to continued consultation with your office, and the resolution of cultural resources issues illuminated by your letter. Please feel free to contact Ms. Rita M. Suffness at 410-545-8561 (*rsuffness@sha.state.md.us*) or Ms. Mary F. Barse at

410-545-2883 (*mbarse@sha.state.md.us*) of our Cultural Resources staff with any questions or concerns.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: Donald Sparklin
Donald H. Sparklin
Assistant Division Chief
Project Planning Division

Attachments (3)

cc. Ms. Mary F. Barse, SHA-PPD
Mr. Terry Carlstrom, NPS
Ms. Anne Elrays SHA-PPD (w/Attachments)
Mr. Dan Johnson, FHWA (w/Attachments 1 through 3)
Mr. Don Klima, ACHP (w/Attachments 1 through 3)
Mr. J. Rodney Little, MD SHPO (w/Attachments 1 through 3)
Senator Barbara Mikulski, Hagerstown Office
Senator Paul Sarbanes, Western Maryland Field Office
Mr. Neil J. Pedersen, SHA-OPPE
Mr. Donald H. Sparklin, SHA-PPD
Mr. Cynthia D. Simpson, SHA-PPD
Mr. Douglas Simmons, SHA-OPPE
Ms. Rita M. Suffness, SHA-PPD
Mr. Ralph Walto, SHA-PPD

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

December 20, 2000

Mr. David R. Smith
Environmental Specialist
Coastal Resources, Inc.
2988 Solomons Island Road
Edgewater, Maryland 21037

RE: I-270/ US 15 Multi-modal Corridor Study
Montgomery and Frederick Counties, MD

Dear Mr. Smith:

This responds to your November 15, 2000, request for information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the I-270/ US 15 corridor. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further Section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Andy Moser at (410) 573-4537.

Sincerely,

Robert J. Pennington
Assistant Field Supervisor
Chesapeake Bay Field Office

MARYLAND HISTORICAL TRUST

Parris N. Glendening, Govern
Patricia J. Payne, Secreta

Office of Preservation Services

April 24, 1997

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. ~~MO 971 B12~~
~~Intercounty Connector (ICC)~~
I-270/US 15 Multimodal Project
from Shady Grove Metro to N. of Biggs Ford Rd
Montgomery and Prince George's Counties

Dear Ms. Simpson: 2/20/97

Thank you for your letter of 11 March 1997 addressing our previously raised questions regarding the above-mentioned project and providing us information on the expanded project scope and Area of Potential Effect (APE). We have reviewed your letter addressing these items and have the following comments:

Update on Previously Recorded Properties:

Thank you for providing the additional information as requested on the selected historic properties located in the project corridor. As a result, we are now able to submit the Maryland Inventory of Historic Properties (MIHP) forms for inclusion in our inventory files. We would, in particular, like to note our concurrence with your boundary decisions made for F-3-145, the Hoke/Grove Lime Company property and M-19-1, Pleasant Fields. Based upon the additional information provided, it appears that the original, reduced boundaries are more appropriately drawn. Please note, however, that in the case of Pleasant Fields, the boundaries were drawn and presented on a map (out-dated) indicating that the property was still agriculturally based. The map does not show the existing conditions of the site--i.e. contemporary housing development surrounding the historic house. In the future, please use a more recent or appropriate map which more accurately illustrates the existing conditions.

Determinations of Eligibility:

Your letter requested our concurrence on the determinations of eligibility for two properties: Waring/Crawford Farm (M:19-11) and Crawfordtown Houses (M:21-174 - M:21-176). We have reviewed the files and the additional information provided and we concur that the Waring/Crawford Farm

and the Crawfordtown Houses are not eligible for listing on the National Register. The Waring/Crawford Farm consists of a late 19th-century, two-part log and frame dwelling. Formerly part of a farm complex, the house is now located on a small parcel within a residential subdivision. The property has lost its integrity of setting and lacks the architectural distinctiveness necessary to qualify it for listing on the National Register of Historic Places. The Crawfordtown Houses are two of the five original houses which formed part of Crawfordtown in Gaithersburg. Three of the houses were demolished in the 1960s and replaced with a contemporary building. This demolition and addition within the original boundaries of the plat compromise the integrity of the Crawfordtown Houses, making them ineligible for listing on the National Register.

Thank you for addressing our comments and for providing us with the additional requested information. We look forward to working with you to fulfill compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Should you have any additional comments or concerns, do not hesitate to call Ms. Kim Williams at (410) 514-7637.

Sincerely,

Jo Ellen Freese Hensley
Administrator
Project Review and Compliance

KPW/9700707

cc: Dr. Charlie Hall
Ms. Rita Suffness
Hon. Gilbert Gude
Mr. Charles Edson
Ms. Mary Gardner
Ms. Gwen Marcus

Maryland
Department of
Housing and
Community
Development

Division of Historical and Cultural Programs

100 Community Place
Crownsville, Maryland 21032

410-514-7600
1-800-756-0119
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1-800-735-2258

http://www.dhcd.state.md.us

Parris N. Glendening
Governor

Patricia J. Payne
Secretary

Raymond A. Skinner
Deputy Secretary

November 30, 1998

Ms. Gay Olsen
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

RE: Project No. FR192B11
I-270/US15 Multimodal Project from the Shady Grove
Metro Station to North of Biggs Ford Road
Frederick and Montgomery Counties, MD

Dear Ms. Olsen:

Thank you for your letter, dated 4 November 1998 and received by the Trust on 6 November 1998, requesting our comments on the Alternatives Retained for Detailed Study for the above-referenced project.

The Trust has no specific comments regarding the alternatives retained for detailed study. The Environmental Overview section of the document should note that the Trust holds a perpetual historic preservation easement on Shifferstadt, located in Frederick County. The project has the potential to affect numerous historic structures, districts, archeological sites, and a National Historic Landmark - the Monocacy National Battlefield. SHA has not yet conducted archeological surveys of the alternates. Thus, we are unable to make informed comments regarding effects to historic properties (including standing structures and archeological properties) until we have received the results of SHA's identification and evaluation of archeological resources within the alternatives. We trust that SHA will undertake the archeological investigations and assessment of effects to historic properties before project plans have developed to an extent that would preclude the avoidance of significant historic properties.

We look forward to further consultation with SHA and the other involved parties as the project's Section 106 review proceeds. The National Park Service will be a key participant in the Section 106 consultation regarding the NHL. We ask that SHA include the Trust in relevant meetings or discussions with NPS involving the Monocacy National Battlefield.

If you have questions or require additional information, please call Ms. Anne Bruder (for structures) at (410) 514-7636 or me (for archeology) at (410) 514-7631. Thank you for providing us this opportunity to comment.

Sincerely,

Elizabeth J. Cole
Administrator, Archeological Services

EJC/AEB
9803299

cc: Mr. Bruce Grey
Dr. Charlie Hall
SHA IAR Group
Mr. John Howard (Superintendent, Monocacy National Battlefield)

D·H·C·D

Maryland Department of Housing and Community Development

Division of Historical and Cultural Programs

100 Community Place
Crownsville, Maryland 21032

410-514-7600
1-800-756-0119
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Maryland Relay for the Deaf:
1-800-735-2258

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Parris N. Glendening
Governor

Raymond A. Skinner
Secretary

Marge Wolf
Deputy Secretary

November 5, 1999

Mr. Bruce Grey
Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Project No. FR192B11, I-270/US 15 Multi-Modal Study, Frederick and Montgomery Counties, Maryland

Dear Mr. Grey:

Thank you for your recent letter, dated October 18 1999, and received by the Trust on October 20, 1999, regarding the above-referenced project. Your submittal included a draft of the following report: *Phase IB Archeological Survey, I-270/US 15 Multi-Modal Corridor Study, Montgomery and Frederick Counties, Maryland* (John Milner Associates, September 1999).

IDENTIFICATION AND EVALUATION

Archeology: Our review of the report shows that the document comprehensively describes the survey's goals, methods, and results. It is well organized and clearly written; and it contains excellent maps depicting the survey areas. Furthermore, the report addresses the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994). In our opinion, the background research and fieldwork were sufficient to identify archeological properties in the area of potential effects.

The consultant discovered several archeological sites and reidentified others within the area of potential effects. Most of these sites were prehistoric lithic scatters with debitage and a smaller quantity of tools:

18FR147 (Middle and Late Archaic, Late Woodland)
18FR148 (Middle and Late Archaic, Early Woodland)
18FR744 (generic prehistoric with historical field scatter)
18FR745 (generic prehistoric with historical field scatter)
18FR747 (Late Archaic)
18FR748 (generic prehistoric with historical field scatter)

18MO406 (Middle Woodland?)
18MO471 (generic prehistoric)
18MO472 (Terminal Archaic)
18MO473 (generic prehistoric)

The low density of artifacts in these sites, as well as limited physical integrity and research potential, mean that these 10 properties are ineligible for the National Register of Historic Places.

In addition to the prehistoric sites, the consultant identified two historical archeological properties: 18FR148A and 18FR746. (Survey within the expansive Monocacy Battlefield—18FR30—recovered no artifacts.) Site 18FR148A evidenced nineteenth century ceramics and glass in a 50 x 30 m area outside the area of potential effects. This site may represent a trash dump associated with an unknown, early nineteenth century residence. We believe that subsurface testing would be necessary to evaluate the National Register eligibility of 18FR148A. The 20 x 10 m site of 18FR746 contains nineteenth century ceramics, nails, and bones. It may represent a tenant occupation. Since shovel testing found only a small, low-density property with little research potential, we concur that 18FR746 is ineligible for the National Register.

Based on the presented information, the Maryland Historical Trust believes that no additional archeology is warranted for this project. However, in addition to addressing SHA's own suggestions, we recommend that the final report note our comments on the National Register eligibility of 18FR148A (see above) and include site 18FR30 (Monocacy Battlefield) in Table 2.

We trust that SHA has provided a copy of the draft report to the National Park Service (NPS), Monocacy Battlefield, for review and comment. We await copies of NPS's remarks on the adequacy and results of the archeological survey on NPS property.

ASSESSMENT OF EFFECTS

We look forward to receiving SHA's determination of effect for the project, when available. Please note that future Section 106 consultation on this project should include open coordination between SHA, the Trust, NPS, and any other consulting parties.

Finally, we ask that SHA please remember to use the Eligibility Tables developed by the CPPI Section 106 team for future submittals involving the identification and evaluation of archeological resources. Use of the tables facilitates the Trust's review of the project.

Thank you for your cooperation and assistance. If you have any questions on the technical archeological review, please call Dr. Gary Shaffer at 410-514-7638.

Sincerely,

Elizabeth J. Cole
Administrator
Archeological Services

EJC/GDS

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

September 5, 2001

Re: Project No. FR192B11
I-270/US 15 Multi-Modal Study
Montgomery and Frederick Counties, MD

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

Introduction and Project Description

This letter serves to inform the Maryland Historical Trust (MHT) of changes that have occurred to the project since our previous consultation in 1999, and to seek your comments on the identification and evaluation of historic properties within the project's revised Area of Potential Effects (APE).

The history of our prior consultation dates back to 1990 and includes review and comments for our inventory and evaluation of historic properties within the APE for highway widening and multi-modal transportation improvements developed up to 1999. These improvements consisted of a combination of alternatives and strategies to adequately address the purpose and need of the project. Three combination packages designated Combination Alternate A, Combination Alternate B, and Combination Alternate C, along with the Baseline (No-Build) Alternative, and Transportation System Management/Transportation Demand Management (TSM/TDM) strategies were considered. The Combination Alternatives included highway widening and interchange construction along existing I-270 and US 15, TSM/TDM strategies that could include new hiker/biker paths and park and ride lots, and transit improvements including bus service, the Corridor Cities Transitway, and the extension of MD 75 on new alignment. Your agreement in determinations of eligibility and boundaries for the numerous historic properties identified within the APE was documented in your letters of October 2, 1996 and April 24, 1997. Additionally, Phase I archeological investigations were conducted in 1999. We subsequently received your concurrence (MHT letter dated November 5, 1999) that the only potentially significant resource identified was 18FR148A which will be avoided by the undertaking as planned. Your office agreed that no additional archeological investigations were warranted.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Since 1999, we have repackaged the previously studied alternatives in order to simplify the alternates for both the public and the SHA project team as the alternates are carried forward for detailed study. The results of our prior Stage I planning study indicated that no stand-alone transit or highway alternate would address the corridor's transportation needs. As a result, the transit and highway elements were packaged into strategies to describe the possible implementation scenarios. The alternates below summarize the results of the proposed repackaging process, highlighting the alternates that will be evaluated in the forthcoming Draft Environmental Impact Statement (DEIS).

Project Plans are included as **Attachment I** for your review.

Alternates Retained for Detailed Study

Consistent with the requirements of Maryland's Congestion Management System (CMS) process, a full range of multi-modal strategies have been identified for detailed study. All Alternates Retained for Detailed Study are listed below and are described in more detail on the following pages (please note that the former Combination Alternates are listed in parenthesis for your reference; they will not be included in the proposed names of the alternates). Several combinations of transit and highway strategies are being evaluated, including general-purpose lanes, auxiliary lanes, High Occupancy Vehicle (HOV) lanes, Collector-Distributor (C-D) lanes, Light Rail Transit (LRT), Bus Rapid Transit (BRT), and others. Specifically, the following alternates are under consideration:

Alternate 1: No-Build (Modified Baseline) Alternate

Alternate 2: Transportation System Management (TSM)/Transportation Demand Management (TDM) Alternate

Includes enhanced bus service, park and ride lots, hiker/biker trails, etc. throughout the Corridor and a shoulder conversion on southbound I-270 for HOV lanes between MD 121 and I-370.

Alternate 3A: Master Plan HOV/LRT Alternate *(old C-1 (LRT), Option 8)*
Alternate 3B: Master Plan HOV/BRT Alternate *(old C-2 (BRT), Option 8)*

Includes TSM/TDM strategies, additional general-purpose, C-D, HOV, and auxiliary lanes *(with one additional HOV lane in each direction along I-270 between MD 121 and I-70)*, interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 3A) or BRT (Alternate 3B).

Alternate 4A: Master Plan General-Purpose/LRT Alternate *(old C-1 LRT), Option 9)*
Alternate 4B: Master Plan General-Purpose/BRT Alternate *(old C-2 BRT), Option 9)*

Includes TSM/TDM strategies, additional general-purpose, C-D, HOV, and auxiliary lanes *(with one additional general-purpose lane in each direction along I-270 between*

MD 121 and I-70), interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 4A) or BRT (Alternate 4B).

Alternate 5A: Enhanced Master Plan HOV/General-Purpose/LRT Alternate *(old A-1 (LRT))*
Alternate 5B: Enhanced Master Plan HOV/General-Purpose/BRT Alternate *(old A-2 (BRT))*
Alternate 5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus Alternate *(old B/B (HOT))*

Includes TSM/TDM strategies, additional general-purpose, C-D, HOV, and auxiliary lanes *(with one additional HOV lane and general-purpose lane in each direction along I-270 between MD 121 and I-70)*, interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 5A) or BRT (Alternate 5B), or a 'Premium' express busway along I-270 HOV lanes (Alternate 5C).

Alternate 1: No-Build (Modified Baseline) Alternate

Within the approximately 31 mile study area from the I-270/ Shady Grove Road interchange in Montgomery County to the US 15/ Biggs Ford Road intersection in Frederick County, the I-270/ US 15 roadway transitions from an interstate facility to a highway with at-grade intersections. The No-Build (Modified Baseline) Alternate consists of the elements adopted from the 1997 Constrained Long Range Transportation Plan (e.g. MARC commuter train extension from Point of Rocks in Frederick County to the City of Frederick). The Modified Baseline Alternate reflects current and programmed conditions within the I-270/ US 15 Corridor. However, the southbound HOV lane between MD 121 and I-370 is excluded from the Baseline Alternate since it is part of all the alternates under consideration. No major capacity improvements would be made on I-270 or US 15. Only routine maintenance and spot improvements are included.

Alternate 2: Transportation System Management (TSM)/Transportation Demand Management (TDM) Alternate

The Transportation System Management (TSM) and Transportation Demand Management (TDM) measures included in this alternate are as follows:

- Increase and improve existing bus service in the corridor
- Integrate the bus service improvements with enhanced feeder and distributor service
- Enhance feeder bus service to Metro and MARC stations

- Provide interactive transit information at major employment centers in the corridor

The TDM measures included in this alternate are as follows:

- Additional park-and-ride lots/spaces
- Enhanced rideshare program in the study area, which includes interactive ride matching at major employment centers and implementation of a regionally supported Guaranteed Ride Home program.
- Comprehensive vanpool program in the study area, which includes financial start-up assistance, increased vanpool eligibility for Metrocheck, a consolidated matching database and establishment of a vanpool loaner program.
- Improved pedestrian access to the Shady Grove Metro Station and corridor MARC stations.
- Completion of specific components of the Metropolitan Washington Council of Governments (MWCOG) Constrained Long Range Plan Bicycle Element, such as constructing specific critical segments of the MWCOG Bicycle Element to provide for a fully linked system in the corridor.
- Improved regional telecommuting program
- Encouragement of flexible work hours

Alternate 3A: Master Plan HOV/LRT Alternate
Alternate 3B: Master Plan HOV/BRT Alternate

Alternate 3 A/B consists of a TSM/ TDM component; a highway component with general-purpose, High Occupancy Vehicle (HOV), auxiliary, and collector-distributor (C-D) lanes, proposed interchanges, and improvements to existing interchanges; and two transit alternates (Alternate 3A – Light Rail Transit (LRT) on the Corridor Cities Transitway (CCT) and Alternate 3B – Bus Rapid Transit (BRT) on the Corridor Cities Transitway (CCT)).

TSM/TDM Component

The Transportation System Management (TSM) and Transportation Demand Management (TDM) component is the same as described in Alternate 2.

Highway Component

Alternate 3 A/B consists of adding general-purpose lanes, High Occupancy Vehicle (HOV) lanes, auxiliary lanes and direct access ramps along I-270, and general-purpose lanes and auxiliary lanes along US 15. As per the Montgomery County Master Plans, only one additional

lane is being considered on I-270 between MD 121 and I-70; this additional lane will be evaluated as an HOV lane in Alternate 3 A/B *(proposed I-270 section between MD 121 and I-70: two general-purpose lanes and one HOV lane in each direction)*.

Alternate 3 A/B also consists of extending the two lane collector-distributor (C-D) lanes along I-270 that currently terminate at I-370 (SB) and MD 124 (NB) to Father Hurley Boulevard. Collector-distributor lanes are local lanes, parallel to the freeway (referred to as mainline lanes) and separated by a barrier, that carry traffic merging on and off of the freeway. Slip ramps accommodate traffic between the mainline and C-D lanes.

As part of the highway component in Alternate 3 A/B, HOV only direct access ramps are being considered at the Watkins Mill Road interchange and either the Newcut Road or MD 121 interchanges. Direct access ramps would be located in the median of the freeway to provide access to the interchange directly from the HOV lane.

Five new interchanges are proposed as part of Alternate 3 A/B:

I-270/ Watkins Mill Road - The proposed I-270/ Watkins Mill Road interchange would be located in Montgomery County, approximately 0.7 mile north of the MD 124 interchange. Watkins Mill Road was initially part of the I-270/ US 15 Multi-Modal Corridor Study but was broken out to be evaluated as a separate project planning study.

I-270/ Newcut Road - The proposed I-270/ Newcut Road interchange would be located in Montgomery County, approximately 1.1 miles south of the MD 121 interchange. The interchange would only access the east side of I-270; no connection would be provided to the west in order to be consistent with State/ County Smart Growth initiatives and to preserve the agricultural land uses on the west side of I-270.

I-270/ MD 75 - The proposed I-270/ MD 75 interchange would be located in Frederick County, approximately 1.2 miles north of the MD 109 interchange in Montgomery County. Similar to I-270/ Newcut Road, this interchange would only access the east side of I-270; no connection would be provided to the west in order to be consistent with State/ County Smart Growth initiatives and to preserve the agricultural land uses on the west side of I-270.

US 15/ Trading Lane - A new interchange is proposed at the current at-grade intersection of US 15 and Trading Lane in Frederick County.

US 15/ Biggs Ford Road - A new interchange is proposed at the current at-grade intersection of US 15 and Biggs Ford Road in Frederick County.

There are several proposed improvements to existing interchanges, including I-270/ MD 117; I-270/ Middlebrook Road; I-270/ MD 118; I-270/ Father Hurley Boulevard; I-270/ MD 121; I-270/ MD 109; I-270/ MD 80; I-270/ MD 85; US 40/ US 15/ US 340/ Jefferson Street; and US 15/MD 26 (separate planning study).

Transit Component

Alternate 3A – LRT on CCT and Alternate 3B – BRT on CCT

Consists of the Master Planned Corridor Cities Transitway (CCT), Light Rail Transit or Bus Rapid Transit, alignment from the Shady Grove Metro Station to COMSAT. The master plan alignment has remained much the same, although some alignment changes have occurred along the corridor. Certain intersections and crossings have an optional grade separation for traffic and safety reasons. Express bus service would be provided along the CCT (if BRT) and along the I-270 HOV lanes (if LRT), in addition to an extended feeder bus system.

Alternate 4A: Master Plan General-Purpose/LRT Alternate
Alternate 4B: Master Plan General-Purpose/BRT Alternate

Alternate 4 A/B consists of a TSM/ TDM component; a highway component with general-purpose, High Occupancy Vehicle (HOV), auxiliary, and collector-distributor (C-D) lanes, proposed interchanges, and improvements to existing interchanges; and two transit alternates (Alternate 4A – Light Rail Transit (LRT) on the Corridor Cities Transitway (CCT) and Alternate 4B – Bus Rapid Transit (BRT) on the Corridor Cities Transitway (CCT)).

TSM/TDM Component

The Transportation System Management (TSM) and Transportation Demand Management (TDM) component is the same as described in Alternate 2.

Highway Component

The highway component is the same as described in Alternate 3 A/B, except between MD 121 and I-70, one general-purpose lane per direction would be added in place of the HOV lanes described in Alternate 3 A/B *(proposed I-270 section between MD 121 and I-70: three general-purpose lanes in each direction)*.

Transit Component

Alternate 4A – LRT on CCT and Alternate 4B – BRT on CCT

Same as described in Alternate 3 A/B.

Alternate 5A: Enhanced Master Plan HOV/General-Purpose/LRT Alternate
Alternate 5B: Enhanced Master Plan HOV/General-Purpose/BRT Alternate
Alternate 5C: Enhanced Master Plan HOV/General-Purpose/Premium Bus Alternate

Alternate 5 A/B/C consists of a TSM/ TDM component; a highway component with general-purpose, High Occupancy Vehicle (HOV), auxiliary, and collector-distributor (C-D)

lanes, proposed interchanges, and improvements to existing interchanges; and three transit alternates (Alternate 5A – Light Rail Transit (LRT) on the Corridor Cities Transitway (CCT), Alternate 5B – Bus Rapid Transit (BRT) on the Corridor Cities Transitway (CCT), and Alternate 5C – Premium Bus on the HOV Lanes).

TSM/TDM Component

The Transportation System Management (TSM) and Transportation Demand Management (TDM) component is the same as described for Alternate 2.

Highway Component

The highway component is the same as described in Alternate 3 A/B except in the following locations:

- Between MD 121 and I-70, one general-purpose lane per direction would be added in addition to the HOV lanes described in Alternate 3 A/B *(proposed I-270 section between MD 121 and I-70: three general-purpose lanes and one HOV lane in each direction).*
- In addition to the HOV only direct access ramps in Alternates 3 A/B and 4 A/B at the Watkins Mill Road interchange and either the Newcut Road or MD 121 interchanges, direct access ramps are being considered at I-370, MD 118, and MD 85/Shockley Drive.

Transit Component

Alternate 5A – LRT on CCT and Alternate 5B – BRT on CCT

Same as described in Alternate 3 A/B.

Alternate 5C – Premium Bus on HOV Lanes

This alternate consists of "Premium" express bus service on the HOV lanes from the Shady Grove Metro Station to I-70 (this includes direct access ramps for exclusive bus/HOV access from the HOV lanes to the proposed intermodal stations located at the major activity centers in Shady Grove (I-370); Gaithersburg (Watkins Mill Road); Germantown (MD 118); COMSAT/Clarksburg (Newcut Road/MD 121); and Frederick (MD 85/Shockley Drive).

Status Update

The repackaging of previously studied alternates does not affect the efficacy of our previous Section 106 identification and evaluation efforts. However, we have modified the project to incorporate alignment shifts and a northward expansion of the previously studied Corridor Cities Transitway, new transit passenger stations, rail yards and shops, new park and ride lots, and wetland mitigation sites since our last correspondence in 1999. While most of the current modifications are located within or immediately adjacent to the previously studied APE,

some aspects including extension of the CCT alignment and potential wetland mitigation sites have expanded the original APE. Consequently, we wish to re-open consultation regarding eligibility of historic standing structures and the need for additional archeological investigations within the revised APE. Following receipt of your comments, we intend to consult further on the project's effects to historic properties and to resolve effects through implementation of a Memorandum of Agreement (MOA).

With your concurrence, it is our wish to defer archeological survey for unknown archeological sites while concluding an agreement on known historic properties. As yet unidentified properties may be affected by modifications to the undertaking developed since our consultation in 1999. At this point in the planning process, refinements to alternatives related to transit associated improvements, park and lots, and wetland mitigation sites are anticipated. Therefore, we anticipate performing archeological identification and evaluation studies for these alternatives after plans are better defined and the range of alternatives has been reduced. However, the undertaking has the potential to adversely impact properties identified and evaluated in prior consultation. Consequently, the MOA will address mitigation measures to National Register listed or eligible properties which have been identified, and will stipulate the process for identifying and treating properties not yet fully identified in areas of the expanded APE related to the transit associated improvements, park and ride lots, and wetland mitigation. We are in the process of preparing this documentation now, and anticipate circulating a draft MOA by Ocotober 2001.

Modifications to the project since 1999 involve further expansion of the APE for rail yards, transit stations, park and ride lots, and modifications to the previously surveyed CCT alignment. Thirteen locations were reviewed by SHA cultural resources staff for potential rail yards and transit stations. Four locations where multiple alternatives are considered for park and ride lots were also reviewed, as well as the linear corridors associated with a minor alignment shift for the CCT at Shady Grove Road, and the major extension of the CCT between Comsat and approximately the Frederick County line. All proposed rail yard and transit station areas are located within Montgomery County. Three of the four park and ride locations are situated within Frederick County; the remaining location is within Montgomery County. In addition, seven Frederick County locations and two Montgomery County locations were examined for potential wetland mitigation sites.

Funding

Federal funds will be used for this project.

Area of Potential Effects

The APE for this project is defined broadly enough for both architecture and archeology to encompass worst case impacts anticipated under all alternatives and options for the proposed modifications. It anticipates direct and indirect construction, viewshed, and landuse impacts, and is indicated on the attached USGS 7.5" *Frederick, Urbana, Germantown,* and *Rockville, MD,*

quadrangle maps (**Attachment II A - X**). For archeology, the APE is defined by the anticipated limits of ground disturbance within proposed and existing right or way and/or easements as depicted on the attached plans (**Attachment I**), and aerial photographs (**Attachment III A - I** for wetland sites). Given the limited nature of the work anticipated for wetland mitigation sites, confined to planting of vegetation and other remedial actions in areas traversed by streams, and thus the extremely limited likelihood that elements would be introduced that would affect characteristics qualifying resources for inclusion in the National Register of Historic Places (NRHP), the APE for structures is confined to the limits of ground disturbance.

Identification Methods and Results

Potentially significant architectural and archeological resources were both researched as part of the historic investigation for the expanded APE for the proposed multi-modal improvements.

Architecture:

NRHP or National Historic Landmark (NHL) listed and eligible structures/districts within the original APE which were included in our previous consultation regarding identification and evaluation are presented in **Attachment IV**.

Some of these properties are included in the NRHP or the list of NHL. The SHPO has concurred that the remaining historic structures within the project's APE are eligible for inclusion on the NRHP. We wish to advise you that the Calvin Cronice House (F-3-6) has been demolished since the time of our original coordination. In addition, the Billy King Farm (M20/32) has been developed, and is now the location of a large subdivision development except for the small portion that encompasses the house and some remaining farm buildings, which are deteriorating. We are including as **Attachment V** photographs indicating how the subdivison construction is encroaching upon the house and its immediate environs, which is slated to be the site of a community park, along with a revision of the original boundary of May, 1998 which excludes this new construction. One final item concerns the Old Gaithersburg Historic District (M21-2). With the attachment to your October 2, 1996 letter we were informed that the eligibility of the district was under consideration. It is our understanding that the non-eligibility of the district has been finalized, as seen in **Attachment VI.**

The results of identification and evaluation for architectural resources within the expanded APE is presented below.

Transit Modifications and Proposed Park and Ride Lots

We have evaluated the proposed locations for additional transit improvements using the results of prior historic sites survey results, including our previous survey data for the larger I-270/US 15 Multi-Modal Study, SHA GIS site and survey inventory information, modern landuse mapping, and historic map research. Field visits were made to the project area. The transit stations, rail yards and shops, and park and ride lots, are sited in areas adjacent to existing rail and roadway facilities and areas of high density residential and/or commercial development that

are within the previously surveyed APE for the mainline alternatives. Thus, there are no new historic standing structures within the APE of these ancillary transportation facilities.

Potential Wetland Mitigation Sites

Nine properties in Montgomery and Frederick counties were researched and inspected to ascertain the presence of historic standing structures in Summer, 2001.

One property is within the APE of a proposed wetland mitigation site, the Browningsville Historic District, and one property, the newly identified T. Poole House (F5/126) is considered to lack the necessary significance to be considered eligible for the NRHP. We are seeking the concurrence of the State Historic Preservation Officer in this determination (**Attachment VII, MIHP Form for F-5-126**).

- M10/13, Browningsville Historic District
  Browningsville is eligible for the NRHP under Criteria A and C. Located in northern Montgomery County near the Frederick County border, in a largely rural area, is a relatively intact representative example of a rural crossroads village of the late 19th and early 20th centuries, which served the surrounding farm community. It is significant for its collection of vernacular residences and community buildings.

Site LISC9 (# 9) in Montgomery County contains approximately 30 acres consisting of two discontinuous parcels situated north and south of Old Baltimore Road along Little Seneca Creek (**Attachment II P, Attachment III A**). This wetland mitigation site was previously considered in 1999 as part of the MD 28 Project (Riffleford Road to Great Seneca Highway). The MHT confirmed that the Seneca Ayres Property (M19/29) would not meet the criteria for listing in the National Register (See your October 2, 1996 letter concerning this project, **Attachment VI**).

Site UBEC5 (# 5) in Montgomery County contains approximately 20 acres composed of two discontinuous parcels situated east and west of Bethesda Church Road along Bennett Creek (Attachment **II Q, Attachment III B**). It is located along the back lot lines of historic structures included in the Browningsville Historic District (M10-13) which is eligible for inclusion in the National Register. The properties within Browningsville through which Bennett Creek flows (it would be the nucleus of the wetland mitigation site), are 27440, 27444, 27448, 27452, 27460 and 27530 (Mill House) Clarksville Road.

Site HRRFR28 (#28) in Frederick County contains approximately 11 acres located on the north and south floodplains and adjacent terraces flanking Horsehead Run (**Attachment II R, Attachment III C**). There are no historic standing structures within the APE.

Site LBUC11 (#11) in Frederick County contains approximately 21 acres located on the north and south floodplains and adjacent terraces flanking Bush Creek (**Attachment II S, Attachment III D**). The Ijamsville Survey District (F5-012) is located immediately adjacent to,

but outside the APE, with the closest being the J. K. D. Williams Store ruins, an abandoned industrial structure at the intersection of Ijamsville Road and the B&O tracks.

Site SFLCWB16 (#16) in Frederick County (**Attachment II T** and **Attachment III E**) contains approximately 40 acres located on the north and south floodplains and adjacent terraces flanking the South Fork tributary of Linganore Creek. The APE is situated due west of the historic community of Linganore, no longer extant, that included a store and post office as well as residential buildings at least as early as the mid-19th century. The sole standing structure, not thought to meet the criteria for listing in the NRHP is the T. Poole House (F-5-126), located within the Sam Tressler Farm at 13025 Glissans Mill Road. It has been documented in a recently prepared MHIP form (**Attachment VII**), and believed to lack the necessary integrity to be included in the NRHP.

Site SFLCWB18 (#18) in Frederick County consists of two discontinuous parcels containing approximately 25 acres in total, situated on the north and south floodplain of the South Fork Tributary of Linganore Creek (**Attachment II U**, and **Attachment III F**). There are no historic standing structures within the APE.

Site NFLCTB21 (#21) in Frederick County (**Attachment II V**, and **Attachment III G**) contains approximately 40 acres located on the north and south floodplain of the North Fork Tributary of Linganore Creek. There are no historic standing structures within the APE.

Site LICCR23 (#23) in Frederick County is located on the floodplain and terrace margins of Cabbage Run and contains approximately 45 acres (**Attachment II W**, and **Attachment III H**). There are no historic standing structures within the APE.

Site LICCR25 in Frederick County contains approximately 20 acres located on the floodplain east and west of Israel Creek (**Attachment II X**, and **Attachment III I**). There are no historic standing structures within the APE.

Archeology:

Phase I archeological identification investigations were conducted for the mainline improvements for the project in 1999. The survey resulted in the identification of seven prehistoric archeological sites (18FR744, 18FR745, 18FR747, 18FR748, 18MO471, 18MO472, 18MO473) and one historic archeological site (18FR746). Previously identified prehistoric sites 18FR147, 18FR148, 18FR110, 18MO182, 18MO406, and historic sites 18FR30 and 18FR134 were reinvestigated. Additionally, a spatially discreet historic component of 18FR148 was newly identified and designated 18FR148A. None of the eight newly identified sites 18FR744, 18FR745, 18FR746, 18FR747, 18FR748, 18MO471, 18MO472, 18MO473) were considered significant by virtue of their low research potential and lack of integrity. Sufficient testing was also conducted at reinvestigated sites 18FR147 and 18MO406 to confirm their low research potential and lack of integrity as well.

Regarding other previously reported sites that were re-investigated in 1999, no archeological deposits associated with sites 18FR134 (Schiefferstadt), 18FR30 (Monocacy Battlefield), or 18FR110, were found to extend into the APE. Consequently, these sites will be avoided. 18MO182 was found to be destroyed. Deposits associated with the prehistoric component of 18FR148 were found to be concentrated on the surface with very low densities recovered from shovel test pits within the APE. The historic component of the site (18FR148A) will be avoided by the undertaking.

Your office concurred with these findings in your letter of November 5, 1999 (**Attachment VIII**), and agreed that no additional archeological investigations were warranted for the project. As documented in **Attachment IX**, the National Park Service has also commented on the results of our previous archeological identification investigations conducted within the Monocacy National Battlefield (18FR30), and has concurred in our recommendation for no additional work. Based on review of current project plans for the mainline improvements, no new impacts to any of the previously identified and/or evaluated archeological resources are anticipated. Consequently, our outstanding issues relate to the expanded APE resulting from transit modifications, and the addition of park and ride facilities and wetland mitigation sites.

Transit Modifications and Proposed Park and Ride Lots

We have assessed the archeological potential of the proposed locations for additional transit improvements using the results of prior archeological investigations within the region, including our previous archeological survey for the larger I-270/US 15 Multi-Modal Study, SHA GIS site and survey inventory information, modern landuse mapping, and historic map research. Specific reference and sources cited in the following discussions are listed in **Attachment X**. Field visits were made to the project area on May 16, 2001 and May 17, 2001. The majority of transit stations, rail yards and shops, and park and ride lots, are sited in areas adjacent to existing rail and roadway facilities and areas of high density residential and/or commercial development. As a result, most of these locations have been subject to previous disturbance. In general, disturbance within the APE increases in intensity and extent as the southern project limits are approached, where intense semi-urban development proximal to Rockville, Gaithersburg, and Germantown, has taken place. However, the APE north of Clarksburg remains rural and relatively undisturbed.

The project area is located in the eastern division of the Piedmont physiographic province, which is characterized by a rolling and rugged surface incised by deep and narrow stream valleys. Streams within the project area region drain to the Monocacy or Potomac rivers. For the most part, surface soils belong to the well-drained Glenelg – Manor – Chester, and Manor – Linganore – Glenelg Associations in Montgomery County. Frederick County project areas are characterized by the well-drained Duffield and Hagerstown Series that are common in Limestone Valleys. All of these associations are agriculturally productive. The results of prior archeological investigations indicate that prehistoric period archeological sites within the region tend to be located primarily upon well-drained hillslopes, hilltops, and terraces overlooking

perennial streams. Settings within the APE that would be considered sensitive for prehistoric sites may include stream junctions, heads of small drainages, terraces and hilltops overlooking major and minor drainages. Historic map research suggests that historic sites would be likely adjacent to historic transportation corridors, particularly along MD 355 and US 15 which date from 1795 and 1865, respectively, where nucleated settlements were concentrated. However, historic sites may be present anywhere there is level, agriculturally productive land.

As documented in the following tables included as Attachments **XI** and **XII**, additional Phase I survey is recommended for the Watkins Mill Rail Yard, the Comsat Station and Rail Yard, the Truck Weigh Station Rail Yard, Park and Ride Lots 15-2, 14-41, 14-16, 15A/B/C-12 and 15A/B/C-13. Additionally, Phase I survey is also recommended for the extension of the CCT alignment north of the proposed Comsat Station. All other areas where transit improvements and park and ride lots are proposed have low archeological potential based upon prior disturbance, or have been previously surveyed with negative results. Cultural Resources Maps showing the location of each proposed transit improvement, previous survey coverage, known sites, and inventoried historic standing structures is included as **Attachment II A – M**).

Potential Wetland Mitigation Sites

Nine locations in Montgomery and Frederick counties were assessed for archeological potential using the results of prior archeological investigations within the region, including our previous archeological survey for the larger I-270/US 15 Multi-Modal Study, SHA GIS site and survey inventory information, modern landuse mapping, and historic map research. Field visits were made to the project area on March 19, 2001 and April 5, 2001. As all of the potential wetland mitigation site locations are removed from areas of major development, each remains relatively undisturbed. The project area is located in the eastern division of the Piedmont physiographic province, which is characterized by a rolling and rugged surface incised by deep and narrow stream valleys. Seven Frederick County sites (**Attachment II N**) are situated within the Monocacy River drainage while two Montgomery County sites (**Attachment II O**) are located within the Potomac River drainage. Of the nine sites, only Site NFLCTB21 and Site LISC9 are considered to have low potential for archeological resources. Phase I identification survey is recommended at the remaining seven sites. Each site is discussed in detail below and the results of our assessment are summarized in Attachment **XIII**.

Site LISC9 (# 9) in Montgomery County contains approximately 30 acres consisting of two discontinuous parcels situated north and south of Old Baltimore Road along Little Seneca Creek (**Attachment II P, Attachment III A**. The APE occupies the eastern and western floodplain of Little Seneca Creek, and its adjacent first terraces, and includes two first order tributary confluences. No prior archeological surveys have been conducted within the APE.

No roads or structures are depicted in the project area vicinity on historic maps prior to the publication of Martenet and Bond's (1865) *Map of Montgomery County, Maryland,* which shows Old Baltimore Road and structures attributed to G. Burdett and G. Linthicum on the west

side of Little Seneca Creek. These structures are the only ones depicted later near the APE on Hopkins' (1879) *Atlas of Montgomery County, Maryland.* Both are shown again on the USGS (1908) *Seneca* topographic quadrangle where it is possible to determine their proximity to the APE. Both are shown on the more elevated terraces adjacent to the project area, outside of the APE. Given their remote proximity, is not likely that any associated archeological deposits would extend into the APE.

Surface soils within the APE are poorly drained and moderately to severely eroded. While these soils may have provided suitable habitat for wetland flora and fauna that could have been economically important to prehistoric occupants of the region, it is not likely that longer term base camps would be located within this setting characterized by steep slopes and poorly drained conditions. Limitations for cultivation may also have discouraged its use during the late prehistoric and historic periods. Consequently, any prehistoric or historic remains that may be located within the APE are expected to represent ephemeral use focused on short term resource procurement or livestock maintenance, and may be disturbed by erosion or periodic flood and scour events. Given the project area's marginal ecological setting and absence of historic map indicated structures within the APE, it is not likely that the undertaking would affect significant archeological resources. No additional archeological investigations are recommended.

Site UBEC5 (# 5) in Montgomery County contains approximately 20 acres composed of two discontinuous parcels situated east and west of Bethesda Church Road along Bennett Creek (**Attachment II Q, Attachment III B**). The APE is situated primarily within the floodplain but may extend onto the adjacent terraces and terrace flanks. No prior archeological surveys have been conducted within the APE.

The Clarksville Road, Bethesda Church Road, and the historic community of Browningsville are depicted in the project area vicinity on historic maps at least as early as 1865 when Martenet and Bond's (1865) *Map of Montgomery County, Maryland*, was published. At this time several structures including a mill are depicted along Bennett Creek and at the intersection, in or immediately adjacent to the APE. Several additional structures, including a store, are depicted later on Hopkins' (1879) *Atlas of Montgomery County, Maryland.* Many of the structures that remain standing in the project area vicinity in Browningsville can be correlated to the locations of these historic map indicated structures, including those depicted on the USGS (1909b) *Mt. Airy* topographic quadrangle. Given their proximity to the project area, it is likely that associated archeological deposits would extend into the APE. Archeological identification investigations are recommended if UBEC5 is retained for detailed study.

Site HRRFR28 (#28) in Frederick County contains approximately 11 acres located on the north and south floodplains and adjacent terraces flanking Horsehead Run. The APE contains two first order tributary confluences and is situated due west of the historic community of Buckeystown (**Attachment II R, Attachment III C**). Approximately 75 percent of the APE were included in a previous archeological survey by Kavanagh (1982) who identified two archeological sites – 18FR350 and 18FR351- within the current APE. Site 18FR350 (Keller

lane is being considered on I-270 between MD 121 and I-70; this additional lane will be evaluated as an HOV lane in Alternate 3 A/B *(proposed I-270 section between MD 121 and I-70: two general-purpose lanes and one HOV lane in each direction)*.

Alternate 3 A/B also consists of extending the two lane collector-distributor (C-D) lanes along I-270 that currently terminate at I-370 (SB) and MD 124 (NB) to Father Hurley Boulevard. Collector-distributor lanes are local lanes, parallel to the freeway (referred to as mainline lanes) and separated by a barrier, that carry traffic merging on and off of the freeway. Slip ramps accommodate traffic between the mainline and C-D lanes.

As part of the highway component in Alternate 3 A/B, HOV only direct access ramps are being considered at the Watkins Mill Road interchange and either the Newcut Road or MD 121 interchanges. Direct access ramps would be located in the median of the freeway to provide access to the interchange directly from the HOV lane.

Five new interchanges are proposed as part of Alternate 3 A/B:

I-270/ Watkins Mill Road - The proposed I-270/ Watkins Mill Road interchange would be located in Montgomery County, approximately 0.7 mile north of the MD 124 interchange. Watkins Mill Road was initially part of the I-270/ US 15 Multi-Modal Corridor Study but was broken out to be evaluated as a separate project planning study.

I-270/ Newcut Road - The proposed I-270/ Newcut Road interchange would be located in Montgomery County, approximately 1.1 miles south of the MD 121 interchange. The interchange would only access the east side of I-270; no connection would be provided to the west in order to be consistent with State/ County Smart Growth initiatives and to preserve the agricultural land uses on the west side of I-270.

I-270/ MD 75 - The proposed I-270/ MD 75 interchange would be located in Frederick County, approximately 1.2 miles north of the MD 109 interchange in Montgomery County. Similar to I-270/ Newcut Road, this interchange would only access the east side of I-270; no connection would be provided to the west in order to be consistent with State/ County Smart Growth initiatives and to preserve the agricultural land uses on the west side of I-270.

US 15/ Trading Lane - A new interchange is proposed at the current at-grade intersection of US 15 and Trading Lane in Frederick County.

US 15/ Biggs Ford Road - A new interchange is proposed at the current at-grade intersection of US 15 and Biggs Ford Road in Frederick County.

There are several proposed improvements to existing interchanges, including I-270/ MD 117; I-270/ Middlebrook Road; I-270/ MD 118; I-270/ Father Hurley Boulevard; I-270/ MD 121; I-270/ MD 109; I-270/ MD 80; I-270/ MD 85; US 40/ US 15/ US 340/ Jefferson Street; and US 15/MD 26 (separate planning study).

Site SFLCWB16 (#16) in Frederick County (**Attachment II T**, **Attachment III E**) contains approximately 40 acres located on the north and south floodplains and adjacent terraces flanking the South Fork tributary of Linganore Creek. The APE contains two first order tributary confluences and is situated due west of the historic community of Linganore that included a store and post office as well as residential buildings at least as early as the mid-19th century (Bond 1858). Surface soils are classified predominantly within the poorly drained Wehadkee and somewhat poorly drained Chewacla Series. Margins of the flanking terraces are classified as moderately eroded and somewhat excessively drained Manor Series soils with 15 – 25 percent slopes. Any prehistoric resources within the project area would be expected to represent ephemeral use focused on short term resource procurement. It is more likely that prehistoric use of the area was focused on the more level areas of the adjacent terraces outside of the APE.

No prior archeological surveys have been conducted and there are no previously identified archeological sites within the APE. However, in addition to the structures at the crossroads of Linganore at the western edge of the APE, two other structures are depicted farther west within or immediately adjacent to the APE in 1858 (Bond 1858) and 1873 (Hopkins 1873). One of these locations, attributed to T. Poole in 1873, is situated within the core of an extant farmstead directly adjacent to the APE at the Kimmel Road/Glissens Mill Road intersection. This structure is shown again in 1909 (USGS 1909a) but the second structure attributed to Jos. Baker in 1873 is missing by the publication of the 1909 USGS (1909b) *Mt. Airy* topographic quadrangle. Although the APE would seem to have a high potential for historic period resources based on the presence of extant and historic map indicated structures, these locations are situated on the perimeter of the APE and may not be subject to impacts. However, Phase I archeological identification investigations are recommended unless more refined project plans make it possible to definitively avoid those areas that are sensitive for archeological resources.

Site SFLCWB18 (#18) in Frederick County consists of two discontinuous parcels containing approximately 25 acres in total, situated on the north and south floodplain of the South Fork Tributary of Linganore Creek (**Attachment II U**, **Attachment III F**). Surface soils consist of poorly drained and somewhat poorly drained soils of the Wehadkee, Glenville, and Chewacla Series. The APE extends onto the adjacent terrace margins that are moderately to severely eroded with slope ranging from 15 – 45 percent. Poorly drained conditions and excessive slope suggest a low potential for significant prehistoric archeological sites.

Examination of historic maps (Bond 1858; Hopkins 1873; USGS 1909b) indicates that three structures were located in the project area vicinity in the 19th century. Two of these remain extant and it can be reliably determined that each is only remotely proximal to the APE. The third structure, which is attributed to Cooper in 1873, was destroyed sometime prior to the 1909 publication of the USGS (1909b) *Mt. Airy* topographic quadrangle. However, this structure is clearly shown within the current APE by Hopkins (1873) suggesting that associated archeological deposits may be present. Consequently, Phase I identification investigations are recommended if Site SFLCWB18 is retained for detailed study.

Site NFLCTB21 (#21) in Frederick County (**Attachment II V, Attachment III G**) contains approximately 40 acres located on the north and south floodplain of the North Fork Tributary of Linganore Creek. The APE is confined primarily to poorly drained areas characterized by the Wehadkee Series circumscribed by moderately sloping, well drained terrace flanks not exceeding 15 percent. These elevated areas above the floodplain may have been occupied periodically during prehistoric times to exploit resources from the nearby wetland environment. However, these level, well-drained areas more favored for settlement are situated outside the APE.

Examination of historic maps (Bond 1858; Hopkins 1873; USGS 1909b) indicates that several structures were located in the project area vicinity in the later 19th century. Their subsequent depiction on the later 1909 *Mt. Airy* topographic quadrangle allows a reliable determination that all of the structures depicted on available historic maps were remotely proximal to the project area and it is not likely that any associated archeological deposits extend into the APE. Given the marginal ecological setting for prehistoric occupation of the APE, and absence of historic map indicated structure locations, the APE of NFLCTB21 is considered to have low archeological potential and no further archeological investigations are recommended.

Site LICCR23 (#23) in Frederick County is located on the floodplain and terrace margins of Cabbage Run and contains approximately 45 acres (**Attachment II W, Attachment III H**). While the floodplain is composed primarily of poorly drained soils of the Wehadkee and Worsham Series, the adjacent terraces and hillslopes are characterized by soils of the somewhat poorly drained Glenville and somewhat excessively drained Cardiff Series. Two archeological sites have been previously identified within or immediately adjacent to the APE. Site 18PR106 is characterized as a lithic scatter dating to the Archaic and Woodland time periods. It is located within 50 meters (164 feet) of third order Cabbage Run, on the floodplain/terrace margin, on somewhat poorly drained Glenville silt loam (GdB) with 0-8% slope. Site 18FR178 occupies a slightly more elevated setting on a hillslope/low terrace approximately 50 meters (164 feet) from third order Cabbage Run. Its setting is characterized by somewhat excessively drained Cardiff channery loam with 0-8 % slope. The presence of these sites suggests that other prehistoric resources may extend into the APE. Small sites representing temporary campsites associated with hunting or resource procurement activities may be expected near seepage areas on footslopes and around tributary confluences with Cabbage Run.

Examination of selected historic maps indicates that this portion of the Cabbage Run valley was occupied in historic times at least as early as the mid-19th century. Several structures including a saw mill are depicted between 1858 and 1909 (Bond 1858; Hopkins 1873; USGS 1909a) within the project area vicinity. However, only one which is depicted between 1858 and 1909 is indicated within or immediately adjacent to the APE. The other structures can be traced to extant resources located clearly outside the APE.

Site LICCR25 (#25) in Frederick County contains approximately 20 acres located on the floodplain east and west of Israel Creek (**Attachment II X, Attachment III I**). Examination of

historic maps indicates also that there was a structure west of Israel Creek between 1858 and 1911. Based on its depiction on the USGS (1911) *Emmitsburg* Quadrangle, the structure is clearly outside of the APE within an area disturbed by industrial development.

Review Request

Please examine the attached maps, plans, and tables. We request your concurrence by October 8, 2001 that the T. Poole House (F-5-126) is not National Register eligible, that the boundary reduction for the King Farm (M20/32) is appropriate, and that further archeological investigations are warranted for areas of the expanded APE for transit modifications, park and ride lots, and wetland mitigation sites as listed on Attachments XI, XII, and XIII. Furthermore, we seek your concurrence that the preparation of a Memorandum of Agreement concomitant with our request for effects to historic properties for this project, is an appropriate course of action given the preliminary nature of the plans regarding transit improvements and wetland mitigation sites.

By carbon copy, we invite the Frederick County Historic Preservation Commission, the Frederick County Historical Trust, the Montgomery County Historic Preservation Commission, Montgomery Preservation, Inc., the Gaithersburg Historic District Commission, the National Park Service, and the Planning Departments of the cities of Gaithersburg and Frederick, as appropriate, to provide comments and participate in the Section 106 process. Pursuant to the requirements of the implementing regulations found at 36 CFR Part 800, SHA seeks their assistance in identifying historic preservation issues as they relate to this specific project (see 36 CFR 800.2 (c) (4) and (6), and 800.3 (f) for information regarding the identification and participation of consulting parties, and 800.4, and 800.5 regarding the identification of historic properties and assessment of effects). For additional information regarding the Section 106 regulations, see the Advisory Council on Historic Preservation's website, www.achp.gov, or contact the Maryland State Highway Administration or the Maryland Historical Trust. If no response is received by October 8, 2001, we will assume that these offices decline to participate in the preparation of a Memorandum of Agreement or any further Section 106 coordination on this project. Please call Ms. Rita M. Suffness at 410-545-8561 with questions regarding standing structures for this project. Ms. Mary F. Barse may be reached at 410-545-2883 with concerns regarding archeology.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: _____
Bruce M. Grey
Deputy Division Chief
Project Planning Division

CONCURRENCE:

_____ _____
State Historic Preservation Office Date

BMG:MFB/RMS:lc

Attachments:

I) Project Plans
II) SHA – GIS *Frederick, Urbana, Germantown, and Rockville* Quadrangle Maps with Inventoried Resources and APE Indicated
III) Aerial Photographs depicting the APE for Potential Wetland Mitigation Sites
IV) List of NRHP or NHL Listed and Eligible Structures/Districts within the Original APE
V) Maryland Historic Inventory Form/Addendum Sheet/Photographs for the Billy King Property (M 20-32)
VI) Prior Consultation Correspondence Regarding the Old Gaithersburg Historic District (M 21-2)
VII) MIHP Form for the T. Poole House (F 5-126)
VIII) MHT Letter of November 5, 1999 Regarding Previous Archeological Investigations
IX) NPS Letter of March 1, 2000 Regarding Previous Archeological Investigations
X) Sources Consulted/Cited
XI) Table Detailing Recommendations for Transit Modifications
XII) Table Detailing Recommendations for Park and Ride Lots
XIII) Table Detailing Recommendations for Potential Wetland Mitigation Sites
XIV) Eligibility/Status Table

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 15, 2002

Re: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Montgomery and Frederick Counties, MD

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

Introduction and Project Description

This letter serves to inform the Maryland Historical Trust (MHT) of our finding that there will be adverse effects to historic properties, including unidentified archeological resources, by the proposed project FR192B11. Furthermore, we wish to formally transmit a draft Memorandum of Agreement (MOA), which documents proposed strategies to take into account the effects of the project on historic properties, for your review and comment. We request your concurrence on a new boundary for the Belward Farm (M 20/21) as development has encroached upon the historic buildings, with deleterious results. Finally, we are updating the area of potential effects (APE) for the highway and transit alternates.

The State Highway Administration (SHA) presented Alternates Retained for Detailed Study (ARDS), and a brief history of our prior Section 106 consultation in our letter of September 5, 2001. At that time we also requested your concurrence on Identification and Evaluation of historic properties within the project's APE as it existed at that time. MHT concurred on November 26, 2001 with a boundary reduction for Billy King Farm (M20/32), and that the T. Poole House (F5/126) was not eligible for listing on the National Register of Historic Places (NRHP), and that additional archeological identification and evaluation investigations were warranted for the expanded portions of the APE. Your concurrence on November 26, 2001, along with agreements made in prior consultation letters of October 2, 1996, April 24, 1997, and November 5, 1999, enables us to move forward in assessing impacts to NRHP eligible standing structures, historic districts, and the Monocacy National Battlefield - the only National Register Historic Landmark (NRHL) within the APE.

Furthermore, you agreed on November 26, 2001 with our request to defer archeological survey for unknown archeological sites that may be affected by modifications to the undertaking developed after 1999. We intend to perform identification and evaluation in sensitive areas associated with park and ride lots, wetland mitigation sites, and transit rail yard/shop facilities

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

and passenger stations as plans become better defined and the range of alternates has been reduced. For the purposes of Section 106, SHA accepts that the undertaking may have adverse effects on unidentified subsurface archeological resources in sensitive areas not subject to prior identification and evaluation studies.

Funding: Federal funding.

Area of Potential Effects

The current APE for transit stations, rail yard/shop facilities, CCT alignment extension, park and ride lots, and possible wetland mitigation sites, for this project was documented in our previous correspondence of September 5, 2001 on Attachments I through III. There have been no changes to the APE for these facilities. Some changes have occurred in the mainline and transitway alternates, thus we have refined the mainline APE for historic structures in **Attachment IA** based on the current plans. A current location map for the mainline and transit alternatives is included as **Attachment 1B**. Due to the nature of the improvements anticipated for the upgrading of I-270 mainline, which would result in minimal changes confined to the immediate environs of the right-of-way, the extent of the APE has contracted and the number of historic standing structures included in the APE reduced accordingly.

Identification Methods and Results

The results of Identification and Evaluation efforts for architecture and archeology were presented in our letter of September 5, 2001. Since that time we have determined that the additional biotechnology park construction at the Belward Farm (M 20/21) has further encroached upon the historic buildings, with deleterious results. We have coordinated with your office on numerous occasions concerning this property (as part of MO528B22, MD 28: Riffleford Road to Great Seneca Highway, Montgomery County). Our last coordination concerning the boundary identified the tax parcel as shown on **Attachment IIA** as the historic site boundary. To adequately reflect the current state of the property, we have attached the last (1998) aerial photography mapping available to us (**Attachment IIB**) and have identified a new historic site boundary, which excludes the area of new construction. We request your concurrence on this new boundary.

A final item concerns the recent coordination for the US 15/MD 26 Interchange study (FR406A11, US 15/MD 26 Interchange from Oppossumtown Pike to North of Trading Lane). In response to your determination that the Harmony Grove Historic District would not meet the criteria for inclusion in the NRHP (see **Attachment III**), we have investigated the eligibility of the Worman House (F-3-198), and the Harmony Grove Union Chapel (F-3-197). These resources are well removed form the I-270 mainline and study area, in that they are separated from I-270 by extensive woods and a railroad tract, and the latter site is further removed as it is on the opposite side of (east side) Wormans Mill Road. For that reason they have been excluded from the APE for this study, but will be retained in the US 15/MD 26 study cited above. Spring Bank is an exception, as it lies at the furthest northern point in the community and I-270 is currently within its viewshed.

Determination of Effects

Five alternates are under consideration: Alternate 1 (No-Build), Alternate 2 (TSM/TDM), Alternate 3A/B (Master Plan HOV/LRT or BRT), Alternate 4A/B (Master Plan - General Purpose/LRT or BRT), Alternate 5A/B/C (Enhanced Master Plan/HOV/LRT or BRT or Premium Bus). Plans are included as **Attachment IV**. All NRHP or NRHL properties, or potentially significant archeological sites requiring further identification and/or evaluation in the current APE, are indicated on the attached effects table (**Attachment V**). The impacts discussion is followed by specific suggestions for possible mitigation measures to address the adverse effects.

Standing Structures

Of the 31 NRHP or NRHL standing structures initially identified, seven are currently within the APE of the mainline or transit alternates retained in the study, with one, the Browningsville Historic District (M 10/13) within the APE for wetlands and discussed in the previous correspondence of September 5, 2001.

Specifically, Alternates 1 and 2 have no historic resource impacts. The mainline or transit alternates (Alternates 3A/B, 4A/B and 5A/B) impact the following historic resources. (The discussion below concerning the Belward Farm (M 20/21) assumes the original boundary, and not that which is currently being advanced for your approval.)

a. **M20/17, England/Crown Farm**

Under Alternates 3A/B, 4A/B and 5A/B, a transitway alignment would be constructed through portions of the England/Crown Farm (Attachment IV, Figure VI-24). The transitway would accommodate the operation of either light rail transit or bus rapid transit vehicles within its own right of way. The transitway alignment impacts approximately 3.6 acres. The distance between the tracks at its nearest point to an historic structure is approximately 380 feet and the hiker/biker path is approximately 450 feet. The right of way required from the England/Crown Farm site is approximately 1,400 feet in length. There would be an adverse impact from these alternates.

Under Alternate 5C, transit service is provided via the use of premium bus service located on the I-270 HOV lanes. A line of sight drawing and plan sheet are included as **Attachment VI.**

Possible Transitway Impact Mitigation

The proposed Corridor Cities Transitway (CCT) alignment located on the England/Crown Farm property is based on the Montgomery County Master Plan alignment reservation. Measures to minimize impact are limited as a result of the original design incorporating minimum railroad design criteria for typical section elements (i.e. slope grades) and track center offsets. In addition, the alignment profile is roughly even with the surrounding topography.

b. **M20/21, Belward Farm**

As noted above, further development of a biotechnology park at the Belward Farm (M 20/21) has further encroached upon the historic resources, with deleterious results. We have coordinated with your office on numerous occasions concerning this project [as part of MO528B22 (MD 28: Riffleford Road to Great Seneca Highway, Montgomery County)]. Our last coordination concerning the boundary identified the tax parcel as shown on Attachment IIA as the historic site boundary. To adequately reflect the current state of the property, we have attached the last (1998) aerial available to us (**Attachment IIB**) and have identified a new historic site boundary, which excludes the area of new construction.

Under Alternates 3A/B, 4A/B and 5A/B, components of the transitway alignment would be constructed on portions of the Belward Farm site at its eastern border near Great Seneca Highway (Attachment IV, Figure VI-25). The Decoverly Station parking garage and the hiker-biker trail components would impact the Belward Farm site. The parking garage is proposed to contain approximately 1,200 vehicles on five parking levels. The station site, parking lot and hiker-biker trail would collectively impact 0.64 acres of the approximately 124-acre historic property. The approximate distance between the historic structure and the transitway alignment at its nearest point is 2,170 feet, the parking lot is 1,730 feet, and the hiker/biker path is 2,140 feet. Despite the acquisition of this minimal amount of right-of-way, and because of the considerable distance of the improvements from the historic buildings and their location behind industrial complexes, this site would not be impacted. A line of sight rendering and plan sheet is included as **Attachment VII.** The existing historic site boundary, and that which we currently propose, are shown I on Attachments IIA and IIB.

Possible Transitway Impact Mitigation:

The proposed Corridor Cities Transitway (CCT) alignment located on the Belward Farm property are based on the Montgomery County Master Plan alignment. Measures to minimize impact include reducing the footprint of the parking garage to eliminate its property impact. The hiker-biker trail and the transitway alignments are located at the historic property boundary. Due to alignment constraints from the proposed Sam Eig Highway/Great Seneca Highway flyover ramp right of way, the transitway alignment is located furthest away from the Belward Farm property. In addition, narrowing the typical section for the transitway was incorporated into the original design incorporating minimum railroad design criteria for typical section elements (i.e. slope grades) and track center offsets.

c. F3-42, Monocacy National Battlefield

The existing I-270 roadway bisects Monocacy National Battlefield, a 1,647-acre park, whose key features include Gambrills Mill Visitors Center, Best Farm, Thomas Farm and Worthington Farm. The proposed roadway improvements under Alternates 3A/B and 4A/B include the addition of either an HOV lane or a general-purpose lane between MD 121 and MD 85 to the inside in both the northbound and southbound directions (Attachment IV, Figures VI-19, through VI-21). This improvement will require the acquisition of 11.74 acres from the battlefield. This impact occurs over a length of 10,100 linear feet (northbound side) and 12,200 linear feet (southbound side). Under Alternates 5A/B the proposed roadway improvements adds an additional general-purpose lane on the outside in both the northbound and southbound directions (resulting in four lanes both northbound and southbound). This improvement will require the acquisition of 17.69 acres from the battlefield. This impact occurs over a length of 10,100 linear feet (northbound side) and 12,200 linear feet (southbound side). Under Alternate 5C the proposed roadway improvements add direct access ramps to the MD 85 interchange area at the proposed Shockley Drive/Spectrum Drive overpass. The proposed Shockley Drive/Spectrum Drive overpass is included in the draft Frederick County master plan, and is not part of the I-270/US 15 Multi-Modal Corridor Study. This improvement will require 22.52 acres from the battlefield. Each of the Alternates (3A/B, 4A/B and 5A/B/C) utilizes 2:1 slopes to minimize impacts to the battlefield. The battlefield remains largely undeveloped, with the impacted battlefield containing hedgerows that serve as a moderate-quality buffer between I-270 and the boundary trail of the park, and will be completely removed in some locations, based on the proposed design features. While the proposed improvements would require the taking of some vegetation, there are no impacts to existing or planned amenities. The line of sight rendering plus plan sheet are included as **Attachment VIII.**

All of the build alternates show that I-270 will be widened in this area from two lanes in each direction to either three or four lanes in each direction. The addition of these lanes requires additional right of way, which will affect this site. Under Alternates 3A/B and 4A/B, 11.74 acres of this historic battlefield will be impacted, and the highway would also be 1,264 feet away from historic structures at Best Farm on the site. Alternates 5A/B will impact 17.69 acres of the battlefield, and the pavement would be 1,252 feet away from historic farm structures, and Alternate 5C would impact 22.52 acres where the edge of pavement would be 1,224 feet away from the historic farm buildings.

Possible Highway Impact Mitigation

Alternates 3A/B and 4A/B

One measure has been considered to avoid impacts to the battlefield: a retaining wall. Use of a retaining wall would reduce the southbound roadway impacts from 5.45 acres (2:1 slope) to zero acres. The retaining wall would be an average height above ground of two feet, 12,200 feet long and would be visible intermittently from either the road or the battlefield.

Three measures have been considered to minimize battlefield impacts: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in a total of 38.12 acres of impacts to the battlefield with 17.89 acres (northbound side) and 20.23 acres (southbound side) respectively. However, use of a 2:1 slope would result in reduced battlefield impacts of 11.74 acres with 6.29 acres (northbound side) and 5.45 acres (southbound side). A 2:1 slope was utilized in the original highway design to minimize battlefield impacts.

The second minimization measure employed to reduce battlefield impacts is a retaining wall. Along the northbound side of the proposed I-270 improvements a retaining wall would reduce the 6.29 acres of impacts under alternates 3A/B and 4A/B to 0.39 acres. The retaining wall would occur in nine segments, would be an average height above ground of three feet high, 10,100 feet long, and would be visible from both the park and the road. It should be noted that implementation of a retaining wall along southbound side of I-270 would eliminate impacts to the battlefield.

The third minimization measure would add a reduced inside shoulder width to either the steep slope or the retaining wall measures. By adding a reduced inside shoulder width to the 6:1 slope, the battlefield impacts would be reduced from 17.89 acres to 17.45 acres for northbound side while the southbound side would be reduced from 20.23 acres to 19.56 acres. By adding a reduced inside shoulder width to the 2:1 slope, the battlefield impacts would be reduced 6.29 acres to 5.93 acres for the northbound side while the southbound side would be reduced from 5.45 acres to 5.03 acres. By adding a reduced inside shoulder width to the retaining wall measure, the battlefield impacts would be reduced from 0.39 acres to 0.29 acres for the northbound side. Since the southbound retaining wall avoids impact to the battlefield it is not recommended to incorporate a reduced insider shoulder width for the southbound roadway. The inside shoulder of the highway could be reduced to minimize impacts to the parkland on the southbound side, as described above with both 6:1 and 2:1 slope options. It is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width in the vicinity of emergency vehicle crossovers.

Alternates 5A and 5B

Three minimization measures have been considered to reduce impacts to the battlefield: steeper slopes, a retaining wall and a reduced inside shoulder width. Use of a 6:1 slope would result in 43.68 acres of battlefield impact of which 20.33 acres occurs along the northbound side and 23.35 acres occurs along the

southbound side of I-270 respectively. However, use of a 2:1 slope would reduce the battlefield impact to 17.69 acres of battlefield impact with 8.46 acres along the northbound side and 9.23 acres along the southbound side. The 2:1 slope element was incorporated into the original design for Alternates 5A and 5B. Incorporating reduced inside shoulder width with the 2:1 slope minimization measure would reduce the battlefield impact to 16.74 acres (8.02 acres along northbound side; 8.72 acres along southbound side).

The second minimization measure involves use of a retaining wall along I-270 within the battlefield. Use of a retaining wall along I-270 northbound would reduce the 8.46 acres of impacts under Alternates 5A/B to 6.98 acres. The retaining wall would occur in nine segments, and it would be an average height above ground of 5 feet, 10,100 feet long, and would be visible from both the park and the road. Use of a retaining wall along I-270 southbound would reduce the 9.23 acres of impacts under Alternates 5A/B to 7.41 acres. The retaining wall would occur in 13 segments, and it would be an average height above ground of six feet, 12,200 feet long, and would be visible from both the park and the highway.

The third minimization measure to reduce battlefield impacts involves the use of reduced inside shoulder width in combination with the northbound and southbound side retaining walls. If both the northbound side retaining wall, consisting of nine segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 6.98 acres (retaining wall only) would be reduced to 0.48 acres. If both the southbound side retaining wall, consisting of 13 segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 7.41 acres (retaining wall only) would be reduced to 0.07 acres. It is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width in the vicinity of emergency vehicle crossovers.

Alternate 5C

Three minimization measures have been considered to reduce impacts to the battlefield: steeper slopes, a retaining wall and a reduced insider shoulder width. Use of a 6:1 slope would result in 49.05 acres of battlefield impact of which 23.49

acres occurs along the northbound side and 25.56 acres occurs along the southbound side. However, use of a 2:1 slope would reduce the battlefield impact to an overall 22.52 acres of impact of which 11.12 acres occurs along the northbound side and 11.40 acres occurs along the southbound side. The 2:1 slope element was incorporated into the original design for Alternate 5C. Incorporating reduced inside shoulder width with the 2:1 slope minimization measure would reduce the battlefield impact to 22.06 acres (10.94 acres along northbound side; 11.12 acres along southbound side).

The second minimization measure involves use of a retaining wall along I-270 at the battlefield. Use of a retaining along I-270 northbound would reduce the 11.12 acres of impacts under Alternate 5C to 6.79 acres. The retaining wall would occur in nine segments, and it would be an average height above ground of 7 feet, 10,100 feet long, and would be visible from both the park and the road. Use of a retaining wall along I-270 southbound would reduce the 11.40 acres of impacts under Alternate 5C to 6.98 acres. The retaining wall would occur in 13 segments, and it would an average height above ground of 7 feet, 12,200 feet long, and would be visible from both the park and highway.

The third minimization measure to reduce battlefield impacts involves the use of reduced inside shoulder width in combination with the northbound and southbound side retaining walls. If both the northbound side retaining wall, consisting of nine segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 16.79 acres (retaining wall only) would be reduced to 3.29 acres. If both the southbound side retaining wall, consisting of 13 segments, and reduced inside shoulder widths are combined as minimization mechanisms, the battlefield impact of 6.98 acres (retaining wall only) would be reduced to 2.92 acres. It is not recommended that the reduced shoulder technique be incorporated due to the inability to maintain adequate emergency vehicle/HOV enforcement zone clearance width in the vicinity of emergency vehicle crossovers.

d. F3-47, Schifferstadt

Under the scope of Alternates 3A/B, 4A/B and 5A/B/C, US 15 would be widened to expand the highway from two lanes to four lanes in each direction. One of the two lanes will be added to the grass median on the inside of the roadway, and the other will be on the outside shoulder. A hedgerow (10 to 50 feet wide) is present along the existing right-of-way line with US 15 and serves as a low-quality wooded buffer between the homestead and US 15. US 15 is currently visible from most areas of the property. In order to widen the highway, the hedgerow would be removed. The distance from Schifferstadt to the nearest travel lane will decrease from 170 feet down to 157 feet. The plan sheet and rendering of the line-of-sight is included as **Attachment IX**.

Possible Highway Impact Mitigation

The impact to Schifferstadt is visual not physical or a property acquisition. Measures to minimize impacts to the resource include replanting the vegetative buffer and hedgerow.

e. **F3-43 Rose Hill Manor Historic Park**

Alternates 3A/B, 4A/B and 5A/B/C include the widening of US 15 from two lanes to four lanes in each direction (see Figure VI-24). In order to construct the two lanes, one would be added to the inside of the roadway, and the other would be on the outside. Construction of the outside lane requires the acquisition of additional right-of-way, impacting 0.88 acres of the park's 43 acres. The length of impacted parkland will occur from widening the northbound roadway for approximately 1,200 linear feet to 1,600 linear feet along the park. The proposed project will impact grasslands, and a hedgerow, which serves as a low-quality wooded buffer between Rose Hill Manor Historic Park and US 15. This buffer area will be almost completely removed by the proposed design features. The plan sheet and rendering of the line-of-sight is included as **Attachment X**.

Possible Highway Impact Mitigation

Two measures have been considered to minimize park impacts: steeper slopes and a retaining wall. Use of a 6:1 slope would result in park impacts of 2.08 acres; however, use of a 2:1 slope would reduce park impacts to 0.88 acres (as mentioned earlier). A retaining wall would reduce park impacts to 0.68 acres of impacts. The retaining wall would be an average height above ground of two feet, 1,600 feet long, and would be visible from both the park and the highway.

f. **F3-22, Spring Bank**

Alternates 3A/B, 4A/B and 5A/B/C include the widening of US 15 from two lanes to three lanes in each direction north of the US 15/MD 26 interchange (see **Figure VI-26**). The additional lane would be added to the outside of the roadway. Construction of the outside lane would not require acquisition of right of way from Spring Bank. The plan sheet and rendering of the line-of-sight is included as **Attachment XI**.

g. **F3-134, Birely-Roelkey Farmstead**

Alternates 3A/B, 4A/B and 5A/B/C each impact the Birely-Roelkey Farmstead due to the proposed US 15/Biggs Ford Road interchange (Attachment IV, Figure VI-27). The impact totals 13.69 acres. The interchange configuration includes a northbound US 15 exit ramp and a northbound US 15 entrance loop ramp each located in the southeast quadrant of the US 15 and Biggs Ford Road intersection. The area affected by the interchange is open field and pastureland located west of the farmstead home. The proposed roadway improvements would be located

approximately 160 feet (northbound off ramp) and 620 feet (US 15 mainline) from the Birely-Roelkey Farmstead structure. The plan sheet plus rendering of the line-of-sight is included as **Attachment XII**.

Possible Highway Impact Mitigation

Two measures have been incorporated or investigated to reduce impacts of the US 15/Biggs Ford Road interchange: steeper slopes and reconfigure the movements into a diamond interchange. The original design incorporated the use of 2:1 slopes to minimize impacts to the farmstead to 13.69 acres. By utilizing 6:1 slopes, the impact to the farmstead would increase to 14.98 acres.

A reconfigured interchange would relocate the northbound on-ramp in the northeast quadrant of the existing intersection as a diamond on-ramp and relocate the northbound off-ramp closer to US 15. This would reduce the impacts from 13.69 acres. As a result, the northbound on ramp would cause the acquisition of three businesses.

b. **Browningsville Historic District (M 10/13).**

The impact to this property cannot be assessed at this time due to the incomplete nature of the studies relating to this possible wetland mitigation site. Further coordination will occur to determine the Section 106 effects when appropriate, in accordance with the process outlined in the draft MOA.

Archeological Sites

Archeological sites that have been previously identified and which may be subject to impacts under the current undertaking include 18FR350 (**Attachment XIII**), 18FR351 (**Attachment XIII**), 18FR106 (**Attachment XIV**), 18FR178 (**Attachment XIV**), and 18FR607 (**Attachment XV**). As indicated in the attached draft MOA, (**Attachment XVI**) under Stipulation III, SHA will conduct identification and/or evaluation studies prior to the implementation of any plan, which may impact these resources. Although potentially significant archeological Site 18FR148A is avoided by current project plans, SHA will ensure avoidance through monitoring and oversight of the project's design.

As indicated in the attached draft MOA under Stipulation IV, SHA is committed to undertaking Phase I and/or Phase II archeological investigations within sensitive areas not previously investigated for the project. These areas are: Watkins Mill Rail Yard/Shop Facility, the Comsat Station and Comsat Rail Yard/Shop Facility, Park and Ride Lots 15-2, 14-41, 14-16, 15A/B/C-12, 15A/B/C-13, and Wetland Mitigation Sites UBEC5 (#5), HRRFR28 (#28), LBUC11 (#11), SFLCW16 (#16), SFLCWB18 (#18), LICCR23 (#23), LICCR25 (#25).

Should NRHP archeological resources be identified, SHA will consult with the MHT to develop a plan for their protection or recovery if avoidance is not possible.

Review Request

Please examine the attached draft MOA and the effects documentation. We request your concurrence by March 20 that the project will have adverse effects on NHHP and NRHL listed and eligible properties. We also request your concurrence on a new boundary for the Belward Farm (M 20/21). By carbon copy, we invite the Frederick County Historic Preservation Commission, the Frederick County Historical Trust, the Montgomery County Historic Preservation Commission, Montgomery Preservation, Inc., the Gaithersburg Historic District Commission, the National Park Service, and the Planning Departments of the cities of Gaithersburg and Frederick, as appropriate, to provide further comments and to further participate in the Section 106 process. Copies of the draft MOA have been submitted to those parties by regulation are signatures to the MOA or have already indicated an interest in further participation in the Section 106 process. Pursuant to the requirements of the implementing regulations found at 36 CFR Part 800, SHA seeks their assistance in identifying historic preservation issues as they relate to this specific project (see 36 CFR 800.2 (c) (4) and (6), and 800.3 (f) for information regarding the identification and participation of consulting parties, and 800.4, and 800.5 regarding the identification of historic properties and assessment of effects). For additional information regarding the Section 106 regulations, see the Advisory Council on Historic Preservation's website, www.achp.gov, or contact the Maryland State Highway Administration or the Maryland Historical Trust. If no response is received by March 20, 2002, we will assume that these offices decline to participate in further Section 106 coordination on this project. Please call Ms. Rita M. Suffness at 410-545-8561 with questions regarding standing structures for this project. Ms. Mary F. Barse may be reached at 410-545-2883 with concerns regarding archeology.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: Bruce M. Grey
Bruce M. Grey
Deputy Division Chief
Project Planning Division

BMG:RMS/MFB:lc

Attachments:
I) (IA) Structures APE (I-270 Mainline, Transitway) (IB) Location Map.
II) Belward Farm (M20/21), former and proposed boundary
III) MHT/SHA Correspondence, US 15/MD 26
IV) Plans
V) Effect Table
VI) England Crown Farm (M 20/7), Line-of- Sight Rendering and Plan
VII) Belward Farm (M 20/21) "
VIII) Monocacy Battlefield (F-3-42) "
IX) Schifferstadt (F-3-47) "
X) Rose Hill Manor (F-3-42) "
XI) Spring Bank (F-3-3-22) "
XII) Birely-Roelkey Farm (F-3-134) "
XIII) Cultural Resources Map showing Locations of Sites 18FR350 and 18FR351
XIV) Cultural Resources Map showing Locations of Sites 18FR106 and 18FR178
XV) Cultural Resources Map showing Location of Site 18FR607
XVI) Draft Memorandum of Agreement

Maryland Department of Housing and Community Development

Division of Historical and Cultural Programs

100 Community Place
Crownsville, Maryland 21032

410-514-7600
1-800-756-0119
Fax: 410-987-4071
Maryland Relay for the Deaf:
711 or 1-800-735-2258

http://www.dhcd.state.md.us

Parris N. Glendening
Governor

Raymond A. Skinner
Secretary

Marge Wolf
Deputy Secretary

April 29, 2002

Mr. Bruce Grey
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Project No. FR192B11
I-270/US15 Multi-Modal Corridor Study
Montgomery and Frederick Counties, Maryland

Dear ~~Mr. Grey~~ Bruce:

Thank you for your recent letter regarding the above-referenced project. SHA requested the Trust's agreement on a new boundary for the National Register eligible Belward Farm (M 20/21), comments on the revised Area of Potential Effect (APE), concurrence with its determination of adverse effect and a review of SHA's initial draft Memorandum of Agreement (MOA) for this project.

As you know, SHA has been coordinating with the Trust over the last several years during its project planning stages for this proposed major undertaking. To date, the consultation between SHA and the Trust has principally involved SHA's efforts to identify and evaluate historic properties that may be affected by the project. The current submittal discusses a revised APE and includes a determination of adverse effect for the overall undertaking. Based on the documentation presented with your correspondence, the Trust concurs with SHA's determination that the proposed undertaking will have an adverse effect on numerous historic properties. Although the magnitude of adverse effects extends to multiple significant properties – including the National Historic Landmark (NHL) Monocacy National Battlefield, we prefer to withhold comment on the APE until we have had an opportunity to visit the site and view the properties in question. The full range of adverse effects on archeological resources also remains unknown at this time, pending the results of future identification and evaluation efforts as planning proceeds and when SHA obtains property access.

Once the APE is finalized, the next step in the Section 106 process for this undertaking will involve the resolution of adverse effects under 36 CFR 800.6. This step will require consultation among all relevant parties *to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties* [36 CFR 800.6(a)]. Given the scope of the undertaking's effects, the consultation process is a critical step that will likely entail extensive coordination to negotiate acceptable and appropriate measures to resolve the adverse effects. While we appreciate SHA's efforts to draft a MOA, review and comment on the agreement is premature and inappropriate at this time. We suggest the agreement document be reviewed after all parties have had the opportunity to comment on the adverse effects and share their views regarding measure to avoid, minimize, and mitigate effects. Furthermore, since the project entails adverse effects to a National Historic Landmark, additional consideration and notification is required under 36CFR800.10. FHWA/SHA should proceed with these requirements as soon as possible.

As you are aware, a site visit has been scheduled to facilitate the ongoing Section 106 consultation and resolution of the project's adverse effects on historic properties. We understand that that visit will occur on June 17, 2002. This meeting should provide adequate opportunity for all consulting parties to become familiar with the proposed alternatives, view current conditions, and openly exchange views regarding the project's effects and potential mitigation measures. Based on the outcome of that meeting, we will provide our comments on the APE, Belward Farm boundary and other related issues. In addition, we will work with SHA to develop an appropriate agreement document. We look forward to working with all involved parties to satisfactorily conclude the Section 106 review of this undertaking.

If you have questions or require additional information, please contact Andrew Lewis (for historic built environment) at 410-514-7630/lewisc@dhcd.state.md.us or Beth Cole (for archeology) at (410) 514-7630/cole@dhcd.state.md.us.

Sincerely,

J. Rodney Little
Director/State Historic
Preservation Officer

JRL/EJC/CAL
200200509
cc: Don Sparklin (SHA)
Dan Johnson (FHWA)
John Howard (NPS – Monocacy National Battlefield)
Terry Carlstrom (NPS-NCR)
Don Klima (ACHP)
Ray Compton (FCHT)
Janet Davis (Frederick Co.)
Barbara Wyatt (FCHDC)
Gwen Marcus-Wright (M-NCPPC)
Maria Hoey (MPI)
Pat Patula (Gaithersburg HDC)

Parris N. Glendening
Governor

Maryland Department of Natural Resources
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Ronald N. Young
Deputy Secretary

SEP 20

September 13, 1995

Joseph R. Kresslein
Project Planning Division
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Dear Mr. Kresslein:

This letter is in response to your letter of request, dated April 26, 1995, for information on the presence of finfish species in the vicinity of Contract No. F 192-101-772; I-270: south of Shady Grove Road to I-70 and US 15: I-70 to north of Frederick; PDMS No. 10162; Frederick and Montgomery Counties.

The following streams are in the vicinity of your project area (note that some streams may have two or more reaches managed under different Use classifications, and only the classifications of reaches near your study area have been listed):

WASHINGTON METROPOLITAN AREA SUB-BASIN

headwater tributaries to Watts Branch (Use I-P)
Mill Creek and Crabbs Creek, tributaries to Rock Creek (Use IV)
Muddy Branch and tributaries (Use I-P)
Long Draught Branch and tributaries (Use I-P)
Great Seneca Creek, unnamed tributaries, and Gunners Branch (Use I-P)
Little Seneca Creek and tributaries (Use IV-P above Little Seneca Lake)
Little Seneca Lake, unnamed tributaries, Cabin Branch, and Tenmile Creek (Use I-P)

Telephone: _____
DNR TTY for the Deaf: (410) 974-3683

MIDDLE POTOMAC RIVER SUB-BASIN

Little Bennett Creek, unnamed tributaries, Sopers Branch and Wildcat Branch (Use III-P for Little Bennett Creek mainstem upstream of MD 355 and tributaries entering this reach; Use I-P for Little Bennett Creek mainstem downstream of MD 355 and tributaries entering this reach)

Bennett Creek, unnamed tributaries, Urbana Branch, and North Branch (Use I-P)

Monocacy River (below US 40), unnamed tributaries to this reach of the Monocacy River, Tabler Run, and Bush Creek (Use I-P)

Ballenger Creek, unnamed tributaries, Pike Branch, King Branch, Arundel Branch, Quarry Branch (Use III-P)

Carroll Creek, unnamed tributaries, and Rock Creek (Use III-P for Carroll Creek mainstem upstream of US 15 and tributaries entering this reach; Use IV-P for Carroll Creek mainstem downstream of US 15 and tributaries entering this reach)

Monocacy River (above US 40) and unnamed tributaries to this reach of the Monocacy River (Use IV-P)

Tuscarora Creek, unnamed tributaries, and Little Tuscarora Creek (Use III-P) Glade Creek (Use IV-P)

Generally, no instream work is permitted in Use I streams during the period of March 1 through June 15, inclusive, during any year. No instream work is permitted in Use III streams during the period of October 1 through April 30, inclusive, during any year. No instream work is permitted in Use IV streams during the period of March 1 through May 31, inclusive, during any year.

Of the streams listed above, Little Tuscarora Creek and tributaries to upper reaches of Tuscarora Creek support self-sustaining wild populations of brook trout upstream from US 15. Ballenger Creek supports a self-sustaining wild population of brown trout in reaches upstream from I-270. Little Bennett Creek supports wild and stocked brown trout in reaches upstream from I-270. Individual trout may be present in the lower reaches of these trout streams from time to time.

Adult rainbow trout are stocked by the State for recreational fishing in Lake Needwood (on Rock Creek), Great Seneca Creek downstream from I-270, Urbana Lake (on a tributary to Bennett Creek), and Carroll Creek in the immediate vicinity of US 15. Watts Branch has been stocked with trout during the spring season in recent years by the City of Rockville.

Joseph r. Kressleir
September 13, 199[illegible]
Page 3

Populations of warmwater gamefish which provide notable recreational fisheries can be found in Lake Needwood, Great Seneca Creek, Little Seneca Lake, Urbana Lake, and Monocacy River. Gamefish species which may be found in one or more of these areas include largemouth bass, smallmouth bass, various sunfish species, catfish, and tiger musky.

The perennial portions of the streams in your study area also support resident populations of non-game fish species. Table IV-2 and Table V-2 (attached) list fish species documented by our Freshwater Fisheries Division in the Middle Potomac River sub-basin and the Washington Metropolitan Area sub-basin, respectively. Many of these species may potentially reside in each of the listed streams within your study area.

Anadromous fish species do not access any of the stream reaches in your study area, due to presence of natural barriers located downstream.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 974-2788.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

RCD:GJG
Attachments

Table V-2. Fish Species Collected in the Washington Metropolitan Area [illegible] 1974 through 1984. (New species collected in 1980 to 1984 study designated by *.)

Salmonidae	
Brook trout	Salvelinus fontinalis (Mitchill)
Brown trout	Salmo trutta Linnaeus
Rainbow trout	Salmo gairdneri Richardson
Cyprinidae	
Stoneroller	Campostoma anomalum (Rafinesque)
Blacknose dace	Rhinichthys atratulus (Hermann)
Longnose dace	Rhinichthys cataractae (Valenciennes)
Cutlips minnow	Exoglossum maxillingua (Lesueur)
Creek chub	Semotilus atromaculatus (Mitchill)
River chub	Nocomis micropogon (Cope)
Fallfish	Semotilus corporalis (Mitchill)
Rosyside dace	Clinostomus funduloides Girard
Common shiner	Notropis cornutus (Mitchill)
Bluntnose minnow	Pimephales notatus (Rafinesque)
Golden shiner	Notemigonus crysoleucas (Mitchill)
Spotfin shiner	Notropis spilopterus (Cope)
Spottail shiner	Notropis hudsonius (Clinton)
Silverjaw minnow	Ericymba buccata Cope
Swallowtail shiner	Notropis procne (Cope)
Satinfin shiner	Notropis analostanus (Mitchill) *
Catostomidae	
Northern hogsucker	Hypentelium nigricans (Lesueur)
White sucker	Catostomus commersoni (Lacepede)
Creek chubsucker	Erimyzon oblongus (Mitchill) *
Ictaluridae	
Margined madtom	Noturus insignis (Richardson)
Brown bullhead	Ictalurus nebulosus (Lesueur)
Yellow bullhead	Ictalurus natalis (Lesueur) *
Cottidae	
Mottled sculpin	Cottus bairdi Girard
Percidae	
Tessellated darter	Etheostoma olmstedi Storer
Greenside darter	Etheostoma blennioides Rafinesque
Fantail darter	Etheostoma flabellare Rafinesque
Centrarchidae	
Bluegill sunfish	Lepomis macrochirus (Rafinesque)
Smallmouth bass	Micropterus dolomieui Lacepede
Largemouth bass	Micropterus salmoides (Lacepede)
Greenside sunfish	Lepomis cyanellus Rafinesque
Pumpkinseed sunfish	Lepomis gibbosus (Linnaeus)
Red breasted sunfish	Lepomis auritis (Linnaeus)
Rock bass	Ambloplites rupestris (Rafinesque)
Anguillidae	
American eel	Anguilla rostrata (Lesueur)

V-4

Table IV-2. Fish Species Collected in the Middle Potomac River Basin, 1974-1984.

Salmonidae	
Brook trout	Salvelinus fontinalis (Mitchill)
Brown trout	Salmo trutta Linnaeus
Rainbow trout	Salmo gairdneri Richardson
Cyprinidae	
Stoneroller	Campostoma anomalum (Rafinesque)
Blacknose dace	Rhinichthys atratulus (Hermann)
Longnose dace	Rhinichthys cataractae (Valenciennes)
Cutlips minnow	Exoglossum maxillingua (Lesueur)
Creek chub	Semotilus atromaculatus (Mitchill)
River chub	Nocomis micropogon (Cope)
Fallfish	Semotilus corporalis (Mitchill)
Rosyside dace	Clinostomus funduloides Girard
Common shiner	Notropis cornutus (Mitchill)
Bluntnose minnow	Pimiplahes notatus (Rafinesque)
* Peal dace	Semotilus margarita (Cope)
Catostomidae	
Northern hogsucker	Hypentelium nigricans (Lesueur)
White sucker	Catostomus commersoni (Lacepede)
Ictaluridae	
Margined madtom	Noturus insignis (Richarson)
Brown bullhead	Ictalurus nebulosus (Lesueur)
Cottidae	
Mottled sculpin	Cottus bairdi Girard
Centrarchidae	
Bluegill sunfish	Lepomis macrochirus (Rafinesque)
Smallmouth bass	Micropterus dolomieui Lacepede
Largemouth bass	Micropterus salmoides Lacepede
Rock bass	Ambloplites rupestris (Rafinesque)
Pumpkinseed sunfish	Lepomis gibbosus (Linnaeus)
Longear sunfish	Lepomis megalotis (Rafinesque)
Percidae	
Tessellated darter	Etheostoma olmstedi Storer
Greenside darter	Etheostoma blennioides Rafinesque
Fantail darter	Etheostoma flabellare Rafinesque
Anguillidae	
American eel	Anguilla rostrata (Lesueur)

* Additional fish species collected, 1980-1984.

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Parris N. Glendening
Governor

Maryland Department of Natural Resources
Public Lands and Forestry
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

John R. Griffin
Secretary
Ronald N. Young
Deputy Secretary

April 24, 1996

Mr. Joseph Kresslein
Project Planning Division
State Highway Administration
P.O. Box 717
Baltimore, MD 21203

Re: Improvements to I-270 in Vicinity of Seneca Creek State Park and Urbana Lake Fish Management Area (96-GRP-30, 96-GRP-31).

Dear Mr. Kresslein:

The following information concerning Seneca Creek State Park and the Urbana Lake Fish Management area are being provided in response to your March 29, 1996 letter informing us of your study of possible improvements to I-270 in Frederick and Montgomery counties, Maryland. I look forward to working with you to ensure that necessary improvements to this roadway do not adversely impact these public recreation areas.

Seneca Creek State Park- The Department of Natural Resources considers Seneca Creek SP to be a public recreational resource of major regional significance. At the present time, facilities at Seneca Creek provide a wide diversity of day use opportunities, including hiking and nature study, bicycling and mountain biking, equestrian use, boating and fishing, picnicking, playgrounds, disc golf, baseball and multi-use athletic fields. In 1995, 369,808 persons visited this park. Although a formal Master Plan has not been approved, current plans call for development of a hiker biker trail that will pass beneath I-270 along Seneca Creek to connect the state park with the Maryland-National Capital Park and Planning Commission property upstream. Additional future recreational development in the I-270 vicinity can not be ruled-out at this time. For instance, it is possible that future demand will result in consideration of day use recreation on parkland north-west of I-270, adjacent to the Middlebrook Hill and Fox Chapel North Subdivisions. In addition to these recreational uses, Seneca Creek State Park is rich in cultural resources having historic significance, and valuable natural resources (wetlands, floodplains, contiguous forest, high quality aquatic habitat, etc.). Management activities at Seneca Creek SP make protection for these resources a high priority.

Telephone: _____
DNR TTY for the Deaf: 301-974-3683

Two parcels adjacent to I-270 (159 and 166, shown on attached map) were acquired with money from the Land and Water Conservation Fund. The other parcels were acquired with funds from Program Open Space.

Urbana Lake Fish Management Area- Urbana Lake is a managed fishing area with a lake and public parking area. A portion of the site is also leased to Maryland Public Television, which maintains a broadcasting tower and equipment building on the site. Urbana Lake provides year around warmwater gamefishing, and spring trout fishing. The Department of Natural Resources stocks trout each year and introduces bass when our surveys indicate that the predator-forage fish ratio is becoming unbalanced. Although visitor numbers are not recorded, this facility recieves constant use that may be quite heavy at times (following trout stocking dates, for instance). We consider this public fishing area to be a unique local recreational resource of considerable significance to area residents.

Urbana Lake was purchased by the Department of Natural Resources from the State Roads Commission in July of 1961. At this time, we have not identified the source of the funds used for that acquisition. However, Sport Fish Restoration money from the U.S. Department of the Interior is regularly used for management and maintenance activities at Urbana Lake.

Should you have any additional questions please feel free to call me or Arnold Norden at (410) 974-3654.

Sincerely,

Gene F. Cheers
Chief, Project Review

cc: Neal Welch
Robert Lunsford

Parris N. Glendening
Governor

Maryland Department of Natural Resources
ENVIRONMENTAL REVIEW
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Carolyn D. Davis
Deputy Secretary

March 19, 1999

Gay Olsen
Project Planning Division
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Dear Ms. Olsen:

This letter is in reply to Joseph Kresslein's letter of request, dated February 1, 1999, for Maryland Department of Natural Resources comments on the map and justification of the preliminary Secondary and Cumulative Effects Analysis (SCEA) boundary and time frame for the I-270/US 15 Multimodal project from the Shady Grove Metro Station to North of Biggs Ford Road, Project No FR192B11, Frederick and Montgomery Counties.

The Department has participated in discussions of this project at the Interagency Meeting, including the December 16, 1998 meeting where the SCEA boundary was discussed. At that meeting, Greg Golden of my staff noted during the group discussion that the SCEA boundary did not extend north of Frederick along I-70 or very far outside the Frederick city limits, yet a significant and still growing number of commuters to Washington, D.C. and the I-270 technology corridor come from those areas. Also, it was noted that the SCEA boundary could be viewed as somewhat narrow east and west along its length due to potential future development outside of the current boundary. It is generally known that I-270 serves as a major commuter route for many people living in outlying small cities, towns, and rural areas traveling to jobs in the immediate Washington metropolitan area. We believe that the area contributing to this traffic pattern is significantly larger than the area covered by the SCEA boundary.

We have reviewed the justification information for the boundary, which includes discussion of availability of development infrastructure such as utilities, and also County zoning. We recognize that these are important justification items, which help to illustrate where large scale development will be focused. However, we also observe, and in fact participate in the environmental review of, a significant number of residential and other developments Statewide outside of these types of targeted growth areas. These other developments include single lot construction, small rural developments, and larger projects that occur through special zoning provisions, waivers or loopholes. Cumulatively, outlying areas do still contribute

Telephone:
DNR TTY for the Deaf (410) 974-3683

noticeably to traffic loads and to environmental impacts in the region. It is our belief that these types of development outside the designated growth areas would be promoted by improved commuting conditions on I-270 heading toward the Germantown/Gaithersburg area and Washington, D.C. Also, future development in designated growth areas along I-70 east and west of Frederick and along US 340 and US 15 outside of the SCEA boundary will also contribute to some degree to the traffic using I-270 in the project area, because long range commuting is a rather common occurrence along this route.

Our request is that potential development in these outlying areas remain under some level of continued consideration. We cannot say based on our observations alone whether the SCEA boundary should definitely be extended, but we do request that this information be specifically considered, and addressed in writing. We also recommend that these outlying areas remain under at least some level of continued consideration even if they are not incorporated into the SCEA boundary at this time. There will definitely be a level of continued development close to but outside this boundary, and this development will undoubtedly influence and be influenced by commuting conditions heading south on I-270.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 260-8334

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

cc: Elder Ghigiarelli, MDE
Christine Wells, MOP
J. Rodney Little, MHT
Vance Hobbs, USCOE
Pam Stephenson, FHWA
John Forren, USEPA
Robert Zepp, USFWS
John Nichols, NMFS
Jeff Knoedler, NPS

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

April 20, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery County

Mr. Ray Dintaman, Director
Environmental Review Unit
Maryland Department of Natural Resources
Tawes State Office Building, B-3
Annapolis MD 21401

Dear Mr. Dintaman:

Thank you for your comments (see enclosure) regarding the preliminary Secondary and Cumulative Effects Analysis (SCEA) boundary and written justification for the time frame and geographic parameters to be used in the analysis for the I-270/US 15 Multimodal project.

The project's area of traffic influence was considered as one factor in establishing a preliminary geographic boundary for the SCEA. Because I-270 is a limited access roadway designed primarily to meet through traffic needs, improvements to the facility, except where additional access is proposed, were not identified as having a major influence on traffic patterns on local roads. MD 355 runs parallel to I-270 throughout most of the project area, therefore, it is an alternate route for I-270 traffic and is included within the SCEA boundary. While future traffic projections do include residential and other developments, more detailed information regarding development will be included in the environmental document to support finalization of the boundary. We will monitor the potential for further development throughout the project development.

Please feel free to call Michelle Hoffman, the project manager, at 410-545-8547 or Anne Elrays, the environmental manager, at 410-545-8562 if you should have any questions. Both Michelle and Anne can be reached toll free at (800) 548-5026.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Michelle D. Hoffman
Michelle Hoffman
Project Manager
Project Planning Division

LHE:AE
cc: Mr. Lorenzo Bryant, MTA
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays, SHA
Mr. Elder Ghigiarelli, MDE
Mr. William Hoffman, EPA
Ms. Michelle D. Hoffman, SHA
Mr. John Howard, NPS
Ms. Patricia Kampf, FTA
Mr. Joseph R. Kresslein, SHA
Mr. J. Rodney Little, MHT
Ms. Diane Ratcliff, MTA
Mr. Robert Sanders, SHA
Ms. Cynthia Simpson, SHA
Ms. Pamela Stephenson, FHWA
Mr. David Sutherland, FWS
Mr. Jim Wynn, SHA
Ms. Bihui Xu, MOP

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

March 14, 2002

Re: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Montgomery and Frederick Counties, MD

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

On February 15, 2002 we advised you of the effects that our project would likely have on historic properties. We attached a chart as Attachment V that had an error regarding the impact to Belward Farm (M20/21). In the body of the letter we described the proposed work in the vicinity of the property as the basis of our no impact determination, excerpted as follows:

"Under Alternates 3A/B, 4A/B and 5A/B, components of the transitway alignment would be constructed on portions of the Belward Farm site at its eastern border near Great Seneca Highway . The Decoverly Station parking garage and the hiker-biker trail components would impact the Belward Farm site. The parking garage is proposed to contain approximately 1,200 vehicles on five parking levels. The station site, parking lot and hiker-biker trail would collectively impact 0.64 acres of the approximately 124-acre historic property. The approximate distance between the historic structure and the transitway alignment at its nearest point is 2,170 feet, the parking lot is 1,730 feet, and the hiker/biker path is 2,140 feet. Despite the acquisition of this minimal amount of right-of-way, and because of the considerable distance of the improvements from the historic buildings and their location behind industrial complexes, this site would not be impacted. A line of sight rendering and plan sheet were included, along with the proposed historic site boundary."

This no impact determination was not adequately reflected in the chart (it said adverse), and we are attaching a revised chart for this reason. Please attach this to your letter and respond accordingly.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: _____
Bruce M. Grey
Deputy Division Chief
Project Planning Division

BMG:RMS

cc: Ms. Mary F. Barse, SHA-PPD (w/Attachment)
Mr. Ray Compton, Frederick County Historical Trust (w/Attachment)
Ms. Janet Davis, Frederick County Historic Preservation Commission (w/Attachment)
Ms. Anne Elrays, SHA-PPD (w/Attachment)
Ms. Maria Hoey, Montgomery Preservation, Inc. (w/Attachment)
Mr. Dan Johnson, FHWA (w/Attachment)
Mr. Joseph Kresslein, SHA-PPD
Ms. Pat Patula, Gaithersburg Historic District Commission (w/Attachment)
Dr. Stephen Potter, National Park Service (w/Attachment)
Ms. Cynthia D. Simpson, SHA-PPD
Mr. Donald H. Sparklin, SHA-PPD
Ms. Rita M. Suffness, SHA-PPD (w/Attachment)
Dr. Susan W. Trail, National Park Service (w/Attachment)
Ms. Gwen Marcus Wright, M-NCPPC (w/Attachment)
Mr. Russell Walto, SHA-PPD
Ms. Barbara Wyatt, Frederick City Historic District Commission (w/Attachment)

Effect Table
Page 1

Attachment V

Project Name: I-270/US 15 Multi-Modal Corridor Study
Project Number: FR192B11

February 15, 2002
(Revised 2/20/02 & 3/8/02)

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Attach-ment	Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur		
Brownlugsville HD (M 10/13)	HD	None		None		None		None		None			Possible Impact from wetland creation. Will be further coordinated at a later date
Hyattstown HD (M 10/59)	HD												OUTSIDE APE
Clarksburg HD (M 13/10)	HD												OUTSIDE APE
Observatory Heights HD (M 21/136)	HD												OUTSIDE APE
Washington Grove HD (M 21/5)	HD												OUTSIDE APE
Brookes, Russell, and Walker HD (M 21/165)	HD												OUTSIDE APE
Chestnut/Moore HD (M 21/178)	HD												OUTSIDE APE
Clarksburg School (M 13/57)	S												OUTSIDE APE
Pleasant Fields (M 19/1)	S												OUTSIDE APE
England Crown Farm (M 20/7)	S	None		None		Adverse	Requested 2/02	Adverse	Requested 2/ 02	Adverse	Requested 2/2002	IV	
Belward Farm (M 20/21) Boundary Revision	S	None		None		None	"	None	"	None	"	VII	Boundaries (former and proposed) shown on IIA-IIB
Billy King Farm (M20/32)	S												OUTSIDE APE
Summit Hall (M 213)													OUTSIDE APE
C. G. Staller House (M 21/1)	S												OUTSIDE APE

Effects Table (Continued)
Page 2

Project Name: I-270/US 15 Multi-Modal Study
Project Number: FR192B11

March 8, 2002

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Attach-ment	Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur		
Thomas Cannery (M 21/168)	S												OUTSIDE APE
Casey Barn (M21/178)	S												OUTSIDE APE
Frederick HD (F-3-39)	HD												OUTSIDE APE
Urbana HD (F-7-73)	HD												OUTSIDE APE
Monocacy Battlefield (F-3-42)	NHL	None		None		Adverse	"	Adverse	"	Adverse	"	VIII	
Linden Grove (F-1-80)	S												OUTSIDE APE
Butter-milkhouse Farm (F-2-144)	S												OUTSIDE APE
Spring Bank (F-3-22)	S					Not Adverse	"	Not Adverse	"	Not Adverse	"	VII	
Guilford (F-3-40)	S												OUTSIDE APE
Schleffersfield (F-3-47)	S					Not Adverse	"	Not Adverse	"	Not Adverse	"	IX	No Adverse Impact Conditioned on replanting the buffer and hedgerow
Rose Hill Manor (F-3-42)	S					Adverse	"	Adverse	"	Adverse	"	X	
Bixely-Rotkey Farm (F-3-134)	S					Adverse	"	Adverse	"	Adverse	"	XII	
Hoke-Grove Limestone Property (F-3-145)	S												OUTSIDE APE
Stenciloff House (F-7-3)	S												OUTSIDE APE
Dr. Perry House (F-7-35)	S												OUTSIDE APE
Francis Mantz House (F-7-59)	S												OUTSIDE APE
	S												

Effects Table (Continued)
Page 3

Project Name: I-270/US 15 Multi-Modal Study
Project Number: FR192B11

March 8, 2002

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Attach-ment	Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur		
H. William Tabler House (F-7-130)													OUTSIDE APE
18FR350	A											XIII	Impacts anticipated by Wetland Mitigation Site 28; Phase I/II recommended
18FR351	A											XIII	Impacts anticipated by Wetland Mitigation Site 28; Phase I/II recommended
18FR196	A											XIV	Impacts anticipated by Wetland Mitigation Site 23; Phase I/II recommended
18FR378	A											XIV	Impacts anticipated by Wetland Mitigation Site 23; Phase I/II recommended
18FR607	A											XV	Impacts anticipated by Wetland Mitigation Site 25; Phase I/II recommended
18FR448A	A												No impacts anticipated under any maintive alternative as planned; SHA will ensure avoidance through monitoring and oversight of design plans

Effects Table (Continued)
Page 4

Project Name: I-270/US 15 Multi-Modal Study
Project Number: FR192B11

March 8, 2002

Resource	Type	Alternate #1		Alternate #2		Alternate #3A/B		Alternate #4A/B		Alternate #5A/B/C		Attach-ment	Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur		
Effect		**NPA**	**Requested 2/02**	**NPA**	**Requested 2/02**	**AE**	**Requested 2/02**	**AE**	**Requested 2/02**	**AE**	**Requested 2/02**		

Codes:
Resource Types: S (Structure), A (Archeological Site), HD (Historic District), NHL (National Historic Landmark)
Impact: None, No Adverse, Adverse
Effect: NPA (No Properties Affected), NAE (No Adverse Effect), AE (Adverse Effect)
Bold rows indicate review action requested

Parris N. Glendening
Governor

J. Charles Fox
Secretary

Maryland Department of Natural Resources

Kathleen Kennedy Townsend
Lt. Governor

Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

Karen M. White
Deputy Secretary

March 22, 2002

Ms. Anne Elrays
Project Planning Division
State Highway Administration
P.O. Box 717
Baltimore, MD 21203

Re: Widening of I-270, Urbana Lake FMA, (2002-DNR-032)
Widening of I-270, Seneca Creek SP, (1996-DNR-030)

Dear Ms. Elrays,

Thank you for providing the requested mapping needed for our review of this project. The information is currently being reviewed within DNR and we will provide you with any comments that result from that process. The information you requested in your January 29, 2002 letter is included below.

Urbana Lake Fish Management Area

Please find enclosed the requested map of the Urbana Lake FMA. The facility consists of a managed fishing area and a public parking area. Due to the remote nature of the facility, public use figures are not kept. However, the volume of public use can be quite high at times, for instance, after the lake has recently been stocked. The Urbana Lake Fish Management Area is a unique local resource of considerable significance to the area residents. However, if State Highway Administration's plans are implemented in accordance with input from DNR in such a way that they do not create negative impacts to the use of the facility, it will be possible to avoid compromising the facility's significance. No Program Open Space or Land and Water Conservation funds were used for the acquisition of Urbana Lake FMA. However, Sport Fish Restoration money from the U.S. Department of the Interior is regularly used for management and maintenance activities for the facility.

Seneca Creek State Park

Facilities at Seneca Creek State Park provide a wide variety of day use opportunities, including hiking and nature study, bicycling and mountain biking, equestrian use, boating and fishing, picnicking, playgrounds, disc golf, baseball and multi-use athletic fields. There have been no

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Toll Free#: 1-877-620-8DNR

significant changes in the master planning goals or site plans for the facility since the information in our 1996 letter was provided. Although several parcels of Seneca Creek State Park were acquired with Program Open Space and Land and Water Conservation funds, the entire park is currently considered 'federalized,' which eliminates the segmentation of funding requirements for individual parcels within the park, in cases where their uses are converted. Recent use figures for Seneca Creek SP have been requested and I will forward those to you when I receive them.

I look forward to continuing to work with you as the project progresses. Feel free to call me at (410) 260-8410 if you need any further information.

Sincerely,

Amber Widmayer
Associate Planner for the Central Region

Parris N. Glendening
Governor

J. Charles Fox
Secretary

Maryland Department of Natural Resources

Kathleen Kennedy Townsend
Lt. Governor

Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

Karen M. White
Deputy Secretary

MEMORANDUM

TO: Anne Elrays

FROM: Amber Widmayer AJW

DATE: April 3, 2002

SUBJECT: Seneca Creek SP Use Figures

Here are the latest visitation records for Seneca Creek State Park.

Seneca Creek State Park-Visitation

	1997	1998	1999	2000	2001	2002
Jan	16759	22684	14223	19899	14175	18174
Feb	21773	10203	15744	20361	19170	21225
Mar	29656	17943	21774	35142	25086	26151
Apr	33485	36833	41757	42123	46335	
May	59589	21903	58311	49233	50325	
Jun	36461	22926	53826	87692	55752	
Jul	70380	41442	43443	54390	53558	
Aug	87257	56825	45732	50304	55334	
Sep	101208	73968	80807	35709	39279	
Oct	30999	31239	38187	40578	44635	
Nov	17664	29439	31701	26409	29049	
Dec	57513	58068	83004	80979	85923	
Total	544944	423473	508509	522819	518649	

Please feel free to call me at (410) 260-8410 if you have any questions.

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Toll Free#: 1-877-620-8DNR

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Parris N. Glendening
Governor

Kathleen Kennedy Townsend
Lt. Governor

Maryland Department of Natural Resources
Forest, Wildlife and Heritage Service
Tawes State Office Building
Annapolis Maryland 21401

Sarah J. Taylor-Rogers, Ph. D.
Secretary

Stanley K. Arthur
Deputy Secretary

December 27, 2000

Mr. David R. Smith
Coastal Resources, Inc.
2988 Solomons Island Road
Edgewater, MD 21037

RE: Environmental Review for I-270/US 15 Multi-modal Corridor Study, from Biggs Ford Road to Shady Grove Road and for Proposed Transitway Alignment, Frederick and Montgomery Counties, Maryland.

Dear Mr. Smith:

The Wildlife and Heritage Division's Natural Heritage database indicates that there are records for rare, threatened and endangered species of plants and animals on or near the project site. These are described below, and locations for these records are provided where feasible and include recent as well as historical records. Furthermore, the review includes species recorded on or immediately adjacent to the project site as well as species located within the vicinity (usually within approximately one mile) of the site. Any species found within the vicinity of the site could potentially occur on the project site in areas of appropriate habitat.

The following records for species of concern are known to occur on or immediately adjacent to the project site:

1. There are several breeding records for the state threatened Sedge Wren (*Cistothorus platensis*) known to occur within the headwaters of Watts Creek.

2. For the area north of the MD Route 118/I-270 intersection along tributaries to Little Seneca Creek, there are records for the following species of concern:

Scientific Name	Common Name	State Status
Sanguisorba canadensis	Canada Burnet	Threatened
Spenopholis pensylvanica	Swamp-oats	Threatened
Carex buxbaumii	Buxbaum's Sedge	Threatened

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DNR TTY for the Deaf (410-974-3683

The following records are known for the vicinity of the project site:

1. Along Little Bennett Creek and its tributaries there are multiple records each for:

Scientific Name	Common Name	State Status
Sorex hoyi winnemana	Southern Pygmy Shrew	Rare
Juglans cinerea	Butternut	Rare
Gentiana andrewsii	Fringe-tip Closed Gentian	Threatened
Platanthera peramoena	Purple Fringeless Orchid	Threatened

2. There is a record for state endangered Brook Floater (*Alasmidonta varicosa*) known to occur within the Monocacy River near the Penn Central Railroad tracks.

3. There are breeding records for the state endangered Loggerhead Shrike known for the area of Ballenger Creek, both near Ballenger Creek Pike and I-340/US 15.

4. For the general Frederick area there are records for Coastal Juneberry (*Amelanchier obovalis*) and Indian Paintbrush (*Castilleja coccinea*), both state endangered.

5. There is a record for state endangered Potato Dandelion (*Krigia dandelion*) known to occur near Travilah Road.

6. Near MD 355 in the Westmore area there is a record for Low Bindweed (*Calystegia spithamea*), a species with rare state status.

7. For the general Rockville area there are records for state threatened Purple Fringeless Orchid (*Platanthera peramoena*) and for Least Weasel (*Mustela nivalis*), a specie with In Need of Conservation status.

8. For the area of Long Draught Branch there is a record for state endangered One-sided Pyrola (*Orthilia secunda*).

9. Along Cabin Branch there is a record for state endangered Crested Iris (*Iris cristata*).

10. In the area of MD 355/I-270 intersection there is a breeding record for American Bittern (*Botaurus lentiginosus*), a species with In Need of Conservation status.

11. Along Muddy Branch near Muddy Branch Road there is a record for Opelousas Smartweed (*Polygonum hydropiperoides*), a species with Uncertain state status.

Also, there is a wetland on the east side of I-270 including a portion of a tributary to Little Seneca Creek, that is designated in state regulations as a Nontidal Wetland of Special State Concern (NTWSSC) and regulated by Maryland Department of the Environment. This wetland and the adjacent 100' upland buffer is regulated as a NTWSSC. Your project may need to be reviewed by Maryland Department of the Environment for any necessary wetland permits associated with the NTWSSC.

For the entire area of the project site, the forested area on or adjacent to the project site contains Forest Interior Dwelling Bird habitat. Populations of many Forest Interior Dwelling Bird species (FIDS) are declining in Maryland and throughout the eastern United States. The conservation of this habitat is strongly encouraged by the Department of Natural Resources. The following guidelines will help minimize the project's impacts on FIDS and other native forest plants and wildlife:

1. Avoid placement of new roads or related construction in the forest interior. If forest loss or disturbance is absolutely unavoidable, restrict development to the perimeter of the forest (i.e., within 300 feet of the existing forest edge), and avoid road placement in areas of high quality FIDS habitat (e.g., old-growth forest). Maximize the amount of remaining contiguous forested habitat.

2. Do not remove or disturb forest habitat during May-August, the breeding season for most FIDS. This seasonal restriction may be expanded to February-August if certain early nesting FIDS (e.g., Barred Owl) are present.

3. Maintain forest habitat as close as possible to the road, and maintain canopy closure where possible.

4. Maintain grass height at least 10" during the breeding season (May-August).

In addition, if areas of the site consist of abandoned fields or are currently being pastured, they may contain habitat for grassland breeding birds. Such birds include Upland Sandpiper, Eastern Meadowlark, Grasshopper Sparrow, Vesper Sparrow, Savannah Sparrow, and American Kestrel. As such, it is an important parcel because of the declining status of this group of species. Birds that require grasslands for breeding are rapidly disappearing from the state as well as the region.

Finally, several streams within the project site have been identified as having a high potential for providing habitat for rare freshwater mussels. These include the Monocacy River, Tuscarora Creek, Muddy Branch and Watts Branch.

Please contact David Brinker, Central Regional Ecologist for the Wildlife and Heritage Division, for technical assistance regarding potential impacts to rare species, the need for surveys or appropriate conservation measures. He can be reached at (410) 744-8939, or at 1200 Frederick Road, Catonsville, MD 21228.

Sincerely,

Lori A. Byrne,
Environmental Review Specialist,
Wildlife & Heritage Division

ER# 2000.2235.mo/fr
cc: D. Brinker
E. Thompson

Telephone: (410) 260-8540
DNR TTY for the Deaf 410-974-3683

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Parris N. Glendening
Governor

Maryland Department of Natural Resources

Forest, Wildlife and Heritage Service
Tawes State Office Building, B-1
Annapolis, Maryland 21401

Sarah J. Taylor-Rogers
Secretary

Stanley K. Arthur
Deputy Secretary

March 5, 2001

Mr. David R. Smith
Coastal Resources, Inc.
2088 Solomons Island Road
Edgewater, MD 21037

RE: I-270/US 15 Multi-modal Corridor Study; rare, threatened and endangered (RTE) species distributions; ER# 2000.2235 mo/fr

Dear Mr. Smith:

This letter is in response to your 13 February 2001 written request for additional supporting information for the known or potentially occurring RTE species we previously reported to you on 27 December 2000. As you requested, listed below are the values currently in the database for following fields: last year of observation (as entered into the database); precision (S = within 2 seconds of latitude/longitude; M = within a minute of latitude/longitude or about 1-1.5 miles; G = general or within that vicinity on a USGS 7.5 minute quadrangle map); and eorank (see attachment for possible values). Although there are nineteen species involved, as your letter stated, there are twenty occurrences, since one species (*Platanthera peramoena*) is recorded for two locations (see #7 on our 27 December 2000 letter). Also, please be aware that numerous records, including updates of these records, are awaiting entry into the database. Therefore, the last year of observation is not necessarily the last year it was actually seen and reported to our office.

Species	Last Year	Precision	EORank
Cuscuta pentagona	1991	S	H
Sanguisorba canadensis	1988	S	A
Sphenopholis pensylvanica	1992	S	A
Carex barbarae	1992	S	C
Sarcostemma clausum	1986	S	E
Asplenium ebenoides	1996	S	C
Gentiana andrewsii	1995	S	B
Platanthera peramoena	1998	S	C
Aeschynomene virginica	1984	M	S

Telephone: (410) 260-8540
DNR TTY for the Deaf: (410) 974-3683

Mr. Smith
RTE data for I-270/US 15 Multi-modal Corridor Study
March 5, 2001

Species	Last Year	Precision	EORank
Lemna halonicarpa	1989	S	F
Amelanchier obovalis	1953	G	H
Castilleja coccinea	8080	G	U
Krigia dandelion	1994	S	A
Calystegia spithamea	1951	M	H
Platanthera peramoena	1928	M	H
Muhlenbergia mexicana	1974	M	U
Orthilia secunda	1974	M	U
Dry crinita	1989	S	B
Botaurus lentiginosus	1970's	M	U
*Polygonum hydropiperoides**	1997	S	CD

*This taxon is likely to be dropped from our list of species of concern in the near future.

Regarding the sedge wren records, there are no potential breeding observations in this area within the past few years to my knowledge. As you stated, this area has undergone considerable recent development, and it is unknown whether this species is still attempting to breed in this general vicinity.

If you need further information, please let me know.

Sincerely,

Lynn Davidson
Natural Heritage Information Manager
Wildlife and Heritage Division

attachment

EXPLANATION OF "EORANKS"

Maryland Department of Natural Resources, Wildlife and Heritage Division

March 5, 2001

EORank is a field within the Biological and Conservation Data (BCD) system used by the Network of Natural Heritage Programs. It is designed to provide a concise measure of the estimation of the quality or viability of a given occurrence. The table below lists the basic values possible; however, ranges (e.g. BC) or combinations (e.g. D/H) are also used.

EORank	Description
A	Excellent predicted viability
B	Good predicted viability
C	Fair predicted viability
D	Probably not viable
E	Verified extant
F	Failed to find during last survey(s)
H	Historical
I	Introduced or possible introduction
O	Observation (e.g. of a breeding species that may not be breeding)
S	Shell/specimen (e.g. a freshwater mussel shell, roadkilled animal)
U	Undetermined/unknown (e.g. insufficient information)
X	Extirpated or presumed gone

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Maryland Office of Planning
MEMORANDUM

TO: Michelle Hoffman, SHA
Lorenzo Bryant, MTA

FROM: Christine Wells

DATE: August 24,1998

Re: OP staff comments and recommendations on the Draft Stage I Transportation Summary I-270/US15 Multi-Modal Corridor Study

Executive Summary - Purpose & Need
The last sentence should be revised, since the corridor itself does not "employ a large portion of residents..." but businesses located within the corridor employ residents.

I. Background
OP has not been listed as part of the Study Team.
Data on the current usage of the HOV lanes should be included. These data are available from WashCOG's report on the "1997 Performance of Regional HOV Facilities on Interstate Highways in the Washington Region." This report indicates that there are times savings ranging from .5 minutes to 1.4 minutes per mile in the region.

re: Alternates Retained- Baseline Alternate
We recommend that there be included some clarification as to what "routine maintenance and spot improvements" includes. (e.g. re-paving? shoulder improvements? re-striping? repair of pavement, etc...) Given that system preservation is a high priority for MDOT, the implication that routine maintenance is a "do nothing" option should be avoided.

re: TSM/TDM Alternate
The summary of the TSM/TDM Alternate included in the Executive Summary makes n reference to the growth management strategies listed in Table 3. In accordance with the intent of the Smart Growth Act, OP recommends that all the TSM/TDM strategies identified in Table 3 be studied in more detail in Stage 2 of the Study. We can work with MDOT and the local jurisdictions to identify what additional TSM/TDM strategies will be considered beyond those that are currently implemented or funded for implementation.
For example: transit oriented development has not been specified as a growth

management strategy, but, should be.

The description of growth management strategies included in Appendix D describes th process by which Montgomery and Frederick County conduct reviews in accordance with their APFO's. This description does not address the additional growth management strategies/efforts that are currently in place or could be underway in the study time-frame within the counties "to strengthen local land use plans, to attract and focus compact mixed use growth in designated areas or priority funding areas" nor what they are doing to "discourage development in rural areas" nor what strategies are/could be undertaken to "improve the balance between jobs and housing." For Stage 1, the description in Appendix D should include discussion of all the growth management strategies that were considered in the CMS study and their effectiveness at relieving congestion. APFO's are not the only tools in use by the counties at this time.

The integration of smart growth initiatives into Stage II of this multi-modal study should occur in coordination with OP and the counties. Stage II should include more detailed analysis of the potential for the growth management strategies listed in Table 3 to address the congestion that is projected to occur in the corridor. We would also suggest that in Stage II an additional measure of effectiveness be established under the Goal to "Support orderly economic growth. " The new measure should assess the ability of the growth management strategies to direct growth to the priority funding areas, transit station areas and designated growth areas. The analysis should be conducted in enough detail to produce results that can be demonstrated in the matrix, with data or on a map.

The measures in Appendix C to "compare the transportation network alternatives with the National Capital Region Long Range Transportation Plan" and with the "local master plans" alone will not address the question of whether the alternatives implemer the Smart Growth initiatives.

Additional measures of effectiveness under the Goal to" Preserve and Protect the Environment" seem likely to be requested by the environmental resource agencies in Stage II. Such measures would assess the impacts on a broader range of natural and cultural resources. It has not been made clear here why only a few natural/cultural resources are included in the Stage I MOE's.

II. Purpose and Need
re: Land Use Patterns- Only one paragraph describes the existing land use patterns, the remainder of this section discusses anticipated development in a very general way The description of existing land use patterns should be strengthened and a generalize map of existing land use should be included. Relevant information could include : What percentage of the study area is developed ? More information should be provided such as the nature of development: is it urban, suburban or rural? ; how doe it vary from the southern end of the corridor to the northern end?; what is the range of existing residential densities?; what is the area in agricultural/conservation

designation? How many people are employed in the corridor and how large are th largest employers? What are the significant parks or recreation areas in the corrid Given this is a "technology corridor" the focus areas for the high technology indust and research facilities should be identified. The planned land uses and the identification of planned growth centers should be shown on a map. The analysis land use patterns will help to identify the growth management strategies that shoul considered in Stage II.

The population growth rates cited here for the counties are not specific to this stud corridor. Growth projections for smaller areas specific to this study should be inclu When the cumulative effects study boundary is established, the projected growth f that area should be included.

re: Projected traffic conditions
The discussion found here regarding the growth patterns belongs in the earlier sec on land use patterns. The projected traffic volumes speak for themselves.

re: Agency Concurrence
All the agencies participating in the NEPA process should be listed here as inform to the reader, since they are not all included on the study team.

III. Congestion Management System Overview
The last four sentences in this section are unclear. What does "in a manner in whi they are viewed by the system users" mean? Please elaborate on how the strate are "tested in one part and then understood for the whole corridor." Please elabo on how the CMS strategies listed in Table 3 were considered and tested.

IV. Public Involvement
This is a good description of the MDOT outreach, but there is no indication of the public reaction or feedback obtained at these meetings. What kind of attendance resulted at the meetings? How many people have written letters? What are the k areas of interest and concern?

VI. Study Team Recommendations
The description of alternates retained has not made clear how the growth manage strategies included in the CMS approach will be incorporated. While the details ca worked out in Stage II, it is important to note clearly here that growth manageme strategies are to be studied.

re: Long Range Plan Recommendations
This section needs elaboration to put the recommendation in context. Is it the Stu Team's conclusion that the CCT be included in the region's long range plan and vi Did the TPB seek public input on this recommendation? There needs be clarifica about who prepared the vision statement in Appendix E, whether or not it has bee adopted or endorsed by local or regional bodies, and whether there has been pub input about this corridor vision.

Stage II NEPA Recommendations
Description of the growth management strategies to be included in the TSM/TDM Alternate, and as components of Combination Alternate A, Combination Alternate and Combination Alternate C should be added here.

Additional Questions/Comments:
How will this study take into account the short term transit and highway improvem proposed to be undertaken in Montgomery County and Prince Georges County? study that was launched when the ICC study was halted.)

It is unclear if there would be any transit service connections between Comsat an Frederick in Combination Alternates A and C.

The proposed transit stations should be shown on the map.

In Stage II, bicycle and pedestrian facility improvements associated with the trans improvements should be discussed. Consideration should be given to establishir MOE for bike/pedestrian access in Stage II under the Mobility Goal.

cc: Bihui Xu, OP
John Matthias, Montgomery County
Jim Gugel, Frederick County

MARYLAND *Office of Planning*

Parris N. Glendening
Governor

Ronald M. Kreitner
Director

December 7, 1998

Mr. Louis H. Ege, Jr., Deputy Director
Office of Planning & Preliminary Engineering
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Attention: Ms. Gay Olsen

Re: Stage I Transportation Summary (Alts. Retained for Detailed Study & CMS Package), I-270/US 15 Multi-Modal Corridor Study

Dear Mr. Ege:

OP has been involved with the I -270/US 15 Corridor Study team. Through the team, OP provided comments on an earlier draft Stage I Transportation Summary in an August 24th Memo which I have attached. SHA responded to OP's comments in an October 15th letter and some revisions were made to the Summary.

One of our original concerns has been how this Study addresses land use/growth management strategies. SHA's response to OP has indicated that "the growth management strategies will be considered" in Stage II. OP, SHA and local jurisdictions have had initial discussions on how growth management strategies might be incorporated in Stage II. The intent to further consider growth management strategies in Stage II of the Study should be referenced on page 12 of the document in the section on Stage II recommendations.

re: p. 3 , Section on Smart Growth- Recommended wording change- If the project is located outside of a PFA, "it ~~may~~ **will** be subject to an exception under the law, ~~some of~~ which must be approved by the **State** Board of Public Works."

re: page ii, (No-Build) Baseline Modified Alternate should be included in the list of alternatives retained for detailed study.

We have also provided comments previously through the Study Team on the early draft Measures of Effectiveness to be employed in Stage II of this Study. We are reviewing the draft

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301 West Preston Street • Baltimore, Maryland 21201-2305

MOE's dated 11/30/98 and will send comments separately to the Project Managers. We do understand from SHA that the evaluation for compliance with Smart Growth that is required will be conducted when the environmental resource impacts are evaluated, rather than through measures of effectiveness. We expect to have further discussions with SHA on that evaluation and how the results will be presented in the final document.

Should there be any questions regarding our comments, please do not hesitate to contact me at (410)767-4620.

Sincerely,
Christine Wells
Christine Wells
Principal Planner

Attachment: August 24th Memo

cc: George K. Frick Jr., FHWA
Keith Harris, COE (Attention: Vance Hobbs)
John Forren, EPA
Bob Pennington, USFWS
Timothy Goodger, NMFS (Attention: John Nichols)
Jeffrey Knoedler, NPS
Ray Dintaman, DNR
Elder Ghigiarelli, MDE
J. Rodney Little, MHT

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

January 4, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
From the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Ms. Christine Wells
Principal Planner
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201

Dear Ms. Wells:

Thank you for your continued interest in the I-270/US 15 Multimodal Corridor project. Your comments on the Alternates Retained for Detailed Study (ARDS) package are appreciated. The following information is provided to supplement or clarify information in the ARDS package in response to your comments.

Land Use/Growth Management

As you mentioned, both the State Highway Administration (SHA) and the Mass Transit Administration (MTA) are working with your office and the local jurisdictions to identify any land use strategies that could be addressed, either qualitatively or quantitatively, in the second, more detailed, stage of this project planning study. As you and your office are members of this Multimodal Corridor project team, we will discuss these options further through the monthly project team meetings.

Baseline Modified Alternate

The naming convention for the Baseline or the No-Build Alternate becomes somewhat confusing, especially to the public. Our Baseline or No-Build Alternate that we will carry forward into the Stage II NEPA study is renamed, the Baseline Modified Alternate. The southbound HOV segment on I-270, between MD 121 and I-370, which was part of another project and not previously implemented, has, subsequent to the development of the No-Build Alternate for this project, been included into the No-Build for this project and consequently can not be part of the original Baseline (No-Build). Therefore, just the term," Baseline Modified (No-Build) Alternate", will be carried into the Stage II planning studies

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Smart Growth

Your comments regarding the Smart Growth wording will be addressed in the Draft Environmental Impact Statement (DEIS). Several Measures of Effectiveness (MOEs) have been retained that evaluate both accessibility and travel time to and from Priority Funding Areas. Therefore, Smart Growth may be addressed in both the DEIS, and through the MOEs.

Thank you again for your comments. Should there be any further questions, please do not hesitate to contact me or Anne Elrays, the Environmental Manger at 410-545-8562. Both Anne and myself can be reached toll free in Maryland at (800) 548-5026

Very truly yours,

Louis H. Ege, Jr.,
Deputy Director
Office of Planning and
Preliminary Engineering

by _____
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

cc: Mr. Lorenzo Bryant, MTA
Mr. Ray Dintaman, DNR
Mr. Steve Elinsky, COE
Ms. Anne Elrays, SHA
Mr. John Farren, EPA
Mr. Elder Ghigiarelli, MDE
Ms. Michelle Hoffman, SHA
Mr. John Howard, NPS
Mr. J. Rodney Little, MHT
Mr. John Nichols, NMFS
Ms. Gay Olsen, SHA
Ms. Diane Ratcliff, MTA
Ms. Cynthia Simpson, SHA
Mr. David Sutherland, USFWS
Ms. Pamela Stephenson, FHWA

Memorandum

To: Michelle Hoffman, SHA
Lorenzo Bryant, MTA

From: Christine Wells

Date: October 14, 1998

Re: OP staff comments and recommendations on the Stage II MOEs

Goal 1

- Add an objective, "to demonstrate consistency with the visions of the 1992 Planning Act and compliance with the provisions of the 1997 Smart Growth Act."

- *Objective 1, MOE A&B* Suggest that you modify the MOE's: to reflect the number of regional jobs within certain minutes of priority funding area households during certain period by LOV, HOV, and transit. And, the number of regional households within certain minutes of households within the corridor's priority funding areas
-
- *Objective 3, MOE A&B* Adding MOEs: "number of new corridor PFAs jobs/households within certain minutes of new and existing regional households/jobs during certain period by LOV, HOV, and transit."

Goal 2

- *Objective 1* The MOE should consider travel time saving between PFA's
- *Objective 3 MOE B* This MOE should also include the number of residents and employees within certain distance of a feeder bus stop. .Does it?

Goal 4

It seems likely that the environmental resource agencies will have comments on these MOE's. The MOE's should not be finalized without getting their input first..

We request clarification of the MOE, "opportunities within transportation system ROW for public use."

Goal 5

- It seems that with the exception of Objective 1, A, all the other MOE's are transit related. What MOE's will be considered for measuring highway or TSM/TDM investments?
- *Objective 1* We suggest changing the wording to "provide transportation facilities in a cost effective manner."
  To satisfy the demand seems contrary to the 1998 draft MTP statement (p.7) that

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Maryland Department of Transportation
State Highway Administration

Parris N. Gl
Governor
David L. Wi
Secretary
Parker F. W
Administrator

October 15, 1998

Re: Project No. FR192B11
I-270/US 15: Shady Grove Metro Station to
Biggs Ford Road
Montgomery and Frederick Counties

Ms. Christine Wells
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201-2365

Dear Ms. Wells:

We are responding to your comments regarding the draft Stage I Transportation Summary for the I-270/US 15 Multi-Modal Corridor Study included in a memorandum dated August 24, 1998. This Transportation Summary outlining the recommended Alternates Retained for Detailed Study (ARDS) will be presented to the Interagency Review group on October 21, 1998. Please refer to an attached copy of your memorandum, which numerically refers to our responses.

Executive Summary - Purpose & Need

As you probably know, the Purpose and Need Statement was approved via the Interagency Review and concurrence process in September of 1995. However, we will make the wording change to state that businesses located within the Corridor employ residents."

Background

1. The Maryland Office of Planning (OP) will be added to the ARDS package as a Project Team member of the I-270/US 15 Multi-Modal Corridor Study.
2. Current usage of the HOV lanes is outlined on page 3 of the ARDS package. In order to elaborate slightly, a six month evaluation of the current HOV lanes on I-270 have shown that there is a four minute travel time savings for the entire length of the HOV lanes. This is compatible with national standards.
3. Under the Baseline or No-Build Alternate, "routine maintenance or spot improvements" includes resurfacing, re-striping, signing, and lighting along both I-270 and US 15. The phrase "do-nothing" refers to no capacity improvements within this Corridor.

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

4. A reference to the growth management strategies will be added. The executive summar includes the TSM/TDM strategies that SHA could study in more detail, which are large same as those outlined in Table 3. We will continue to work with the Project Team, including MDOT and the local jurisdictions, to identify any additional TSM/TDM strat that could be considered beyond those currently implemented or under consideration.
5. Additional verbiage as follows will be added to Appendix D: Both Montgomery and Frederick Counties have implemented growth management through the approval of nun master and sector plans, such as recreation and open space, bikeways, and preservation agricultural and rural open space. The counties have also implemented growth manage through zoning, guidelines, and regulations, such as requiring stormwater management controls, prohibiting development in floodplains, matching the timing of development v transportation improvements, allowing mixed use - high density development in transit station locations and increasing the number of residential zones to expand housing choi Please note that TSM/TDM as a stand alone strategy was evaluated earlier in Stage I. T results of this evaluation showed, like all of the other stand alone transportation strategi evaluated through this study, that no single strategy alone would satisfy the transportati needs (not effectively relieve congestion) within the Corridor. That is why TSM/TDM strategies, along with other transportation strategies have been combined into the variou Combination Alternates for more detailed consideration in Stage II.
6. The Smart Growth initiatives will be evaluated in Stage II with the Project Team, whicl includes all of the local, state and federal participatory team members.
7. Additional measures of effectiveness (MOE) are being discussed currently with the Pro Team, including members of OP staff. Recently, the following MOEs were added or discussed at the request of OP staff:
   - Add Smart Growth consistency MOE.
   - Consider Off-peak transit mobility frequency/quality of service MOE.
   - Consider secondary/cumulative impacts MOE (qualitative).

   In terms of more detailed growth management strategies, we look to you and your staff assistance in fleshing out the alternates in more detail for the Stage II evaluations, as we potentially taken the lead in some of the evaluations.
8. A detailed list of resources affected, including the quantification of impacts consistent v NEPA, will be included in the Stage II evaluations. The preliminary chart will be corre to delete "air quality" and "environmental justice" as these resources/impacts will be quantified during the Stage II evaluations. The preliminary chart included only those resources where impacts were measurable using preliminary analysis and were accepted the agencies. While identification of known archeological resources and significant sta structures has been completed, effects to these significant resources will be determined consistent with section 106 through consultation with the SHPO.

Purpose and Need

9. I would like to reiterate that the Purpose and Need was approved through the NEPA/40 interagency review process in September of 1995. The Purpose and Need Statement w be revisited. However, in preparation for the Draft Environment Impact Statement, det technical reports will be completed for the various sections, including the socio-econon section. This technical report will include the vast majority of the information you are seeking, such as land use patterns and mapping.

Congestion Management System Overview

10. The sentences will be reworded to indicate that a Corridor approach was presented to t public so that the public could effectively evaluate whether to use a particular road/tran mode or TSM/TDM strategy through an understanding gained of the transportation sys a whole.

Public Involvement

11. Public involvement including attendance, comments, and correspondence will be inclu the environmental document.

Study Team Recommendations

12. It will be noted that the project will be consistent with growth management initiatives : that growth management strategies will be considered. Most of the strategies in Table ! be evaluated in Stage II; however, to what extent will be discussed and determined witl Project Team, with your involvement, over the next several months.
13. The Vision Statement (in Appendix E) was developed with the Project Team as a proje team tool, consistent with the local master plans, to maintain a focus of the long term a short term goals for the I-270 Corridor, realizing that not all transportation needs can b solved by the design year of 2020. The Project Team has and will continue to present t Transportation Planning Board and the public the need to preserve the Corridor Cities Transitway Alignment all of the way to Frederick even though this NEPA study only p on evaluating the potential implementation of a transitway alignment from Shady Grov Metro Station to as far north as COMSAT in Clarksburg (Montgomery County). This preservation could be done by inclusion in master plans (already including in both Montgomery and Frederick Counties master plans) and in the Washington Metropolitar region's Long Range Plan (as part of the TPB).
14. A description of how a TSM/TDM strategy could implement a growth management str will be discussed during the Stage II studies.
15. The short term highway improvements identified by the Intercounty Connector (ICC) s are being included in separate project planning studies as outlined in the Congestion Re Study (CRS). While Prince George's County is well outside of this project's study lim effects, several intersections will be evaluated in Stage II to determine the proposed alternate's effects on them. These intersections that are common to the CRS/ICC studi include the following:
    - MD 355 (Rockville Pike)/Montrose Road

- MD 28 (Jefferson Street)/MD 355
- MD 28-MD 911 (Norbeck Road-First Street)/MD 586 (Viers Mill Road)
- MD 355/Middle Lane/Park Lane
- MD 28/East Gude Drive
- MD 355/Shady Grove Road
- MD 355/MD 124

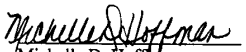
16. The potential bus transit improvements were investigated by MTA in cooperation with Montgomery and Prince George's Counties, WMATA, SHA and the M-NCPPC to address cross-county mobility in the short-term in lieu of the ICC study. The I-270/US 15 Study does take into account some cross-county transit service by inclusion in the MWCOG transit network file for the 2020 baseline Constrained Long Range Plan (CLRP) transit scenario. However, those recently proposed short-term transit improvements were initiated well after the transit service scenario in the MWCOG model network file for this project had been validated. Consequently, all of the proposed services may not be present. Inclusion of the proposed short-term transit; however, would probably have a minimal impact on the results since some similar routes already exist in the model. Finally, for the MWCOG model, the baseline transit service for the year 2020 in the CLRP must only include service and improvements which either already exist, have committed funding (CTP/TIP) or are on adopted regional master plans.
17. The proposed transit stations are shown on the 1"=400' scale mapping that was distributed (subsequent to this preliminary ARDS review) at the September 16, 1998 Interagency Review meeting. Please let us know if you did not receive this mapping.
18. Consideration of bicycle and pedestrian facility improvements will be included in the environmental document as part of the MOE "to increase multi-modal options."

Ms. Christine Wells
Maryland Office of Planning
Page 5

Should you have any questions, please feel free to call Michelle Hoffman at 410-545-8547.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: 
Michelle D. Hoffman
Project Manager
Project Planning Division

LHE:MDH
Attachment
cc: Mr. Lorenzo Bryant, Mass Transit Administration
Mr. Louis H. Ege, Jr., State Highway Administration
Ms. Anne Elrays, State Highway Administration
Mr. Jim Gugel, Frederick County
Ms. Michelle Hoffman, State Highway Administration
Mr. Henry Kay, Mass Transit Administration
Mr. Joseph Kresslein, State Highway Administration
Mr. John Matthias, Montgomery County - M-NCPPC
Mr. Neil Pedersen, State Highway Administration
Ms. Diane Ratclif, Mass Transit Administration
Ms. Cathy Rice, State Highway Administration
Ms. Cynthia Simpson, State Highway Administration
Mr. Glen Smith, State Highway Administration
Mr. Ronald Spalding, Maryland Department of Transportation
Ms. Mona Sutton, State Highway Administration
Ms. Pamela Stephenson, Federal Highway Administration
Mr. James Wynn, State Highway Administration

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MARYLAND *Office of Planning*

Parris N. Glendening
Governor

Ronald M. Kreitner
Director

February 26, 1999

Louis H. Ege, Jr., Deputy Director
Office of Planning & Preliminary Engineering
Maryland State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Attention: Ms. Gay Olsen

Dear Mr. Ege:

We have reviewed the information provided in the **preliminary Secondary and Cumulative Effects Analysis (SCEA) Scoping Approach for the I-270/US 15 Project**. Our comments on the approach for this major multi-modal project follow and are in part based on the SHA's Secondary and Cumulative Effects Guidelines recently shared with us for review.

Affected Resources
The discussion should indicate that the resources directly affected by the alternates are those initially considered for the SCEA analysis. It is important to note that additional resources having secondary and cumulative affects from the alternates will be considered later, if the Study determines such resources exist. According to *the SHA's Secondary and Cumulative Effects Assessment Guidelines* dated 1/6/99 (*the Guidelines*), such additional resources need to be considered later when the SECA boundary is finalized and resource effects are re-assessed.

Time Frame
We understand the rational for choosing the year of 2020 as the upper time frame limit. However, there is not sufficient justification for using "1980" as the lower limit of the time frame.

According to some various information provided in the Scoping Approach and an SHA Working Draft - Resource/Information Gathering Secondary/Cumulative Impacts dated 2/5/98, it may be more appropriate to use "1970" or the early 1970's as the lower time frame limit:

- From 1950 to 1960: I-270 built (US 240 relocated); 1971: 3rd lane added between Y split and MD 118.
- Gaithersburg - 316% population increase from 1970 - 1980, 149% increase from 1980 - 1990.
- In Frederick County, I-270 had the biggest change into non-agricultural land uses in the 1970's when the area between MD 75 and the County Line developed residentially.

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- The regional shopping malls were built in the second half of 1970's, serving as an indicator of major population growth.

After construction and expansion of I-270 (US 240 relocated) in 1950's and 1960's, rapid growth followed in the corridor in 1970's. As indicated in the SHA's SECA *Guidelines*, "the early 1970's is the earliest time frame for which organized data is usually available due to the introduction of NEPA in 1969." It has been noted to SHA that OP has land use data as far back as 1973. We suggest that additional population/housing information and the availability of historical resource data be re-evaluated to determine whether the analysis time frame is adequate.

Geographic Boundary
To help define a SCEA boundary for a project with substantial proposed highway and transit improvements, we think that the Study should examine the project's traffic influence area along with those areas mentioned in the Scoping Approach. According to the SHA's SCEA *Guidelines*, travel demand modeling results could be used to help assess a reasonable traffic influence area by using professional judgment. Such an assessment has not been included.

Specific questions and comments on the preliminary SCEA boundary follow:

- Although the watersheds/sub-watersheds, census tracts, and local planning areas are used to help delimit the SCEA boundary, it appears that in many cases, the SCEA boundary does not follow the boundaries of those areas, but rather cuts through them. SHA and MTA need to study whether the SCEA boundary should follow those areas' boundaries for the purposes of easily gathering data and adequately analyzing impacts on natural resources.

- Future related projects have not been adequately identified. Such projects should include not only roadway/transit improvements, but also foreseeable residential, commercial, and employment developments. Identification of these projects should help to define the SCEA boundary. The Study should set up criteria/thresholds for project inclusion.

- Based on the information provided in the OP's *Atlas of Agricultural Land Preservation, Maryland, 1998 (the Atlas)*, agricultural land east of US 15 and north of Biggs Ford Road in Frederick County is under "High" to "Moderate" development pressure. The proposed US 15 improvements would potentially pose additional growth pressure to the area. Since the area may face potential secondary development impacts, it should be included within the SCEA boundary.

- Within the Urbana Region, the area east of I-270 is planned for both employment/residential development and agricultural uses. The agricultural land is under "High/Significant" development pressure (see *the Atlas*). The proposed new interchange with MD 75 Extended and widening along I-270 would likely enlarge the I-270 corridor's traffic influence area in this region. Parts of the proposed improvements

are outside of the County's certified Priority Funding Area. Secondary development impacts are likely occur. SHA and MTA should analyze the traffic influence in the area to determine whether the whole Urbana Region should be included in the SCEA boundary.

- SHA and MTA should also assess the future I-270's traffic influence areas in Montgomery County to determine how far the SCEA boundary should be stretched out, particularly in the area east of I-270 where much of the land is planned either for development or for agricultural/conservation uses but under "High" or "Significant" development pressure according to *the Atlas*.

We note how beneficial it was for SHA to have included the color SCEA boundary map and written justification for our review. If there are questions on these comments, please contact me or Bihui Xu at (410) 767-4567.

Sincerely,

Christine Wells

Christine Wells
Principal Planner

cc: Ron Young, OP
Henry Kay, MTA
George K. Frick Jr., FHWA
Keith Harris, COE (Attention: Vance Hobbs)
John Forren, EPA
Bob Pennington, USFWS
Timothy Goodger, NMFS (Attention: John Nichols)
Jeffrey Knoedler, NPS
Ray Dintaman, DNR
Elder Ghigiarelli, MDE
J. Rodney Little, MHT

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

April 20, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery County

Ms. Christine Wells
Principal Planner
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201

Attn: Ms. Bihui Xu

Dear Ms. Wells:

Thank you for your comments (see enclosure) regarding the preliminary Secondary and Cumulative Effects Analysis (SCEA) boundary and written justification for the time frame and geographic parameters to be used in the analysis for the I-270/US 15 Multimodal project.

As discussed in your comments, the environmental resources to be studied in the SCEA will be reassessed throughout the course of the project to ensure that the analysis is inclusive. When the SCEA boundary is finalized, any additional resources that are not directly affected but may be secondarily or cumulatively affected by the project alternates, will be considered for inclusion into the SCEA. As suggested, the presentation of analysis parameters will include a more in-depth discussion of historic trends to support the time frame for the analysis.

The project's area of traffic influence was considered as one factor in establishing a preliminary geographic boundary for the SCEA. Because I-270 is a limited access roadway designed primarily to meet through traffic needs, improvements to the facility, except where additional access is proposed, were not identified as having a major influence on traffic patterns on local roads. MD 355 runs parallel to I-270 throughout most of the project area, therefore, it is an alternate route for I-270 traffic and is included within the SCEA boundary.

My telephone number is _____

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The preliminary boundary represents a synthesis of various sub-boundaries such as sub watersheds and census tracts. The preliminary SCEA boundary at the Urbana location does not include the entire Urbana region east of I-270 due to the limited proposed water and sewer to the year 2020. More detailed information such as, planned/potential development will be included in the environmental document to support a final geographic boundary.

Your comments will be considered throughout the development of the SCEA. Please feel free to call Michelle Hoffman, the project manager, at 410-545-8547 or Anne Elrays, the environmental manager, at 410-545-8562 if you should have any questions. Both Michelle and Anne can be reached toll free at (800) 548-5026.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Michelle Hoffman
Michelle Hoffman
Project Manager
Project Planning Division

LHE:AE
cc: Mr. Lorenzo Bryant, MTA
Mr. Ray Dintaman DNR
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays, SHA
Mr. Elder Ghigiarelli, MDE
Mr. William Hoffman, EPA
Ms. Michelle D. Hoffman, SHA
Mr. John Howard, NPS
Ms. Patricia Kampf, FTA
Mr. Joseph R. Kresslein, SHA
Mr. J. Rodney Little, MHT
Ms. Diane Ratcliff, MTA
Mr. Robert Sanders, SHA
Ms. Cynthia Simpson, SHA
Ms. Pamela Stephenson, FHWA
Mr. David Sutherland, FWS
Mr. Jim Wynn, SHA
Ms. Bihui Xu, MOP

DEPARTMENT OF PUBLIC WORKS
Bureau of Parks and Recreation
Frederick County, Maryland

118 North Market Street • Frederick, Maryland 21701 • (301) 694-1646 • FAX (301) 694-1808

DIRECTOR

BUREAU CHIEF
Gilbert L. Kingsbury

April 18, 1996

Mr. Joseph Kresslein
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Md. 21203-0717

RE: SHA Project Planning Studies
Bureau of Frederick County Parks & Rec.

Dear Mr. Kresslein:

After reviewing your March 29, 1996 request for information on park facilities within the study area, I forwarded a copy of the letter and maps to Jim Schmersahl of Frederick City and John Howard of the NPS Monocacy National Battlefield on April 10th. There are two parks, Rose Hill Manor and Urbana Community Park, within the study area under the jurisdiction of the Frederick County Bureau of Parks and Recreation which are discussed below.

Rose Hill Manor Park

This 43 acre historical and cultural park located at 1611 North Market Street in Frederick was the home of, Maryland's first governor, Thomas Johnson. A Touch and See Children's Museum includes the Manor, Icehouse, Early American Garden and Orchard, Log Cabin, Blacksmith Shop and Summer Kitchen/Smokehouse. A Carriage Museum and Farm Museum are also located on the site. Various special events and interpretive programs are held throughout the year.

Program Open Space funds have been utilized in the past for park development. There are no funds scheduled in the County's six year Capital Improvements Program (CIP) for additional development.

This park's function is very significant is meeting the historical and cultural needs of all of Frederick County and even areas outside the County. The "Touch and See Children's Museum" is a unique interpretive facility in the State and the region. A brochure is enclosed for your reference. Should you need more specific information on the site or its programs you may contact Ms. Colin Clevenger at (301) 694-1648. The Park's address is 1611 North Market Street, Frederick, Md. 21701.

"Serving with Pride Countywide"

Printed on Recycled Paper

Urbana Community Park

This 20 acre park is located on the west side of Urbana (Md. 355) in Urbana. Facilities include 3 little league fields, a soccer field, practice soccer fields, play equipment, grills, 3 lighted tennis courts, horseshoe courts, family picnicking, a small shelter and a walking trial. A second development phase is scheduled in the County's six year CIP for Fiscal 2001. Facilities to be developed are expected to include: extension of the park road, additional parking, group picnic shelters, a playground, a basketball court, installation of water utilities and restrooms. Refer to the enclosed master plan for additional information.

Program Open Space funds have been utilized in the past for park acquisition and development.

This park's function is also significant in meeting the recreational needs of the Urbana community. There is a shortage of recreation and park facilities in this rapidly growing area. A new high school recently opened in Urbana.

Let me know if you have any questions or need additional information. Thank you for your attention.

Sincerely,

Bob Failor

Bob Failor
Assistant Administrator

Enclosures (2)
cc: file
Gil Kingsbury
Colin Clevenger

DEPARTMENT OF PLANNING AND ZONING
FREDERICK COUNTY, MARYLAND

Winchester Hall 12 East Church Street Frederick, Maryland 21701 (301) 694-1134

October 28, 1999

TO Michelle Hoffman, SHA

FROM Jim Gugel

RE I-270/US 15 Multi-Modal Study draft highway design

Noted below are comments regarding the Frederick County portion of the improvements.

1. At the MD 80 interchange the plans should reflect the relocation of MD 80 on the east side of I-270. In addition the new configuration of the park and ride lots should be delineated. Also proposed as part of the Urbana PUD is a new ramp from NB I-270 to EB MD 80. Plans for these improvements are with Mark Friis of Rodgers and Associates.

2. The Urbana Region Plan identifies a proposed interchange approximately 1,500 feet south of Park Mills Rd. Should the study identify this interchange at least in a conceptual nature indicating that its need may be beyond the 2020 time frame of this study?

3. At the Jefferson St. and Patrick St. interchanges will the ramps currently closed be opened in conjunction with having the auxiliary lanes?

4. Previous designs in Stage I showed the widening of US 15 to 6 lanes ending at MD 26. Do the projected ADT's justify widening to 6 lanes all the way to Biggs Ford Rd as shown on these drawings?

If you have any questions I can be reached at 301-694-1144.

cc Jim Shaw
Ed Gorski
Derick Hallahan

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

December 6, 1999

Mr. James Shaw, Director
Frederick County Department of Planning
Winchester Hall
12 East Church Street
Frederick MD 21701

Dear Mr. Shaw: J:M

I would like to thank you and your staff for taking the time to review the first draft of the engineering for mainline I-270 and US 15, within both Frederick County and the City of Frederick, as part of the I-270/US 15 Multi-Modal Corridor Study. As you know, the interchange configurations will be developed to the same level of detail as the mainline in February 2000, once the detailed travel demand projections are completed. I would like to offer the following responses to the questions raised as a result of your engineering review.

I-270/MD 80 Interchange
The plans will be updated to reflect the developer's relocation of MD 80, the new park and ride lot, and the proposed ramp from northbound I-270 to eastbound MD 80 (relocated).

I-270/Park Mills Road Interchange
The I-270/Park Mills Road interchange was not included in the alternates under consideration within the I-270/US 15 Major Investment Study (MIS), nor included in the Alternates Retained for Detailed Study for the Stage II (NEPA) Planning Studies of the I-270/US 15 Multi-Modal Corridor Study. As you know, the purpose of this study is to address the congestion and safety needs through to the design year 2020. This interchange would be outside the Urbana Priority Funding Area (PFA), since the northern limit of the Urbana PFA is just north of the existing MD 80 interchange with I-270. We feel we should acknowledge the existence of the proposed interchange in the Urbana Region Plan, but not include it within the scope of this study, but instead indicate that if it is built it will likely be after 2020.

US 15/Jefferson Street & US 15/Patrick Street Interchanges
The ramps at US 15/ Jefferson Street and US 15/Patrick Street have been closed due to the high accident problem on US 15 related to weaving distances between on and off ramps. By eliminating these ramp movements and creating left turn connections to the outer ramps, these movements have been redirected. The old directional ramps will not be reopened, in fact, the ramp at Jefferson Street has already been removed and seeded and mulched.

My telephone number is 410-545-0411
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mainline US 15
The conclusion of the MIS activities showed the recommendation to widen US 15, north of MD 26, to a six lane section, based on the Stage I travel demand projections. In addition, the Average Daily Traffic (ADT) volumes for the design year of 2020 justify the need to widen for one additional general use lane in each direction on US 15 between MD 26 and Biggs Ford Road.

Thank you again for reviewing the draft engineering plans. I appreciate your time, as well as that of your staff representative, Jim Gugel, who has been an active participant on the I-270/US 15 Multi-Modal Corridor Study Team. If you have any additional questions, please feel free to contact me at 410-545-8547 or 1-800-548-5026.

Very truly yours,

Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

cc: Mr. Ed Gorski, Frederick County
Mr. Jim Gugel, Frederick County
Mr. Derick Hallahan, Rummel, Klepper & Kahl
Mr. Glen Smith, State Highway Administration
Ms. Mona Sutton, State Highway Administration
Mr. James Wynn, State Highway Administration

MARK T. SCIRE, P.E.
Director of Engineering

JAMES A. SCHMERSAHL, A.I.C.P.
Director of Planning

CITY OF FREDERICK
FOUNDED 1745

MAY 12 11 01 AM '95

May 9, 1995

Mr. Dennis Atkins
State Highway Administration
Project Planning Division
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: I270/US15 Project Planning Study

Dear Mr. Atkins:

Last evening I attended your public information meeting on this project. I attended the project planning team meetings earlier in the process, but in recent years have lost contact. I believe it would be helpful for me to once again become involved. As you suggested, I will try to attend as many meetings as I can from here on out.

I mentioned several specific issues and concerns to staff members at the various stations. My questions to the planner at the Demand/Forecast slide presentation focused on the trips assigned to MARC/Point of Rocks Service. I would like to know what ridership figure has been assumed since planned upgrades such as MARC are factored into the demand model. This figure will help us with some of the parking and traffic issues associated with the MARC stations.

I pointed out some omissions to the planner, Barbara Allera/Bohlen, at the Environmental/NEPA 404 display. I believe your environmental inventory should note the following:

1. National Register Site - Guilford, Evergreen Point
2. National Register Site - Schifferstadt, Rosemont Avenue
3. City Parks
   *Overlook - west of US15, Himes Avenue
   *Waterford - west of US15 along Rock Creek
   *Tuscarora Knolls - east of US15 along Tuscarora Creek
   *Northcrossing - west of US15 along Tuscarora Creek
   *Loats Park within which is Harry Grove Stadium

Offices of Engineering and Planning, City Hall, 101 North Court Street, Frederick, Maryland 21701
Engineering 301-694-1405 • Planning 301-694-1499 • Fax 301-696-0925

4. Route designation is US40, not 15, between US340 at Jefferson Street and 170.

I look forward to working with your project planning team as this project progresses. Please call me at 301-694-2182 if you need any additional information about Frederick City plans or projects.

Sincerely,

James A. Schmersahl
Planning Director

cc: Jim Gugel - Frederick County

STAN ALDRIDGE, P.E.
Director of Engineering

JAMES A. SCHMERSAHL, A.I.C.P.
Director of Planning

March 19, 1997

Ms. Michelle Hoffman
Project Manager, State Highway Administration
Project Planning Division
P.O. Box 717
Baltimore, MD 21203

RE: Project FR192B11, I-270/US15 Multi-Modal Study

Dear Ms. Hoffman:

I am responding to Don Sparklin's letter of January 20 requesting plats, site plans for seven City parks and asking whether or not Land and Water Conversation funds or Program Open Space funds were used to acquire or develop these parks.

Attached are plats for Fairfield Park, Tuscarora Knolls Park, Waterford Park, Loats Park (Loats Farm Property) and Baker Park near Fairview Avenue (Westbrooke). I do not have a plat for Apple Avenue or Max Kehene Park. Max Kehene is the old City reservoir site and was converted to a park in the 1960's or early 1970's.

The only site plans available are for Loats Park (developed) and Tuscarora Knolls (not yet developed).

As I mentioned in my May 1996 letter, the City generally develops a small neighborhood park using standard neighborhood park facilities: pavilion, playground, ball fields, picnic areas, benches, etc. To do that we really do not need a "Master Plan."

In recent years we have had developers improve park land in some instances. Fairfield has a gazebo and playground area. Tuscarora Knolls Park plan has been prepared by the developer and will be implemented by him this year.

Attached is a list of POS and Land and Water Conservation Fund projects since 1968. Bob Failor of Frederick County Parks and Recreation is our contact and would have more information about these projects. I have highlighted those in your study area.

Offices of Engineering and Planning, City Hall, 101 North Court Street, Frederick, Maryland 21701
Engineering 301-694-1405 • Planning 301-694-1499 • Fax 301-696-0925

I trust this information is helpful. Please call me at 694-2182 if you have any questions.

Sincerely,

James A. Schmersahl
Planning Director

Attachments: List of POS and Land and Water Conservation Fund projects
Parks Plats Site Plans as listed above

ENCUMBERED FUNDS BY JURISDICTION — Page 6

Status:
* Pending Approval
** Active Projects

Type:
A - Acquisition
D - Development

Fund:
P - Program Open Space
L - Land & Water Conser. Fund (LWCF)
PL - POS and LWCF

Type	Fund	Project Number	Project and Jurisdiction	Amount Approved	Amount Reimbursed
			WOODSBORO		
A	P	90-10-1	Woodsboro Community Park Acq. (Charged against Dev. Allocation)	6,063	6,063
A	L	00165	Woodsboro Community Park Acq.	11,418	11,418
D	P	474-10-9	Woodsboro Community Park Dev. 1	55,629	55,629
D	P	575-10-19	Woodsboro Community Park Dev. 2	21,450	21,450
D	P	FY'92 Alloc	Woodsboro Community Park Dev. 3	5,931	5,931
D	P	3114-10-130	Woodsboro Community Park Dev. 3	17,879	
			Total	118,370	100,491
			FREDERICK CITY		
D	P	311-10-3	McCurdy Memorial Park Dev. 1	75,751	75,751
D	P	367-10-6	Vest Pocket Park Dev.	17,636	17,636
D	P	455-10-8	McCurdy Memorial Park Dev. 2	74,545	74,545
A	P	481-10-10	Warfield Property Acq. 1	79,802	79,802
A	P	482-10-11	McCurdy Memorial Park Acq. 1	34,671	34,671
D	L	00083	Reservoir Park Dev.	17,834	17,834
D	L	00209	McCurdy Field Dev. 1	151,501	151,501
A	P	542-10-14	Carroll Creek Linear Park Acq.	31,730	31,730
A	P	543-10-15	Carroll Creek Linear Park Acq.	47,857	47,857
A	P	544-10-16	Carroll Creek Linear Park Acq.	13,201	13,201
D	P	622-10-22	Carrollton Park Dev.	71,609	71,609
D	P	724-10-27	Baker Park Dev.	12,366	12,366

10/02/96

ENCUMBERED FUNDS BY JURISDICTION — Page 7

Status:
* Pending Approval
** Active Projects

Type:
A - Acquisition
D - Development

Fund:
P - Program Open Space
L - Land & Water Conser. Fund (LWCF)
PL - POS and LWCF

Type	Fund	Project Number	Project and Jurisdiction	Amount Approved	Amount Reimbursed
			FREDERICK CITY (Con't)		
D	P	731-10-28	Seventh Street Lights Dev.	14,614	14,614
A	PL	796-10-32	Watershed Extension Acq.	10,126	10,126
D	L	797-10-33	Fleming Ave. Tennis Courts Dev.	27,326	27,326
D	PL	800-10-34	Fleming Ave. Tennis Courts Dev.	31,221	31,221
D	P	894-10-36	Seventh Street Park Dev.	17,640	17,640
A	P	1062-10-41	Carroll Creek Linear Park Acq. 4	57,902	57,902
D	P	1232-10-49	Sagner Park Dev. 1	96,600	96,600
D	P	1332-10-56	Grove Park Dev.	49,057	49,057
A	P	1575-10-64	Maryvale Park - Acq. 1	36,650	36,650
D	P	1577-10-65	Amber Meadows Comm. Park Dev.	91,725	91,725
D	P	1617-10-68	Maryvale - Dev. 1	48,750	48,750
D	PL	1673-10-72	McCurdy Field Dev.	104,406	104,406
D	PL	2007-10-94	Stonegate Community Park Dev. 1	31,741	31,741
D	P	2233-10-102	Hillcrest Orchard Park Dev. 1	34,000	34,000
D	P	2660-10-113	Stonegate Community Park Dev. 2	67,903	67,903
D	P	FY'92 Alloc	Whittier Park Ballfield Dev. 1	19,533	19,533
D	P	2789-10-117	Loats Farm Park Dev. 1	50,290	50,290
**D	P	2969-10-125	Carroll Creek Dev. 1- Bentztown	69,075	0
A			Carroll Creek Linear Park Acq.	288,650	
			Carroll Creek Dev. 2- Swamper Mk	52,029	
			Subtotal	1,827,741	1,417,987

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

OCT 9 8 1996

Operations Division

Subject: CENAB-OP-RX (MD SHA/I-270/US 15 Multimodal Study from Shady Grove Metro Station to Biggs Ford Road)95-00876-2

Ms. Susan Binder
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
The Rotunda- Suite 220
711 West 40th Street
Baltimore, Maryland 21211-2187

Dear Ms. Binder:

This is in response to your letter dated July 31, 1996, requesting the Baltimore District, U.S. Army Corps of Engineers (Corps) to participate as a cooperating agency in the preparation of the Environmental Impact Statement for the I-270/US 15 Multimodal Transportation Study in Frederick and Montgomery Counties, Maryland.

The District will be pleased to serve as a cooperating agency in the development of the document. If you have any questions on this matter, please call me or Ms. Meg Gaffney-Smith of this office at (410) 962-1843.

Sincerely,

for Keith A. Harris
Chief, Special Projects
Permit Section

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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO ATTENTION OF

MAR 2 8 1999

Operations Division

Subject: CENAB-OP-RX(MD SHA/I-270/US 15 SHADY GROVE METROSTATION TO BRIGGS FORD ROAD)95-00876 12

Mr. Joseph R. Kresslein, Assistant Division Chief
Maryland State Highway Administration
Project Planning Division
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Kresslein:

I am replying to your request for a jurisdictional determination (JD) and verification of the delineation of waters of the United States, including jurisdictional wetlands, for the roadway segment improvements of the I 270/US 15 project.

The JD was conducted from April 30th through May 1st, and October 22nd through 23rd, 1998. During those dates, several changes were made to the delineation. The meeting minutes dated May 21, 1998, and November 13, 1998, accurately reflect those changes. Therefore, this office considers the delineation for the I-270/US 15 roadway segment to be accurate and complete.

Those areas which were determined to be waters of the United States, including jurisdictional wetlands are regulated by this office pursuant to Section 404 of the Clean Water Act. An authorization will be required from this office prior to any impact to these areas. State and local authorizations may also be required. This verification is valid for five years from the date of this letter, unless new information warrants a revision before the expiration date.

You are reminded that any grading or filling of waters of the United States, including jurisdictional wetlands, is subject to Department of the Army authorization. In addition, the Interstate Land Sales Full Disclosure Act may require that prospective buyers be made aware, by the seller, of the Federal authority over any waters of the United States, including jurisdictional wetlands, being purchased.

If you have any questions concerning this matter, please call Mr. Steve Elinsky of this office at (410) 962-4503.

Sincerely,

Richard K. Spencer
Acting Chief, Special Projects
Permits Section

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 1715
BALTIMORE, MARYLAND 21203-1715

REPLY TO
ATTENTION OF:

SEP 0 8 1999

Operations Division

Subject: CENAB-OP-RMN (MD SHA/I-270 @ WATKINS MILL RD INTERCHAN
JD) 99-00838-12

CENAB-OP-RMN (MD SHA/I-270/US 15 SHADY GROVE METROSTAT
TO BIGGS FORD ROAD/CCT ALIGNMENT/JD)
95-00876-12

Mr. Joseph R. Kresslein, Assistant Division Chief
Maryland State Highway Administration
Project Planning Division
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Kresslein:

I am replying to your request for a jurisdictional determination (JD) and verification of the delineation of wat of the United States, including jurisdictional wetlands, for proposed subject projects.

The JD was conducted on July 7th and 8th, 1999. During those dates, minor changes were made to the delineation. The meeting minutes pertaining to the JD dated July 9, 1999, accurately reflected those changes. Therefore, this office considers the delineations for the subject projects to be accurate and complete.

Those areas that were determined to be jurisdictional a regulated by this office pursuant to Section 404 of the Clea Water Act. This verification is valid for five years from t date of this letter, unless new information warrants a revis before the expiration date.

You are reminded that any grading or filling of waters the United States, including jurisdictional wetlands, is sub to Department of the Army authorization. Other state and lo authorizations may also be required. In addition, the Inter Land Sales Full Disclosure Act may require that prospective buyers be made aware, by the seller, of the Federal authorit over any waters of the United States, including jurisdictio wetlands, being purchased.

If you have any questions concerning this matter, plea call Mr. Steve Elinsky of this office at (410) 962-4503.

Sincerely,

Daniel L. Small
Acting Chief, Maryland Section Nort

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

Operations Division

OCT 1 8 1999

Subject: CENAB-OP-RMN(MD SHA/I-270/US 15: SHADY GROVE METROSTATION TO BIGGS FORD ROAD/WATERSHED STUDY)95-00876-12

Maryland State Highway Administration
Attn: Mr. Neil Pederson, Director
Office of Planning and Preliminary Engineering
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Pederson:

I am writing to you concerning our discussion regarding a Watershed Study for the I-270/US 15 Corridor Project. During previous Quarterly Meetings, you indicated that you would be willing to organize a meeting that would include representatives from this office, SHA, EPA, USFWS, DNR, MDE, and the appropriate counties.

Watershed Studies are initiated and conducted by the U.S. Army Corps of Engineers as a proactive rather than a reactive approach to the assessment of aquatic resources that may merit a high level of protection as a result of development pressure. During the assessment, a resource database is developed. The database allows for the analysis of individual and cumulative impacts within the perspective watershed(s).

The product resulting from a watershed study can be beneficial to all involved. Products can include, but are not limited to, the advanced identification of areas suitable for compensatory mitigation through wetland banking, an abbreviated permit process, and the development of Special Area Management Plans.

The expansive study area associated with the I-270/US 15 Corridor Project provides an excellent opportunity for a comprehensive watershed study. Therefore, it is vital that a meeting be scheduled as soon as possible. Please contact me at your earliest convenience regarding whom you would like to coordinate setting up the meeting.

If you have any questions regarding this matter, please contact me at (410) 962-3670.

Sincerely,

for Linda A. Morrison
Regulatory Branch

Copy furnished:

Ms. Pamela Stephenson, FHWA/Region 3
Ms. Denise Rigney, EPA/Region 3
Mr. Bob Zepp, USFWS/CBFO
Mr. Tim Goodger, NMFS
Mr. Greg Golden, DNR
Mr. Elder Ghigiarelli, MDE
Mr. Andrew Der, MDE
Ms. Cynthia Simpson, SHA

SEP 15 1999

Operations Division

Subject: CENAB-OP-RMN(MD SHA/I-270/US 15: SHADY GROVE METROSTATION TO BIGGS FORD ROAD/CCT ALIGMENT)95-00876-12

Maryland Department of Transportation
Mass Transit Administration
Project Development Division
Office of Planning and Programming
Attn: Mr. Lorenzo Bryant
6 Saint Paul Street
Baltimore, Maryland 21202

Dear Mr. Bryant:

I am writing to you regarding the Center City Transitway (CCT) master plan alignment. We have been apprised of this alignment through our work with the Maryland State Highway Administration (SHA) on the I-270 15 project. A map of CCT master plan alignment in the vicinity of the proposed Watkins Mill Road interchange indicates that the proposed rail line would extend from western side of I-270 in a southwestern direction ultima connecting with the Metropolitan Grove Station. The map also indicates that the alignment would be placed in ver close proximity, if not directly within, a jurisdictiona stream and forested wetland system considered by this of to be of high quality.

The construction of the CCT master plan alignment, the vicinity of the proposed Watkins Mill Road Interchar could result in unacceptable impacts to jurisdictional Waters of the United States. It is highly unlikely that MTA would receive an authorization from this office for current master plan alignment in its current configurat

We strongly recommend that the MTA investigate alternatives that would avoid aquatic resources in the above-mentioned area. It would be to your advantage to coordinate such alternatives with the SHA's study of alternatives for the proposed interchange at I-270 and Watkins Mill Road. This office is available to meet with MTA to discuss acceptable alternatives.

If you have any questions regarding this matter, please contact Mr. Steve Elinsky of this office at (410)962-4503.

Sincerely,

Paul R. Wettlaufer
Transportation Program Manager

Copy Furnished:

Ms. Pamela Stephenson, FHWA/Maryland Division
Ms. Denise Rigney, EPA/Region 3
Mr. Bob Zepp, USFWS/CBFO
Mr. Greg Golden, DNR/ERU
Mr. Elder Ghiagiarelli/MDE
Mr. Andrew Der/MDE
Ms. Cynthia Simpson, MD SHA
Ms. Michelle Hoffman, MD SHA

MTA
MASS TRANSIT ADMINISTRATION
MARYLAND DEPARTMENT OF TRANSPORTATION
Parris N. Glendening, Governor • John D. Porcari, Secretary • Ronald L. Freeland, Administrator

December 1, 1999

Mr. Paul R. Wettlaufer
U. S. Army Corps of Engineers
P. O. Box 1715
Baltimore MD 21203-1715

Dear Mr. Wettlaufer:

Thank you for your letter recommending that the Mass Transit Administration investigate avoidance alternatives for the Corridor Cities Transitway (CCT) in the vicinity of the proposed I-270/Watkins Mill Road Extended Interchange.

The purpose of the CCT is to provide a transportation network with capacity to accommodate future growth planned for Rockville, Gaithersburg, Germantown and Clarksburg. We believe that Montgomery County would agree that the ongoing and anticipated development, land uses and changing densities of these areas depend upon transit benefits that result from the CCT. In this regard, the MTA would support master plan alignment revisions for the CCT that would continue to serve these purposes.

As part of the I-270/US 15 Multi-Modal Corridor Study, we are working jointly with the State Highway Administration and Montgomery County to refine the Master Plan CCT alignment to avoid and minimize impacts to the high quality stream and forested wetland system of the Great Seneca Creek in the vicinity of proposed Watkins Mill Road Extended, as well as other sensitive natural environmental areas. A comparison between the Master Plan alignment and the refined alignment will be performed as the preliminary engineering for the I-270/US 15 project is developed. While a realignment may create positive study impacts, a different alignment through the Seneca Creek State Park may result in design deficiencies, increased costs, additional right-of-way requirements, residential and commercial land use impacts and other stream impacts. These factors will be carefully weighed in the analysis.

My phone number (410) _____ *FAX number (410)* _____ *TTY (410)* 539-3497
William Donald Schaefer Tower • 6 Saint Paul Street • Baltimore, Maryland 21202-1614
Toll Free # 1-888-218-2267

Thank you again for your letter. We look forward in working with you as part of the I-270/US 15 Multi-Modal Study Team and will keep you informed of upcoming Interagency Review meetings where the results of our investigation of alternative alignments will be presented for discussion. If you have any questions, please contact Mr. Lorenzo Bryant, the MTA Project Manager, at 410-767-3754 or Ms. Michelle Hoffman, the SHA Project Manager, at 410-545-8547.

Sincerely,

Henry M. Kay, Director
Office of Planning and Programming

cc: Mr. Lorenzo Bryant, Mass Transit Administration
Ms. Anne Elrays, State Highway Administration
[redacted] State Highway Administration
Ms. Gail McFadden-Roberts, Federal Transit Administration
Ms. Diane Ratcliff, Mass Transit Administration
Ms. Pamela Stephenson, Federal Highway Adminstration/Maryland Division

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO ATTENTION OF

APR 28 2000

Operations Division

Corridor Cities Transitway (CCT)

Mr. Henry M. Kay
Director
Office of Planning and Programming
Mass Transit Administration
6 Saint Paul Street
Baltimore, MD 21202-1614

Dear Mr. Kay:

Thank you for your letter of December 1, 1999 (copy enclosed) in reply to our concerns about the environmental impacts of the proposed Corridor Cities Transitway (CCT) near the proposed interchange with Watkins Mill Road in Gaithersburg, MD.

We appreciate MTA's offer to coordinate more fully with us in the future. We understand that MTA intends to analyze the various costs, land use impacts, operation aspects, environmental impacts, and right-of-way requirements of alternative alignments. Such an alternatives analysis is consistent with the requirements of the Clean Water Act and Department of the Army and EPA regulations governing the issuance of Section 404 permits. The Corps may authorize only the "practicable" alternative which is least damaging to aquatic resources. The Corps is permitted to consider the social, economic, and environmental impacts and costs associated with any alternative, when determining which alternative is the least environmentally damaging practicable alternative. However, because the Corps places greater weight on the aquatic resources, the Corps sometimes comes to a different conclusion than the applicant.

The Corps will frequently suggest that an applicant consider other alternatives which the Corps believes could satisfy the applicant's need, with less impact on aquatic reources. Such analyses can be costly, and delay the study, if they occur after an applicant has already made a decision, and committed resources, to advance a particular alternative. Such delays are not in the best interest of either party, nor the public, and can be avoided by involving us in the development of the project. Therefore, the Corps wishes to partner with you during the project development phase. To be successful, this partnership must involve the Corps in early and continuous coordination throughout the project development phase, particularly concerning the range of alternatives which should be studied. We request to work with MTA staff in the development of the alternatives, and to receive early input on the assessment of impacts and costs.

Please advise us of your next meeting date, at least four weeks in advance, and we will attend. We would like to discuss how we can further partner with MTA on this project. Please call me at (410) 962-5676.

Sincerely,

Paul R. Wettlaufer

Paul R. Wettlaufer
Transportation Program Manager

CC: Cynthia Simpson, SHA

MASS TRANSIT ADMINISTRATION
MARYLAND DEPARTMENT OF TRANSPORTATION
Parris N. Glendening, Governor • John D. Porcari, Secretary • Ronald L. Freeland, Administrator

July 7, 2000

Mr. Paul R. Wettlaufer
U.S. Army Corps of Engineers
PO Box 1715
Baltimore MD 21203-1715

Dear Mr. Wettlaufer:

Thank you for your April 28, 2000 letter in which you offered to partner with us in the development of alternative alignments for the Corridor Cities Transitway which is being studied as part of our I-270/US15 Multi-Modal Corridor Study.

The study is being overseen by a Project Team that currently consists of local, State and federal agency representatives who provide input as we evaluate the benefits and potential impacts of the alternatives. The fact that agencies place emphasis on different factors and resources is an accepted part of the study process, and we believe this process allows the best opportunity for both a thorough identification of all project-related issues and possible solutions. We understand that the most feasible alternate could possibly be one which satisfies some concerns while prudently mitigating others.

Enclosed for your information is a schedule of upcoming project team meetings. We look forward to the participation of you or your representative, and we will keep you informed of

My phone number (410) _____ FAX number (410) _____ TTY (410) 539-3497
William Donald Schaefer Tower • 6 Saint Paul Street • Baltimore, Maryland 21202-1614
Toll Free # 1-888-218-2267

any change in scheduled meeting dates. If you have any questions, please contact Mr. Lorenzo Bryant, the MTA Project Manager, at 410-767-3754 or Ms. Michelle Hoffman, the SHA Project Manager, at 410-545-8547.

Sincerely,

Henry M. Kay, Director
Office of Planning and Statewide Transit

Enclosure

cc: Mr. Lorenzo Bryant, Project Manager, Project Development Division, Mass Transit Administration
Ms. Anne Elrays, Environmental Planner, Office of Planning and Preliminary Engineering, State Highway Administration
Ms. Michelle Hoffman, Project Manager, Office of Planning and Preliminary Engineering, State Highway Administration
Mr. Neil Pederson, Director, Office of Planning and Preliminary Engineering, State Highway Administration
Ms. Diane Ratcliff, Chief, Environmental Planning, Project Development Division, Mass Transit Administration
Ms. Cynthia Simpson, Deputy Director, Office of Planning and Preliminary Engineering, Mass Transit Administration

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 23, 2000

Mr. Charles Heath
City of Frederick City Hall
Department of Engineering
and Planning
101 North Court Street
Frederick MD 21701

Dear Mr. Heath:

I would like to welcome you to the I-270/US 15 Multi-Modal Corridor Study Team. As you know from attending your first project team meeting and focus group meeting this past month, the study has progressed into the second, more detailed planning evaluations. This includes detailed planning level evaluations of travel demand analysis, engineering plans for I-270, US 15, and the transitway, and environmental considerations. A copy of the Stage I Transportation Summary, including alternates retained for detailed study and congestion management strategies, is enclosed for your reference.

The purpose of this letter is to respond to your inquiry about interchange concepts along US 15 in the vicinity of Trading Lane. Several issues have been brought to the State Highway Administration's (SHA) attention, regarding development plans in this area. The SHA is evaluating existing and proposed traffic conditions along US 15 and Trading Lane to address developer interests in an interim access break at proposed Christopher's Crossing. The SHA evaluation, to determine the safest interim improvement for this location, should be completed this March. In addition, a citizen representative of the Worman's Mill Civic Association, who is also a Focus Group member, has requested that, for the long term improvements, the interchange at US 15 and Trading Lane be relocated to US 15 and Worman's Mill/Hayward Road, and improvements to provide missing ramp movements at US 15 and MD 26 be investigated. Please refer to the attached preliminary concepts to view these interchanges. I would like to highlight that Option 3 will most likely be pursued for the interchange of US 15 with MD 26 and the interchange north of MD 26 will likely be placed at US 15 and Trading lane, in order to comply with the local master plan. Please note that detailed traffic analyses have not yet been completed to fully evaluate the effectiveness of these concepts at each location.

My telephone number is .....

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Your comments on these concepts and the placement of the various interchanges are appreciated. Please feel free to all me with any additional questions, at 410-545-8547 or 1-800-548-5026.

Very truly yours,

Cynthia D. Simpson,
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

Enclosures [Stage I Transportation Summary Package & Interchange Concepts]
cc: Mr. John Concannon, State Highway Administration
Mr. Bobby Fisher, State Highway Administration
Mr. Jim Gugel, Frederick County (with enclosure - Interchange Concepts)
Mr. Glen Smith, State Highway Administration
Ms. Mona Sutton, State Highway Administration
Mr. James Wynn, State Highway Administration

DEPARTMENT OF POLICE

Douglas M. Duncan
County Executive

Charles A. Moose, Ph.D.
Chief of Police

May 2, 2000

Ms. Cynthia D. Simpson, Deputy Director
Office of Planning and Preliminary Engineering
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Dear Ms. Simpson:

I am responding to your letter dated April 3, 2000, concerning a study to improve transportation in the I-270 and US-15 corridor, extending from the Shady Grove Metrorail Station in Montgomery County, to Biggs Ford Road in Frederick County. After reviewing your correspondence, the following issues are of concern to me as they relate to vehicular safety and emergency response along this route:

- Morning and evening rush hours along Rt. 270 are gridlocked. A short-term possible solution would be to abolish the current HOV restrictions.
- Southbound Rt. 270 at Middlebrook Road does not currently have an exit ramp. The installation of an exit ramp at this location would assist in expediting our response to emergency calls in this community.
- The on and off ramp located on southbound Rt. 270 at Montgomery Village Avenue is hazardous due to its short acceleration/deceleration lane and heavy traffic.
- The collector and distributor lane on southbound Rt. 270 at Rt. 370 is an extremely dangerous exchange. This is largely attributed to heavy traffic, speed, and motorists attempting to merge either onto Rt. 270 or the exit ramp for Shady Grove Road.

In closing, I would like to thank you for the opportunity to comment on these concerns. Should you need any further assistance, please do not hesitate to contact Commander John M. Fitzgerald from the Germantown District at 301-840-2650.

Sincerely,

Charles A. Moose, Ph.D.
Chief of Police

CAM/keb

cc: Mr. Joseph R. Kresslein

Office of the Chief of Police
2350 Research Boulevard • Rockville, Maryland 20850-3294 • 240/773-5000, TDD 301/762-7619

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PUBLIC SAFETY DIVISION
FREDERICK COUNTY, MARYLAND

Department of Fire/Rescue Services
340 Montevue Lane
Frederick, Maryland 21702
301-696-2907
Fax 301-631-3466

May 4, 2000

Cynthia D. Simpson, Deputy Director
Office of Planning and Preliminary Engineering
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Ms. Simpson:

Thank you for your April 3 letter requesting input regarding the potential effects of your I-270/US 15 project planning study alternates on emergency response times for fire and rescue services. We appreciate the opportunity to respond.

In Frederick County, the I-270/US 15 corridor being studied is served by several fire/rescue departments, including one station in Urbana, three stations in Frederick, and two stations in Walkersville. As a direct result of population growth and increased traffic congestion in the greater Frederick area, a temporary fire/rescue station will begin 24 hour operation in July near the I-270/MD 85 interchange until a permanent station is constructed. This station is expected to reduce significantly the response times in that area, since current responses are from a downtown Frederick City station. Another station is planned within the next five years near the proposed interchange of US 15/Trading Lane, which will reduce response times on the north side of Frederick City (see attachment).

Current construction of the I-270/I-70 interchange improvements is having a major impact on emergency response times. The through-traffic closure of New Design Road over I-270 and I-70 for the next several years eliminated a primary emergency response route to the area on the south side of Frederick City and prompted the establishment of a temporary fire/rescue station near the I-270/MD 85 interchange. Through-traffic on New Design Road has been rerouted onto MD 355/MD 85, which has caused a noticeable increase in congestion and vehicle crashes. The State Highway Administration has assisted fire/rescue responses by providing Opticom devices on traffic signals in the MD 355/MD 85 corridor. Unfortunately, additional response problems to the area just south of Frederick City will be caused by construction that is now underway on the US 15 bridge at Jefferson Street.

The new interchange that is proposed for US 15/Trading Lane will significantly improve response times across US 15 when the new fire/rescue station is built near Opossumtown Pike and Christopher's Crossing. Without the interchange, the positive impact of the new station on the area east of US 15 will be diminished and responses through the at-grade crossing will be hazardous. An interchange at US 15/Trading Lane, as well as at US 15/Biggs Ford Road and I-270/MD 75, will improve emergency response times and provide less hazardous response routes for our personnel.

Furthermore, the existing interchanges on US 15 from Jefferson Street to MD 26 are outdated and need to be improved for safety. Vehicle crashes on the ramps and at the merge areas are common. Additionally, there should be a direct connection of US 15 at Jefferson Street and a full interchange on US 15 at MD 26.

Finally, it appears that only one of the three build alternates will begin to address adequately the negative impact of increased traffic congestion on emergency response times. While population growth and the resulting highway construction will continue to cause emergency response problems, it is recognized that traffic operations and safety conditions will worsen significantly if nothing is done. Frederick County Fire/Rescue Services is committed to working closely with SHA during this planning process. Thank you again for this opportunity to respond, and please continue to keep us informed as plans develop.

Sincerely,

Andrew D. Marsh
Director
Fire/Rescue Operations

ADM: jlk
cc: Stanley L. Poole, Director, Emergency Services Division
Thomas J. Meunier, Chief, Transportation Engineering, Public Works Division
James May, Chief, Urbana Volunteer Fire and Rescue Company
Stephen J. Wisner, Chief, United Fire Company
Chuck Handley, Chief, Independent Hose Company
Ron Fury, Chief, Junior Fire Company
Scott Campbell, Chief, Walkersville Volunteer Fire Company
William Cramer, Chief, Walkersville Volunteer Rescue Company

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

PLEASE REPLY TO:

OFFICE OF DISTRICT ENGINEER
5111 BUCKEYSTOWN PIKE
FREDERICK, MARYLAND 21704

August 21, 2000

Mr. Ray Barnes, Director
Division of Planning Facility
Frederick County Public Schools
7630 Hayward Road
Frederick MD 21702

Dear Mr. Barnes:

This letter is a follow-up to our previous correspondence to you regarding traffic operations along US 15 at its intersection with Hayward Road/Wormans Mill Road in Frederick County. The State Highway Administration (SHA) has investigated the possibility of closing the left turn lane along southbound US 15 to Wormans Mill Road and offers the following recommendation.

The results of our analysis revealed that closing the southbound lane turning left from US 15 onto Wormans Mill Road would be beneficial at this time. Motorists are provided an alternative to this left turn movement at the southbound US 15 intersection with Trading Lane or at the Motter Avenue exit. Accordingly, we are now in the process of implementing this change and expect it to be complete by early November.

The SHA is pleased to be of assistance in this matter. If you have any questions, feel free to call Mr. Neil Parrott of our Traffic Division. Neil may be reached at 301-624-8150, 1-800-635-5119, or via e-mail at nparrott@sha.state.md.us.

Sincerely,

Robert L. Fisher
District Engineer

cc: The Honorable James Grimes, Mayor, City of Frederick
[redacted], Office of Planning and Preliminary Engineering, SHA
Mr. Randy Houck, Resident Maintenance Engineer, SHA

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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Montgomery County Transit Planning and Preliminary Project Engineering

I 270 Transitway

Transitway Yard and Shop Options and Comparison
Draft dated 9/26/01

Shady Grove Maintenance Yard and Shop

Site 1

Advantage listed—Direct connection between yard and service trip tracks.
Add to Advantages: In the Mont. Co. sponsored preliminary engineering report by Michael Baker completed in 1998, this Site was selected as the recommended site and has been coordinated with various Montgomery County agencies, MD Dept of Transportation and MTA, and the City of Rockville.

Disadvantage listed – Would displace eight facilities within the area.
Comment: These eight facilities are currently considered as a redevelopment site for a car dealership. This dealership will be a good interim best use for this site until the Maintenance Yard displaces this business. Therefore, reword this disadvantage to be: "Commercial development displacement required".

Disadvantage listed – Affect existing traffic access
Comment: This is unclear. Please demonstrate or delete from list.

Disadvantage listed – Possible noise issues with this site.
Comment: This is incorrect as a disadvantage. Please move this to the advantage list as "Noise sensitive property not present".

Site 2

This site eliminated.
Site eliminated from further consideration is acceptable .

Site 3

Disadvantage listed- Would impact other County facilities.
Determine if this site would affect the Ride On facility.

Add: Would impact County DPW&T maintenance facility.
Would impact P&PC Maintenance Dept facility
Mont. Co. Executive Branch is opposed to this site.

Disadvantage listed – need to operate on CSX and WMATA tracks
Revise to state: Grade separated crossing of existing CSX & WMATA rails is necessary

Site 4

Advantage listed Majority of site is situated on an exiting, open lot
Comment: This site is under construction. Please delete this item from the advantage list.

Disadvantage
Add to Disadvantages: Would displace future retail development.
Would be located in a highly visable location

Site 5

Advantage listed – Long term, MNCPPC has targeted this area for high density, mixed use development.
Comment: This is incorrect as an advantage. Please move this to the disadvantage list.

Disadvantages listed – Long term, MNCPPC is planning to build additional parking.
Comment: This is inconsistent. Please delete this from the disadvantage list

Add to Disadvantages: Would displace parking located adjacent to multi –transit rail station
Would displace future transit related high density development.

Metropolitan Grove Maintenance Yard and Shop

Site 1

This site eliminated.
Site eliminated from further consideration is acceptable .

Site 2

This site eliminated
Site eliminated from further consideration is acceptable .

Site 2A

Advantage listed – The Parkland residential development is proposed for this land.

Comment: The City of Gaithersburg has taken the position that the transit maintenance shop should not be located at this site. Please move this to the disadvantage list.

Disadvantage listed

Add to disadvantages: *Would be located in visible residential area. May have noise impact to residential area to the south.*

Site 3

This site eliminated

Site eliminated from further consideration is acceptable

Site 4 & 5

Advantage listed –

Add to advantages: *Currently located on area within County jurisdiction.*
Less visible location

Disadvantage listed-

Add to disadvantages: *Located in area within the City of Gaithersburg Maximum Expansion Limits.*

Comsat Maintenance Yard and Shop

Site 1 – 4

Disadvantage listed –

Add to disadvantages for each site: *Comsat Sites, located so far north, will not permit light rail option to begin revenue service in phases as southern portions are completed.*

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October 2, 2001

Mr. Steve Plano
Parsons Brinckerhoff
301 North Charles Street
Suite 200
Baltimore, MD 21201

Dear Steve:

WMATA staff has reviewed the "I-270 Yard and Shop Brief Description and Comparison" document dated September 26, 2001 and the accompanying maps. From an operations perspective, a yard and shop at the Shady Grove location would be most desirable. A yard at the end of a line provides optimum operational efficiency in terms of reducing deadhead time, and at this point Shady Grove is the only definitive end of the line. It is likely that the transitway will be built in phases, leaving only temporary ends of the line on the northwest end. These could be best served by extended tail tracks for vehicle storage. Additionally, although the Comsat site in Clarksburg is the end of the line for this part of the study, extension of the line to Frederick is in the original design and will possibly be built in the future.

While overall we support selecting a site at Shady Grove, comments are provided on all proposed locations. We request that you incorporate these comments into the Draft EIS when discussing the potential yard and shop sites. Please note that, except where noted, WMATA staff is in agreement on the advantages and disadvantages listed in the document.

Shady Grove Sites:

Site 1

- The noise issues mentioned in the document as a disadvantage are probably not serious. Vehicles in the yard will be traveling at low speeds, on the order of 10 to 15 mph maximum. The curve which would generate wheel-rail noise is located against Indianola Drive, not adjacent to any housing or business. The housing is located across the WMATA and CSX tracks from the yard site. Any "industrial noise" generated by yard operations can be mitigated by standard noise barrier measures.
- From an operational aspect this site is probably the best. The cost of relocating structures within the site zone is probably not significantly greater than the cost of the extra track provisions required to reach the other sites.
- It is not clear what is meant by the disadvantage of "affect existing traffic access." If the crossing of Redland Road is the issue, the LRT tracks should follow the WMATA and CSX tracks in their crossing of Redland Road.

Site 3

- The comment that this site would involve operating "on" CSX and WMATA tracks is not understood. The LRT tracks would have to cross over or under the WMATA and CSX tracks and this would add both construction expense and construction scheduling problems. Neither CSX or WMATA would be supportive of construction over or under their operations.
- The Shady Grove LRT passenger station would also either have a "T" orientation to the WMATA station or extra track would have to be constructed with attendant curves and special trackwork complications.
- The track alignment going to the yard between the two WMATA parking structures would impact a stream bed located in a relatively deep cut. These various track alignment elements would add significantly to the cost of a yard on site 3.

Site 4

- The LRT passenger station location and orientation must work with the current WMATA station for a quick and easy passenger transfer. This location for the yard and shop implies an LRT station far from the existing station.
- When the LRT track is carried further east to make a convenient transfer point, it appears that a reverse movement will be required along with extra track and special trackwork in order to get the rail cars to the yard and shop. This would add to the cost of this alternative. The impacts on the CSX tracks and waste transfer facility could also cause continuing operational difficulties or require grade separation trackwork.

Washington Metropolitan Area Transit Authority

600 Fifth Street, NW
Washington, DC 20001
202/962-1234

By Metrorail:
Judiciary Square—Red Line
Gallery Place-Chinatown—Red, Green and Yellow Lines
By Metrobus:
Routes D1, D3, D6, P6, 70, 71, 80, X2

A District of Columbia, Maryland and Virginia Transit Partnership

Site 5

- The multiple long range plans for use of this site may cause difficulty. However, it may be possible to develop the site with air rights for parking or other use above a yard facility. Note that the land use implications will extend beyond the footprint of the yard, as this is an undesirable land use to develop near.
- Again, as in site 4 above, the location of the LRT passenger station must be adjacent to (either parallel or perpendicular) the WMATA passenger station.
- When the LRT is extended east for a convenient transfer point, this could cause operational difficulty in terms of yard access and/or necessitate additional track and special trackwork.
- As this site impacts existing parking, temporary parking would need to be created during the yard and shop construction before the deckover parking is build on the yard and shop footprint.

Metropolitan Grove Sites:

Site 2a

- It is not clear how the future residential development will be an advantage to this site. Developers and residents usually object to having a yard located in the area.
- The residential relocations combined with the wooded area and stream impacts could make this a very difficult site for environmental approval. All three of the remaining Metropolitan Grove sites appear to have wooded area impacts, so it is the relative extent of this impact that would differentiate between these three sites.

Site 4

- This appears the least problematic of the three sites, except for the PEPCO power lines problem. These lines would have to be either re-routed or installed on towers of sufficient height to clear all yard facilities.
- This site, along with site 5, appears to be in the best location for operations with the transitway.

Site 5

- The noise mitigation is probably the least concern when compared to the wooded area and structure relocation problems.
- This site, along with site 4, appears to be in the best location for operations with the transitway.

COMSAT Sites:

Site 2

- This site is closer to the passenger station and would therefore create a shorter deadnead distance. However, site 4 is better operationally as described below.

Site 4

- This site is operationally better than site 2 because if the transitway is continued past Comsat, it would enable trains to enter and exit the yard from two locations, both before and after the curve in the track.
- This site appears to require more expensive construction work to relocate existing structures and parking.

Again, WMATA staff supports a site selection at Shady Grove, and asks that these comments be incorporated in the Draft EIS. Please contact me at 202-962-1749 if you have any questions.

Sincerely,

Lora Byala

Lora Byala
Office of Business Planning and Development

cc: Crystal Saunders, Parsons Brinckerhoff
Derick Hallahan, RK&K
William Paine, WMATA - SYSP

October 10, 2001

Mr. Steve Plano
Parsons Brinckerhoff
301 North Charles Street
Suite 200
Baltimore, MD 21201

Dear Steve:

WMATA staff received a copy of a letter from Keith Belcher to Lorenzo Bryant that addressed WMATA conceptual designs for the proposed transitway alignment interface at Shady Grove station. We have outlined our responses to your comments in this letter.

The main purpose of the development of a separate WMATA report of alignment interfaces was to reconcile the at-grade alignment developed by Parsons Brinckerhoff. This at-grade crossing at a busy station is unacceptable for pedestrian flow for Metro patrons across LRT tracks. This grade crossing would also cause operational problems for the light rail vehicles entering and exiting the station, as the vehicles would be delayed by pedestrians. Finally, the alignments developed by WMATA staff do not conflict with the existing Metro traction power sub-station as do the previously designed alignments.

Option A in the WMATA report has a station parallel to the Metro station, as in PB's previous designs, however the station and line are elevated for pedestrian safety. The other two options show the LRT station to be perpendicular to the Metro station as another option for obtaining the main objective of not having Metro passengers cross the LRT tracks. Ease of transfer between the two modes is also of extreme importance, and must be designed as such.

The following outlines our specific responses to the comments provided in the letter about the alignments developed by WMATA:

The length of vertical curves in WMATA's designs were designed to MTA criteria. The 200' vertical curves in question satisfy the "Absolute Minimum Length of Vertical Curve requirements for Crest and Sag" where V (Design Speed) = 25mph. The level of design is conceptual, and the Preliminary Engineering design phase should further refine the design, for example revising the profile for the existing access road to Metro's Storage and Inspection (S & I) yard to allow a longer vertical curve while meeting clearance requirements under the bridge. Please note that in the Option 1 profile developed by PB, the vertical curve length indicated for the crest over Frederick Road (MD-355) falls short of MTA's "Preferred Minimum" 100 x algebraic difference in grades. The 6% grades are within MTA's design criteria for maximum grades on short sustained grade of up to 2500' between PVI's. The 2400' vertical curve length suggested in PB's letter is the Desirable Curve Length, which is not attainable in this option.

In reviewing PB's Option 1 it must be stated that there is not the available tangent distance for a crossover immediately prior to or beyond the station as proposed in the designs (see PB's Option 1). While our conceptual plans do not indicate crossovers, they can be placed as follows in WMATA's proposed alignments. Please note that Option A is probably the only option in which the crossover can be on a flatter grade, which is preferred.

Option A: A crossover can be placed behind or south of the station with possible modifications to Redland Road. Sliding the station 200' north and lowering the profile by approximately 5', as suggested in Keith Belcher's letter, requires further investigation as this modification results in only 5' clear between the Top of Rail (T/R) and the substation.

Option B: The alignment terminates with a station perpendicular to the existing Metro Station in an aerial alignment. We agree that a crossover is not possible behind or to the east of the LRT station. However, if we reduce the crest vertical curve currently shown as 1000', the crossover can be located on the 5% grade on a horizontal tangent. Criteria state that crossovers and turnouts be located on H &V tangents and do not indicate limiting maximum grades such as 2%. We agree that ideally the designer would locate the crossover just prior to or behind the station on a more modest grade less than 5%.

Option C: The alignment terminates with a station perpendicular to the existing Metro Station as in Option B, however the station is at grade. Again, as in Option B, a crossover and tail tracks cannot be placed behind the station due to horizontal alignment limitations. The crossover can be placed on the 6% grade for the same reasons as stated in Option B with only slight modifications in the horizontal alignment to allow for minimum tangent distance to locate a no. 8 crossover.

Washington Metropolitan Area Transit Authority

600 Fifth Street, NW
Washington, D.C. 20001
202/962-1234

By Metrobus:
Routes D6, P6, 80, X2

By Metrorail:
Judiciary Square-Red Line
Gallery Place-Chinatown Red, Green and Yellow Lines

A District of Columbia, Maryland and Virginia Transit Partnership

These comments should be incorporated into the alignments that are put forward in the Draft EIS. Please contact me at 202-962-1749 to further discuss any questions or concerns.

Sincerely,

Lora Byala

Lora Byala
Office of Business Planning and Development

cc: Keith Belcher, Parsons Brinckerhoff
Lorenzo Bryant, MTA
John Magarelli, WMATA- ENGA

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DRAFT

MEMORANDUM OF AGREEMENT AMONG THE FEDERAL HIGHWAY ADMINISTRATION, THE STATE HISTORIC PRESERVATION OFFICE, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND PURSUANT TO 36CFR 800.6 (b)(2) REGARDING I-270/US 15 MULTI-MODAL CORRIDOR STUDY IN MONTGOMERY AND FREDERICK COUNTIES, MARYLAND

WHEREAS, the Federal Highway Administration (FHWA) proposes to assist the Maryland State Highway Administration (SHA) with construction of multi-modal transportation improvements within the I-270/US 15 corridor between the I-270/Shady Grove Road interchange in Montgomery County, and the US 15/Biggs Ford Road intersection in Frederick County (Alternate 1, Alternate 2, Alternate 3A/B, Alternate 4A/B, Alternate 5A/B/C) as described on Pages X-X of the draft environmental impact statement titled "Draft Environmental Impact Statement and Section 4(f) Evaluation (DEIS/4(f)) for I-270/US 15 Multi-Modal Corridor Study" and dated 2001 (Draft EIS); and

WHEREAS, FHWA has established the Undertaking's area of potential effects (APE), as defined at 36 CFR 15 800.16(d), to be the alignment corridors defined by anticipated limits of right of way and/or easements for Alternate 1, Alternate 2, Alternate 3A/B, Alternate 4A/B, Alternate 5A/B/C, and areas adjacent to the mainline alignment corridors under study as potential sites for wetland mitigation, park and ride facilities, rail yards, rail passenger stations, and future extensions of rail and bus ways, as shown in Volume 2 of 2; and

WHEREAS, FHWA has determined that the Undertaking may have adverse effects on the M20/17, England/Crown Farm, M20/21, Belward Farm, F3-42, Schifferstadt, F3-43, Rose Hill Manor Historic Park, F3-22, Spring Bank, F3-134, Birely-Roelkey, properties listed on the National Register of Historic Places (NRHP), and F3-47, Monocacy National Battlefield, a property listed on the National Register of Historic Landmarks; and

WHEREAS, FHWA has determined that the Undertaking may have adverse effects on unidentified subsurface archeological resources in sensitive areas not subject to prior archeological Identification and/or Evaluation investigations that are associated with potential wetland mitigation sites, park and ride facilities, rail yards, and rail passenger facilities; and

WHEREAS, the FHWA has consulted with the State Historic Preservation Officer (MD SHPO), the Maryland Transportation Authority (MTA), the Frederick County Historical Trust, the Frederick County Historic Preservation Commission, the Frederick City Historic District Commission, the Montgomery County Historic Preservation Commission, Montgomery Preservation, Inc., the Gaithersburg Historic District Commission, the National Capital Region National Park Service (NPS), and the Advisory Council on Historic Preservation (Council) pursuant to 36 CRF 800, regulations implementing Section 106 of the National Preservation Act (16U.S.C. 470f); and

WHEREAS, pursuant to 36 CFR 800.6(2), the FHWA has invited the NPS to sign this Memorandum of Agreement (MOA); and

WHEREAS, the Maryland Department of Transportation, State Highway Administration (SHA) has participated in consultation, and pursuant to 36 CFR 800.6(3) has been invited to concur in this MOA;

NOW, THEREFORE, FHWA, MDSHPO, the Council, NPS, MTA, and SHA agree that upon FHWA's decision to proceed with the further planning and construction of the project, the FHWA shall ensure that the following stipulations are implemented in order to take into account the effects of the project on historic properties, and that these stipulations shall govern the project and all its parts until this MOA expires or is terminated.

Stipulations

FHWA will ensure that prior to and during the construction of the selected alternate the following stipulations are implemented:

I. F3-47, Monocacy National Battlefield

A. Design Features

SHA will explore options such as retaining walls, steeper slopes, a reduced inside shoulder width to reduce impacts. Replanting of hedgerows and other vegetative screening will also be explored.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the Monocacy National Battlefield, to MD SHPO, the Council and the NPS for review and approval to ensure that the designs are compatible with the historic property at the 60% completion stage (Type, Size, Location) and when 90% complete (Final Design).

II. M20/17, England/Crown Farm

A. Design Features

A vegetative screen and other options to screen the historic buildings from the transitway will be explored during the design phase of the project.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the to MD SHPO, and the Council for review and approval to ensure that the designs are compatible with the historic property at the 60% completion stage (Type, Size, Location) and when 90% complete (Final Design).

III. M20/21, Belward Farm

A. Design Features

Measures to minimize impact include reducing the footprint of the parking garage to eliminate its property impact, exploring the design of proposed Sam Eig Highway/Great Seneca Highway flyover ramp right-of-way, and narrowing the typical section for the transitway.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the to MD SHPO, and the Council for review and approval to ensure that the designs are compatible with the historic property at the 60% completion stage (Type, Size,Location) and when 90% complete (Final Design).

IV. F3-47, Schifferstadt

A. Design Features

Measures to minimize impacts to the resource include replanting the vegetative buffer and hedgerow to re-create some of the vegetative screening which will be lost.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the to MD SHPO, and the Council for review and approval to ensure that the

designs are compatible with the historic property at the 60% completion stage (Type, Size, Location) and when 90% complete (Final Design).

V. F3-43 Rose Hill Manor Historic Park

A. Design Features

Two measures to be explored to minimize park impacts are steeper slopes and a retaining wall to reduce right-of-way impacts. Vegetative screening will be designed to shield impact.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the to MD SHPO, and the Council for review and approval to ensure that the designs are compatible with the historic property at the 60% completion stage (Type, Size, Location) and when 90% complete (Final Design).

VI. F3-22, Spring Bank

A. Design Features

The installation of a noise barrier will be explored to minimize noise and visual intrusion. More detailed studies and coordination with the Spring Bank owner would be conducted during the final design phase to determine the feasibility of a barrier.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the to MD SHPO, and the Council for review and approval to ensure that the designs are compatible with the historic property at the 60% completion stage (Type, Size, Location) and when 90% complete (Final Design).

VII. F3-134, Birely-Roelkey Farmstead

A. Design Features

Measures to be investigated to reduce impacts of the US 15/Biggs Ford Road interchange are steeper slopes and reconfiguring of the movements into a diamond interchange.

B. Plans

SHA will submit plans and specifications for the selected alternate, including landscape, signage, and resource treatment plans to reduce and mitigate impacts to the to MD SHPO, and the Council for review and approval to ensure that the designs are compatible with the historic property at the 60% completion stage (Type, Size, Location) and when 90% complete (Final Design).

VIII. Identified Archeological Resources

A Site 18FR148A

SHA shall ensure avoidance of impacts to potentially significant archeological Site 18FR148A through monitoring and oversight of the design of the selected alternative by qualified personnel as specified in Stipulation XII.

C. Sites 18FR350, 18FR351, 18FR106, 18FR178, 18FR607

FHWA shall ensure the implementation of cultural resources studies adhering to all relevant standards and guidelines referenced in Stipulation XII, and in accordance with procedures specified in Stipulation XI.

IX.. Archeologically Sensitive Areas of the APE

Should any of the following components of the project be carried forward as alternates, the FHWA shall ensure the implementation of cultural resources studies adhering to all relevant standards and guidelines referenced in Stipulation XII, and in accordance with procedures specified in Stipulation XI: Watkins Mill Rail Yard, the Comsat Station and Comsat Rail Yard, and Ride Lots 15-2, 14-41, 14-16, 15A/B/C-12, 15A/B/C-13, and Wetland Mitigation Sites UBEC5, HRRFR28, LBUC11, SFLCW16. SFLCWB18, LICCR23, LICCR25.

X. Unexpected Discovery of Historic Properties

Should historic properties be unexpectedly identified during the implementation of the undertaking, SHA shall make reasonable efforts to avoid, minimize or mitigate adverse effects to such properties, and shall consult to resolve any unavoidable adverse effects pursuant to 36 CFR 800.6.

XI. Future Activities

Related ancillary activities including but not limited to stormwater management and reforestation, may be added to this undertaking in the future. Should such activities be added for which cultural resources studies have not been completed, SHA shall implement such studies adhering to all relevant standards and guidelines referenced in Stipulation XII and in accordance with the following:

A. Identification. SHA professional cultural resources staff shall review any additions or changes to the project and implement identification investigations necessary. The SHA shall provide all completed information to the MD SHPO and all consulting parties under this MOA for review and comment.

B. Evaluation. The SHA shall ensure that all historic resources identified in any areas inventoried under Stipulation XI(A) will be evaluated in accordance with 36 CFR 800.4(c). The results of any such evaluation efforts shall be provided to the MD SHPO and all consulting parties under this MOA for review and MD SHPO concurrence. The consulting parties shall provide comment within 30 days of receipt of acceptable documentation. Should the parties not be able to reach agreement, the FHWA shall forward the documentation to the Keeper of the National Register of Historic Places for a final determination.

C. Treatment. Should any property eligible for inclusion in the National Register of Historic Places be identified under Stipulation XI (A) and (B), the SHA shall make a reasonable good-faith effort to avoid adversely impacting the resources. If adverse impacts are unavoidable, SHA shall, in consultation with the MD SHPO and all consulting parties to this MOA, consider appropriate treatment options. Such options may include, but are not limited to, public interpretation, architectural salvage, landscaping, architectural recordation, sale, relocation, archeological data recovery, or loss without mitigation.

XII. Performance Standards and Professional Qualifications

SHA shall ensure that all cultural resources work carried out pursuant to this MOA is carried out by or under the direct supervision of a person or persons meeting at a minimum the Professional Qualifications Standards set forth at 36 CFR 61 Appendix A.

- Standards and Guidelines. SHA shall ensure that all cultural resources investigations and work performed pursuant to this agreement shall be conducted consistent with the principles and standards contained in the documents (and subsequent revisions thereof) listed below:

- Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (1983).
- Standards and Guidelines for Archeological Investigations in Maryland (Shaffer and Cole 1994).
- Recommended Approach for consultation on Recovery of Significant Information from Archeological Sites, ACHP 1999 (64 FR 27085-27087).
- Curation: All materials and records resulting from cultural resources investigations conducted for the project will be curated in accordance with 36 CRF 79 at the Maryland Archeological Conservation Laboratory, unless cleat title or Deed of Gift to the collection can not be obtained.

XIII. Dispute Resolution

Should the MD SHPO, or any of the signatories to this agreement, object within 30 days to any plans or actions proposed pursuant to this agreement, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, the FHWA shall request the comments of the Advisory Council on Historic Preservation (ACHP) pursuant to 36 CFR 800.11(g). Any Council comment provided in response to such a request will be taken into account by the FHWA in accordance with 36 CFR 800.11(g)(2) with reference only to the subject of the dispute; the FHWA's responsibility to carry out all actions under this agreement that are not subjects of the dispute will remain unchanged.

XIV. Amendment

If any of the signatories to this Agreement believes that the terms of the MOA cannot be carried out, or that an amendment to these terms must be made, that signatory shall immediately consult with the other signatories to develop amendments in accordance with 36 CFR 800.6©. If an amendment cannot be agreed upon, the dispute resolution process set forth in Stipulation XIII will be followed.

XV. Termination

Any signatory to this agreement may terminate the Agreement by providing 30 days written notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Termination of this Agreement would require compliance with 36 CFR 800. This Agreement may be terminated by the execution of a subsequent agreement that explicitly terminates or supersedes its terms.

XVI. Duration

This Agreement shall be null and void if its terms are not carried out within 5 (five) years from the date of its execution, unless the signatories agree in writing to an extension for carrying out its terms.

Execution of the Memorandum of Agreement by FHWA, the MD SHPO, and the Council, and subsequent acceptance and implementation of its terms, evidence that FHWA has afforded the signatories an opportunity to comment on Alternate 1, Alternate 2, Alternate 3A/B, Alternate 4A/B, Alternate 5A/B/C, and aspects of the project in the preliminary design stage associated with potential wetland mitigation sites, park and ride facilities, rail yards, rail passenger facilities, and the extension of the Corridor Cities Transitway; in Frederick and Montgomery Counties, Maryland, and their potential effects on historic properties, and that the FHWA has taken into account the potential effects of the undertaking on historic properties and possibly unidentified archeological resources.

FEDERAL HIGHWAY ADMINISTRATION

By: _____ Date: _____
Nelson J. Castellanos, Division Administrator

MARYLAND STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
J. Rodney Little, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____
Don L. Klima, Director, Office of Planning and Review

NATIONAL PARK SERVICE

By: _____ Date: _____
Stephen R. Potter, National Capital Region Archeologist

Concur:
MARYLAND STATE HIGHWAY ADMINISTRATION

By: _____ Date: _____
Parker F. Williams, Administrator

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United States Department of Agriculture

NRCS Natural Resources Conservation Service

18410 Muncaster Road
Derwood, MD 20855
Phone 301-590-2855

May 7, 2002

Ms. Christine Hoeffner, Lead Planner
Parsons, Brinckerhoff, Quade & Douglas, Inc.
Spring Park Technology Center
465 Spring Park Place
Herndon, VA 20170-5227

Dear Ms. Hoeffner:

Enclosed please find the Farmland Conversion Impacting Rating, Form AD-1006 for the I-270/US 15 Multi-Modal Corridor Study, with parts II, IV, and V completed by NRCS. Thank you for providing the soils and acreage breakdown for the project. That information made my job simpler and therefore shortened the time to complete the Form AD-1006.

If you have any questions, please call me at 301-590-2855.

Sincerely,

J.G. Warfield
District Conservationist

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B. Community Coordination

March 17, 1997

Ms. Michelle D. Hoffman
Project Engineer
Project Planning Division
State Highway Administration
70 Calvert Street
Mailstop C-301
Baltimore, MD 21202

Dear Ms. Hoffman:

Thank you for the opportunity to provide comments on the I-270 Multi-Modal Corridor Transportation Study.

Audubon Naturalist Society and our 5,000 Maryland members supports the use of mass transit improvements in the I-270 corridor as the best method of improving corridor mobility, achieving a balance between development and environmental protection, and implementing master plans from Shady Grove north to Clarksburg. The increased density of both residential and commercial development in all master plans in the I-270 corridor is contingent on transit to avoid gridlocked road conditions.

Information presented in the proposed Intercounty Connector Study indicates that many more north-south trips will be made in the year 2020 than east-west trips. Improving transportation in the I-270 corridor should be Montgomery County's top priority.

ANS supports declaring the interstate system complete. Future transportation funds should be used to maintain the existing transportation network and to invest in rail transit in the I-270 corridor.

ANS proposes the following criteria be used to judge new transportation facilities:

1. Improve air and water quality. Reduce NOx, VOC, particulates, and toxic pollutants.
2. Stabilize, then reduce, vehicle miles traveled.
3. Locate new facilities in the area of highest travel demand.
4. Promote transit, bicycling, pedestrian access and compact mixed-use communities.

AUDUBON NATURALIST SOCIETY
Regional • Independent
8940 Jones Mill Road, Chevy Chase, Maryland 20815 • 301 652-9188 • Fax 301 951-7179

5. Discourage auto-based transportation projects and auto-dependent development patterns.
6. Minimize destruction of wetlands, forests, and parklands.
7. Protect existing communities.

Sincerely,

Neal Fitzpatrick

Neal Fitzpatrick
Conservation Director

cc: The Honorable Douglas Duncan
The Honorable Marilyn Praisner
The Honorable Derick Berlage
Steve Paley

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

May 9, 1997

Mr. Neal Fitzpatrick
Conservation Director
Audubon Naturalist Society
8940 Jones Mill Road
Chevy Chase MD 20815

Dear Mr. Fitzpatrick:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study and for offering your comments on the alternates presented at the March Alternatives Workshops and Public Hearings. As you requested, these comments have been included in the Public Hearing Transcript.

The Combination Alternates (A & B) presented at the recent public meetings combined several of the previously investigated transportation strategies, such as park and ride lots, telecommuting, hiker/biker paths, ramp metering, extended feeder and express bus services, a transitway (busway or light rail transit), High Occupancy Vehicle (HOV) lanes, general use lanes, and Collector/Distributor (C/D) lanes. These transportation strategies were packaged together since earlier analyses showed that no transportation strategy alone would solve the transportation needs in the I-270/US 15 corridor.

Transit is an integral component of the I-270/US 15 Multi-Modal Study and we remain committed, that various transit strategies, such as HOV, bus service and a transitway, will be retained for detailed study. In addition, we are recommending that the right-of-way be preserved for the Corridor Cities Transitway between Shady Grove and Frederick for further analysis once the transit demand builds.

In the next several months, the preliminary studies will be completed and alternates will be recommended for detailed engineering and environmental analysis. After a full engineering and environmental assessment of the alternates, a public hearing will be held and a preferred alternate recommended. Each of the alternates will be evaluated based on the study goals, which are to enhance mobility, preserve/protect/enhance the environment, support orderly and economic growth, improve goods movement and optimize public investment.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The evaluation measures based on these goals, as you suggest, include air quality, noise analysis, and reduction in vehicle miles traveled, to name a few. I have enclosed a list of these measures of effectiveness for your reference.

Thank you again and I look forward to your involvement throughout the development of the alternates. Please feel free to call me at (410) 545-8547 or Suhair Alkhatib of the Mass Transit Administration at (410) 767-3751 if you should have any further questions or comments.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

Enclosure
cc: Transcript (with incoming and enclosure)
Mr. Suhair Alkhatib (with incoming)
The Honorable Derick Berlage
The Honorable Douglas Duncan
The Honorable Marilyn Praisner

Stop That Infernal Road!
STIR!
193 Hardy Place
Rockville, MD 20852

March 22, 1997

Ms. Michelle Hoffman
Maryland State Highway Administration
Project Planning Division, Mailstop C-301
707 N. Calvert Street
Baltimore, MD 21202

Dear Ms. Hoffman:

I am writing in regard to the I-270/US 15 Multi modal corridor study. Please include this letter in the Public Hearing Transcripts as official comments for the public record.

None of the options being considered serve the public well. All involve high dollar and environmental costs. Any option that adds lanes to I-270 would serve as further subsidy to automobile dependency and to urban sprawl development. Even HOV and bus lanes subsidize further auto dependency, by freeing up more room in existing lanes.

The root of our traffic problems in this corridor are urban sprawl development and hidden subsidies to auto use. The answer must lie in addressing these concerns. None of the options you are considering address these concerns. STIR! asks that all the proposed alternatives be rejected and that the study be reopened to address these issues.

At a minimum, the study should add an integrated TDM/transit/land use planning alternative to the alternatives being considered. Such a plan should include the following elements.

An end to the urban sprawl buildout.

Rezoning for Transit Oriented Development

Tolls on I-270

Reduced fares for all the buses serving the area and increased service.

Improved bicycle and pedestrian access

A light rail line

An alternative such as this would greatly reduce future travel demand and serve a greater portion of that demand through transit. The reduced bus fares would be paid for by the tolls on I-270. Concerns about the legality of tolls on federally funded highways are not legitimate. The feds would grant permission if asked.

The most important element of this strategy is ending the urban sprawl build out. When the master plans were written we did not realize the extent to which these plans would generate traffic. When these plans were written, we did not take their effect on global warming into account. The current Master plans no longer reflect our values. They do not value farmland, open spaces or the Chesapeake Bay.

But even if our urban sprawl Master plans are taken as given in this study, the options presented are not the best we can do. They fall well short of what NEPA requires - that all reasonable options be considered. Based on E.L. Tennyson's review, your evaluation of the few options that you did consider was faulty and biased. The people of Maryland deserve better.

Go back to the drawing board. This time keep the following elements in mind:

As population grows, the vehicle miles per person must shrink in order to maintain current pollution levels. Vehicle miles per person must shrink significantly if we are to reduce pollution.

Farmland must be preserved in order to feed our growing population.

Ending urban sprawl development and adopting transit oriented development will result in less public expense for infrastructure and less private expense as more families are able to get by with only one car.

Global warming poses a very real threat to our economy and environment. It must be a factor in local planning.

Automobiles are heavily subsidized, $2,000 per car as estimated by the World Resources Institute. Subsidy to cars results in more traffic and more pollution. Subsidy to transit results in less traffic and less pollution.

Planning that doesn't consider these factors isn't worthy of the name. The federal reviewing officials should throw your study out based on its refusal to address all reasonable alternatives. It shouldn't come to that. Maryland officials should have the foresight and integrity to follow the spirit and letter of our national environmental laws. Maryland does not wish to be Californicated. We can do much better than this.

Sincerely,

Carl Henn

Carl Henn
STIR! Chairman

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

June 27, 1997

Mr. Carl Henn
Chairman
Stop That Infernal Road! (STIR!)
193 Hardy Place
Rockville MD 20852

Dear Mr. Henn:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study and for offering your comments, both by facsimile and by mail, on the alternates presented at the March Alternatives Workshops and Public Hearings. As you requested, these comments have been included in the Public Hearing Transcript.

The Combination Alternates (A & B) presented at the recent public meetings combined several of the previously investigated transportation strategies, such as a transitway (busway or light rail transit), park and ride lots, telecommuting, hiker/biker paths, ramp metering, extended feeder and express bus services, High Occupancy Vehicle (HOV) lanes, general use lanes, and Collector/Distributor (C/D) lanes. These transportation strategies were packaged together since earlier analyses showed that no transportation strategy alone, would solve the transportation needs in the I-270/US 15 corridor.

Transit is an integral component of the I-270/US 15 Multi-Modal Study and the Study Team remains committed to various transit and non-traditional transportation strategies, such as a transitway, enhanced bus service and HOV lanes. In addition, we are recommending that the right-of-way be preserved and protected for the Corridor Cities Transitway between the Shady Grove Metro Station and Frederick for further analysis once the transit demand increases.

The southern terminus of this study is located at Shady Grove Road in order to progress from both the recently implemented HOV lanes and to serve the Shady Grove Metro Station and MARC Brunswick Line.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

In the next several months, the preliminary studies will be completed and alternates will be recommended for detailed engineering and environmental analysis. These preliminary studies include the evaluation of a transit-based sensitivity test based on the recommendation of the Focus Group subsequent to the Alternatives Public Workshops/Public Hearings. After a full engineering and environmental assessment of the alternates, a public hearing will be held and a preferred alternate recommended. Each of the alternates will be evaluated based on the study goals, which are to enhance mobility, preserve/protect/enhance the environment, support orderly and economic growth, improve goods movement and optimize public investment.

Thank you again and I look forward to your involvement throughout the development of the alternates. Please feel free to contact me at (410) 545-8547 or, toll free at (800) 548-5026, or Suhair Alkhatib of the Mass Transit Administration at (410) 767-3751 if you should have any further questions or comments.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

cc: Transcript (with incoming)
Mr. Suhair Alkhatib (with incoming)

Hagerstown
TELEWORK CENTER

March 26, 1997

Ms. Michelle D. Hoffman
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, MD 21202

Dear Ms. Hoffman:

I am the manager of the Hagerstown Telework Center, one of the federally established telecommuting centers in the Metropolitan Washington/Virginia/Maryland area. The agency employees who take advantage of using the Telework Center would normally be traveling the I-270/US 15 Corridor five days per week. Today they are on those roadways an average of 3 days per week. Telecommuters who work from centers are only a small fraction of the total number of telecommuters. Most work from their homes, some from the road - "virtual telecommuters."

In my position as Center Manager, it is necessary for me to drive down I-270 from I-70. I park at the Shady Grove Metro stop and take the train into the District. The completed widening of the road in the Germantown area has certainly helped, but there is still heavy traffic and the pollution, accidents and energy consumption associated with commuting.

As secretary of the Mid-Atlantic Telecommuting Advisory Council (MATAC), I wish to propose to the Maryland Department of Transportation that telecommuting be considered seriously as a transportation alternative. Emphasis on telecommuting programs for state employees would be a great first step in decreasing the number of commuters who would be using the I-270/US 15 Corridor.

Sincerely,

Mary Bray
Manager

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

May 13 ,1997

Ms. Mary Bray, Manager
Hagerstown Telework Center
Suite 200
14 North Potomac Street
Hagerstown MD 21740

Dear Ms. Bray:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study and for offering your comments on the alternates presented at the March Alternatives Workshops and Public Hearings. As you requested, these comments have been included in the Public Hearing Transcript.

The Combination Alternates (A & B) presented at the recent public meetings combined several of the previously investigated transportation strategies, such as park and ride lots, telecommuting, hiker/biker paths, ramp metering, extended feeder and express bus services, a transitway (busway or light rail transit), High Occupancy Vehicle (HOV) lanes, general use lanes, and Collector/Distributor (C/D) lanes. These transportation strategies were packaged together since earlier analyses showed that no transportation strategy alone, would solve the transportation needs in the I-270/US 15 corridor.

Transit and non-traditional transportation strategies are integral components of the I-270/US 15 Multi-Modal Study and the Study Team remains committed to various strategies, such as HOV, bus service, telecommuting, park and ride facilities and a transitway. In addition, we are recommending that the right-of-way be preserved and protected for the Corridor Cities Transitway between Shady Grove and Frederick for further analysis once the transit demand increases.

In the next several months, the preliminary studies will be completed and alternates will be developed in greater detail. After a full engineering and environmental assessment of the alternates, a public hearing will be held, tentatively in 1998, and a preferred alternate recommended.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again and I look forward to your involvement throughout the development of the alternates. Please feel free to call me at (410) 545-8547 or toll-free (800) 548-5026 or Suhair Alkhatib of the Mass Transit Administration at (410) 767-3751 if you should have any further questions or comments.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

cc: Transcript (with incoming)
Mr. Suhair Alkhatib, Mass Transit Administration

P.O. Box 7074, Silver Spring, MD 20907

August 5, 1997

Ms. Michelle Hoffman,
Project Manager,
State Highway Administration

RE: I-270 Transit Sensitivity Analysis

Dear Ms. Hoffman:

We are grateful to you for the opportunity to provide our input on this subject. To avoid misunderstanding that could result from the numerous communications occurring during and after the Focus Group meeting, this letter is to confirm our recommended changes to your proposed options, assumptions, fares, and operating parameters to be used in the analysis. The three transit options between Frederick and Shady Grove to be tested for viability are as follows: (1) light rail line along the CSX route, (2) light rail along the western alignment with a single track along the CSX route, and (3) a busway along the western alignment.

The assumptions are as follows: In options (1) and (2), light rail is double track south of Clarksburg and single track (except for double tracks around center-platform stations) north of Clarksburg. In option (2), the single track light rail line along the CSX is for the purposes of (i) operating express trains in the flow direction only during peak periods (AM - south and PM - north) or (ii) deadheading empty trains during the non-peak periods. All options may include an high-occupancy vehicle (HOV) lane in each direction on I-270.

Base fares of $ 1.35 are acceptable on all feeder buses to/from the light rail stations. Instead of a flat $1.35 fare, light rail fares must be distance-based with a minimum of $1.35 and a maximum not exceeding the MARC fare between Frederick and Shady Grove. The purpose is to achieve some consistency with MARC, but more important, to achieve the minimum 50% cost-recovery. For bus fares, zones are to be established so that the range of bus fares lie within the minimum and maximum fares for comparable MARC travel.

The operating parameters are as follows: weekday headways for options (1) and (2) are as prescribed by Mr. Tennyson's letter of July 31, 1997. Express trains operate in the flow direction only (as defined previously). In option (1), they operate on the same track as local trains but skip certain stops (the stops need not be specified as long as the running times indicated in the July 31, 1997 letter are attained). In option (2), express trains skip the same stops but are routed on the single track along the CSX route. In option (3), buses stop at all the same stops as the light rail in option (2) south of Metropolitan Grove in order to serve employment centers on the west side. Also, in option (3), buses are to be subject to the same operating conditions as light rail when possible (e.g., if light rail is grade-separated, the busway will be grade-separated.) The difference between rail and bus with respect to reliability in the mechanisms for activating grade crossing signals is to be taken into account when evaluating the difference between rail and bus with respect to safety in the measures of effectiveness. Running times for any buses using the HOV lanes are to include additional time required for changing lanes in order to access entry and exit ramps.

If these changes in options, assumptions, fares, and operating parameters are non-feasible or if there are any questions, you may contact myself before August 19 at (301) 621-8432 or Ed Tennyson after August 22 at (703) 281-7533. Thank you so much for your receptiveness.

Respectfully yours,

Quon Y. Kwan

Quon Y. Kwan

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MASS TRANSIT ADMINISTRATION
MARYLAND DEPARTMENT OF TRANSPORTATION
Parris N. Glendening, Governor • David L. Winstead, Secretary • Ronald L. Freeland, Administrator

August 27, 1997

Mr. Quon Y. Kwan
Action Committee for Transit (ACT)
PO Box 7074
Silver Spring MD 20907

Dear Mr. Kwan:

Thank you for your continued involvement in the I-270/US 15 Multi-Modal Corridor Study. Your attendance at the recent Focus Group Meeting and your comments help in determining what mode and components of transit, should be retained alone, or part of the Combination Alternates, for detailed studies.

The I-270/US 15 Multi-Modal Study Team is evaluating three stand alone transit options from the Shady Grove Metro Station north to Frederick City, which include:

- Light rail transit (LRT) option along the western Corridor Cities Transitway (CCT) alignment
- LRT option along the Eastern (CSX) alignment from Shady Grove to Metropolitan Grove and continuing north to Frederick along the western CCT alignment
- Busway option along the CCT alignment

The Study Team has decided not to pursue a transit option which encompass two LRT alignments between Metropolitan Grove and Shady Grove using both the western CCT and eastern CSX alignments. Both local and express LRT services will be modeled along the CCT alignment, which negate the need for a single track along the CSX alignment. Travel time savings could not justify the added capital and operational cost for implementing both alignments concurrently.

The transit options will be evaluated with both local and express services along each of the alignments. The express trains will operate only in the flow direction and the weekday headways will be similar to those suggested in Mr. Tennyson's July 31, 1997 letter. Bus and Light Rail Transit will be evaluated with all of the same operating conditions for travel demand purposes. Furthermore, feeder buses will stop at all of the same stops as the Busway Option along the western CCT alignment south of Metropolitan Grove.

*My phone number (410)*_____ *FAX number (410)*_____ *TTY (410)*_____

William Donald Schaefer Tower • 6 Saint Paul Street • Baltimore, Maryland 21202-1614

The Study Team will be using a distance-based fare structure for LRT with a minimum fare of $1.35 and a maximum not to exceed corresponding MARC fare. This is done both for consistency of transit services and travel demand modeling purposes.

In order to pro-actively evaluate transit in all three options, the Study Team is assuming optimal transit links and connections and is minimizing avoidable transit repetition and competition. For example, all three stand alone transit options will be evaluated without HOV lanes north of where they currently terminate; however, in order to evaluate the effect of an HOV lane in both directions to I-70, the western CCT alignment LRT stand alone transit option will also be evaluated with these HOV lanes. This transit option was selected because, of the three stand alone transit options, the HOV lanes provided the least repetition and competition to transit in the corridor.

Thank you for the bus routes that both yourself and Mr. Ed Tennyson developed and shared with the Study Team. The Study Team has been coordinating with the Montgomery County Department of Public Works and Transportation and is in the process of developing the feeder bus route systems for both the Combination Alternates and the transit alone options. Your suggestions have been shared with the County and will be considered during the feeder bus route development.

Thank you again and I look forward to your involvement throughout the development of the alternates and the remainder of the study. Please feel free to call me at (410) 767-3751 or Michele Hoffman of the State Highway Administration at (410) 545-8547 or toll-free at (800) 548-5026, if you should have any further questions or comments.

Sincerely,

Suhair Alkhatib

Suhair Alkhatib
Project Manager
Office of Planning and Programming

cc: File (with incoming)
Ms. Michelle D. Hoffman, State Highway Administration (with incoming)
Mr. David Bone, MCDPWT (with incoming)
Mr. Louis H. Ege, Jr., State Highway Administration (with incoming)
Mr. Robert Klein, Montg. Co. Dept. of Public Works & Transp. (with incoming)
Ms. Pamela Lindstrom, Shady Grove Alliance (with incoming)
Mr. John Matthias, M-NCPPC (with incoming)
Mr. Harvey Flechner, Mass Transit Administration
Mr. Neil J. Pedersen, State Highway Administration
Mr. E. L. Tennyson, Action Committe for Transit

Action Committee for Transit

P.O. Box 7074, Silver Spring, MD 20907

September 28, 1997

Ms. Michelle Hoffman
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Ms. Hoffman:

Both the Greater Shady Grove Civic Alliance and Action Committee for Transit want to express our support for the letter dated September 23, 1997 from Mr. E L. Tennyson to yourself and Mr. Suhair Alkhatib regarding the assumptions and conditions for modeling the all-transit alternatives for the I-270 study.

Rather than touching on every point in his letter, we would like to emphasize or reinforce a number of major ones. First and foremost, the northern light rail stations at Frederick and Monocacy must be included as completed by the year 2020 in the study -- NOT as completed after 2020. There is no point in studying an all-transit alternative if Frederick is not included. If the modeling in the absence of widening I-270 should show that ridership to/from Frederick does not attain the *Urban Rail in America* thresholds, only then would it be reasonable to drop Frederick.

Second, we accept competition and repetition as the reason for deleting the single-track express light rail line along the CSX that was suggested for inclusion with the Corridor Cities Transitway alignment. For the same reason, however, we object to the MTA Route 991 making stops at Monocacy and Urbana -- it would compete with the light rail. The only acceptable reason for the 991 to stop at Monocacy is to allow passengers to transfer to either the light rail or MARC: inbound passengers should not be allowed to board here, and outbound passengers should not be allowed to disembark here. Stopping at Urbana is not acceptable at all.

Third, we are concerned about the "one or two minute headway" for the busway to Frederick along the Corridor Cities Transitway alignment; this is probably exaggerated for the peak of the rush hour and definitely would not be true during mid-day or evening.

Again, we are in general support of Mr. Tennyson's comments; questions from your contractors on quantitative details should be worked out directly with him. We appreciate the opportunity to express our concerns.

Sincerely yours,

Quon Y. Kwan, Action Committee for Transit and
Pamela Lindstrom, Greater Shady Grove Civic Alliance

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

October 22, 1997

Mr. Quon Y. Kwan
Action Committee for Transit (ACT)
14913 Bauer Drive
Rockville MD 20853

Ms. Pamela Lindstrom
Greater Shady Grove Civic Alliance
421 Gaither Street
Gaithersburg MD 20877

Dear Mr. Kwan & Ms. Lindstrom:

Thank you for your continued involvement in the I-270/US 15 Multi-Modal Corridor Study. Both your attendance at the recent Focus Group Meeting and your comments help in determining what mode and components of transit should be retained alone, or part of the Combination Alternates, for detailed studies.

As you know, the I-270/US 15 Multi-Modal Study Team is evaluating three stand alone transit options from the Shady Grove Metro Station north to Frederick City, which include: Light rail transit (LRT) option along the western Corridor Cities Transitway (CCT) alignment from the Shady Grove Metro Station to Fredreick; LRT option along the eastern (CSX) alignment from the Shady Grove Metro Station to Metropolitan Grove and continuing north to Frederick along the western CCT alignment: and a Busway option along the CCT alignment from the Shady Grove Metro Station to Frederick. The four transit stations in Frederick County, which include the Frederick City Station, the Suburban (MD355) or transit Monocacy Rail Station, the MD 80 (Urbana) Station and the MD 75 (Technology Boulevard) Station, are included in all three of the transit options for implementation prior to the design year of 2020. The transit stations deferred beyond year 2020, which were presented at the last Focus Group, meeting did not include these stations since the land use forecasts concentrated only on shifts to Montgomery County. Frederick County land use forecasts or the Frederick County transit stations remain unchanged.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The Mass Transit Administration (MTA) commuter bus line #991 does not currently serve Urbana. This bus line currently serves the Francis Scott Key Mall, which will terminate when MARC service is extended to Frederick in the year 2000. The Study Team agrees that a stop in Urbana along MTA Route 991 would, in essence, be competitive with light rail transit or a busway. Therefore, the Study Team will not evaluate a bus stop at Urbana or at the Monocacy (Suburban) Rail Station along MD 355, since this stop will most likely be served only by the transitway.

Finally, the 'one or two minute headway' used for the busway is indeed the average headway during the peak period. The model will be using this average headway for the evaluation, since the model requires AM peak period data for analysis.

Thank you again and I look forward to your involvement throughout the development of the alternates and the remainder of the study. Please feel free to call me at (410) 545-8547 or toll-free at (800) 548-5026, or Suhair Alkhatib of the Mass Transit Administration at (410) 767-3751, if you should have any further questions or comments.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning
and Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

LHE:MDH:ASB

cc: File (with incoming)
Mr. Suhair Alkhatib, Mass Transit Administration (with incoming)
Mr. John Matthias, M-NCPPC (with incoming)
Mr. Neil J. Pedersen, State Highway Administration

Action Committee for Transit

Post Office Box 7074, Silver Spring, MD 20907

RESOLUTION

WHEREAS the State Highway Administration and Mass Transit Administration are the Sponsors of a Study of transportation alternatives in the Interstate 270 Corridor, between Biggs Ford Road and the Shady Grove Metro Station, and

WHEREAS the Sponsors have asked the Action Committee for Transit to provide input into the Study, and

WHEREAS the Study options presented by the Sponsors are incremental, and largely highway—oriented in nature, and

WHEREAS the Sponsors predict severe and ever-growing congestion in the Corridor despite the proposed improvements, relying upon projected travel demand in terms of vehicles per day, and

WHEREAS the Public Meetings regarding the Study are quite limited in number, and inconvenient in location, and

WHEREAS heavy/commuter rail options are not present among the Study alternatives presented by the Sponsors, and

WHEREAS heavy/commuter rail has the potential to carry 10-15 times the number of people (but not vehicles) than highway, at much lower cost in terms of dollars, time, safety, noise, environmental damage, and destruction of historic sites,

THEREFORE in view of the foregoing, the Action Committee for Transit finds:

First, that the Sponsors' proposals present a plan for failure of transportation in the Corridor, and

Second, that the Sponsors focus upon the moving of vehicles, rather than people, is a fundamental error in the Study, and

Third, that the Sponsors' proposals, if implemented, may result in adverse impacts upon the economy of Montgomery County, under the Adequate Public Facilities Ordinance.

THEREFORE BE IT RESOLVED by the Action Committee for Transit, that the Sponsors be urged to recast their travel demand projections in terms of passengers, rather than vehicles, and

BE IT FURTHER RESOLVED that the Sponsors be implored to improve the opportunities for input by the general public, by holding more public meetings, and improving the format to allow for direct questions, comments, and presentations by members of the general public, and

BE IT FURTHER RESOLVED that the Sponsors be formally requested to expand the Study to include consideration of a new heavy/commuter rail line in or adjacent to the present Interstate 270 Right-of-Way.

PASSED UNANIMOUSLY by the voting members of the Action Committee for Transit, this Thirteenth day of June, 1995

IN WITNESS WHEREOF, we have set our Hands hereunto, and caused this Resolution to be entered into the Records of the Committee.

Richard McArdle, Co-Chair

Neil Greene, Co-Chair

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

August 29, 1995

Mr. Harvard Morehead
Action Committee for Transit
878 Flagler Drive
Gaithersburg MD 20878

Dear Mr. Morehead:

This is in response to the Action Committee for Transit Resolution which you presented at the June 20th focus group meeting. We appreciate your organization's input to the I-270/U.S. 15 Multi-Modal Corridor Study. The Resolution was subsequently presented to the entire project team, whose input is included in this response.

One of your organization's major concerns is that the study seems to focus on moving people rather than moving vehicles. The project team has been working recently to develop measures of effectiveness (MOEs), which are criteria used to analyze and compare alternatives. The team concentrated on developing MOEs that are: important and/or relevant to decision-makers and stakeholders, measurable, easily understood, useful in comparing alternatives, and person (rather than vehicle) oriented. The team will be asking for feedback on the proposed MOEs at the next focus group meeting.

Another concern raised was the consideration of a new heavy/commuter rail line in or adjacent to the I-270 right-of-way. As was presented at the last focus group meeting, the Mass Transit Administration (MTA) has been working on a long term master plan of the entire MARC system, which includes the Brunswick Line within the I-270/U.S. 15 study area. It is MTA's policy to focus their investments on existing infrastructure, such as the Brunswick Line, before constructing rail alignments along new right-of-way. In addition to the planned MARC extension to Frederick, MTA is looking at every opportunity to add parking at the existing stations and possibly add new stations with parking along the Brunswick line. With the current fiscal constraints MTA faces, building a new commuter rail line adjacent to the I-270 right-of-way will take away resources needed to improve the tracks and facilities along the Brunswick line and its extension to Frederick. In addition, the grades and alignment along I-270 are not suited for a commuter rail line.

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Prior to the initiation of this study both Montgomery and Frederick County investigated the feasibility of constructing heavy/commuter rail in the corridor. Both counties conducted separate but coordinated transit easement studies, and have selected preferred alignments for inclusion in area master plans. Montgomery County focused on Metrorail because of the existing MARC commuter rail system. Due to engineering constraints, cost factors, and lack of sufficient demand, Metrorail was determined not to be feasible past the Metropolitan Grove Station. Frederick County considered heavy/commuter rail in this area as well but also noted the difficulty in accommodating alignments due to steep grades and other constraints.

The magnitude of this study makes public involvement an important yet difficult issue. Throughout the course of the study, the team will attempt to maintain a balance between effective communication with the general public and effective use of state and federal resources. All major public meetings in the future (i.e. Alternates Public Meeting) will be held in two locations, one in each county. Possible locations will be coordinated with the project team and the focus group. The format of the Alternates Public Meeting is not decided yet, but we feel that a workshop format, similar to the one used at the Public Initiation Meeting last May, encourages communication with the general public and provides the best forum for direct interaction with the study team. A court reporter will be available at the meeting to record comments for the record. The Public Hearing usually consists of a formal presentation followed by a speakers list of persons wishing to provide formal testimony. Typically, with a project of this magnitude, an Informational Public Workshop similar to the format suggested for the Alternates Public Meeting, is held just prior to the Public Hearing (sometimes the same evening) to help answer questions and familiarize the public with the materials to be presented at the formal hearing.

We also plan to use the focus group to communicate with the public. One of the purposes of the focus group is to dispense information about the study to the members of their respective organizations, communities or groups. As major public meetings approach, we anticipate meeting with the focus group more frequently to receive their input regarding information to be presented. In addition, representatives from the project team are always available to meet with interested community groups or other organizations as requested.

The project team has also developed a list of five goals and corresponding objectives, which the focus group will be asked to review. One of these goals is to support orderly economic growth. The team expanded this goal to read: Support the orderly economic development of the I-270/U.S. 15 corridor consistent with existing local government land use plans and Maryland's Economic Growth, Resource Protection and Planning Act. Both counties are represented on our project team and will continue to provide input on this issue as the study progresses.

Mr. Harvard Morehead
Page Three

Thank you again for providing input on these important issues. If you have any additional questions or comments, please feel free to contact me or Suhair Alkhatib, MTA Project Manager. I can be reached at (410) 333-6748, or toll free within Maryland at (800) 548-5026. Suhair can be reached at (410) 767-3751.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: D. M. A.
Dennis M. Atkins
Project Manager
Project Planning Division

LHE:LER:as

cc: Mr. Suhair Alkhatib (w/incoming)
Mr. Paul Armstrong (w/incoming)
Mr. Ken Goon (w/incoming)
Mr. Neil J. Pedersen (w/incoming)
Mr. Glen Smith (w/incoming)
Mr. Gene Straub (w/incoming)

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Action Committee for Transit

P.O. Box 7074, Silver Spring, MD 20907

Ms. Michelle D. Hoffman
Project Engineer
Project Planning Division
State Highway Administration
70 Calvert St., Mailstop C-301
Baltimore, MD 21202

Dear Ms. Hoffman:

The Action Committee for Transit (ACT) is a group of over 70 citizens in Montgomery County who are interested in shaping policies and practices in public transportation. ACT is grateful for the opportunity to review the information presented at the recent Alternatives Workshops for the I-270 Multimodal Corridor Study. We engaged in an intensive discussion over the information at our monthly meeting, March 11, 1997. As the result of the discussion, the attached ACT position paper was adopted by a unanimous vote of the membership.

In the position paper, we express our concerns about the omission of five extremely important objectives that should be included in the I-270 Multimodal Corridor Study. The omission of the specified objectives profoundly affects the role that light rail transit can play in addressing the transportation problems in the corridor. We are most concerned that light rail transit should receive more emphasis than it has been given hitherto.

Again, we appreciate the opportunity for expressing our comments.

Sincerely yours,

Ben Ross,
President

Quon Y. Kwan,
Vice President

Thomas Fuchs,
Service Committee Chairman

Harry Sanders,
Co-Founder

Action Committee for Transit

P.O. Box 7074, Silver Spring, MD 20907

ACT Position on I-270 Multi-Modal Corridor Transportation Improvements

The Action Committee for Transit (ACT) believes that light rail should be the keystone of transportation improvements in the I-270 corridor. The State Highway Administration study as of March 12, 1997 egregiously omits many important objectives as follows:

- The objective to **control urban sprawl** (under the goal of supporting orderly economic growth) must be added because past highway projects have spurred development that needlessly takes away prime farmlands and wilderness areas.
- A major objective that must be added (under the goal of enhancing mobility) is to **decrease the number of single-occupant vehicles** because the U.S. Bureau of the Census recently reports the area as having an excessively high percentage (73%) of single-occupant vehicle commuters.
- Another objective, to **reduce vehicle miles traveled** (under the goal of enhancing mobility), has to be added because recent research by the Texas Transportation Institute showed that the area has the second highest level of congestion in the nation.
- Adding the objective to **improve air quality** (under the goal of protecting the environment) is extremely critical to public health because Montgomery County lies in a serious nonattainment area for ozone, which largely comes from automobile use.
- Adding the objective to **achieve environmental justice** (under the goal of protecting the environment) is necessary to meet the needs of low-income and minority populations who tend to be transit-dependent.

In consideration of furthering these objectives, ACT urges that the State Highway Administration place foremost priority on mass transit improvements in the I-270 corridor. Mass transit is the most efficient and effective in controlling urban sprawl (through transit-oriented development), decreasing the number of single-occupant vehicles, reducing vehicle miles traveled, improving air quality, and achieving environmental justice.

ACT favors light rail transit along the Corridor Cities alignment to Clarksburg and preserving the right-of-way to Frederick. Pending the construction of light rail, trunk express bus service connecting major activity centers should be introduced as an interim measure to develop a ridership base. As a permanent solution, ACT favors light rail transit over busways and high-occupancy vehicle (HOV) lanes because history has shown that the effectiveness of busways have been compromised by their conversion to HOV lanes. In turn, HOV lanes are not as efficient and effective in moving people as buses, light rail, heavy rail, or commuter rail and take away riders from these much more efficient and effective forms of transportation. Furthermore, HOV lanes have had a poor history of HOV enforcement, safety, and utilization.

Instead of funding construction of busways, HOV lanes, collector-distributor lanes, and adding general purpose lanes to I-270, ACT urges that much more emphasis be given to rail transit.

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

April 21, 1997

Mr. Ben Ross
President
Action Committee for Transit
P.O. Box 7074
Silver Spring MD 20907

Dear Mr. Ross:

Thank you for your organization's interest in the I-270/US 15 Multi-Modal Corridor Study. I appreciate you sharing your comments from the Alternatives Workshop/Public Hearing, reflected in the *ACT Position Paper*, and would like to take this opportunity to address some of the points.

Transit is an integral component of the I-270/US 15 Multi-Modal Study and we remain committed, as we always have been, that various transit strategies will be included into the detailed engineering and environmental analyses, including express bus services, High Occupancy Vehicle lanes and transit centers, among others. In addition, the Corridor Cities Transitway will be recommended, in various forms, for both corridor preservation and for further analysis.

I agree with the objectives that you have listed in your position paper; however, I believe that these objectives are already included in the study's goals and objectives, as described in the following:

Control Urban Sprawl and Improve Air Quality

One of the purposes of the goal "SUPPORT ORDERLY ECONOMIC GROWTH," is to ensure that economic development in the I-270/US 15 Corridor occurs consistent with the existing local government land use plans and Maryland's Economic Growth, Resource Protection and Planning Act. The objective you list to control urban sprawl, while not explicitly listed under this goal, is covered implicitly in the objective to demonstrate consistency with applicable land use and transportation plans.

My telephone number is (410) 545-0411

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The protection of prime farmlands and wilderness areas is also included in the goal "PRESERVE/PROTECT THE ENVIRONMENT." The purpose of this goal is to provide transportation services in a manner that preserves, protects and enhances the quality of life and natural environment in the I-270/US 15 Corridor. Again, while the objective to improve air quality is not explicitly described under this goal, it is very critical to both the State Highway Administration and the Mass Transit Administration to prepare air quality analyses for alternatives considered in the detailed engineering and environmental studies and show our conformity. We will add the objective "Air Quality Conformity" to the goal "PRESERVE/PROTECT THE ENVIRONMENT." These air quality analyses are scheduled to occur over the next year and a half.

Decrease the Number of Single-Occupant Vehicles and Reduce Vehicle Miles Traveled

The purpose of the goal "ENHANCE MOBILITY" is to optimize travel choices by destination, mode and route; minimize delay; and improve the safety and overall efficiency of the transportation system. The objective to decrease the number of single-occupant vehicles and reduce the vehicle miles traveled are contained within these adopted objectives, such as increasing the efficient use of the transportation system, increasing the multi-modal transportation options, and decreasing the travel time. The AM peak period travel time and Level of Service (LOS) between selected location by low occupant vehicles, high occupant vehicles and transit and the percent reduction in vehicle miles traveled on non-freeway facilities will be evaluated for the alternates to meet the objectives. Please see the enclosed for additional objectives and evaluation measures. In addition to these objectives, the State Highway Administration promotes carpooling, high occupancy vehicle lanes, connectivity to feeder and express bus services and the use of park and ride lots, as shown along the existing I-270 Corridor and contained in the proposed combination alternatives.

Achieve Environmental Justice

It is very important to the I-270/US 15 Multi-Modal Corridor Study to reach all citizens within the corridor, including those who are within low-income and minority populations. The study team has been using various innovative techniques to reach all citizens. In addition, the study team will expand its mailing list in the next more detailed phase of planning, as well as identify any minority and low-income communities within the study area. This is also consistent with the goal "PRESERVE/PROTECT THE ENVIRONMENT." We will add the objective "Achieve Environmental Justice" to the goal "PRESERVE/PROTECT THE ENVIRONMENT" to ensure compliance with environmental justice regulations (Executive Order 12898).

Mr. Ben Ross
Page Three

This Spring, we will conclude the preliminary analysis of the I-270/US 15 study and recommend combination alternatives for detailed engineering and environmental analysis. I anticipate that a National Environmental Policy Act (NEPA) public hearing and a recommendation of a preferred alternate will occur in mid to late 1998.

Thank you again for your comments. Please feel free to call me or Michelle Hoffman, the Project Manager, if you should have any further questions. Michelle can be reached at (410) 545-8547 or, toll-free in Maryland, at 1-800 548-5026.

Very truly yours,

Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

Enclosures
cc: Transcript (with incoming and enclosures)
Mr. Suhair Alkhatib, Mass Transit Administration
Mr. John DiGiovanni, Senior Planning Specialist, Montgomery County Department of Public Works and Transportation
Mr. Louis H. Ege, Jr., Deputy Director, State Highway Administration
Mr. Ken Goon, Planning Director, Mass Transit Administration
Ms. Michelle D. Hoffman, Project Manager, State Highway Administration
Mr. Alan H. Straus, Assistant Division Chief, State Highway Administration

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MTA
MASS TRANSIT ADMINISTRATION
MARYLAND DEPARTMENT OF TRANSPORTATION
Parris N. Glendening, Governor • David L. Winstead, Secretary • Ronald L. Freeland, Administrator

August 27, 1997

Mr. Quon Y. Kwan
Action Committee for Transit (ACT)
PO Box 7074
Silver Spring MD 20907

Dear Mr. Kwan:

Thank you for your continued involvement in the I-270/US 15 Multi-Modal Corridor Study. Your attendance at the recent Focus Group Meeting and your comments help in determining what mode and components of transit, should be retained alone, or part of the Combination Alternates, for detailed studies.

The I-270/US 15 Multi-Modal Study Team is evaluating three stand alone transit options from the Shady Grove Metro Station north to Frederick City, which include:

- Light rail transit (LRT) option along the western Corridor Cities Transitway (CCT) alignment
- LRT option along the Eastern (CSX) alignment from Shady Grove to Metropolitan Grove and continuing north to Frederick along the western CCT alignment
- Busway option along the CCT alignment

The Study Team has decided not to pursue a transit option which encompass two LRT alignments between Metropolitan Grove and Shady Grove using both the western CCT and eastern CSX alignments. Both local and express LRT services will be modeled along the CCT alignment, which negate the need for a single track along the CSX alignment. Travel time savings could not justify the added capital and operational cost for implementing both alignments concurrently.

The transit options will be evaluated with both local and express services along each of the alignments. The express trains will operate only in the flow direction and the weekday headways will be similar to those suggested in Mr. Tennyson's July 31, 1997 letter. Bus and Light Rail Transit will be evaluated with all of the same operating conditions for travel demand purposes. Furthermore, feeder buses will stop at all of the same stops as the Busway Option along the western CCT alignment south of Metropolitan Grove.

*My phone number (410)*_____ *FAX number (410)*_____ *TTY (410)*_____

William Donald Schaefer Tower • 6 Saint Paul Street • Baltimore, Maryland 21202-1614

The Study Team will be using a distance-based fare structure for LRT with a minimum fare of $1.35 and a maximum not to exceed corresponding MARC fare. This is done both for consistency of transit services and travel demand modeling purposes.

In order to pro-actively evaluate transit in all three options, the Study Team is assuming optimal transit links and connections and is minimizing avoidable transit repetition and competition. For example, all three stand alone transit options will be evaluated without HOV lanes north of where they currently terminate; however, in order to evaluate the effect of an HOV lane in both directions to I-70, the western CCT alignment LRT stand alone transit option will also be evaluated with these HOV lanes. This transit option was selected because, of the three stand alone transit options, the HOV lanes provided the least repetition and competition to transit in the corridor.

Thank you for the bus routes that both yourself and Mr. Ed Tennyson developed and shared with the Study Team. The Study Team has been coordinating with the Montgomery County Department of Public Works and Transportation and is in the process of developing the feeder bus route systems for both the Combination Alternates and the transit alone options. Your suggestions have been shared with the County and will be considered during the feeder bus route development.

Thank you again and I look forward to your involvement throughout the development of the alternates and the remainder of the study. Please feel free to call me at (410) 767-3751 or Michele Hoffman of the State Highway Administration at (410) 545-8547 or toll-free at (800) 548-5026, if you should have any further questions or comments.

Sincerely,

Suhair Alkhatib

Suhair Alkhatib
Project Manager
Office of Planning and Programming

cc: [redacted]
Ms. Michelle D. Hoffman, State Highway Administration (with incoming)
Mr. David Bone, MCDPWT (with incoming)
Mr. Louis H. Ege, Jr., State Highway Administration (with incoming)
Mr. Robert Klein, Montg. Co. Dept. of Public Works & Transp. (with incoming)
Ms. Pamela Lindstrom, Shady Grove Alliance (with incoming)
Mr. John Matthias, M-NCPPC (with incoming)
Mr. Harvey Flechner, Mass Transit Administration
Mr. Neil J. Pedersen, State Highway Administration
Mr. E. L. Tennyson, Action Committe for Transit

cCa

Clarksburg Civic Association
P.O. Box 325
Clarksburg, Maryland 20871-0325

26517 Aiken Drive
Clarksburg, MD 20871
14 February 1999

Ms. Michelle Hoffman
Project Engineer
Project Planning Division
Mail Stop C301
707 N. Calvert Street
Baltimore, MD 21202

Dear Ms. Hoffman:

The Clarksburg Civic Association is pleased to invite you and a representative from the Maryland Mass Transit Administration to our April civic association meeting to discuss the I-270 / U.S. 15 Corridor Study. I would be pleased if you would also inform our civic association about the schedule and details of the rehabilitation of the I-270 bridge over MD 109 and Little Bennett Creek. We do not intend to schedule any other presentations. I am sure our members attending the meeting will have numerous questions and comments on the study.

Our April meeting will be held on Monday April 26, 1999 at the Clarksburg Recreation Center on Wims Road. The meeting will begin at 7:30 p.m. The easiest directions from Baltimore are:

- Go west on I-70.
- Exit on MD 27 at Mt. Airey. Turn left (south) on MD 27.
- At Damascus, take the MD 27 "bypass" to the right at the first traffic light. This road curves to the left, then goes straight through the next traffic light.
- Turn right onto MD 355 (north) in Germantown.
- 1.8 miles later, turn left onto Wims Road. This is also the location of the Rocky Hill Middle School.
- The Clarksburg Recreation Center is on your left.

At the February and March meetings, I will announce that you will be presenting at the April meeting. We should have a good turnout.

Sincerely yours,

John H. Fauerby
Vice President of the
Clarksburg Civic Association
301-921-3352 (daytime)
301-253-1748 (evening)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 5, 1999

Mr. John Fauerby, Vice President
Clarksburg Civic Association
P.O. Box 325
Clarksburg MD 20871-0325

Dear Mr. Fauerby:

On behalf of the State Highway Administration (SHA) and the Mass Transit Administration (MTA), please extend our thanks to the attendees at the Clarksburg Civic Association meeting on April 26 for their thoughtful comments and feedback on the I-270/US 15 Multi-Modal Corridor Study. These types of meetings are particularly valuable to our staff because they help us understand and respond to the goals and concerns of the community. We value the opportunity to keep residents informed and interested as the study proceeds through the project planning process.

Several attendees expressed concern with a transit terminus at COMSAT. The project team has evaluated light-rail and busway transit systems along two alignments to serve planned growth. These evaluations have considered various northern termini (Metropolitan Grove, Germantown, COMSAT, and Frederick) with different demand management assumptions. The results have shown that a northern terminus at COMSAT is the farthest north to justify a dedicated transit line for the 2020 design year. However the project team has recommended that the master-planned transit alignment north of COMSAT, through Clarksburg, Urbana, and Frederick remain in the Washington Metropolitan region's Long Range Plan and local master plans for right-of-way preservation.

One person asked whether traffic from outside of the Washington Metropolitan Council of Governments (WashCOG) region is being considered in the travel demand model. He stated that he was aware of commuters travelling from as far as Hagerstown to Washington, DC. While the WashCOG model calculates travel demand based on collected household data within its jurisdiction, trips originating from or destined for areas outside the jurisdiction are also added in to the model to improve its accuracy. Such external trips include those from outlying areas such as Hagerstown.

My telephone number is .....

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

One attendee advocated the use of express buses with Intelligent Transportation System (ITS) enhancements such as "queue-jumpers" to make commuter bus travel more attractive to motorists. The team is evaluating a premium bus system along I-270 as part of Combination B, or a dedicated busway as part of both Combination A and Combination C as potential transit alternates. Express bus and local feeder bus services are part of all "build" alternates, as is ITS technology assumed in the travel demand model evaluation.

Another association member noted that as soon as construction on I-270 south of Clarksburg was completed, a daily bottleneck resulted where I-270 narrows. He expressed frustration that this problem has not been resolved to date and that the current project planning study may not provide relief on I-270 for several years. He asked why the study is taking so long to complete and if the federal regulations contained in the Intermodal Surface Transportation Efficiency Act (ISTEA) are to blame. Another speaker offered support for the project schedule noting that it is more valuable to take the time to work out a comprehensive solution than to rush a project that may not fully serve the long-term needs of the community. Today's project planning process is far more comprehensive than in the past. The goal is to understand the many community, environmental, economic, land use and other issues in the study area as well as the transportation needs prior to developing solutions. By taking the extra time to understand how our project is compatible with an area, we can provide better solutions with more community support.

People raised questions about the environmental impacts. Impacts will be preliminarily quantified for the natural, social, and cultural environment; and preliminary costs and artistic renderings of representative areas throughout the corridor will be available at the next Informational Workshop. Horizontal alignments for the highway and transit improvements will also be displayed. The next Informational Workshop is anticipated to be held in late winter, 2000.

Mr. John Fauerby
Page Three

We look forward to future opportunities to discuss this project with the Clarksburg Civic Association. If you have any questions, please feel free to contact Michelle Hoffman, the SHA Project Manager at 410-545-8547 or 1-800-548-5026 or Lorenzo Bryant, the MTA Project Manager at 410-767-3754.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: 
Gregory Cohen
Project Engineer
Project Planning Division

cc: Mr. Lorenzo Bryant, Project Manager, MTA
Mr. Robert Klein, Montgomery County DPW&T
Mr. James Wynn, Assistant Division Chief, SHA
Ms. Michelle Hoffman, Project Manager, SHA
Mr. John Markias, M-NCPPC

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Clarksburg Civic Association (CCA)

P.O. Box 325
Clarksburg, Maryland 20871

June 17, 2001

The Honorable Parris N. Glendening
Governor of Maryland
State House
Annapolis, MD 21401

Dear Governor Glendening:

Please find attached a copy of our Clarksburg Civic Association (CCA) resolution regarding the mass transit interim terminus proposed for the "Comsat" [Martin Marietta] property in Clarksburg. This proposed mass transit is referred to as the Corridor Cities Transitway (CCT) in the I-270 / US 15 Multi-Modal Corridor Study and other related planning studies.

In brief, the CCA supports putting the interim terminus at a location north of MD 121 rather than south of it. The resolution contains details and reasons. The CCA still supports a transit station at the "Comsat" property. The CCA membership unanimously passed the resolution at our June 4, 2001 general meeting.

If you have any questions please feel free to contact the CCA officer-at-large, Dick Strombotne (301-540-9597; e-mail: rlstrombotne@ieee.org).

Sincerely,
Paul E. Majewski
Paul E. Majewski
Secretary, Clarksburg Civic Association

Attachments:
- List of recipients
- The resolution

cc: Steve Howie, President, Clarksburg Civic Association
John Fauerby, Vice-President and Planning Committee Chairman, Clarksburg Civic Association
Dick Strombotne, Officer-at-large, Clarksburg Civic Association

List of recipients:

U.S. House of Representative:
Representative Constance Morella

State of Maryland:
Governor Parris N. Glendening
Lt. Governor Kathleen Kennedy Townsend
John Porcari, Secretary of Transportation
Parker F. Williams, Administrator, State Highway Administration
Cynthia D. Simpson, Deputy Director, Office of Planning and Preliminary Engineering, State Highway Administration
Roland L. Freeland, Administrator, Mass Transit Administration,
Senator Jean Roesser
Senator Chris Van Hollen, Jr.
Delegate Jean Cryor
Delegate Richard LaVay
Delegate Mark Shriver

Frederick County Commissioners:
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Terre Roy Rhoderick
Ilona M. Hogan
Jan H. Gardner
John Thompson, Jr

Frederick County Planning Department:
Kristen Mark Hughes, Director,

Montgomery County:
Doug Duncan, County Executive
Blair Ewing, President, County Council
Nancy Dacek County Council District 2
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John Mathias, Montgomery County Planning Board
Charles R. Loehr, Director, MC Department of Park and Planning
Carol D. Rieg, Chair, Upcounty Citizens Advisory Board
Solutions Not Sprawl Alliance

Resolution from the Clarksburg Civic Association

Whereas: The Maryland Department of Transportation and agencies of Montgomery County have been planning for the Shady Grove- Frederick transit service to have an interim terminus in Clarksburg at the Comsat site, and

Whereas: Evening rush hour commuters traveling northbound on I-270 and MD 355 for the past several years have been caught in a bottleneck at the Clarksburg exit (MD 121) and current alternative plans for widening I-270 do not eliminate the bottleneck in this corridor, and

Whereas: Transit riders returning home would get in their cars and immediately encounter the bottleneck on routes north of MD 121, and

Whereas: There is substantial economic development underway in Frederick County at Urbana on the I-270 corridor, and

Whereas: Under these circumstances, any interim transit terminus should be located north of the I-270/MD 121 bottleneck,

Therefore, be it resolved: The Clarksburg Civic Association strongly objects to current plans to have an interim transit terminus south of the traffic bottleneck at I-270 and MD 121 at the Comsat site and supports putting the terminus at a location north of MD 121 with easy access to I-270 and MD 355, and

Be it further resolved: That officers of the CCA shall deliver copies of this resolution to all appropriate State and Local officials, agencies and other parties.

Approved by the membership this 4th day of June, 2001 in Clarksburg, MD.

President

Secretary

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Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor
Kathleen Kennedy Townsend
Lt. Governor
John D. Porcari
Secretary
Beverley K. Swaim-Staley
Deputy Secretary

October 5, 2001

Mr. Paul E. Majewski
Clarksburg Civic Association
P. O. Box 325
Clarksburg MD 20871

Dear Mr. Majewski:

Thank you for your letter to Governor Parris N. Glendening regarding the Clarksburg Civic Association's support of an interim terminus along the Corridor Cities Transitway (CCT) alignment north of MD 121 rather than south of it at the proposed COMSAT (Martin Marietta) property. The Governor received your letter and asked that I respond to you on his behalf. The CCT is part of the transit alternative under study in the I-270/US 15 Multi-Modal Corridor Study.

It has been our past experience that parking needs are the most significant at terminal stations, and we are planning accordingly. The Clarksburg Master Plan assumes limited parking and a high level of pedestrian access at the Clarksburg Town Center. A major reason for selecting the COMSAT terminus is that this location provides for a parking facility with approximately 1,000 spaces that will serve the majority of commuters accessing the transitway from the north. According to our year 2025 travel demand forecasts, a significant number of morning transitway riders will gain access to the transitway at this location, and travel through to Shady Grove where they will connect with Metrorail.

COMSAT also has been identified as a potential location for a maintenance yard and shop. Therefore, this site also would provide for a critical component of the CCT necessary to support and address the operational requirements for future extensions of the transitway north of COMSAT to Frederick. While construction of the transitway north of COMSAT in the I-270/US 15 study is not being considered at this time, the project team recommends that the CCT transitway alignment through Clarksburg to the City of Frederick be maintained within the Washington Metropolitan Region's Long Range Plan as well as local master plans for right-of-way preservation and implementation beyond 2025.

My telephone number is 410-865-1000
*Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

The Project Team is continuing to assess each proposed combination highway and transit alternative, as well as Transportation System Management, and Transportation Demand Management Strategies, as part of the more detailed engineering, traffic, and environmental studies. The alternatives will be summarized and presented in a Draft Environmental Impact Statement, and at a Location/Design Public Hearing to be held during Spring 2002. We anticipate the project planning study will be completed in Summer/Fall 2003, with the recommendation of a selected alternate and Location/Design approvals. The project will then become a candidate for final design, right-of-way acquisition, and construction funding as resources become available.

The focus of our efforts will be on ways that the Clarksburg Town Center can be served by the CCT within the 2025 time frame during the detailed engineering phase of the project. This would allow us to identify transit service options and related impacts during the more appropriate time of the operational development phase of the project while adhering to the current project schedule for federal and State Location/Design approvals.

Thank you again for your letter. The Governor appreciates hearing from you and, on his behalf, I also thank you for your interest in this project. If you have any further questions, do not hesitate to contact Mr. Henry Kay, Director, Office of Planning, Maryland Transit Administration at 410-767-3787 or email **hkay@mdot.state.md.us**. He will be happy to assist you.

Sincerely,

John D. Porcari
Secretary

cc: Mr. Henry Kay, Director, Office of Planning, Maryland Transit Administration
Ms. Virginia L. White, Acting Administrator, Maryland Transit Administration

ICKERSON COMMUNITY ASSOCIATION, INC.
[illegible] BIG WOODS RD., DICKERSON, MD

Robin Williams
as Project Engineer for Secretary's
absence.

May 29, 2000

John D. Porcari, Secretary
Maryland Department of Transportation
P.O. Box 8755
BWI Airport, MD 21240

SECRETARY
DEPARTMENT OF TRANSPORTATION

Dear Secretary Porcari:

There is a burgeoning traffic safety problem affecting the residents of our small town and the thousands of commuters who rely on Maryland Route 28 to travel between their jobs and homes each day.

As was recently noted in the Washington Post, rampant growth in Frederick County and the resulting congestion on I-270 have forced more and more traffic onto secondary roads, resulting in long strings of fast-moving vehicles taking routes not designed to handle this level of use.

A prime example is Route 28, a regular path for commuters from Frederick County and the state of Virginia and West Virginia to jobs in Montgomery County and Washington, D.C. As the road runs through the center of Dickerson, it hits a series of hazards -- passing underneath a narrow railroad trestle, then entering a series of tight curves.

These hazards have been contributing factors in several traffic fatalities and accidents over the years, including the gruesome death of a motorist who lost control in the curves and slammed into the gas pumps of the town's convenience store. We fear that the ever-increasing level of commuter traffic is only going to make matters more hazardous -- for residents and travelers alike.

Another mounting hazard is the traffic to and from the convenience store, which shares a small building with the U.S. Post Office just south of the trestle and in the crook of the first curve of Route 28. With expanding business at the store, there has been an increasing level of truck and car traffic in and out of the store parking lot, often blocking patron access to the post office. This rat's nest of congestion -- from tractor trailer rigs, delivery trucks, dump trucks, cars, and pickups -- crowds the lot and overflows to the shoulders of the road, making it difficult even for the post office vehicles to come and go. Entry and departure traffic is in close proximity to fast moving traffic coming out of two blind spots -- the trestle underpass to the north and the curve just to the south -- that are accidents waiting to happen. Several members of our group have experienced close calls confronting motorists who are passing by or turning into the parking lot at excessive speed.

The convenience store's expansion is the subject of county zoning application, and we have expressed our concern about several questionable moves made by store owners that appear to go against those local mandates. These concerns include the questionable expansion of the store's parking lot onto an adjoining residentially-zoned lot, as well as the proximity of the store's gas pumps to the roadway and their lack of protection from any wayward traffic.

We have repeatedly asked state transportation officials to address this problem by installing a stop sign for southbound traffic at the trestle to match the stop sign for northbound traffic at the same location. State traffic engineers have consistently rejected that option for

May 29, 2000

reasons that we believe defy logic. Instead of a stop sign, they have installed a series of lesser signs alerting motorists of the need to slow down and of the approaching curves. All are ignored.

It appears clear to us that state traffic engineers are loathe to do anything that slows the rapid stream of traffic through our town and are sacrificing safety for speed. It is also clear that the state can't have it both ways -- refuse to place a stop sign at the railroad trestle AND ignore the burgeoning traffic hazard created by the convenience store.

In the short run, we would ask you to insist on a stop sign for Dickerson, placed at the railroad trestle for southbound traffic on Route 28. We would also ask that there be accompanying signage placed several miles north of the village that would warn motorists of the new sign and reinforce the message that they must slow down as they enter our village.

We must also caution you against several stopgap measures traffic engineers have suggested, including rumble strips for the last 100 yards or so before the road hits the trestle. We regard this suggestion as retaliatory and punitive, much less inadequate.

In the long run, we think the ultimate solution to this traffic dilemma is the long-delayed plan for the Route 28 bypass around Dickerson, a plan that calls for a bridge over the C&O Canal and a new passage of the road to the west of its current route. That would eliminate the menace of fast-moving traffic past the triple hazards of the trestle, the curves and convenience store congestion. We urge you to support this ultimate solution.

Thanks for your time and consideration.

Sincerely,

Carol Oberdorfer
President, Dickerson Community Association, Inc.

Cc:

Md. Sen. Jean W. Roesser

Md. Del. Jean B. Cryor

Md. Del. Richard La Vay

Md. Del. Mark K. Shriver

Albert J. Genetti, Director--Montgomery County Dept. of Public Works and Transportation

Montgomery County Councilmember Blair Ewing

Montgomery Councilmember Nancy Dacek

Montgomery Councilmember Isiah Leggett

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor
Kathleen Kennedy Townsend
Lt. Governor
John D. Porcari
Secretary
Beverley K. Swaim-Staley
Deputy Secretary

June 12, 2000

Carol Oberdorfer, President
Dickerson Community Association, Inc.
22030 Big Woods Road
Dickerson MD 20842

Dear Ms. Oberdorfer:

Thank you for your recent letter regarding congestion and safety on MD 28 in Dickerson. I share your interest and agree that congestion and safety in this corridor is a major concern.

The placement of traffic control devices such as stop signs is guided by nationally recognized standards to ensure consistency in driver expectation and safety. The stop sign you requested for eastbound MD 28 would not meet nationally recognized warrants and, as a result of the limited sight distance for approaching traffic, could actually create more of a hazard to the public.

Recognizing your safety concerns, I have asked Mr. Tom Hicks, Director of the State Highway Administration's Office of Traffic and Safety to review the situation and determine what additional measures might be appropriate to address these concerns. You should be hearing directly from Mr. Hicks within the next few weeks.

The State Highway Administration does not currently have plans for constructing a bypass of Dickerson. Under the provisions of Maryland's Smart Growth legislation, it would be difficult for us to consider a bypass, even if it became a priority of Montgomery County, because it would be located outside of a planned growth area.

My telephone number is 410-865-1000
Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

Thank you again for your letter. If you have any additional questions, please do not hesitate to contact Mr. Hicks at 410-787-5815, 1-888-963-0307, or thicks@sha.state.md.us. He will be happy to assist you.

Sincerely,

John D. Porcari
Secretary

cc: Mr. Thomas Hicks, Director, Traffic and Safety, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration
The Honorable Jean Roesser, Senate of Maryland

FREDERICK AREA COMMITTEE FOR TRANSPORTATION

February 17th, 2000

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Mr. Lorenz Bryant
Project Manager
Project Development Division
Office of Planning and Programming
Mass Transit Administration
6 St. Paul Street
Baltimore, MD 21202

Re:I-270/US 15 Multi-Modal Corridor Study

Dear Mr. Bryant:

It was a pleasure to meet you at the recent meeting at the SHA's Frederick district office. FACT feels that we need to study the MARC heavy rail options more completely before reaching any conclusions. Even in the brief few years in which this study has been conducted, the traffic congestion on I270 has grown beyond anyone's expectations. Everyone wants to join with the MTA and SHA to identify solutions which will work for centuries to come. Following up on some of the concerns raised by several participants. I would like to identify some of the questions/issues we would like to address in order to better understand what is involved with bringing MARC heavy rail service directly from Frederick to Shady Grove in the I270/US 15 corridor:

1) Projected rail ridership numbers from Frederick to Shady Grove/Rockville. (Rockville would seem a logical stop given that it is the existing multi modal transfer station to the METRO system - but the alternatives should be evaluated)

2) How much new right of way would be needed? How might existing right of ways can be utilized? Should new track be installed even in these portions?

3) What was the method of forecasting and modeling ridership? What year were the ridership numbers formulated? From what given year to what year in the future?

4) How many station stops were proposed? What would the economic development impact be of these multi-modal transportation centers be on their communities? How many new jobs would be created? What is the potential for public-private partnerships in developing the station areas?

301-662-1082 301-662-9163 FAX

5) What operating plans were developed? How many daily frequencies were initially considered for cost and modeling purposes.

6) What were the capital costs estimates for this extension including infrastructure and rolling stock? What were the rights of way costs? What were the operating ratios? How much would the annual subsidy be? What was the projected fare box recovery for the direct rail service?

7) What was the projected travel time of a direct link via rail from Frederick to Shady Grove/Rockville. At what average speed and what top speed?

8) What impact would a 30%/40% reduction in travel times of the direct route over the dogleg to Point of Rocks have on ridership?

9) How was the ability or lack there of to add additional frequencies and/or capacity figured into the projections? If the capacity on CSX's main line can not accommodate additional frequencies how would the MTA address capacity and frequencies? How would you provide mid-day service? At what cost in infrastructure?

10) Was a cost benefit analysis done which addressed such cost as environment, health, pollution, and energy efficiencies in selecting the alternatives proposed? If so, what were the results?

11) What criteria were used to evaluate the alternatives and make selections? What role did the 50% fare box recovery play in your analysis?

I fully appreciate that these questions may address a level of specificity that the study did not consider. In this case, FACT, together with other groups such as the Committee for Frederick and Committee for Montgomery, look forward to partnering with the MTA, SHA, the county governments, chambers of commerce, MDOT, the community, and business in exploring and studying all practical alternatives. It is incumbent on us to assure that our vision of future infrastructure needs and solutions are broad and complete because the problem is complex and the 'solution' will be in place for a very long time. It is a great challenge to tackle together. Everyone look forward to working together with you and the other partners on this corridor project. Please give me a call to arrange a meeting to explore these concerns.

3 Page
I-270/US 15 Multi-Modal Corridor Study

Sincerely yours,

Jonathan Moore Warner
Chairman
Mass Transit Committee
Frederick Area Committee on Transportation

CC: Michelle Hoffman
Delegate Sue Hecht
City of Frederick
Frederick County Government
Montgomery County Government
Committee for Montgomery
Committee for Frederick
Frederick County Chamber of Commerce
FACT Board

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Manor Lake Civic Association
P.O. Box 761
Rockville, MD 20851

August 16, 1999

Michelle Hoffman
Project Planning Division
Maryland State Highway Administration
P. O. Box 717
Baltimore, MD 21203

Subject: I-270 Corridor Study

Dear Ms. Hoffman,

Please be advised that the Manor Lake Civic Association prefers light rail be selected as the mode for transit along the Corridor Cities Transitway in the I-270 study. Light rail is clearly the mode of choice because it increases property values and transit-oriented development. Busways have very little positive and much more negative effect on adjacent properties than light rail. Light rail also attracts more single-occupant commuters to transit than busways.

Busways have shown themselves to be unpopular as demonstrated by the State Highway Administration's unsuccessful attempt to foist a busway on communities in the U.S. 29 corridor.

We know of no one, civic association, or commuter who has a desire for a busway anywhere in this county except the bureaucrats. Thank you for this opportunity to consider our views.

Sincerely yours,

Edward S. Milenky,
President, Manor Lake Civic Association

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

September 29, 1999

Mr. Edward S. Milenky, President
Manor Lake Civic Association
P.O. Box 761
Rockville MD 20851

Dear Mr. Milenky:

Thank you for your recent letter regarding the I-270/US 15 Multi-Modal Corridor Study, extending from the Shady Grove Metro Station in Montgomery County north to Biggs Ford Road in Frederick County. Transit is an important component of this project and I would like to take this opportunity to address your comments.

The public consideration and perception of light rail transit as one that has a higher ridership attraction than a busway is familiar to the Study Team. We also recognize that increasing traffic congestion and changing land use patterns may influence the usual unpredictable element of commuter behavior, as we know today in the 20-year project horizon. Please note however that busway on the Corridor Cities Transitway (CCT) has developed into a Bus Rapid Transit (BRT) system. BRT by providing a bus system with light rail characteristics such as fixed stations and a fare collection system can provide an attractive system similar to LRT that could also support similar land use patterns.

It is not our intention to persuade public acceptance toward a particular transit mode, but to provide information that we feel the public might find useful in doing so, and to present all of the facts and results of the study alternates in a fair manner. In addition to the potential ridership for both modes, other measure of effectiveness will be evaluated to address mobility improvements, environmental benefits, operating efficiencies, cost effectiveness and land use policies and future patterns. The transit mode selection will be determined through coordination with the Study Team, and through results of private and public testimony at a Public Hearing, once the draft environmental document is submitted.

The development for this project planning study includes an Informational Public Workshop this Winter (2000) and a Public Hearing tentatively scheduled for the Winter of 2002. The conclusion of this study is anticipated by the Fall of 2002, with the recommendation of a selected alternate and Location and Design approvals.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your continued interest in this project. Please feel free to call Lorenzo Bryant, the MTA Project Manager at 410-767-3754 or Michelle Hoffman, the SHA Project Manager at 410-545-8547 or 1-800-548-5026, if you should have any project related questions.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

cc: Ms. Anne Elrays, State Highway Administration
Mr. Lorenzo Bryant, Mass Transit Administration (with incoming)

Stratford Mews
Community Association

Representative Connie Morella
2228 Rayburn House Office Bldg.
U.S. House Of Representatives
Washington D.C. 20515-22228

June 22, 1998

Dear Ms. Morella:

I am writing as a board member of a small townhouse community in Gaithersburg Maryland. You have helped us in the past and we appreciate it. We need your help again.

We have been getting registered letters (attached) and seeing articles in the paper about possible major developments in our neighborhood. Many rumors are now going around about us being bought out, a Metro stop being built on our townhouses etc. We were hoping you could inquire with the powers that be and let us know what the truth is. The community is very concerned for many reasons. One of these reasons is that many of our owners bought their homes when prices were high and if they are forced to sell to the Government at today's prices they may have to file bankruptcy or take other drastic actions.

We are a lower middle-income ethnically diverse community and we the board really need to communicate what may happen to our community. Please let us know what you can find out for us so it can be passed on.

Sincerely,

Eric Myers-Board Member
Stratford Mews Community
547 West Diamond Ave.
Gaithersburg MD 20877

cc: Stratford Mews Community and Board

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THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
8787 Georgia Avenue • Silver Spring, Maryland 20910-3760
(301) 495-4605

Montgomery County Planning Board
Office of the Chairman

July 28, 1998

Mr. Eric Myers, Board Member
Stratford Mews Community
547 West Diamond Avenue
Gaithersburg, MD 20877

Dear Mr. Myers:

I am writing in response to your letter of June 22 to Representative Constance A. Morella regarding concerns about potential impacts on your community from transit development. I would like to take this opportunity to clarify the letter you have received from SHA, and to reassure you about the impacts on your community.

The letter received by a member of your community was one of the hundreds sent out by the State Highway Administration. The State Highway Administration and the Maryland Mass Transit Administration are jointly conducting a Multi-Modal Study of the I-270/US 15 Corridor from the Shady Grove Metro station to Frederick County. As noted in that letter, several alternatives are being considered including improvements to I-270 as well as transitways. In order to obtain necessary information regarding archeological sites, wetlands, and potential hazardous materials sites, it may be necessary for State staff or their representatives to do on-site investigations. As noted in the letter, Michelle Hoffman is the project manager for the State Highway Administration and can be reached at (410) 545-8547 or toll free within Maryland at (800) 548-5026.

In specific response to the concerns noted in your letter:

1. There is no proposal as part of the I-270/US 15 Study to buy out your community.

2. There is no proposal for a Metro stop (or other transit stop) in your community.

3. Even though there is no intent to purchase property from your community, the decisions to acquire any needed right-of-way are several years off.

The I-270/US 15 Study is at a point of selecting the alternatives to be retained for further study during the development of the Draft Environmental Statement. None of the alternatives include an extension of the Metrorail system. A transitway for light rail (trolley) service along the CSX Railroad tracks is included in both the Gaithersburg Vicinity Master Plan and in the City of Gaithersburg's Master Plan. Even though this alignment has been evaluated as part of the Transit-Only Alternative, it does not appear now that it will be included as part of any of the three Combination Alternatives retained for further study.

The I-270/US 15 Multi-Modal Study is a planning-level evaluation of alternatives to increase the capacity of the transportation network serving the I-270 Corridor. The alternatives are still at the conceptual stage of development. The alternatives selected for further study will be chosen based on their ability to respond to transportation needs. At each level of design, reduction in the impacts on existing communities will be a key objective.

Transit is an essential component of the transportation future for Montgomery County. We cannot build enough roadways to satisfy transportation demands of the residents and employees of the County. Transit also provides increased reliability in terms of travel time and increases the accessibility of the activity centers of the County.

I hope that the above information can put to rest the concerns of your community regarding the proposals of the I-270/US 15 Study. If you desire any further information regarding this Study, you may contact Michelle Hoffman, as noted above, or John Matthias of my staff who is an active member of the project team, at (301) 495-4569.

Sincerely,

William H. Hussmann, Chairman
Montgomery County Planning Board

WHH:JM:cmd
CMORELLA.WPD

Michelle,
FYI
Mail

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

PLEASE REPLY TO :
OFFICE OF DISTRICT ENGINEER
5111 BUCKEYSTOWN PIKE
FREDERICK , MARYLAND 21701-8305

February 28, 1997

Ms. Sue Waterman, President
Urbana Civic Association
2923 Roderick Road
Frederick MD 21709

Dear Ms. Waterman:

This is a follow-up to our previous correspondence regarding traffic conditions at the southern intersection of MD 355 and MD 80 in Urbana, Frederick County. You had asked that we review this intersection toward providing a multi-way stop condition.

Our review is complete and it has been determined that a multi-way stop condition is not recommended at this time. Traffic volumes at this intersection are below warranting criteria for such control and vehicle delay is minimal during the morning peak hours. While a reasonable increase in delay was observed during the afternoon peak, overall intersection delay is not significantly high. Additionally, a review of past accident experience did not reveal a significant pattern of problems.

The review did reveal that a separate left-turn lane along southbound MD 355 would enhance traffic operations at the intersection of MD 80. However, this improvement would not be cost effective to do at this time considering the roadway project proposed as part of the Urbana New Town PUD. Their improvements are scheduled to begin in early 1998, with Phase I involving the relocation of MD 80 from west of MD 355 to the I-270 interchange. We are currentely working with the developers to determine what type of traffic control will be needed at the MD 355 intersection when relocated MD 80 opens to traffic.

My telephone number is .....

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you for your interest in this matter of traffic control and safety. If you have any questions or need additional information, please feel free to call Mr. Donald Distance of our Traffic Division. Donald can be reached at 694-2595.

Sincerely,

Tom M. Cowannon

For Robert L. Fisher
District Engineer

cc: Mr. Neil Spiller, Transportation Division, Frederick County Department of Public Works
[redacted] Director, Office of Planning and Preliminary Engineering, State Highway Administration
Mr. Glen Smith, Regional and Intermodal Planning, State Highway Administration
Mr. Randy Houck, Resident Maintenance Engineer, State Highway Administration
Mr. Donald C. Distance, Traffic Engineer

WORMAN'S MILL CIVIC ASSOCIATION
Government Liaison Committee
James P. Randle
2464 Bear Den Road
Frederick, MD 21701
October 23, 1998

STATE HIGHWAY AMINISTRATION
Maryland Department of Transportation
Michelle D. Hoffman - Project Manager
Project Planning Division, Mail Stop C301
707 N. Calvert Street
Baltimore, MD 21202

Dear Ms. Hoffman:

Thank you for accepting the WORMAN'S MILL CIVIC ASSOCIATION'S letters to the Governor and to the Frederick Planning Commission into the record for the State Highway Administration's meeting in Frederick this date. These letters reaffirm our Association's strong interest in having the State complete the planned ramp connecting MD26 directly with US15.

The property for this ramp was paid for by Maryland taxpayers many years ago. The Governor's early intervention now to fund the planned ramp will be appreciated by the taxpayers of Frederick County. Indeed, unless the ramp is constructed without delay, taxpayers will be faced with the very substantial costs of an alternate "interim" solution of widening and improving an existing road, Trading Lane.

As we reported to you, Trading Lane, a city street, is the access/egress for thousands of homeowners and commuters. It already has ten or more accesses including a trucking company, a shopping center, an on-grade railroad crossing, and a speed limit of 25 miles per hour. On the other hand, the planned ramp will permit a direct state road to federal road intersection of two roads with 55 miles per hour speed limits. Manifestly, timely completion of this ramp is in keeping with your Smart Growth initiative of doing the right thing from the outset. Please use your good offices and the opportunity available to you through your Multi-Modal Corridor Study to encourage timely funding for this long planned ramp as outlined on the City's Comprehensive Plan..

George Gilbert and I, members of the Government Liaison Committee, were very pleased that you responded to our interest by including our names in future Focus Group efforts in Frederick.

Yours truly,

James P. Randle
Tel. 301-694-5431
e-mail eldnar@aol.com

CC: Delegate Sue Hecht
Planning Commission
County Commissioners

File: SHA/RAMP

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

November 25, 1998

Mr. James P. Randle
Worman's Mill Civic Association
Government Liaison Commission
2426 Bear Den Road
Frederick MD 21701

Dear Mr. Randle:

Thank you very much for your hospitality at the November 18 Worman's Mill Civic Association Meeting. I appreciated the opportunity to brief the group on the I-270/US 15 Multi-Modal Corridor Study and related transportation improvements within the community, as well as to meet several community members. In response to a few questions raised at that meeting, as well as to the April 3, October 23 and November 17 letters that I was graciously copied, I would like to offer the following explanations. I will, however, defer to the City's Director of Planing, Mr. Stan Aldridge, for his expertise on questions directly related to the City, such as those pertaining to Trading Lane.

MD 26 - Signage
Concern was expressed at the meeting over the signage on MD 26 near Trading Lane, particularly in delineating the turning movements. In response, the warning, regulatory and guide signs along MD 26 from MD 355 to MD 194 were upgraded last Fall (1997) as part of the MD 26 dualization project. Since this is the first time the State Highway Administration (SHA) has been made aware of any signage concerns in this area of MD 26, it would be helpful to discuss the specific signage concerns with the Assistant District Engineer for Traffic, Mr. John Concannon. Mr. Concannon may be reached at 301-624-8140.

MD 26 - Stockpile
A question was raised as to what SHA was currently doing in the northeast quadrant of the US 15/MD 26 interchange, since several trucks appeared to be using it as a stockpile for materials. The area in question is an SHA Maintenance storage area that SHA uses to stockpile topsoil and other salvaged "reusable" materials for routine maintenance operations. This area has been in use for many years; however, it can be relocated for future transportation needs.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Alternate Trading Lane Interchange Location
Concern was expressed over the location of the US 15/Trading Lane interchange. This interchange, as well as the one located at US 15 and Biggs Ford Road, have been identified in the Frederick Comprehensive Plan for access to US 15 once US 15, from Sundays Lane to I-70, becomes a fully access controlled facility (i.e., no turn lanes or access points besides the specified interchanges). In addition, Trading Lane provides the City and County with a connection between the east and west side of the City. Another location for this interchange may be inconsistent with the master plan and may not serve the same purpose. This relocation issue may best be addressed through the routine master plan updates. The SHA, however, will consider this suggestion during the upcoming project planning engineering evaluation.

US 15/MD 26 Interchange Ramp
Several members of the community were interested in expeditiously pursuing the ramp from eastbound MD 26 to northbound US 15. This ramp movement will be addressed in the I-270/US 15 Multi-Modal Corridor Study. The I-270/US 15 study anticipates completing the planning and approval process by mid 2001, with a public workshop tentatively scheduled for the Fall of 1999 and a public hearing tentatively scheduled for the Fall of 2000. This schedule would allow for high priority transportation needs from this 28 mile Corridor Study to be advanced for design and construction upon completion of these approvals and procurement of funding. If this ramp were advanced out of this project planning study, it would likely follow the same schedule due to the National Environmental Policy Act process and associated environmental regulations.

Effectiveness of HOV
A few individuals questioned the effectiveness of the I-270 HOV lanes. As you may know, the demand for transportation along the I-270 Corridor is projected to increase beyond the capacity of the existing general use lanes. Since the Maryland Department of Transportation (MDOT) cannot continue to widen the roadway, especially in the area south of I-370, to meet the growing demand, and since High Occupancy Vehicle (HOV) lanes move more people than general use lanes do, HOV lanes are a good way to make maximum use of our limited transportation resources.

The primary objective of HOV lanes is to provide high-occupancy vehicles with a travel time that is both reduced and more predictable. A significant number of commuters should find this alternative attractive enough to switch voluntarily to sharing rides and carpooling. This should help to reduce congestion in the general use lanes and give other commuters a faster trip as well. A six month evaluation of the I-270 HOV lanes, after their completed implementation in July of 1997, showed that the HOV lanes were meeting national standards and were providing a travel time savings of approximately four minutes.

SHA has continued monitoring the I-270 HOV lanes over the past two years, including a Fall, 1998 usage analysis to compare with evaluations completed earlier this year (January, 1998) and the year before. The data collected, evaluating the HOV lanes from the Capital Beltway to MD 121 (NB)/ I-370 (SB), showed that the I-270 HOV lanes are still meeting nationally recognized performance criteria, with an increasing average vehicle occupancy of 1.37, an average of percentage of HOVs (2+) on the roadway at 17 percent, an average percentage of people traveling in HOVs (2+) at 24 percent, and a travel time savings of approximately 7.5 minutes.

Thank you again for your interest in the I-270/US 15 Multi-Modal Corridor Study. I encourage any community member interested in this project, who has not received information in the past on the I-270/US 15 Study, to contact me for inclusion on the project mailing list. If I can be of further assistance, please feel free to contact me at 410-545-8547 or toll free at 1-800-548-5026. I can also be reached via e-mail at <mhoffman@sha.state.md.us>.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

cc: The Honorable Sue Hecht, Delegate
The Honorable Grimes, Mayor, City of Frederick
Frederick City Aldermen
Frederick County Commissioners
Frederick Planning Commission
Mr. Stan Aldridge, Director of Planning, City of Frederick
Ms. Anne Vacca-Kaye
Mr. James Shaw, Director of Planning, Frederick County
Mr. John Concannon, Asst. District Engineer-Traffic, SHA (with letters)
Mr. Bobby Fisher, District Engineer, State Highway Administration
Mr. Neil J. Pedersen, Planning Director, State Highway Administration
Mr. Parker Williams, Administrator, State Highway Administration

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

September 11, 2000

Emil S. Maynard, Chairman
Alliance for Political Reform
110 Charleston Lane, Box #6
Frederick MD 21702-4079

Dear Mr. Maynard:

Thank you for your letter regarding the traffic noise situation affecting the Waterford community, located in the northwestern quadrant of the US15/MD 144 (West Patrick Street) interchange in Frederick. I appreciate the opportunity to respond to your inquiries and apologize for the delay in doing so.

The State Highway Administration (SHA) considers the need for sound barriers in two circumstances, designated "Type I" and "Type II." In Type I situations, barriers are considered when a new highway is being built or an existing highway is being expanded. We do so to comply with environmental laws that were passed in the 1970s that require the evaluation of a range of potential environmental impacts, including noise. Under these laws, SHA performs an environmental analysis to determine if future noise levels will equal or exceed the impact threshold of 66 decibels and, if so, whether those noise levels can be reduced for a reasonable cost. Affected homes must predate the approval of the highway improvements.

When a highway already exists and is *not* being expanded—so that Type I criteria do not apply—a community that predates the original highway may be considered for a Type II, or retrofit, barrier. The intent of the Type II program is to address areas of noise impact along highways that were built before environmental analyses became a part of the highway development process. All of the following technical criteria must be met for a barrier to be considered: the majority of the homes must predate the highway; existing noise levels must equal or exceed the 66 decibel impact threshold; and an effective barrier must be able to be built for $50,000 or less per benefited home.

The State Highway Administration has evaluated the Waterford community to determine if it meets all of the technical criteria for a Type II sound barrier. We determined that US 15 was opened in 1968 and that the Waterford community was constructed beginning in the early 1990s. Based on this information, the Waterford community is not eligible for consideration for a Type II barrier under the State's Sound Barrier Program because the community postdates the highway.

My telephone number is **410-545-0400 or 1-800-206-0770**

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Independent of the evaluation of the Waterford community for a Type II sound barrier, SHA will also be addressing noise impacts as part of the I-270/US 15 Multi-Modal Corridor Study that is currently underway. This planning study is a joint effort of SHA and the Mass Transit Administration (MTA) and extends from the Shady Grove Metro Station in Montgomery County to Biggs Ford Road in Frederick County. By copy of this letter, I am asking Ms. Michelle Hoffman, SHA's Project Engineer, to add you to the mailing list for the study so that you can keep abreast of developments of interest to you and your community.

With respect to the landscaping issues that you raised in your July 29, 1997 letter, the shrubs in the median of US 15 have been replaced, and SHA continues to monitor traffic damage and to arrange for repairs along this corridor. For I-70, I-68, and I-83, a major effort has been initiated over the last several years to restore median shrub beds that have declined over the years. That effort continues, and it is our intention to continue to repair and maintain shrub beds in the future.

You had also requested the names of contact persons in Frederick County. The following are contacts for both the City of Frederick and Frederick County:

The Honorable James S. Grimes
Mayor, City of Frederick
101 North Court Street
Frederick MD 21701-5440
301-694-1380 FAX: 301-662-4819
e-mail: mayor@cityoffrederick.com

The Honorable David P. Gray, President
Frederick County Board of County Commissioners
Winchester Hall
12 East Church Street
Frederick MD 21701-5439
301-694-1100 FAX: 301-694-1849
e-mail: david_gray@co.frederick.md.us

Mr. Emil S. Maynard
Page Three

Thank you again for your letter and your interest in the State's Sound Barrier Program. If you have any additional questions or concerns, please do not hesitate to contact me or Mr. Charles B. Adams, our Director of Environmental Design, at 410-545-8640 or 1-800-446-5962 or, by email, at cadams@sha.state.md.us.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Charles B. Adams, Director of Environmental Design, State Highway Administration
The Honorable Joseph R. Bartlett, Member, Maryland House of Delegates
The Honorable David P. Gray, President, Frederick County Board of County Commissioners
The Honorable James S. Grimes, Mayor, City of Frederick
The Honorable C. Sue Hecht, Member, Maryland House of Delegates
Ms. Michelle Hoffman, Project Engineer, State Highway Administration
The Honorable Alexander Mooney, Member, Senate of Maryland
Mr. Ken Oldham, Chief of Landscape Operations, State Highway Administration
The Honorable Louise V. Snodgrass, Member, Maryland House of Delegates

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

July 5, 2001

Captain Jeff Gross
25801 Frederick Road
Clarksburg MD 20871

Dear Captain Gross:

Thank you for your interest in Maryland's I-270/US 15 Multi-Modal Corridor Study, and for filling out the comment card from the February 20, 2001 Informational Public Meeting. I apologize for the delay in responding to your concerns, as there were numerous comments from the public meetings. I would like to take this opportunity to answer your questions about the existing I-270/MD 109 interchange, the proposed I-270/Newcut Road interchange and possible impacts to the Hyattstown Volunteer Fire Department Carnival Grounds.

Concepts for the proposed I-270/Newcut Road interchange are being developed for the I-270/US 15 study. The proposed interchange would be located approximately 1.1 miles south of the MD 121 interchange, as shown on the Clarksburg Master Plan and Hyattstown Special Study Area. As part of this study, the proposed interchange will provide access to/from the east side of I-270, intersecting with proposed Observation Drive extended and Proposed Gateway Center Drive extended approximately 1,500 feet east of I-270 and approximately 1,000 feet north of West Old Baltimore Road.

The I-270/MD 109 interchange is being evaluated for three potential scenarios: no improvements; partial closure; and full closure of the interchange. Potential partial/full closures of the existing interchange have not yet been identified in this study. These specific closures will be based on an analysis of area traffic volumes and will be evaluated by the study team as the alternates are further developed. In that case, the State Highway Administration (SHA) will work to maintain access to all properties and will coordinate with the Maryland State Police and local fire departments to ensure that emergency access is also maintained. We will be happy to meet with you to discuss your access concerns. Please note that the potential partial/full closures of this interchange would only occur in conjunction with the proposed MD 75 Extended interchange, which would be located approximately 1.2 miles north of the I-270/MD 109 interchange.

The proposed MD 75 alignment diverts from existing MD 75 at the Lewisdale Road intersection, east of MD 355. The alignment then heads west through the Hyattstown Volunteer Fire Department Carnival Grounds to an intersection with MD 355, approximately 100 feet south of the Lewisdale Road intersection (please refer to the enclosed copy of the plan sheet in this area). Detailed right-of-way requirements of the proposed alternates have not yet been determined, but the study team will endeavor to minimize impacts.

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Enclosed for your reference is a copy of the 1"=400' scale mapping that shows the proposed MD 75 Extended alignment near your property. A color copy of the mapping at 1"=200' scale (the same size as presented at the public meetings) can be purchased from the SHA for $24.00 or a color copy at 1"=400' scale can be purchased from SHA for $6.00. These maps will not provide any additional detail.

The study team is currently assessing each alternate as part of the more detailed engineering, traffic and environmental studies. At the Informational Public Meetings, held on February 12, 2001 in Germantown and February 20, 2001 in Urbana, engineering plans, environmental impacts and traffic benefits were shared with the public as a work in progress. The SHA will continue to fully evaluate all reasonable concepts for comparison purposes, including refining the alternates to avoid or minimize impacts to the environment and surrounding communities.

The alternates will be summarized and presented in a Draft Environmental Impact Statement and at a Location/Design public hearing for formal comment, anticipated in Spring 2002. The conclusion of this project planning study is anticipated in Summer/Fall 2003, with the recommendation of a selected alternate and Location/Design approvals. This project will then become a candidate for final design, right-of-way acquisition and construction as funding becomes available.

Again, thank you for your interest in this study and for bringing to our attention your important concerns. As you requested, your name has been added to the project mailing list. If you should have any questions, please feel free to contact Steve Plano, the project manager, at 410-545-8547 or toll-free at 1-800-548-5026, or by email at plano@pbworld.com.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

By: Jeremy L. Beck for
Steve Plano
Project Manager for
Project Planning Division

Enclosure
cc: File (with incoming)
Ms. Anne Elrays, State Highway Administration
Mr. James Wynn, State Highway Administration

Maryland Department of Transportation
State Highway Administration

Parker F. Williams
Administrator

March 27, 2001

RE: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road
Frederick and Montgomery Counties, Maryland

Dear Sir/Madam:

The Maryland Department of Transportation (MDOT), through the State Highway Administration (SHA) and the Mass Transit Administration (MTA), is currently evaluating several transportation improvement strategies for the I-270/US 15 Corridor. The study area extends from the Shady Grove Metro Station along I-270 in Montgomery County north to Briggs Ford Road on US 15 in Frederick County (see attached map).

The purpose of this letter is to request your assistance in our outreach efforts to involve all facets of the community in planning activities within the I-270/US 15 corridor. Please post the attached project informational sheet on your community bulletin board.

Thank you for your time and consideration. If you have any questions or concerns please contact the Project Manager, Steve Plano, at (410) 545-8547, or the Environmental Manager, Amy Ishoy, at (410) 545-8503. Both the Project Manager and Environmental Manager may be reached toll free at 1-800-548-5026.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Enclosure

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

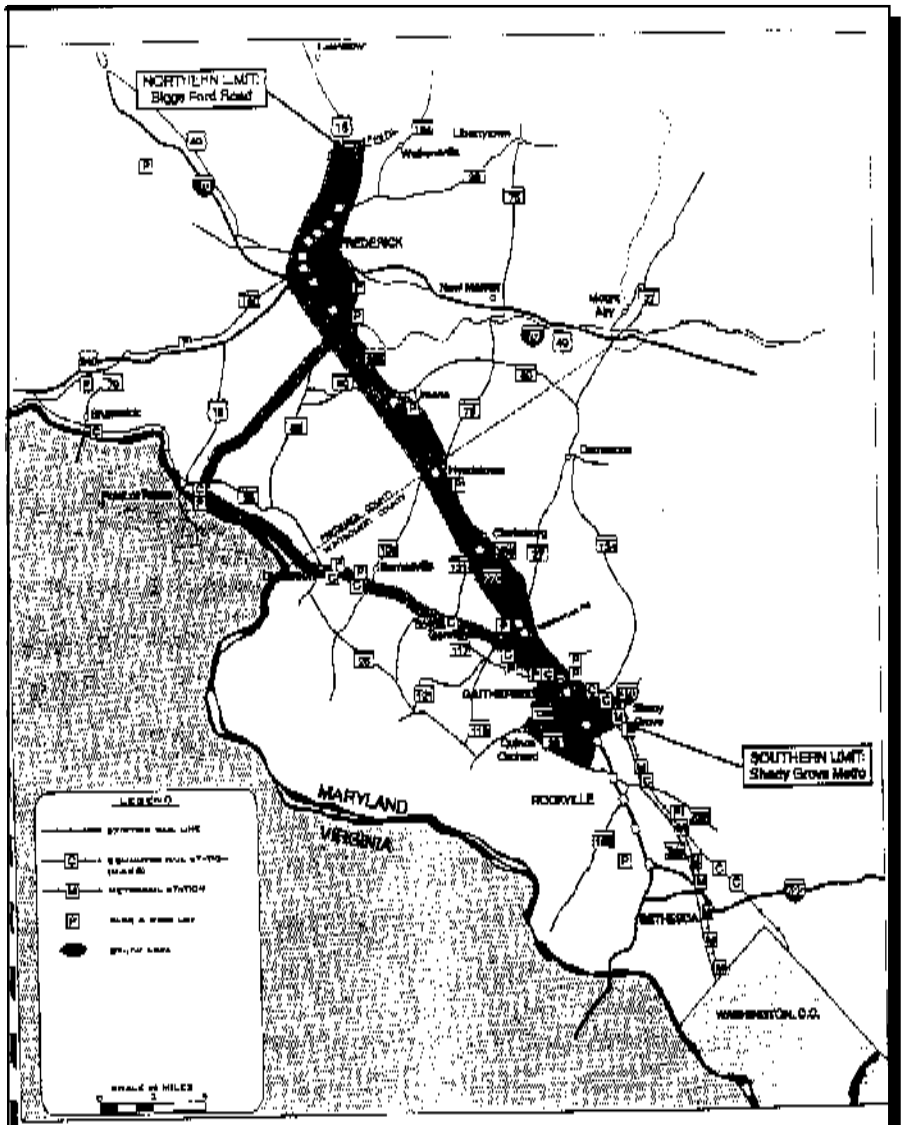

Figure 1

Project Area

I-270/US 15 MULTI-MODAL CORRIDOR STUDY
Shady Grove Metrorail Station to Biggs Ford Road

OVERVIEW: The Maryland Department of Transportation is conducting this multi-modal study in order to relieve congestion and improve safety along the I-270/US 15 Corridor. Consistent with the requirements of the National Environmental Policy Act (NEPA), a comprehensive evaluation of all reasonable and prudent alternates is being completed that fully address the project's purpose and need. A hearing will be held to obtain formal input from the public. Subsequent to the public hearing, a final alternate will be selected, the environmental document will be finalized, and location and design approvals will be obtained. Once funding is approved, final design, right-of-way acquisition, and ultimately construction can be completed.

PROJECT LIMITS: Extend from the Shady Grove Metro Station (Montgomery County) north to Biggs Ford Road (Frederick County), including the MARC Brunswick Line and MD 355.

ALTERNATES RETAINED FOR DETAILED PLANNING STUDIES

- **No-Build (Baseline)** – elements adopted from the Constrained Long Range Transportation Plan (CLRP). No capacity improvements would be made on I-270 or US 15.
- **Transportation System Management (TSM)/Transportation Demand Management (TDM) Strategies** – elements adopted from the CLRP, as well as enhanced feeder and express bus services throughout the I-270/US 15 Corridor. In addition, this alternate includes a shoulder conversion on southbound I-270 for an (High Occupancy Vehicle) HOV lane between MD 121 and I-370.
- **Combination Alternate A** – includes additional general purpose, collector-distributor (C-D), and HOV lanes, auxiliary lanes; interchange improvements; TSM/TDM strategies; and a separate alignment for a transitway (bus or light rail) from Shady Grove to south of Clarksburg. This alternate includes both transit modes (Light Rail Transit and Bus Rapid Transit) being carried into the detailed planning studies, as Combination Alternate A-1 (LRT) and A-2 (BRT).
- **Combination Alternate B** – includes additional general-purpose, C-D, and HOV lanes; auxiliary lanes; interchange improvements; TSM/TDM strategies; and premium/express bus service from Shady Grove to Frederick as a busway along the I-270 HOV lanes, with exclusive slip ramps into transit centers at selected locations. An option as part of this combination alternate will be to evaluate High Occupancy/Toll (HOT) lanes on I-270 from I-370 to I-70.
- **Combination Alternate C** – includes additional general-purpose, C-D, and HOV lanes (with one less general-purpose lane in each direction between MD 121 and I-70); auxiliary lanes; interchange improvements; TSM/TDM strategies; and a separate alignment for a transitway (bus or light rail) from Shady Grove to south of Clarksburg. This alternate includes both transit modes (Light Rail Transit and Bus Rapid Transit) being carried into the detailed planning studies, as Combination Alternate A-1 (LRT) and A-2 (BRT).

STATUS

- February 2001 Informational Meeting Brochure available for review.
- Draft Environmental Impact Statement (DEIS) circulation anticipated in the Spring, 2002.
- Location/Design Public Hearing tentatively scheduled for Spring, 2002.
- Identification of the Selected Alternate and Location/Design Approvals expected Summer, 2003

CONTACT

For additional information, please contact: Mr. Steve Plano at (410) 545-8547 or
Toll Free at 800 548-5026
Email: splano@pbworld.com
or Mr. Lorenzo Bryant at (410) 767-3754
Email: lbryant@mta.state.md.us

03/29/01

Page 1 of 1

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 21, 2002

RE: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Frederick and Montgomery Counties, Maryland

Dr. Charlene R. Nunley, President
Montgomery Community College
20200 Observation Drive
Germantown, MD 20876

Dear Dr. Nunley:

The Maryland State Highway Administration (SHA) and the Maryland Transit Administration (MTA) are proceeding with a joint Multi-Modal Project Planning study for the I-270/US 15 corridor in Frederick and Montgomery counties from Shady Grove Metro Station to Biggs Ford Road. Included within the scope of the proposed improvements is the widening of northbound I-270 in the project area, which may require up to 3.79 acres from the Montgomery Community College property north of Middlebrook Road (attached).

We are requesting Montgomery Community College to provide SHA with the following information:

- Mapping, including metes and bounds, and/or CADD files showing school boundaries (existing and proposed) and outdoor recreation facilities;
- Types of outdoor recreational facilities (existing and proposed) within the property;
- Frequency of public use of these facilities;
- A site plan (existing and proposed), if available;
- Your determination as to whether the right of way required from Montgomery Community College for the highway widening affects any public recreational uses associated with the school.
- Your determination as to whether this facility serves a "significant" function in providing for the overall recreational needs of the communities in the area. The Federal Highway Administration defines "significant" as: "In comparing the availability and use of

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recreation and park facilities with the needs of a community, the land in question plays an important role in meeting these needs." If it is found that this facility is not significant, SHA would require a written determination of this from the official with jurisdiction over the facility, in order to support a determination of the non-applicability of Section 4(f) of the U.S. DOT Act.

Your response is requested by March 21. Should you have any questions or need additional information, please contact the environmental manager, Anne Elrays at 410-545-8562 or toll free at 866-527-0502.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Enclosures (2)

cc: Ms. Anne Elrays, SHA-PPD
Mr. Bruce Grey, SHA-PPD
Mr. Daniel W. Johnson, FHWA (w/enclosures)
Mr. Joseph Kresslein, SHA-PPD
Ms. Cynthia Simpson, SHA-PPD
Mr. Russell Walto, SHA-PPD

URBANA ELEMENTARY SCHOOL
3554 URBANA PIKE
FREDERICK, MARYLAND 21704
240-236-2200
Fax: 240-236-2201

Connie H. Baues, Principal
David A. Campbell, Assistant Principal

April 12, 2002

RE: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study

Anne Elrays, SHA-PPD:

Our phone conversation today was very informative and helpful in understanding how this project may affect Urbana Elementary School and the Urbana community. It appears that the required right of way from Urbana Elementary School for highway widening and interchange improvements would significantly affect public recreational uses of school property. More specifically, baseball and soccer fields in use virtually every day from March to July would apparently be taken for the required right of way.

Perhaps a meeting among all parties involved could result in mitigating measures that would be feasible and agreeable. Please let us know if you would like such a meeting to occur and how we can assist in arranging it.

Sincerely,

David Campbell

Working Together to Educate Each Child and Promote Success

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Dennis M. Atkins
Project Manager
Project Planning Division

DATE: August 18, 1995

SUBJECT: Contract No. F 192-101-771 P
I-270/U.S.15 from Shady Grove
Metro to Biggs Ford Road
PDMS No. 101062

A meeting of the I-270/U.S. 15 Focus Group was held on June 20, 1995 at the Upcounty Government Center in Germantown, Maryland. The agenda for the meeting is enclosed. The following people were in attendance:

Mr. Dennis M. Atkins	Project Manager, SHA
Ms. Lisa Raecke	Project Engineer, SHA
Mr. Gene Straub	District Engineer, D-7, SHA
Mr. Suhair Alkhatib	Project Manager, MTA
Ms. Nancy Noonan	Regional Planner, MTA
Mr. John Matthias	Transportation Planning, M-NCPPC
Mr. Jim Gugel	Frederick County Planning
Ms. Sherry Burford	Frederick County Transit
Mr. James Clarke	Sierra Club
Mr. Dick Strombotne	Clarksburg Civic Association
Mr. Norman Mease	Montgomery County UCAB
Mr. Al Clapp	Urbana Civic Association
Mr. Brian McNeill	Friends of Monocacy Battlefield
Mr. Harvard Morehead	Action Committee for Transit
Mr. John Kennedy	National Institute Standards & Tech.
Mr. Frank Quinn	Transp. Services Advisory Council
Mr. Lon Anderson	AAA - Potomac Region

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

NEXT MEETING

The next meeting is scheduled for Wednesday, August 30 at 7:00 p.m. at the State Highway Administration's (SHA) District 7 Office Building. The address is 5111 Buckeystown Pike, Frederick, Maryland. A map showing the meeting location is enclosed. Please call Dennis Atkins or Lisa Raecke at (410) 333-6748 if you or your representative will not be able to attend this meeting.

Mr. Atkins began the meeting with introductions, a brief overview of the last Focus Group Meeting, and a summary of the Public Initiation Meeting.

Mr. Alkhatib presented a summary of the overall MARC Master Plan, including improvements within the I-270 corridor. Because CSX and AMTRAK own the railroad tracks on which the MARC system operates, MTA is working with CSX and AMTRAK to complete the plan, which will identify the future needs and goals in the MARC corridor for the next 20 years. The Master Plan Study considered improvements such as: additional stations, additional parking, line extensions, bi-level trains, expanded platforms, additional siding (room for trains to turn around), and parallel trackage exclusively for MARC. The study is ongoing, pending concurrence and approval from both railroads.

The MARC extension from Point of Rocks to Frederick is currently in the design phase, with a target opening date of December 1998. There are also plans to add parking at the Germantown station, as well as a planning study for a parking garage at the Germantown station.

There was some discussion about the time savings for rail commuters as a result of the planned MARC extension from Point of Rocks to Frederick. In the Travel Demand Slide presentation at May's public meeting, the existing and future travel times for commuters traveling from I-70 to Shady Grove were given. For commuters utilizing the MARC line, both the existing and future travel times were approximately 60 minutes. (The future "No-Build" condition incorporates the planned MARC extension to Frederick). For commuters using I-270, the travel time was approximately 40 minutes for the existing condition and 65 minutes for the future "No-Build" condition. After further consultation with the project manager for the MARC extension project, the team found that the MARC extension is not expected to result in a significant time savings for rail commuters. Therefore, a travel time of approximately 60 minutes from I-70 to Shady Grove Metro is being assumed for both the existing and "extended" conditions. This travel time may change in the future if additional improvements to MARC system are undertaken.

There was also a question regarding an approximate cost-per-mile for a "typical" HOV project. To obtain this information, the team consulted with the project manager for the I-270 HOV/widening job currently under construction from Middlebrook Road to MD 121. An approximate cost-per-mile for this particular project is somewhere between $7 and $8

million per mile. This cost is all-inclusive, and includes the addition of an HOV lane, necessary bridge construction or reconstruction, some ramp modifications, several retaining walls, and required signing and marking.

Mr. Matthias then presented the Montgomery County general plans, transit easement studies, and individual area master plans. The general plans are based on the "wedges and corridors" concept, which consists of development along transportation corridors separated by wedges of open space including stream valleys. The Corridor Cities Transit Easement Study considered eight different transit alignments and recommended three for further study. All of the preliminary alignments could accommodate a busway, two could accommodate light rail, and one could accommodate Metrorail. Focus Group members who had been involved with the Clarksburg Master Plan were concerned about the LRT alignment north of Clarksburg, which is either adjacent to or in the median of I-270. They said that when they were planning it, they were unsure where to put the alignment because the area is constrained by park, development, and MD 355.

The Focus Group members seemed supportive of LRT, but were also concerned about eventually having enough density to support it. Members asked about the possibility of extending Metrorail, and John explained that the current transitway alignment on the area master plans allows for Metrorail up to the Metropolitan Grove Station, but not beyond that due to engineering and cost constraints, as well as lack of sufficient demand. Mr. Matthias also noted that a portion of the transitway crossed the King farm in the City of Rockville and is on the city's master plan. A significant portion of the eastern and western alignments pass through the City of Gaithersburg. Neighborhood plans and a transportation plan are being developed which address the transitway alignments.

Mr. Gugel presented master plans for Frederick and Urbana and the Frederick extension of the transit easement study. Jim explained that Frederick County's regional plan was based on centering development around clusters, and also noted the rapid growth expected in the Frederick and Urbana regions. He mentioned the geometric constraints of the transit alignments due to streams and topography. The preferred alignment runs either adjacent to or in the median of I-270 due to the steep grades in the area and many stream impacts. Light rail is feasible along this alignment, although heavy rail may or may not be.

The whole group agreed that a combination of the alternatives will ultimately be necessary to solve the corridor's transportation problems. Several group members wanted the team to consider heavy rail as an option, despite the planned MARC extension, which could include a new alignment adjacent to I-270. Also suggested was a mixture of heavy rail and light rail, additional bus routes similar to the one serving Hagerstown/Shady Grove, and more commuter parking in Frederick.

Harvard Morehead of Action Committee for Transit (ACT) presented a resolution from his organization which suggested that the preliminary alternatives and strategies being initially considered by the state represent a plan for transportation failure in the corridor, that the focus should be on moving people rather than vehicles, and that all of the preliminary alternatives and strategies will have adverse effects on Montgomery County's economy. These comments will be taken into consideration and addressed by the project team at the appropriate points in the development of this study.

These minutes are based on the interpretations of the writer. If attendees have any comments or additions, please notify Ms. Lisa Raecke at (410) 333-6748.

LER:as
Enclosures

cc: Attendees (w/enclosures)
Focus Group (w/enclosures)
Mr. Paul Armstrong (w/enclosures)
Mr. Neil Pedersen (w/enclosures)
Mr. Glen Smith (w/enclosures)

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Dennis M. Atkins DMA
Project Manager
Project Planning Division

DATE: September 13, 1995

SUBJECT: Contract No. F 192-101-771 P
I-270/U.S.15 from Shady Grove
Metro to Biggs Ford Road
PDMS No. 101062

A meeting of the I-270/U.S. 15 Focus Group was held on August 30, 1995 at the State Highway Administration's (SHA) District 7 Office Building in Buckeystown, Maryland. The agenda for the meeting is enclosed. The following people were in attendance:

Mr. Dennis M. Atkins	Project Manager, SHA
Ms. Lisa Raecke	Project Engineer, SHA
Mr. Alan Straus	Assistant Division Chief, SHA
Mr. John Concannon	District Engineer, D-7, SHA
Mr. Suhair Alkhatib	Project Manager, MTA
Mr. John Matthias	Transportation Planning, M-NCPPC
Mr. Jim Gugel	Frederick County Planning
Mr. Lawrence Marcus	MWCOG
Mr. Phil Shapiro	Bellomo-McGee, Inc.
Mr. James Clarke	Sierra Club
Mr. Dick Strombotne	Clarksburg Civic Association
Mr. Norman Mease	Montgomery County UCAB
Mr. Al Clapp	Urbana Civic Association
Mr. Brian McNeill	Friends of Monocacy Battlefield
Mr. Harvard Morehead	Action Committee for Transit
Mr. John Kennedy	National Institute Standards & Tech.
Mr. Frank Quinn	Transp. Services Advisory Council
Mr. Lon Anderson	AAA - Potomac Region
Mr. Ken Harry	Maryland Motor Truck Association

My telephone number is _____

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NEXT MEETING

The next meeting is scheduled for Wednesday, September 20 at 7:00 p.m. at the Clarksburg Recreation Center, located at Wims Road and MD 355. A map showing the meeting location is enclosed. Please call Dennis Atkins or Lisa Raecke at (410) 333-6748 if you or your representative will not be able to attend this meeting.

Mr. Atkins began the meeting with introductions and a brief statement about the project's status. The I-270/U.S. 15 Multi-Modal Corridor Study is still in an early stage, and all of the proposed alternatives/strategies are conceptual (no detailed studies have been completed). As discussed at the last focus group meeting, it is most likely that a combination of these alternatives will be necessary to address the transportation problems in the corridor. Mr. Alkhatib mentioned that the busway and the light rail alternatives have been combined in one "transitway" alternative, with the specific technology to be determined at a later date. Mr. Atkins also noted that as public meetings approach, the project team anticipates meeting with the focus group more frequently.

The next item on the agenda was an overview of the Congestion Management System (CMS) requirements and how they will be applied in the project corridor. The presentation was conducted by Mr. Larry Marcus from the Metropolitan Washington Council of Governments (MWCOG). A handout containing the twelve congestion management strategies was distributed. The strategies represent a process for considering lower cost, transit-related and other innovative options to relieve congestion before adding general purpose lanes. Strategy #11, Intelligent Transportation Systems, was discussed in further detail, with several focus group members having knowledge about various aspects of this strategy.

Mr. Phil Shapiro then presented the goals and objectives for the I-270/U.S. 15 Multi-Modal Study. The project team has recently gone through a process of clearly defining the goals and objectives for this study. The main reason for doing this was to ensure that any measures of effectiveness (MOEs) used to evaluate and compare alternatives will ultimately enable the team to see whether the study goals are being met. For example, if the project goal were to decrease travel time, then an MOE consisting of the travel time between a certain origin-destination trip pair would be appropriate to measure this goal.

The project team began this process with the goals set forth in the enclosed "Purpose and Goals" page from the information packet that was distributed at May's public meeting. A handout listing the five study goals with their corresponding objectives was distributed. The objectives are broken out into those to be considered during Stage 1, and those to be considered during subsequent stages. Stage I of Project Planning consists of activities from project initiation to just after the Alternates Public Meeting, when the team agrees on Alternatives Retained for Detailed Study. Please note that Stage I objectives will be considered both in this initial stage as well as throughout the rest of the study.

The focus group had the following comments and concerns regarding the goals and objectives.

- Consider including safety objectives for *Enhance Mobility* and *Improve Goods Movement* (goal 2-obj. 4 and goal 3-obj. 3) in the Stage I evaluation.
- Under *Preserve/Protect the Environment* (goal 4), consider moving objectives #5 & #6 to Stage I.

The project team will meet to discuss these suggested changes, and develop corresponding MOEs if necessary. The team will also reformat the goals & objectives table to demonstrate that Stage I objectives will not only be considered during the initial stages, but in subsequent stages as well.

Mr. Atkins presented the next agenda item, a concept which would present travel demand data to the public using individual transportation "biographies". This idea differs from traditional methods, but the team felt that it would be easier for the public to relate to and understand. Three fictional examples of this concept were distributed. The method would use actual trips made by commuters in the corridor to develop sample Origin-Destination (O-D) trip pair biographies. A variety of O-D trip pairs may be used, and projected future O-D trip pair travel times could be produced and made available for the public to review their own respective trip. The focus group seemed very receptive to the idea.

There was a suggestion from the group to include the user cost of the trip (transit fare, parking, gas, etc.) in the biography as well. The project team will refine the biography concept and develop a sample interview form for review at the next focus group meeting. The team will also be prepared to discuss the logistics and scope of the survey. Several focus group members volunteered to distribute this form to members of their organizations and fellow commuters.

The last agenda item concerned possible locations for the upcoming Alternates Public Meeting. Two meetings will be held, one in each county. The focus group was in agreement on using Ballenger Creek Middle School in Frederick County, and Seneca Valley High School in Montgomery County. The project team will attempt to schedule meeting dates in mid-December.

These minutes are based on the interpretations of the writer. If attendees have any comments or additions, please notify Ms. Lisa Raecke at (410) 333-6748.

LER:as
Enclosures

cc: Attendees (w/enclosures)
Focus Group (w/enclosures)
Mr. Paul Armstrong (w/enclosures)
Mr. Ken Goon (MTA) (w/enclosures)
Mr. Neil Pedersen (w/enclosures)
Mr. Glen Smith (w/enclosures)
Mr. Gene Straub (w/enclosures)

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Dennis M. Atkins
Project Manager
Project Planning Division

DATE: March 11, 1996

SUBJECT: Contract No. F 192-101-771P
I-270/U.S. 15 Multi-Modal Corridor Study
from Shady Grove METRO Station (Montgomery County)
to Biggs Ford Road (Frederick County)
PDMS No. 101062

On October 24, 1995, the I-270/U.S. 15 Multi-Modal Corridor Study Focus Group met to discuss revisions to the Project Goals and Objectives, Measures of Effectiveness (MOEs) and the material to be presented at the December 1995 Alternates Workshops. The following highlights the discussion and those in attendance:

ATTENDANCE:			TELEPHONE
	Lon Anderson	AAA Potomac	(703)AAA-4100
	Dennis M. Atkins	SHA-PPD, Project Manager	(410)545-8548
	Al Clapp	Urbana Civic Association	(301)831-8900
	Chris Gay	BMI	(703)847-3071
	Jim Gugel	Frederick County Planning	(301)694-1144
	Brian Horn	Rummel, Klepper & Kahl	(410)728-2900
	John Matthias	M-NCP&PC-Mont. Co.	(301)495-4569
	Norman Mease	UCAB-Mont. Co.	(301)972-0424
	Frank Quinn	TSAC-Frederick	(301)846-4651
	Lisa Raecke	SHA-Proj. Planning Div.	(410)545-8546
	Dick Strombotne	Clarksburg Civic Association	(301)540-9597

Dennis Atkins began the meeting by outlining the meeting agenda, making note of the progress made recently by the study team to prepare material for the Alternates Workshops. The Alternates Workshops will be held at the following sites:

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Montgomery County	Frederick County
Tuesday, December 5, 1995	Thursday, December 14, 1995
5:30 PM to 8:30 PM	5:30 PM to 8:30 PM
Martin Luther King Jr. Middle School	Ballenger Creek Middle School
11700 Neelsville Church Road	5525 Ballenger Creek Pike
Germantown, Maryland	Frederick, Maryland

NOTE: The Frederick County Workshop was postponed due to inclement weather and rescheduled for January 23, 1996 at the same location and time.

1. Project Goals/Objectives/MOEs

Dennis introduced Chris Gay (BMI) to review the revised list of objectives and MOEs. Chris distributed the revised objectives and MOEs memorandum (dated 9/20/95). The following highlights discussions and comments from the Focus Group:

- Goal 1: Support Orderly Economic Growth

  Objective 1, MOE a: A question was raised to clarify during what time of day the 45 minutes would be measured.

  The 45 minutes is measured during the peak period.

  Chris noted that Objective 1 is a preliminary measure to gauge the transportation system performance. In a subsequent stage of the corridor study, a total transportation level of service (TTLOS) will be incorporated to judge how well the corridor's transportation system is functioning.

  In addition to the Stage I objectives and MOEs, the focus group offered the following comment on the subsequent stage objectives and MOEs:

  - The use of regional for objective 1, MOE (a) and 1, MOE (b) versus corridor for objective 3.b and 3.c. Please explain the difference.

    The use of regional and corridor is intentional. To assess accessibility for people traveling through the corridor to corridor jobs you determine the number of regional households located

within a specified travel time. To assess accessibility for people traveling through the corridor from corridor households you determine the number of regional jobs located within a specified travel time. The specified travel time for the I-270/U.S. 15 Study is 45 minutes.

◆ Goal 2: Enhance Mobility

In general, the focus group suggested the amount of "jargon" and use of acronyms be simplified (i.e. HOV, SOV, LOV, O-D, PHT, etc.). The focus group suggested rewording Objective 4, MOE (a) to replace "lower functional classification facilities" with "local and secondary roads".

A general discussion on screenlines was led by Chris. He defined the use of screenlines as a tool to measure traffic volumes moving from one segment of the corridor to another. The rationale which goes into choosing screenlines includes dividing the study area into distinct segments utilizing natural and man-made barriers to the roadway network. Examples of these barriers include streams, rivers, large land uses (i.e. parks/recreational areas) and government boundaries.

The focus group cautioned the study team about a potential "traffic funnel effect" near Clarksburg which may not be evident with the present screenline locations. In addition, the focus group suggested the study team should have handouts available at the workshops which identify the MOEs to be examined in subsequent stages of the study.

The focus group and study team briefly discussed the workshop advertisement methods being employed. In addition to advertising a public notice in local newspapers, the study team is preparing a newsletter to be sent to the mailing list, posting signs at the workshop entrance and working to develop news releases for feature articles with area newspapers.

◆ Goal 3: Improve Goods Movement

The focus group offered several comments to the study team on Objective 2, MOE (a) safety of truck travel:

- review truck volumes as a percentage of the peak hour volumes;

- truck traffic on I-270 is seasonal, particularly for trucks with bulk stone loads which travel to/from the Frederick County quarries;
- I-270 truck weigh station would be a good source of volume and seasonal data;
- review the Capital Beltway truck safety task force findings for data/recommendations which may be incorporated for I-270.

The focus group discussed an idea now being implemented in Seattle, Washington: an intermodal truck transfer center located in or near the downtown area. Trucks would arrive by rail and disperse to their respective destination, thereby, reducing the truck volumes on the major highways leading into the Washington, DC metropolitan area.

◆ Goal 4: Preserve/Protect/Enhance the Environment

The focus group offered the following comments to the study team with respect to the objectives and MOEs to preserve, protect and enhance the environment:

Objective 2, MOE (b): The focus group asked the study team to define "standing" for historic structures.

For this MOE, "standing" refers to above ground structures which exist today and have not been destroyed, demolished or removed.

Chris continued the objective and MOE discussion by stating that the study team had determined Objective 4, MOE (a) would be better utilized once more detailed alternatives are developed in subsequent stages of this study. The focus group was concerned with the type of emissions to be measured and the fact that the vehicle fleet has made significant advances in pollution controls. The study team will utilize the latest air quality modeling techniques/analysis available in the next study stage.

In addition to Objective 4, the focus group pointed out to the study team that Objective 5, MOE (a) should make sure the inputs used to calculate fuel consumption are in the same units for each alternative.

Overall, the focus group noted that it must be very clear that the MOEs for the build alternatives are compared to the no-build alternative. Also suggested was the rewording of Objective 6, MOE (a). The purpose for

this MOE is to look for and/or identify potential other public uses for portions of the transportation system right-of-way.

- Goal 5: Optimize Public Investment

  The focus group questioned if the study team would be measuring the cost of people's time. In subsequent stages, the study team will assess the use of a cost effectiveness MOE which would measure monetary costs to the users.

The team subsequently revised some of the MOEs for presentation to the public at the Alternates Workshop. See attached handout from workshop.

2. Alternates Workshops

Dennis noted the study team will be presenting, in an open house format, the preliminary findings at two upcoming alternates workshops. Brian Horn began a brief review of the alternatives, environment and summary workshop displays. It was suggested by the focus group that one of the wetlands shown on the environmental map should not be labeled a wetland **(Note: Subsequent to the focus group meeting, a field investigation revealed that the wetland area shown is not a wetland)**.

In addition, Dennis stated that the workshops will be centered around "main points" which will help workshop attendees focus their attention on the key issues displayed at each station. The focus group stressed that the workshop format and displays should be kept simple.

The study team members at the workshop will encourage the public to ask questions and comment on the displays. Diagrams will be available to guide the public through the workshop.

3. Open Discussion/Future Meetings/Adjournment

Following the workshop display/format review, an open discussion on the corridor study resulted in a request for I-270 HOV lane configuration diagram for the northern HOV system limits.

No future focus group meeting date(s) have been scheduled. The study team will probably coordinate the next focus group meeting for sometime in late winter/early spring. Since there were no other questions or comments, the meeting was adjourned.

Enclosures

cc: Attendees
Focus Group (w/enclosures)

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning
and Preliminary Engineering

FROM: Don Sparklin
Project Manager
Project Planning Division

DATE: December 24, 1996

SUBJECT: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
from the Shady Grove METRO Station (Montgomery County)
to Biggs Ford Road (Frederick County)

RE: December 5 Focus Group Meeting

I. Introductions/Meeting Purpose

On December 5, a focus group meeting was held at SHA's District 7 office in Frederick to review the I-270/US 15 Multi-Modal Corridor project. Discussion topics included a study overview, travel demand analyses, preliminary combination alternatives, design features under consideration, an environmental overview, public workshop/hearing plans, project schedule/upcoming meetings and an open discussion. The meeting was attended by the following:

Al Clapp	Urbana Civic Association
James Clark	Sierra Club
John Concannon	SHA-District 7 Traffic
Dan Dalton	Frederick County, Transit Services
Jim Gugel	Frederick County, Planning
Michelle Hoffman	SHA-Project Planning
Brian Horn	Rummel, Klepper and Kahl
Pam Lindstrom	Greater Shady Grove Civic Alliance
John Matthias	M-NCPPC-Montgomery County
Don Sparklin	SHA-Project Planning
Dick Strombotne	Clarksburg Civic Association
Mona Sutton	SHA-Travel Forecasting

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

After introductions were concluded Michelle Hoffman began the meeting by reviewing the agenda.

II. Overview

The I-270/US 15 study began in 1994 as a joint project planning study between the Maryland Department of Transportation, including both the State Highway Administration and the Mass Transit Administration, the Federal Highway Administration, both Montgomery and Frederick counties and the Maryland National Capital Park and Planning Commission. The purpose of the multi-modal project is to prepare a long-range plan for the corridor which would focus on the year 2020 transportation needs as well as provide guidance for transportation solutions beyond 2020. Purpose and need concurrence was received from the federal regulatory agencies in early 1996. In addition, preliminary transportation alternatives and strategies were presented at two public workshops in December 1995 in Frederick and Montgomery counties to obtain public feedback on these alternatives, strategies and transportation analyses. The preliminary results of these analyses showed that no single, stand-alone alternative or strategy would satisfy the transportation need for the corridor.

In early 1996, the study team began assessing the various alternatives and strategies for incorporation into a multi-modal combination solution. This required additional travel demand information to facilitate the project team in combining strategy and alternative choices.

III. Travel Demand Analyses

A. Initial Stage I Results

Mona Sutton discussed some of the travel demand results from the Alternates Public Workshops displays. The traffic volumes/transit ridership were shown for selected screen lines, or north/south traffic volumes crossing selected east/west lines. The focus group requested that existing conditions, such as level-of-service (LOS) or delay, at these screen lines be discussed at the next meeting for comparison purposes. In addition, the focus group requested that the Constrained Long Range Plan (CLRP) improvements be provided with the meeting report (please see the attached 1992 CLRP sheets).

B. Additional Stage I Work

Revised Transportation Network

Mona reviewed the results of the revised highway network for the baseline alternative, which was analyzed to compare our results with the recent changes in the CLRP. The revised network includes the following modifications: MD 27-widening to six-lanes from Brink Road to Damascus Road; Great Seneca Highway-widening to six-lanes from Middlebrook Road to Quince Orchard Road

and to four-lanes from Quince Orchard Road to MD 28; I-495-widening to ten-lanes from I-95 to US 1; and deletion of the Intercounty Connector (ICC). These revisions resulted in an increase of 1,500 total daily trips within the corridor or an increase of less than 1% of all trips made.

IV. Preliminary Combination Alternatives (All include TSM strategies)

Michelle reviewed some ***DRAFT*** preliminary combination alternatives that the project team has begun developing (see attached chart). The baseline alternative remains the same and is composed of the 1992 adopted CLRP transportation improvements discussed above. Currently, there are two preliminary combination alternatives under consideration. Both of these combination alternatives include widening, HOV lanes, transit, new/upgraded interchanges, C-D roads and the Technology Boulevard concepts, as outlined in the attached chart. Michelle stressed that these are ***DRAFT*** alternatives, which have not yet been fully reviewed or approved.

A question was raised concerning a portion of the transitway alignment from Shady Grove to Metropolitan Grove along the B&O right-of-way through Gaithersburg. Although the tracks and right-of-way are already along this eastern transitway alignment, it is not the preferred corridor cities transitway alignment for a number of reasons. The purpose of the transitway is to serve intra-corridor trips between corridor cities, not to serve long distance trips solely to Washington, DC. The inability of the eastern alignment to serve the proposed and existing development to the west side of Gaithersburg, such as the King Farm and the Life Sciences Complex, was a key reason when the project team, which includes representatives from Montgomery County, the Maryland-National Capital Park and Planning Commission (MNCPPC), the City of Gaithersburg, the City of Rockville, MTA, SHA, FHWA and others, selected the western corridor city transitway alignment for further analysis. It is also based on an area transitway study by the MNCPPC. In addition, this team has always believed that the eastern (B&O) alignment is a duplication of the transit service offered by the adjacent MARC transit line and the proposed I-270 HOV lanes. While the City of Gaithersburg believes that both alignments are important, they do not wish to see the eastern alignment over the western one and also believe that the western alignment is important due to its ability to serve the western side of Gaithersburg with transit. Therefore, it was the consensus of the team, which was presented for public review at the 1995 Alternates Public Meetings, to analyze the western alignment due to its ability to achieve the goal of the corridor cities transitway and serve the western portion of Gaithersburg with transit.

A question was also raised as to why the transitway showed better LOS performance at screenline E. The study team will report back to the focus group at the next meeting.

V. Design Features

A. Interchange Concepts

Brian Horn described some of the initial interchange/alignment concepts that are under development by the project team along the I-270/US 15 corridor. Using aerial photographic mapping, Brian discussed the context for the interchange and the expected traffic to be served. Once the forecasted peak hour traffic volumes are available, these preliminary interchange concepts will be further evaluated. However, the team was interested in sharing these initial concepts with the focus group for some initial feedback. Some of these interchanges include the following:

- A modified diamond interchange will most likely service the projected traffic volumes at **Biggs Ford Road**, located at the northern limits of the corridor study area, also the northern limit for anticipated Frederick County development.

- **Trading Lane**, located approximately one mile south of Biggs Ford Road, is anticipated to interchange with US 15, according to the Frederick County master plan. The primary functions of this interchange will be to serve the Frederick north side residential and office/research development.

- **MD 75**, currently a two lane roadway, is identified in the Frederick County master plan to extend west to a proposed I-270 interchange. Its configuration will depend on the traffic volumes for the area which are affected by both MD 109 and Technology Boulevard.

- **Newcut Road** is planned to extend west from MD 355 to west of I-270. An interchange would be constructed between Comsat, Inc. and West Old Baltimore Road. A suggestion was made to include a relocated Black Hill Regional Park entrance roadway opposite the southbound interchange ramps.

- **Watkins Mill Road** is planned to extend between MD 355 and MD 117 with an interchange to I-270. The City of Gaithersburg is conducting at study of this interchange in cooperation with SHA.

- **MD 109** currently connects with I-270 at an interchange near Hyattstown. Montgomery County master plans designate this interchange for closure once an interchange with MD 75 and I-270 is constructed, approximately one mile north in Frederick County. The project team will conduct an analysis of the effects of this closure and may propose a reconfiguration of the movements at MD 109 instead of a complete closure.

- The **MD 85** interchange recently experienced some ramp modifications due to its significant weaving problems with I-70. The project team will evaluate some long term solutions as to how we might reconfigure both the MD 85 and I-70 interchanges to better work together.

B. Alignment Concepts (Technology Boulevard)

Technology Boulevard is planned as a parallel roadway system which could connect I-270 from the MD 75 extended interchange area to relocated MD 355 at MD 80 (Fingerboard Road). The purpose of Technology Boulevard is to serve pedestrian, transit and vehicular traffic from the proposed development in Urbana between I-270 and MD 355, similar to Observation Drive in Montgomery County. Preliminary alignment concepts would parallel I-270, parallel the eastern edge of the Kiplinger mixed use/office/research property, or travel northeasterly from MD 75 to MD 355 just north of Bennett Creek continuing to relocated MD 355, similar to the corridor cities transitway alignment which it would incorporate.

VI. Environmental Overview

Don Sparklin presented an environmental overview for the I-270/US 15 corridor. Currently, the team is gathering existing environmental data within the corridor, which will be utilized in quantifying and assessing impacts for each of the alternatives. The detailed environmental assessment will occur in our next stage of project planning and will culminate with an environmental document and a Location/Design Public Hearing. Primary features identified within the corridor to date include historical structures, a sole source aquifer, floodplains, wetlands and threatened species. Environmental features must be protected consistent with federal law and will receive special attention by SHA.

A question was raised on whether total air pollutants will be studied as a part of the environmental impacts. The study team will address the effects of air pollution as a result of the combination alternatives. Another question was raised on whether the Maryland Department of the Environment has installed the Frederick County air quality monitors. The study team will research and report back to the group. The focus group requested the measures of effectiveness evaluation for their review. Please note that the attached charts are based on initial Stage I analyses and do not reflect the recent work since the Alternates Public Meeting.

VII. Alternatives Workshop/Public Hearing (Spring, 1997)

Michelle concluded the presentation by reviewing the project schedule. Primarily, the project team is working towards completing the preliminary travel demand analysis and alternative strategies assessment in order to begin the more detailed engineering and environmental review of the combination alternatives. An Alternatives Workshop/Public Hearing will be conducted in the

Spring of 1997 to review these analyses and both the proposed strategies for inclusion in the region's long range transportation plan and the combination alternatives recommended for detailed assessment in the current MDOT study. The Alternatives Workshop/Public Hearing will encourage official public comments for inclusion in our Major Investment Study. Publicly recommending the transportation alternative components which do not meet the needs for year 2020 for inclusion in the region's long range transportation plan enables the county and state to preserve right-of-way from imminent development.

VIII. Next Focus Group Meeting

The next focus group meeting is set for Wednesday, February 19, 1997 at 7:30 p.m. John Matthias is investigating the availability of a meeting place in Montgomery County, such as the Upcounty Government Center. A meeting reminder and meeting place confirmation will be distributed to the focus group in several weeks. At the next meeting, we will review the combination alternatives, as well as the information prepared for the Public Workshop/Public Hearing.

by: Donald Sparklin
for Michelle Hoffman
Project Engineer
Project Planning Division

Attachments

cc: File
Project Team
Focus Group Members

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Engineer
Project Planning Division

DATE: February 24, 1997

SUBJECT: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro to Biggs Ford Road

RE: February 19 Focus Group Meeting

The I-270/US 15 Focus Group met on Wednesday, February 19 at the Upcounty Government Center. The following people attended:

Suhair Alkhatib	Mass Transit Administration (MTA)
Susan Carscadden	National Institute of Standards and Technology (NIST)
Jim Clarke	Sierra Club
Dan Dalton	Frederick County Transit
Jim Gugel	Frederick County Planning
Michelle Hoffman	State Highway Administration (SHA)
Brian Horn	Rummel, Klepper & Kahl (RK&K)
Quon Y. Kwan	Action Committee for Transit (ACT)
Larry Marcus	Metropolitan Washington Council of Governments (MWCOG)
John Matthias	MD National Capital Park & Planning Commission (M-NCPPC)
Giri Nanduru	Metro. Washington Council of Governments (MWCOG)
Frank Quinn	Transportation Services Advisory Council (TSAC)
Dick Strombotne	Clarksburg Civic Association (CCA)

The purpose of the focus group meeting was to review the display material for the Alternatives Workshops/Public Hearings, scheduled for March 5 at the Martin Luther King, Jr. Middle School in Germantown and for March 12 at the Urbana High School in Urbana.

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The meeting began with the focus group members introducing themselves and the community association or organization they represent. Michelle Hoffman distributed copies of the advertisement recently published in local area newspapers and copies of blank postcards for the focus group members to share with neighbors and co-workers who may be interested in being added to the project mailing list.

Michelle summarized some of the recent project activities while distributing copies of the Alternatives Workshop/Public Hearing brochures. This brochure outlines in greater detail the recent developments of the I-270/US 15 Multi-Modal Study and the purpose of the Alternatives Workshops/Public Hearings, which is two-fold. First, the study team is interested in sharing and receiving comments on both the overall study and the alternatives currently under consideration. Second, the team has recommended that the Corridor Cities Transitway alignment, as either a busway or a light rail transitway, extending to Frederick, be considered for future local or regional study. As part of this recommendation, we would like to initiate corridor preservation for the Corridor Cities Transitway alignment. These Alternatives Workshops/Public Hearings will give the public the opportunity to comment officially on these alternatives and recommendations.

Brian reviewed the *VISION* for the Corridor, the Initial Transportation Strategies (high occupancy vehicle and general use lanes, extended feeder and express bus services, a transitway facility, park and ride facilities, etc.) and the Combination Alternatives, while highlighting the corresponding displays in both the brochure (enclosed) and for the public meetings. The focus group members offered good suggestions on the display material, such as:

- Bring smaller scale copies of the display charts as handouts
- If available, show a Population graphic
- Place the word "No-Build" in parentheses beside the word "Baseline Alternative" on the Environmental Impact Chart
- Differentiate between new and old stream crossing on the Environmental Impact Chart
- Show a second Environmental Impact Chart for the environmental features/resources that will be developed during the detailed analyses
- Show the Urban Rail America as an item for comparison purposes on the Transitway Comparison Chart (similar to the ICC graphic)

The next focus group meeting is tentatively scheduled for Wednesday, April 2, 1997 at 7:30 PM in the State Highway Administration District #7 Office, located at 5111 Buckeystown Pike (MD 85) in Frederick. A confirmation notice will be sent out prior to the meeting. If you have any questions, please feel free to call me at (410) 545-8547 or, toll free in Maryland, at (800) 548-5026.

Enclosure

cc: File
Project Team

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: July 18, 1997

SUBJECT: I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: May 21 Focus Group Meeting

On Wednesday May 21, the I-270/US 15 Focus Group met at the State Highway Administration (SHA) District 7 Office. The purpose of the meeting was to update the Focus Group on the progress of the study and to obtain feedback from the Workshops/Hearings held in March. The following people attended:

Suhair Alkhatib, MTA
Jim Clarke, Sierra Club
Al Clapp, Urbana Civic Assn.
Dan Dalton, Frederick County
Donald C. Distance, SHA-District 7
Jim Gugel, Frederick County
Carmeletta Harris, SHA-PPD
Michelle D. Hoffman, SHA-PPD
Quon Kwan, Action Committee for Transit
Pamela Lindstrom, Shady Grove Alliance
Frank Quinn, TSAC
Pam Stephenson, FHWA
Dick Strombotne, Clarksburg Civic Assn.

Introduction

The meeting began with everyone introducing themselves. Next, the group offered their comments on the March Alternatives Workshops/Public Hearings. The Focus Group thought that the displays were informative and were pleased with the layout/set-up of the meeting, particularly at the first station with the informative video.

My telephone number is _____

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Michelle distributed a copy of the informal comments (enclosed) received on comment cards from the public meetings. These, along with the oral testimony and written letters received by March 26, 1997, have been included in the official "Public Hearing Transcript." This transcript is now available at local libraries within the project study area. It was suggested that the Urban Rail America threshold, origin destination, travel demand ridership numbers and cost for Light Rail Transit (LRT) should be available to the Focus Group. Enclosed in this meeting summary is a copy of a transit ridership comparison table, which also lists the Urban Rail America thresholds. There are two technical reports that have been completed for the earlier studies of the I-270/US 15 Multi-Modal Corridor Study, which can be lent out to anyone interested in borrowing such a document. However, the final conclusions of these preliminary studies will be reflected in a Transportation Summary later this Fall or Winter and the conclusion of the detailed environmental and engineering studies will be concluded in an environmental impact statement in another two years, both of which will be available at the local libraries in the project study area.

Alternates For Further Consideration

Please refer to the enclosed information for a detailed description of the alternates for further consideration, which include the Baseline (No-Build) Alternate, the Baseline Modified Alternate and Combination Alternates A and B. The Baseline Modified Alternate, which is the same as the no-build scenario, reflects the current number of existing lanes on I-270; however, the Baseline Modified does not show an HOV lane in the southbound I-270 lane between MD 121 and I-370. This is due to the fact that this lane, although planned as an HOV lane, was not implemented as such. The focus group questioned the reasons behind this lane not becoming an HOV lane. A few members were under the impression that this lane would not be converted to an HOV lane until the MD 335 project was completed.

Upon further research, we found that the decision to implement the HOV lane would be re-visited after the completion of the MD 355 project. The additional southbound I-270 lane from MD 121 to I-370 would not open as an HOV lane due to the volume of general use traffic on this segment, which could be attributed, in part, to the diverted traffic resulting from the MD 335 ongoing construction. The State Highway Administration planned for HOV lanes in 1993 based on an evaluation of the traffic conditions of I-270. Due to the growth in the corridor, the traffic has increased. Implementing the HOV lane now would create a Level of Service (LOS) F, or failing condition. Therefore, a policy decision was made by the Maryland Department of Transportation (MDOT), in consultation with the Montgomery County Department of Public Works and Transportation (MCDPW&T), not to implement an HOV lane along this southbound section of I-270. We do not want the HOV lane implementation to generate a failing condition where none exists prior to implementation. SHA will continue to evaluate I-270, both the existing HOV lanes and this segment without HOV lanes.

There was some concern that CM/AQ (Congestion Mitigation / Air Quality) funds were used for this HOV lane implementation. Upon further research, we can verify that no CM/AQ funds were used for this segment of the additional I-270 lanes, rather federal and state funds was received for this segment of roadway yielding a 90/10 (Federal/State) split. When asked when and how this change would be incorporated into the Constrained Long Range Plan (CLRP), Michelle responded that she would follow up on this process. This change will be recommended to the Metropolitan Washington Council of Governments (MWCOG) during this year's update (last year's update has just been implemented). This change will then be presented through their public hearings and subsequently tested with the annual regional model at the end of the year. Since this change is pending, the Baseline Modified Alternate will be retained for further consideration in this study.

The group also discuss the Staged Alternate (Option), which is in essence an option purely for travel demand purposes. The goal of this option is to evaluate the effect of adding two additional general use lanes between MD 118 and MD 121 in each direction for the purpose of converting the inside southbound lane for HOV.

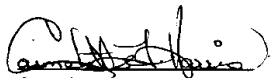
It was also mentioned that a transit option should be developed, as opposed to just preserving right-of-way for future transit, and that a transit option should follow the CSX railroad alignment from Shady Grove to Metropolitan Grove and then follow the Corridor Cities Transitway Alignment north from Metropolitan Grove to either Clarksburg or Frederick. This option was discussed in a letter that Pam Lindstrom submitted to the State Highway Administration on behalf of the Shady Grove Alliance and the Action Committee for Transit (enclosed). As requested, a copy of that response is also enclosed. The Study Team has considered this request and agrees to evaluate a stand alone transit option similar to this letter has outlined over the next six months. This stand alone transit option is being further defined by the Study Team and will be shared and discussed with the Focus Group at the July 30th meeting.

When asked about the 50% farebox recovery ratio for the Mass Transit Administration (MTA) and the fare box recovery for the Baltimore Light Rail. Current Maryland Legislation requires the MTA to recover 50% of its annual operating budget from farebax systems wide. This includes buses, metro, lightrail and MARC. The lightrail as a new start was excluded from the 50% formula for a few years after which it will be included in the farebox requirement.

There was an additional discussion pertaining to the refinement of the alignments, options and interchanges. Later this Fall/Winter, the Study Team will seek concurrence from the Federal, State and local regulatory agencies on the Alternates Retained for Detailed Study, as well as conclude the Major Investment Study both in the aforementioned Transportation Summary document. Following these two steps, the Study Team will embark on a two year detailed evaluation of the alternates under consideration to determine the environmental impacts.

Some of the environmental features will be inventoried in more detail beginning later this summer, such as the phase I archeological assessment of the project study area and the detailed wetland identification.

The next meeting will be held on Wednesday, July 30 at 7:30 p.m. in the Montgomery County Upcounty Government Center to discuss the stand alone transit option. If you have any questions please feel free to contact Michelle D. Hoffman at (410) 545-8547 or me at (410) 545-8522. Both Michelle and I can be reached toll-free in Maryland at (800) 548-5026.

By: 
Carmeletta T. Harris
Project Engineer
Project Planning Division

Enclosures
cc: Focus Group (w/enclosures)
Attendees (w/enclosures)
File (w/enclosures)
Mr. James L. Wynn

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: August 11, 1997

SUBJECT: I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: July 30 Focus Group Meeting

On Wednesday, July 30, 1997, the I-270/US 15 Focus Group met in the Upcounty Government Center in Montgomery County to discuss the assumptions for the upcoming travel demand runs for the stand alone transit options. The following people attended:

Suhair Alkhatib, MTA	Quon Y. Kwan, ACT
Anne Ambler, Sierra Club	Pamela Lindstrom, SGA
Dan Dalton, Frederick County Transit	Larry Marcus, MWCOG
John Fay, Sierra Club	Norman Mease, UCAB
Jim Gugel, Frederick County Planning	Frank Quinn
Derick Hallahan, RK&K	Dick Strombotne, CCA
Michelle D. Hoffman, SHA	Ed L. Tennyson

The meeting began with everyone introducing themselves and the organizations that they represent. Next, we reviewed the May 21 Focus Group meeting report. I let the group know that the transcript from the March Public Meetings will be available in local libraries by Labor Day.

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Suhair Alkhatib introduced the three stand alone transit options, which include Light Rail Transit (LRT) to Frederick along the Western Corridor Cities Transitway alignment, LRT to Frederick along the Eastern (CSX) alignment, and a busway to Frederick along the Western Corridor Cities Transitway alignment. The group discussed how these transit options will be evaluated. One member expressed concern over whether the evaluation would be compared with the previously evaluated transit options or the Combination Alternates. I responded that these three transit options will be compared with the previous work, but will be more extensively compared with the Combination Alternates as well as evaluated for ridership, revenue-to-operating cost ration, and cost per rider potential. There was some confusion over the process. At this time, the Study Team is *not* selecting a preferred alternate. Rather, the Team is preparing for recommending alternates for more detailed evaluation and environmental studies prior to completing an environmental document, holding a public hearing, and selecting a preferred alternate. The upcoming project planning steps include:

- Conduct detailed travel demand analyses.
- Prepare Transportation Summary to conclude the MIS and recommend Alternates for Detailed Study.
- Conduct detailed environmental and engineering analyses.
- Prepare a draft environmental document.
- Hold a Combined Location/Design Public Hearing (1999).
- Evaluate public/agency comments.
- Select a preferred alternate.
- Prepare a final environmental document.
- Receive Record of Decision by the Federal Highway Administration and the Federal Transit Administration.

The group reviewed the assumptions for the Baseline Alternate, the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternate, the Western LRT option, the Eastern LRT option and the Western Busway option. The following items were discussed:

Baseline Alternate

The Baseline Alternate incorporates all of the components adopted in the Metropolitan Washington area Constrained Long Range Plan (CLRP) for transportation. The only difference between this alternate and the CLRP is the limits of the High Occupancy Vehicle (HOV) lanes on I-270. The Baseline (No-Build) Alternate contains the HOV lane configuration that currently exists along I-270 which consists of HOV lanes extending from the Capital Beltway (I-495) to MD 121 in the Northbound direction and I-370 in the Southbound direction. A question was asked regarding the #991 Commuter Bus from the Francis Scott Key Mall concerning whether this bus will relocate to the Monocacy Rail Station. The answer to this question is yes, this connection between MARC, the transitway and the Commuter and Local Bus services will be made at the Monocacy Rail Station.

TSM/TDM

The Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies go beyond the components included in the Baseline Alternate or CLRP. All of these strategies will be incorporated into each of the Combination Alternates and Stand Alone Transit Options. A question was asked on whether all of the TDM strategies outlined in the attachment (please see the enclosure), are in fact part of the I-270/US 15 Multi-Modal Corridor Study, which they are.

Stand Alone Transit Options

A question was asked on where the light rail yard/shops would be located for the transitway. Physically speaking, there are only a few locations available for yard/shops and stations and the Study Team has yet to determine these locations. Montgomery County, however, has been identifying, through a feasibility study, a more refined transitway alignment and the locations for stations, yards and shops. The SHA and MTA will utilize the County's assessment as a guide. A few members of the Focus Group expressed interest in placing the yard and shops as far north as possible. For travel demand purposes, a yard and shop will be assumed in the southern portion of Montgomery County in the project study area and another yard will be assumed in Frederick County north of Hyattstown.

Another question was raised regarding the five transit stations that are not yet in the Master Plans (Middlebrook, Cloverleaf, Manekin, Goldenrod, and Cinema) will be developed in a transit oriented fashion. Upon further research, the Study Team found that Montgomery County is pursuing placing these newer stations into an amendment for the Master Plans which will require, to the extent possible, that new development around these stations be transit oriented.

A few members of the Focus Group would like to see the LRT and Busway modeled for both local and express services. The Study Team believes that this can be evaluated. Specifically, the express transitway will run at 12 minute headways to 8 of the 24 stations and the local service will run at 12 minute headways for all of the stations within Montgomery County (and not run north of the Frederick/Montgomery County Line) creating a 6 minute combined headway in Montgomery County. This will also help the Study Team evaluate the difference between the ridership for local riders versus express riders. Subsequent to the meeting a request was suggested to run local LRT service along the Western alignment and provide express service on a single track in the peak flow direction on the Eastern (CSX) alignment between Metropolitan Grove and Shady Grove. This will not be carried forward due to its competition and repetition with existing MARC service provided along this same express alignment.

Larry Marcus reviewed the proposed methodology for the growth projections for the stand-alone transit options along the alignments, as outlined in a note from John Matthias of the Maryland National Capital Park and Planning Commission (MNCPPC) (please see enclosed). A question was raised on whether the Fairgrounds should really be considered for high density development. Upon further discussions with the City of Gaithersburg, the Fairgrounds has been considered for a rail stop since the 1950's and the city would like to maintain this option for the future. While Bureau Drive was suggested instead, this site has significant access issues due to the commercial development surrounding this site. John Matthias will present the growth changes at the September Focus Group Meeting.

Finally, the group discussed providing traffic queue jumpers for the buses on the busway crossing at-grade intersections. This was a concern because of the 10 second delay provided for the buses crossing these intersections. Therefore, the 10 second delay will be deleted from all of the alternates for travel demand purposes and safety issues for the at-grade intersections will not be considered at this time.

The Focus Group was asked to provide comments to the Study Team by Friday, August 8, 1997. The next Focus Group meeting will be held on Wednesday, September 17, 1997 at 7:00 PM at the SHA District #7 Office located at 5111 Buckeystown Pike in Frederick. Please refer to the map sent in the last Focus Group mailing.

Than you again for your continued involvement. If you should have any questions or concerns, please feel free to call me at (410) 545-8547 or toll-free in Maryland at (800) 548-5026 or Suhair Alkhatib, the project manager for the Mass Transit Administration at (410) 767-3751.

Allen Beltmat

FOR Ms. Michelle D. Hoffman
Project Manager, SHA

Enclosures
cc: Attendees
Mr. Robert Klein
Mr. Michael LaPlace
Mr. John Matthias
Mr. James L. Wynn

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Maryland Department of Transportation
State Highway Administration

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MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: October 30, 1997

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: September 17 Focus Group Meeting

On Wednesday, September 17, 1997, the I-270/US 15 Focus Group met at the State Highway Administration District 7 Office. The purpose of the meeting was to update the Focus Group on the Travel Demand schedule and to discuss the stand alone transit options and the Measures of Effectiveness (MOEs). The following people attended:

Suhair Alkhatib, MTA	Quon Y. Kwan, ACT
Jim Clarke, Sierra Club	Pamela Lindstrom, SGA
Dan Dalton, Frederick County Transit	John Matthias, M-NCPPC
Derick Hallahan, RK&K	Phillip Shapiro, BMI
Carmeletta T. Harris, SHA	Walter Scott, Citizen (Guest)
Michelle D. Hoffman, SHA	Ed L. Tennyson (Guest)

The meeting began with everyone introducing themselves and the organization that they represent. Michelle started the meeting by informing the Focus Group of the updated travel demand schedule, which has been shifted due to the validation of the travel demand network, the evaluation of the baseline (no-build) alternate and the coding and assessment of the stand alone transit options.

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Goals, Objectives, and Evaluation Measures
Since the purpose of the project is to relieve congestion within the Corridor due to existing and projected growth, five goals were developed at the initiation of the study in 1994 to facilitate in the development of alternates and potential solutions. Michelle reviewed the goals, which are: ***Enhance Mobility, Improve the Movement of Goods, Support Orderly Economic Growth, Optimize Public Investment and Preserve and Protect the Environment***. Overall, the Focus Group agreed with the goals and the bullet items associated with the goals. Michelle then discussed the development of the Measures of Effectiveness (MOEs), which the group discussed.

Measures of Effectiveness
Pamela Lindstrom suggested that the increase in transit ridership across the screenlines should be added as an MOE under the "Enhance Mobility" Goal. Michelle responded that this MOE was accidentally left off of the list and would be added for the evaluation.

Pamela also requested a description of how the Goals, Objectives and Measures of Effectiveness were utilized in the evaluation of the Transportation Strategies. Phil Shapiro of BMI described this process and shared a chart, which had been used at the first alternates meeting (see enclosed). He went on to say that each Transportation Strategy, alone, did not satisfy the goals and objectives of the study; therefore, each of the Transportation Strategies were combined in an attempt to satisfy the needs of the I-270/US 15 Corridor. These Combination Alternates will be evaluated in the detailed planning stage after the transit options have been evaluated and conclusions incorporated into the Alternates Retained for Detailed Study.

Stand Alone Transit Assumptions
Michelle discussed the revised transit option assumptions, which were based on previous discussions with the Focus Group. The transit options include: a Busway to Frederick along the western or Corridor Cities Transitway (CCT) alignment, Light Rail Transit (LRT) to Frederick along the western or Corridor Cities Transitway (CCT) alignment to be evaluated both with and without HOV lanes north of MD 121 (NB)/I370 (SB), and LRT to Frederick along the eastern or CSX alignment. The Focus Group had no objections to the revised transit option assumptions, which will begin being tested in November after the completion of the model validation. Please see enclosed revised summary for the transit options assumptions.

Fare Structure for the Transitway
Suhair Alkhatib of the Mass Transit Administration stated that the objective is to define a fare structure similar to that of Metrorail or MARC fares within the Corridor. For example, a structure was discussed that would have a cost of a $1.00 for the first three miles, $0.10 per mile for miles three through six and $0.08 per mile for six or more miles. This is one half the cost of the Metrorail per mile structure, which would cost $3.40 from Frederick to Shady Grove and $6.65 from Frederick to Union Station. The total cost of $6.65 would be comparable to the MARC fare from Frederick to Union Station of $6.50.

Ed Tennyson reminded the group of the importance of trying to find a reasonable fare structure cost that would come close to rendering a 50% fare box recovery. There was also the concern of incorporating the cost for monthly passes into the formula for the fare structure, since the objective is to attract riders. Ed felt it was important to include monthly passes into the model; however, Phil Shapiro assured the group that as long as the average rate incorporates monthly pass users, as does the Metrorail structure, we will be utilizing a fair comparison.

Land Use Forecasts and Transit Station Locations
John Matthias of the Maryland National Capital Park and Planning Commission led this discussion by identifying thirteen transit stations in Montgomery County (Shady Grove Metro Station, West Gaither Road, Washingtonian, Decoverly, Muddy Branch, NIST, Metropolitan Grove, Germantown Town Center, Cloverleaf, Milestone, Quince Orchard, Comsat, and Clarksburg) located along the western or Corridor Cites Transitway (CCT) alignment and nine transit stations in Montgomery County (Shady Grove Metro Station, Olde Towne Gaithersburg, Bureau Drive, Metropolitan Grove, Germantown Town Center, Cloverleaf, Milestone, Comsat and Clarksburg) along the eastern or CSX alignment for implementation by the design year of 2020. The following transit stations in Montgomery County's Master Plans are proposed to be deferred beyond the year of 2020, from north to south, Shawnee, Marriott, Cinema, Goldenrod, Mannekin, Middlebrook, Montgomery County Fairgrounds, Firstfield Drive, School Drive, East Gaither Road.

John explained that the purpose of this effort for the stand alone transit options is to provide the necessary land use and development densities, especially within ½ mile radii, or walking distance, of the transit stations, in order to support ridership for the transitway.

A question arose as to whether parking near the transit stations should be evaluated. John responded that parking will be provided near transit stations; however, the model does not constrain the ridership based on parking spaces.

There were concerns regarding transit station locations at or near the Montgomery County Fairgrounds and Bureau Drive. Subsequent to this meeting, Pamela Linstrom and John Matthias met with representatives from the City of Gaithersburg to discuss this station location, which will be at Bureau Drive.

Travel Demand Modeling
Since the Study Team will be completing the travel demand model validation and the Baseline (no-bulid) evaluation this Fall and assessing the transit options this Fall and Winter, the Study Team anticipates meeting with the Focus Group again in February. The Combination Alternates will be evaluated in the more detailed planning stage, once the transit components have been determined through this exercise. If decisions are made or information is available for review, the Study Team will update the Focus Group via a letter or by a meeting prior to the February meeting.

Michelle discussed holding the next Focus Group meeting on either the first or fourth Tuesday in January or February. This meeting is tentatively scheduled for Tuesday, February 24, 1998 at 7:00 p.m. at the Upcounty Government Center in Germantown.

If you should have any questions or concerns, please feel free to call Ms. Michelle D. Hoffman, the project manager, at (410) 545-8547 or myself, at (410) 545-8522. Both Michelle and I can be reached toll-free in Maryland, at (800) 548-5026 or by email at mhoffman@sha.state.md.us. You may also contact Mr. Suhair Alkhatib, the project manager for the Mass Transit Administration, at (410) 767-3751 with any questions.

By: 
Ms. Carmeletta T. Harris
Project Engineer
Project Planning Division

Enclosures
cc: Attendees
Pamela Stephenson

Maryland Department of Transportation
State Highway Administration

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Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: March 9, 1998

SUBJECT: I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: February 24 Focus Group Meeting

On Tuesday February 24, the I-270/US 15 Focus Group met at the Upcounty Government Center in Montgomery County. The purpose of the meeting was to update the Focus Group on the status of the transit options and on other project activities. The following people attended:

Suhair Alkhatib, MTA	Wendy Klancher, COG
Jim Clarke, Sierra Club	Quon Y. Kwan, Action Committee for Transit
Dan Dalton, Frederick County	Pamela Lindstrom, Shady Grove Alliance
Mark Friis, Rodgers & Associates	Larry Marcus, COG
Jim Gugel, Frederick County	John Matthias, M-NCPPC
Michelle D. Hoffman, SHA-PPD	Norman Mease, UCAB
Keith Johnson, SHA-PPD	Dick Strombotne, Clarksburg Civic
Robert Klein, MCDPW&T	Association

Introduction

The meeting began with everyone introducing themselves. Next, I reviewed the purpose of the meeting, which would be to review the transit options and discuss the model inputs rather than the results, which are still under development. I reviewed the three transit options, highlighting the differences in modes and alignments. Then Suhair Alkhatib of the Mass Transit Administration reviewed some of the assumptions previously determined by this Focus Group and the Project Team. A Transit Options Assumption Summary sheet (enclosed) was also distributed. A question was asked following this update, as to how economics and inflation are taken into account for future transit fares. Rob Klein of the Montgomery County Department of Public Works and Transportation and Larry Marcus of the Metropolitan Washington Council of Governments (COG) responded by saying that the inflation in the fares are taken into account through the model, and more specifically through the local land use distribution through the counties cooperative forecasts. Larry added that the Study Team will also be conducting a fare sensitivity analysis for these transit options.

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Next, Larry Marcus presented a set of four maps. These maps depicted the baseline and the three transit alignments with the feeder bus information to still be inputted and displayed. These maps, which were also distributed to the Focus Group members in a smaller scale, show on the GIS system (as almost an artist rendering) what information is entered into the model runs, or the inputs.

Land Use Forecasts

John Matthias of the Maryland National Capital Park and Planning Commission reviewed several maps that showed the land use forecast changes based on the two different transit alignments, the CSX alignment and the western Corridor Cities Transitway alignment. These land use changes still reflect the same forecasts for year 2020. However, since neither transitway alignment is reflected in the CLRP (Round 5.4) to be built by the year 2020, the project team altered the growth increments between 1995 and 2020 to increase densities around (within ¼ mile) the transit stations. The red and pink areas showed increased densities and the two shades of green reflected decreased densities. John commented that the limitation of this effort was that a few of the areas were already built out by 2020; therefore, not much development could change in those cases.

Travel Demand Work

Upon the completion of discussing the land use forecasts, Larry Marcus began reviewing some of the walk access plots, which again show more inputs in the GIS artist rendering format. The walk access to transit for households in the Baseline Scenario shows that the metro area up to and including Rockville and parts of Gaithersburg have greater access to transit for households than any other points north, east and west. The same holds true for the walk access to transit for employment in the Baseline Scenario. However, employment is even more accessible since employment in Rockville, Gaithersburg and parts of Germantown is generally more centrally and linearly located along the transit and highway. This information is intuitive for the area due to the location of residences and businesses. A question was asked as to what rating was used for this walk access. Larry responded that the areas shaded for walk access is in percentages relative to the Corridor. Another question was asked as to why Clarksburg has a lower walk access than Germantown. Larry responded that this is due to the land use, the feeder bus network, and the employment centers which are more centrally located than the households in Clarksburg.

John Matthias noted that the land use/accessibility was different between Transit Option #1 (CSX-LRTF) and #2 (CCT-LRTF), which Larry said he would investigate. This might be attributed to the differences between the alignments for the two transit options (CSX versus CCT).

The Focus Group expressed that the feeder bus system will be very important in the northern areas of Montgomery and Frederick counties to feed into the transit system. This feeder bus system is based on the growing densities, which will not be dense throughout the entire corridor by the year 2020. However, the corridor is growing and will continue to do so over

the next few decades beyond the year 2020. A suggestion was made to show a lower level of threshold for the access changes since this northern area is now being served by more transit, but it is not apparent by the map in relation to the southern part of the corridor. A question was asked as to why we are showing the transitway all the way to Frederick if the access is not significantly improving. John Matthias suggested that this smaller change in access could be caused by larger zone sizes in Frederick County. In looking at Transit Option #3 (CCT-Busway), it is evident that the service coverage is similar to the Transit Option #2 (CCT-LRTF); however, the service characteristics are quite different since buses can go "off line" into neighborhoods and business parks to get additional riders.

The Focus Group discussed what some of the general conclusions might be for these transit options based on the various walk access plots and land use plots. Summarily, for such a long corridor, it is evident that one transit mode will probably not serve all of the segments throughout the corridor. That is why various forms of transit are being studied by the Study Team, including light rail transit, bus services, and HOV lanes. The Focus Group also asked what the feasible walk access distances were for the various forms of transit. Wendy Klancher of COG responded that the distances are 0.4 mile for bus, 0.4 mile for commuter rail stations, and 0.7 mile for Metrorail stations.

OTHER PROJECT PLANNING ACTIVITIES

Next, I went over some of the current project activities, including some preliminary engineering, environmental data collection, and intersection identification for future evaluation. The preliminary engineering is ongoing on the HOV/bus only access ramps into I-370 (Shady Grove Metrorail Station), Watkins Mill Road Extended (Metropolitan Grove MARC Station), MD 118 (Future Transitway Station), MD 121/COMSAT (Future Transitway Station), MD 75 Extended (Future Transitway Station), and MD 85 (Suburban Frederick MARC Station) and on the transitway alignment in Frederick County. Letters were sent to approximately 1500 property owners (within 150 feet of I-270 and US 15) to let them know that State representatives will be collecting environmental data on their property. Finally, Keith Johnson of SHA introduced the intersection identification strategy for defining a list of representative intersections for the Corridor (see enclosed). These intersections will be utilized in the detailed planning stage to investigate whether the traffic in these areas are improving or worsening. Some suggestions were made to also investigate the following intersections: MD 28/Barnesville Road; MD 117/MD 121; and Montgomery Village Avenue/Whiteman Road. I asked the group to review this information for discussion at the next Focus Group Meeting.

NEXT MEETING

The next meeting will be held on **Thursday, April 23** at **7:30 PM** in the **SHA District #7 Office** in Buckeystown. Please see the enclosed map. If you have any questions please feel free to contact Michelle Hoffman at (410) 545-8547 or Mr. Suhair Alkhatib at (410) 767-3751. Michelle can also be reached toll-free in Maryland at (800) 548-5026.

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Maryland Department of Transportation
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MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

DATE: June 4, 1998

RE: April 23 Focus Group Meeting

On Thursday, April 23, the Focus Group of the I-270/US 15 Multi-Modal Corridor Study met to discuss the initial results of the transit options. The following people attended:

Alan Belniak, SHA-PPD	Jim Clarke, Sierra Club
John Concannon, SHA-D7	Dan Dalton, Frederick County Transit
Michelle Hoffman, SHA-PPD	Larry Marcus, MWCOG
Jim Gugel, FC Planning	Wendy Klancher, MWCOG
Quon Kwan, ACT	Pam Lindstrom, SGA
John Matthias, M-NCPPC	Vamsee Modugula, MWCOG
Phil Shapiro, BMI	Dick Strombotne, CCA
Mona Sutton, SHA-TF	Ed Tennyson, ACT Representative

INTRODUCTIONS

Michelle Hoffman, the project manager, suggested that all participants introduce themselves for the benefit of the new attendees. She then gave a brief overview of the project, including background, current issues, alternates/options under consideration, and upcoming steps. Larry Marcus from the Metropolitan Washington Council of Governments (MWCOG) reviewed a recent meeting with the Major Investment Study

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(MIS) subgroup on an update of the I-270/US 15 Multi-Modal Corridor Study. He explained that the MIS subgroup meets monthly to review other MIS projects, and to evaluate and comment on the on-going MIS processes, as well as to learn from others' experiences.

Michelle reviewed in more detail the three transit options and their general assumptions. In an effort to understand how these transit options were being evaluated, Larry gave an overview for each of the transit option feeder bus networks, land use forecasts, and the associated accessibility for each transit option.

INITIAL TRANSIT RESULTS REVIEW

The Focus Group spent the majority of the meeting reviewing the initial transit option results as shown in the updated Measures of Effectiveness (MOE) tables. A suggestion was made to make these tables presented in an overall, more general format. A detailed tabular evaluation will only be provided upon request. Ed Tennyson, representing the Action Committee for Transit (ACT), was confused as to how this data builds on the previous analysis. While the goals and objectives used in this special transit evaluation are the same used in the initial/original transportation strategy evaluation, several additional transit-only MOEs have been developed to help evaluate and compare each of the stand-alone transit options. In addition, the initial transportation strategies and secondary transit evaluation cannot be compared to each other, since different assumptions were used in each. These updated MOE charts will be reviewed and discussed at the next Focus Group meeting.

RESULTS/MEASURES OF EFFECTIVENESS

Below is a summary of the comments made during the MOE review for the three transit options:

OVERALL

- It was suggested that the MOEs should be associated with the original goals/objectives.
- Place a thicker line separating the "two phases of Stage I," or separate onto two different tables due to different assumptions.
- The Study Team should indicate what each MOE means and what it actually *tells* us (To be discussed at the next Focus Group meeting).
- Also, include an assumption sheet, documenting all of the teams assumptions that led to the results. This assumption sheet is included for reference, and may be referred to throughout the remainder of this meeting summary.

COST GOAL

- The Team should add the Operating and Maintenance (O&M) and capital cost MOEs in columns under the cost Goal and objective to further complete this measure.
- In addition, the following MOEs should be added under the Cost Objective, or to a separate table to avoid comparison to the initial transportation strategies:
  FTA Cost Effectiveness Index, Farebox Recovery Ratio, Capital Cost/Annualized New Rider, O&M Cost/Annualized New Rider, Capital Cost/Passenger Mile, O&M Cost/Passenger Mile.

- Since there are no life cycle costs for the transit options, a comparison will not be made in this category.
- It may be helpful to relate costs to the 'real world,' potentially using a transit cost comparison sheet to relate to other transit projects. This will be discussed at a future meeting.

ENVIRONMENTAL GOAL

- Under the 'Fuel Consumption' objective, the Focus Group had asked why the average annual/daily fuel consumption is higher for the light rail to Frederick (LRTF) strategy than the highway and widening/HOV strategies. Initial discussions indicated that this includes construction costs and needs to be refined.
- A request was made to place the wetland impacts out of ranges and into more finite numbers for the initial strategies. This will be done.
- Another request was made to show the structural impacts for the CSX alignment. This will be discussed at the next Focus Group meeting.

TRUCKS/GOODS MOVEMENT GOAL

- The Focus Group agreed that this goal and its objectives were not relevant for evaluating the transit options.

ACCESSIBILITY/ECONOMIC GROWTH GOAL

- The Focus Group suggested that the Study Team further explain this goal and associated MOEs and how they relate to the transit options in our summary. Please see the assumption sheet for further details.
- The Study Team will indicate that the travel time numbers reflect a 'door-to-door' travel time in an assumption sheet.
- The assumption sheet should indicate that the feeder bus network in the No-Build scenario is assumed in all three of the stand-alone transit options.
- The columns of the chart, for consistency with the Master Plans and Long Range Transportation Plans, will be completed with a 'yes/no' for the transit options boxes.

ENHANCE MOBILITY GOAL

- The Frederick-DC Travel Time column, as well as the remaining origin and destinations, should be completed for a better comparison.
- A question was raised, asking if another column can be added for Frederick-Bethesda travel times for the transit options. This will be done.
- The Study Team should describe how Average Vehicle Ridership (AVR) is derived in the assumptions sheet. This will be done.
- The Study Team should also document the *observed* and *used* highway capacity for I-270, and any other facility as well, and also include the newly accepted saturated flow rate of 2300 vehicles per hour per lane.
- The Level of Service (LOS) should be completed at the screenlines, as well as describing where each screenline is and what facilities are included at each screenline in the assumption sheet.
- The Study Team should explain why 1.5 was chosen as the acceptable factor for comparison in tolerated traveled time in the assumption sheet.

- A suggestion was made to select only the top, most transit effective MOEs, rather than examining all of them.

UPCOMING MEETINGS

The next Focus Group meeting is at 7:00 PM on July 9, 1998 at the Upcounty Government Center, located at 12900 Middlebrook Road in Germantown. Please see the enclosed map.

If you should have any questions, please feel free to call me at (410) 545-8547, or Anne Elrays, the Environmental Manager at (410) 545-8562. Both can be reached toll-free in Maryland at (800) 548-5026. In addition, Suhair Alkhatib, the Mass Transit Administration (MTA) project Manager can be reached at (410) 767-3751, if you should have any further questions or comments regarding transit-related issues.

By: Alan Belniak
Alan Belniak
Project Engineer

Enclosures
[Portion of "Study of Speed-Flow Relationships on Individual Freeway Lanes"]
[MWCOG's Line Haul and Express Bus Service Routes]

cc: File (with enclosures)
Attendees (enclosures upon request)

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

DATE: July 20, 1998

RE: July 9 Focus Group Meeting

On Thursday, July 9th, the Focus Group of the I-270/US 15 Multi-Modal Corridor Study met to discuss the results of the transit options and to discuss recommendations for the transit component and for the combination alternates that should be carried into the more detailed planning studies. The following people attended:

Lorenzo Bryant, MTA	Larry Marcus, MWCOG
Hugh Davis, TSAC	John Matthias, M-NCPPC
Jim Gugel, FC Planning	Al Stern, City of Rockville
Michelle Hoffman, SHA-PPD	Mona Sutton, SHA-TF
Quon Kwan, ACT	Ed Tennyson, ACT Representative
Pam Lindstrom, SGA	

INTRODUCTIONS

Michelle Hoffman, the SHA project manager, suggested that all participants introduce themselves for the benefit of the new attendees. She then gave a brief overview of the project, including background, current issues, alternates/options under consideration, and upcoming steps.

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TRANSIT ORIENTED DEVELOPMENT IN ROCKVILLE

Michelle Hoffman introduced Al Stern from the City of Rockville who, as a member of the I-270/US 15 Multi-Modal Corridor Study Team, was there to present and discuss the transit oriented development currently ongoing along the Corridor Cities' Transitway (CCT) or Western Alignment. Al Stern focused his discussion on the King Farm development, a prime example of this type of transit oriented development. The King Farm includes:

- 430 acres of mixed residential development.
- 3200 residential units.
- 3 million square feet of offices space.
- 100,000 square feet of retail space.
- A grid system with a village center located along the CCT alignment.
- A 3/8 mile walk to the Shady Grove Metrorail Station.
- A possible interim shuttle service provided until the transit is built to avoid residents becoming in the habit of driving.

Pam Lindstrom voiced concern from the Shady Grove Alliance that it is important for people to immediately become in the habit of using transit and the importance of providing safe bicycle and pedestrian paths, especially those that could access the Shady Grove Metrorail Station. A question was asked whether the Washington Metropolitan Area Transit Authority (WMATA) is or could investigate placing bicycle and pedestrian paths through the Metrorail Station, especially in the parking lot where the parking lot links through the CCT alignment where it crosses MD 355. WMATA will investigate current bike and pedestrian access issues. Another question was raised for either the State Highway Administration (SHA) on placing a signal at the CCT alignment and MD 355 (just north of Redland Road) or for Montgomery County if they could time the signals along MD 355 to allow for a gap (and a green signal) for bicycles and pedestrians to cross MD 355. This last question will be investigated with the State and County.

TRANSIT OPTIONS

Next, Lorenzo Bryant, the MTA project manager, reviewed in more detail the three transit options. These three transit options include:

1. Light Rail Transit (LRT) along the Eastern or CSX (MARC) alignment from the Shady Grove Metro Station to Metropolitan Grove following the Corridor Cities Transitway (CCT) alignment to Frederick.

2. Busway along the Western or CCT alignment from the Shady Grove Metro Station to Frederick.

3. LRT along the Western or CCT alignment from the Shady Grove Metro Station to Frederick.

In an effort to understand how these transit options were being evaluated, Mona Sutton of SHA gave an overview of the travel demand assumptions associated with each of the transit options. A handout of these assumptions was distributed. These assumptions included a description of the peak-to-daily conversion factor (2.6) used for the transit options. This conversion factor was used for the light rail transit and busway options, since both were operating as a fixed guideway, unlike then regular local service for Ride-On. Ed Tennyson asked what the off peak headway is for the busway. Off-peak headways for all bus routes in the corridor are as follows:

- If the AM peak headway is less than 10 minutes, the off-peak headway is 30 minutes.
- Otherwise, the off-peak headway is 60 minutes.
- If the route is one-way express in the morning, then there is no off-peak service.

Please note that the off-peak headways have no effect on ridership since the Study Team used an AM peak-to-daily conversion factor. However, the off-peak headways do effect the operating and maintenance costs. Another question was asked relative to the cost assumptions for the transitway. The cost estimate methodology was based on a similar method prepared for the Dulles rail study. Yard and shop requirements were based on the I-270 Corridor transit operational characteristics and needs.

The Measures of Effectiveness (MOE) charts, as revised, were distributed to the Focus Group. This now includes a range of ridership numbers and costs, based on optimum transit assumptions and more realistic assumptions. The optimum assumptions were based on the following:

- Land Use Changes to increase densities within ½ mile of the transit stations. This was done within the boundaries of the Master Plan.
- Enhanced feeder and express bus services.
- Approximately 6 minute peak guideway headways.
- Guideway speeds to encourage ridership.
- Fare Structure competitive with MARC and Metrorail Services.
- Preemption for at grade transit crossings of other roadways.

The more realistic assumptions were based on the following:

- Land Use from 1997 Constrained Long Range Plan for Year 2020.
- Enhanced feeder and express bus services.
- Slightly reduced guideway speeds to approximately 10 minute peak guideway headways.
- Fare Structure competitive with MARC and Metrorail Services.
- No preemption for at grade transit crossings.

Several travel demand sensitivity analyses were completed. These included:

1. Evaluating *HOV* lanes on I-270 (to I-70) in conjunction with the transit options showed that the transit options with HOV lanes reduced the transit trips by approximately 1500 trips. This does not substantially compete with the transit options; therefore, a transitway could be evaluated in combination with HOV lanes.

2. Evaluating the effects of the *land use* density changes on the transit options showed that the increased land use densities only yielded a difference of approximately 500 peak period transit trips, or 5 percent, more trips with the aggressive land use density changes.

3. The effect of the transit options on both I-270 and US 15 was investigated at the various screenlines. The reduction for each screenline was determined by estimating how many trips were diverted to the transit system at the screenline during the AM Peak Period. The transit options had very little effect on screenline A, or the northern study limit. At screenline C, or the County Line, and at screenline E, or just north of I-370, all three options showed a 5 percent reduction in screenline volumes.

Larry Marcus from the Metropolitan Washington Council of Governments (MWCOG) reviewed the overall results shown in the MOEs. He also discussed that the walk access showed approximately a 10 percent difference. Upon going over the transit uses shown via the access plots for transit for households, the Focus Group requested to see a similar graphic for employment. Larry responded that this would be shown at a future Focus Group meeting. Based on the travel demand evaluations, the following conclusions have been highlighted:

- The CCT- Busway and the CCT-LRT had the highest total daily ridership, with an optimum range maximum of 50,000 trips.
- Studies showed that Comsat could be feasible by the design year of 2020. Several measures showed that Comsat is incrementally more efficient, including the transit use, and cost benefit ratio (farebox recovery), in addition to the local jurisdiction's priority to serve all of the Corridor Cities along I-270.
- The local jurisdictions have expressed that their goals, priorities, master plans and transit oriented development is in favor of the CCT alignment as their first priority for transit along I-270.
- Additional results are shown on the enclosed Measure of Effectiveness (MOE) charts.

RECOMMENDATIONS

Michelle and Larry requested that the Focus Group discuss their recommendations for the transitway and alternates retained for detailed planning studies. All five citizens supported the Corridor Cities' Transitway as an LRT from Shady Grove to Frederick. They thought that this transit component could be pursued solely and with all of the highway improvements.

Michelle also reviewed the Project Team's DRAFT recommendations for alternates retained for the detailed planning study. These recommendations (also shown in more detail in the enclosed recommendation overview) includes:

- ***No-Build (Baseline) Alternate***
- ***Transportation System Management (TSM) / Transportation Demand Management (TDM) Strategies Alternate***
- ***Combination Alternate A***
- ***Combination Alternate B***
- ***Combination Alternate C***

UPCOMING MEETINGS

The next Focus Group meeting has not been scheduled, but will probably be held this Winter. Notification will be sent through the mail.

If you should have any questions, please feel free to call me at (410) 545-8547, or Anne Elrays, the Environmental Manager at (410) 545-8562. Both can be reached toll-free in Maryland at (800) 548-5026. In addition, Lorenzo Bryant, the Mass Transit Administration (MTA) Project Manager can be reached at (410) 767-3754, if you should have any further questions or comments regarding transit-related issues.

Enclosures

cc: Mr. Robert Klein, Montgomery County Department of Public Works and Transportation
Mr. Majid Shakib, ADE for Traffic, State Highway Administration
Mr. Thomas Donahue, Washington Metropolitan Area Transit Authority
Ms. Pamela Stephenson, Federal Highway Administration
File (with enclosures)
Attendees (enclosures upon request)
Focus Group (enclosures upon request)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
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MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

DATE: December 21, 1998

RE: December 17 Focus Group Meeting

On Thursday, December 17, the Focus Group of the I-270/US 15 Multi-Modal Corridor Study met to discuss the alternates retained for detailed study, as well as the ongoing activities and the upcoming next steps of this project planning study. The following people attended:

Lorenzo Bryant, MTA	Michelle Hoffman, SHA-PPD
Dan Dalton, Frederick County Transit	Quon Kwan, ACT
Hugh Davis, TSAC	Pam Lindstrom, SGA
John Fauerby, Clarksburg Civic Assn.	Larry Marcus, MWCOG
Mark Friis, Rodgers & Associates	John Matthias, M-NCPPC
Jim Gugel, FC Planning	Jim Randle, Worman's Mill Civic Assn.

INTRODUCTIONS

The meeting began with introductions. Michelle, the SHA Project Manager, then reviewed the agenda for the meeting.

My telephone number is _____

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ALTERNATES RETAINED FOR DETAILED STUDY (ARDS)

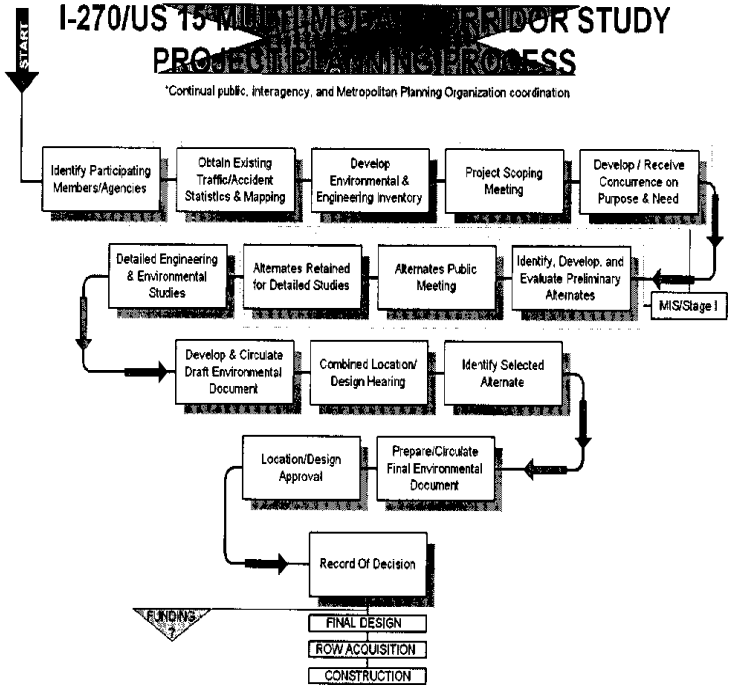
Michelle Hoffman reviewed the alternates retained for detailed planning studies. A bound package was sent to the focus group to see how all of the work done in Stage I had been summarized, as well as presented to and approved by the Federal and State regulatory agencies. This package is a helpful source when reviewing what has already been evaluated in the past four years. The following questions were asked and discussed:

1. Could the transitway continue north (1.6 miles) to the Clarksburg Town Center rather than COMSAT? This additional 1.6 miles is not cost effective since it would add ($55-75 million) to the capital cost, while not adding any additional ridership (even with the increased land use densities around the transit stations, pre-emption at roadway crossings and no additional highway capacity). The Clarksburg Town Center could best be served by a feeder bus system until it is part of another engineering study to be sequenced subsequent to the transitway to COMSAT.
2. Could the transitway continue north to Frederick? Several stand alone transit options (without any highway, but with TSM/TDM strategies) were evaluated as both light rail transitway and busway, to Frederick. None of these options were viable to Frederick by the design year of 2020, however, the Study Team would like to see the right-of-way for this segment (COMSAT to Frederick) preserved.
3. Would the transitway be built in segments? It is very likely that the transitway would be built in several construction phases, since this is a rather large capital investment (transitway costs range from $350-500 million from Shady Grove to COMSAT). This will be evaluated further in the later stages of this project planning study.
4. Will the transitway be a light rail transitway or a busway? This is not yet determined. This will be evaluated further in the next stage of this project planning study.
5. Is the land use in Frederick County and Frederick City transit oriented? They are both transit oriented to the best of their ability at this stage in their development. The land use in Frederick City is more transit oriented due to its higher densities. Urbana is transit oriented in main economic and residential areas, but the land use densities still do not yet (year 2020) support the transitway ridership.
6. Why is the Park Mills Road interchange not included in the Alternates Retained for Detailed Study? Earlier is this study, Frederick County stated that their priority was to pursue improvements to the MD 80 interchange, as well as a new interchange in southern Urbana at MD 75 Extended, which would remove the Park Mills Road interchange from consideration, as well as from the Master Plan. As part of this study, the project team encouraged this plan which minimized the number of new interchanges in Urbaba, which is more consistent with the Planning Act, Smart Growth intiatives and TEA-21. Furthermore, earlier traffic analyses did not show the need for this additional interchnage north of Urbana which is closer to the Monocacy Battlefield

December 17 Focus Group Meeting
Meeting Summary
Page Three

PROJECT PLANNING PROCESS

Next, Michelle Hoffman reviewed the project planning process (below) and what activities had been completed as compared to what steps still remained. Please note that the Record of Decision will be granted by the Federal Highway Administration (FHWA), the lead sponsoring agency. The Federal Transit Administration (FTA) has signed an agreement to be a "cooperating" agency, which necessitates reviews during all the major milestones and at the conclusion of the technical studies. FTA has been involved in or notified of all of the Study Team's activities.



The Focus Group has requested that they all be added to the distribution list of the Draft Environmental Document.

December 17 Focus Group Meeting
Meeting Summary
Page Four

ENVIRONMENTAL UPDATE

Michelle gave an overview of the ongoing environmental activities, which, as many of you are aware since you received a letter in the mail this past year, includes environmental inventory data collection. This intensive effort, where State staff and representatives gather environmental data from right-of-way within and around the proposed transportation improvements, is necessary to better understand potential impacts associated with the alternates under consideration. Some of the environmental data collection includes:

- Existing Noise Data and Air Quality.
- Existing Wetlands, Floodplains, and Streams.
- Existing Archeological and Historic Standing Structure Locations.
- Existing Trees and Forested Areas.
- Existing Plant and Animal Species.

A handout was distributed showing the Environmental Resource Impact Chart (enclosed) and the Stage II Measures of Effectiveness (MOEs) (enclosed) that have been updated. These two documents compliment each other since both the environmental impacts and the measures of effectiveness tie into the goals and objectives of the study. Michelle highlighted some of the resources for impact analysis and some of the changes in the Stage II MOEs (from the Stage I MOEs). The following questions were discussed:

1. How come pedestrians and bicycles are not included on the environmental resource impact chart? The hiker/biker path discussion will be in the environment document or DEIS as part of a discussion on the typical section and through the multi-modal connections at the park and ride lots and transit stations. Please note, however, that the State will not place hiker/biker paths along an interstate. The transitway does, however have a hiker/biker path included in its typical section.
2. Can we evaluate the ozone effects of the air quality as part of these MOEs? This is best evaluated through the Air Quality Conformity evaluation done through the Council of Governments after an alternate is selected. There is not another good way of evaluating this.
3. A question was asked related to the accessibility measures. This will be discussed further at the next focus group meeting.
4. Rather than an energy consumption measure, can the team look at a reduction in vehicle miles traveled (VMT)? This will be discussed with the study team and answered at the next focus group meeting.

December 17 Focus Group Meeting
Meeting Summary
Page Five

TRAVEL DEMAND UPDATE

Larry Marcus from the Metropolitan Washington Council of Governments (MWCOG) reviewed the changes in the Constrained Long Range Plan (CLRP) from the one used in 1995 for the design year 2020 projections (Round 5.3) in comparison to the 1998 data for the design year 2020 projections (Round 6a). He discussed that the CLRP, or the region's programmed improvements, does not have many transportation improvements included in this area. In addition, the land uses did not change very much between the two years.

UPCOMING MEETINGS

The next Focus Group meeting will be held from 7:00 to 9:00 PM on Thursday, March 18, 1999 at the SHA District 7 Office in Frederick, Maryland. This office is located at 5111 Buckeystown Pike.

If you should have any questions, please feel free to call me at (410) 545-8547 or Lorenzo Bryant, the Mass Transit Administration (MTA) Project Manager, at (410) 767-3754. I can also be reached toll-free in Maryland at (800) 548-5026.

Enclosures
cc: Mr. Robert Klein, Montgomery County Department of Public Works and Transportation
Ms. Pamela Stephenson, Federal Highway Administration
File (with enclosures)
Attendees (with enclosures)
Focus Group (with enclosures)
I-270/US 15 Project Team (enclosures upon request)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
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Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

DATE: June 8, 1999

RE: May 27 Focus Group Meeting

On Thursday, May 27, the Focus Group of the I-270/US 15 Multi-Modal Corridor Study met to discuss the alternates under consideration along with any modifications, the travel demand forecasts completed thus far, and the ongoing environmental and engineering activities of this project planning study. The following people attended:

Lorenzo Bryant, MTA	Michelle Hoffman, SHA-PPD
Hugh Davis, TSAC	Robert Klein, MC DPW&T
Norman Mease, Upcounty Citizens Advisory Board	Melissa Kosenak, SHA-PPD
	Pam Lindstrom, SGA
Joseph Harrison, SHA-PPD	Jim Randle, Worman's Mill Civic Assn.

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ALTERNATES UNDER CONSIDERATION

The meeting began with an informal review of the preliminary engineering plans for the alternates under consideration. The following comments were provided for the project team in considering the alternates:

- Add some of the local improvements to the state roads onto the mapping, such as those planned for MD 355 and MD 80 in Urbana and MD 121 in Clarksburg.
- Consider adding two currently non-existing ramp movements, one from US 15 southbound to MD 26 eastbound and one from MD 26 westbound to US 15 northbound.
- Consider Trading Lane interchange with US 15 further south at Hayward Road.

Michelle Hoffman reviewed the alternates under consideration in this more detailed stage of planning, as shown in the recent newsletter distributed to the group (enclosed). She also outlined some of the recent modifications, including:

- Technology Boulevard has been dropped from the list of alternates retained for detailed study since Technology Boulevard serves a more local need for the Urbana area. Technology Boulevard has been added to the Frederick County Master Plan and will be pursued at the local level. Technology Boulevard will be shown on our plans as "to be done by others." Please note that this project will be included in the secondary and cumulative effects evaluation for the I-270/US 15 Multi-Modal Corridor Study.
- Watkins Mill Road Extended and the proposed interchange with I-270 has been removed from consideration in this study and broken out into a separate study. The need for improving Watkins Mill Road at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot project for environmental streamlining, as outlined in the Transportation Equity Act for the 21st Century (TEA-21). Please note that this project will be included in the secondary and cumulative effects evaluation for the I-270/US 15 Multi-Modal Corridor Study.
- The conversion of the existing inside shoulder of the southbound I-270 lane between MD 121 and I-370 to an HOV lane is proposed as part of the Transportation System Management/Transportation Demand Management (TSM/TDM) Alternate. It was suggested by the Focus Group that the SHA evaluate the possibility of implementing the conversion of the inside shoulder of I-270 between MD 121 and I-370 for completing the existing HOV system now as an interim improvement.
- One additional concept that will be added to one of the project alternates, Combination Alternate B, consists of converting two existing High Occupancy Vehicle (HOV) lanes, one lane northbound/southbound, to high occupancy vehicle/toll (HOT) lanes in the median from I-270 south to I-370. The HOT lanes are being considered as a value pricing strategy to more efficiently manage highway capacity and would be included within the footprint of any of the combination alternates.

VALUE PRICING

The SHA has recently applied for federal grant money under the new Transportation Equity Act for the 21st Century (TEA-21) to conduct a one year value pricing study for several corridors and toll facilities in the Baltimore and Washington metropolitan areas. These facilities are: I-270; MD 210; I-495 in Maryland; I-95 from the Inner Harbor area to MD 152; US 50 from MD 410 to US 301; as well as the following toll facilities, the I-95 and I-895 tunnels; the I-695/Francis Scott Key Bridge; and the US 50/301 William Preston Lane Memorial Bridge. Value pricing strategies include HOV/Toll (HOT) lanes, congestion management, toll pricing, and electronic toll collection, to name a few. HOT lanes, designed to more efficiently manage the available capacity of the HOV lanes during the peak commuting periods, are restricted lanes reserved for high occupancy vehicles, which use the lanes at no cost, while low occupancy vehicles would be able to use these restricted lanes for a fee. This fee could vary based on levels of congestion, time of the day and day of the week to maintain an efficient system. Revenues generated from HOT lanes implemented in other parts of the country have been designated to improve upon the existing transportation system and public transportation.

The Focus Group further discussed HOT lanes as a value pricing strategy and asked for some additional information. Attached, please find an article for your reference that was issued in the Institute of Transportation Engineering (ITE) Journal in June of 1998.

TRANSITWAY

In discussing the alternates under consideration, Lorenzo Bryant discussed the transit components that are part of the Combination Alternates. The Focus Group pointed out that the Clarksburg Civic Association has expressed concerns to ensure that Clarksburg not become a parking lot for the transitway due to the terminus location at COMSAT. Michelle and Lorenzo explained that the long term for the transitway is to pursue transit along the I-270 Corridor from Shady Grove to Frederick; however, only as far north as Clarksburg was cost effective for the design year of 2020. Several issues were discussed that would dissuade Clarksburg from becoming a "parking lot" for the transitway, including:

- It is very likely that the transitway would be built in several construction phases, since this is a rather large capital investment (transitway costs range from $350-500 million from Shady Grove to COMSAT). This will be evaluated further in the later stages of this project planning study. This would mean that by the time the transitway segment could be completed to COMSAT, another study to pursue a segment continuing north would likely be under consideration.
- A comprehensive feeder and express bus service feeding into the COMSAT Station would dissuade drive only access.

- A direct access ramp from the HOV lanes on I-270 is being pursued under all of the Combination Alternates to provide direct access for HOV users and buses into the transitway station to prevent excess traffic on local roads due to vehicles accessing the station.

The group discussed whether the transitway will be a light rail transitway or a busway. While this is not yet determined, the State is hoping to have significant patronage and cost effectiveness data, as well as other factors, to make a mode decision early this fall. This mode recommendation would be discussed with the Focus Group and presented at an alternates workshop and hearing. The group asked for an outline of the comparisons between the pros and cons of the services provided and features of Light Rail Transit and Busway. Please refer to the enclosed.

TRAVEL DEMAND UPDATE

Michelle and Lorenzo distributed a ridership chart comparing three alternates under consideration that have been evaluated for travel demand purposes, including the Baseline Modified Alternate, Combination Alternate A – Light Rail Transitway and Combination Alternate A – Busway. Please refer to the enclosed chart. This chart shows:

- Similar boardings for the transitway between the Combination Alternate A – Light Rail Transitway and the Combination Alternate A – Busway (11,800 vs. 12,200, respectively).
- Approximately 4,600 riders would be removed from MARC for the transitway.
- Approximately 40 percent of the trips would be considered intra-corridor, while the other 60 percent would be to access other rail transit (MARC and Metrorail).

The group also asked about the MARC extension to Frederick, which Lorenzo explained would be completed in 2001.

FOCUS GROUP OUTREACH

Next, Michelle Hoffman discussed the future of the Focus Group. The group has been very helpful in providing valuable feedback and thoughts into the study, however, several of the group members have not attended a meeting in almost three years, while the same five or six individuals regularly attend. The best part of a focus group is the interaction among the members in providing information to and from the focus group and the project team. The group suggested that we call the members, each representing a community or interest group, to determine if another individual from their group would be better able to attend. Michelle will call the members, as outlined in the list below to reaffirm their membership (note that all members are listed, not just those who have not attended):

May 27 Focus Group Meeting
Meeting Summary
Page 5

- Lon Anderson, AAA
- Richard Strombotne, Clarksburg Civic Association
- Joe Leberz, Frederick County Chamber of Commerce
- Brian McNeil, Friends of Monocracy Battlefield
- Bill O'Neil, Germantown Citizens Association
- Karl Bell, I-270 Corridor Employers Group
- Kenneth Harry, Maryland Motor Trucking Association
- Steve Elmendorf, Montgomery County Chamber of Commerce
- James Clark, Sierra Club
- Norman Mease, Upcounty Citizens Advisory Board
- Al Clapp, Urbana Civic Association
- Mark Friis, Rodgers and Associates (representing the Urbana PUD)
- Quon Kwan/ Tennyson, Action Committee for Transit
- Pamela Lindstrom, Greater Shady Grove Civic Alliance
- Hugh Davis, Transportation Services Advisory Council (Frederick)
- Jim Randle/George Gilbert, Worman's Mill Civic Association

******* Please note that this study will be developing more detailed alternates, travel demand and environmental impacts shortly and your group's participation is encouraged.**

UPCOMING MEETINGS

The next Focus Group meeting will be held from 7:00 to 9:00 PM on **Thursday, August 12** at the Upcounty Government Center in Germantown, Maryland. This Center is located at 12900 Middlebrook Road.

If you should have any questions, please feel free to call me at 410-545-8547 or Lorenzo Bryant, the Mass Transit Administration (MTA) Project Manager, at 410-767-3754. I can also be reached toll-free in Maryland at 1-800-548-5026.

Enclosures
cc: Attendees (with enclosures)
File (with enclosures)
Focus Group (with enclosures)
I-270/US 15 Project Team (enclosures upon request)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

DATE: August 31, 1999

RE: August 12 Focus Group Meeting

On Thursday, August 12, the Focus Group of the I-270/US 15 Multi-Modal Corridor Study met to discuss the combination alternates retained for detailed engineering and environmental studies, the associated typical sections, the travel demand modeling efforts, and the transit mode strategies. The following people were in attendance:

Lorenzo Bryant, MTA	Pamela Lindstrom, SGA
Michelle D. Hoffman, SHA-PPD	Edson Tennyson, ACT
Dan Dalton, Frederick County Transit	David Clark, FACT
Ernie Baisden, MTA	James Randle, Worman's Mill Civic Assoc.
Rob Klein, MCDPWT	Jim Gugel, Frederick County Planning
Nicole Tunstall, SHA-PPD	Hugh Davis, TSAC
Quon Kwan, ACT	Phil Shapiro, BMI
Melissa Kosenak, SHA-PPD	

INTRODUCTIONS

The meeting began with introductions. Michelle then gave a brief overview of the project, including background, current issues, and upcoming steps.

FOCUS GROUP MEMBERSHIP

Michelle distributed the Focus Group Membership List. She encouraged the members of the focus group to notify other group members of upcoming Focus Group Meetings in order to increase participation.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

ALTERNATES

Michelle distributed the I-270/US 15 Multi-Modal Corridor Study Spring Newsletter and reviewed the alternates retained for detailed study. Pam Lindstrom requested that the project team coordinate with the Montgomery County Maryland-National Capital Parkland Planning Commission (M-NCPPC), who is currently working on a Transportation Policy Report that incorporates both the CSX and the Corridor Cities' Transitway (CCT) modeling projections for the design year 2050. Michelle confirmed that the I-270/US 15 Study will take into consideration the findings of the M-NCPPC Transportation Policy Report; however, since the design year, assumptions, and modeling are not the same, a straight comparison cannot be drawn.

TYPICAL SECTIONS

Draft copies of the highway and transit typical sections were distributed. Michelle gave an overview of the highway sections and explained that the project is in the planning stage, therefore the typical sections are subject to change. These typical sections will be used to evaluate the impacts.

Lorenzo Bryant presented the transit typical sections. Edson Tennyson expressed concern for pedestrian safety at transit crossings through residential neighborhoods. He suggested the use of landscaping buffers, sidewalks or underpasses for safety reasons. It was questioned whether the 13' transit width was sufficient for the busway, or if additional width was necessary for bus pull-offs. Lorenzo confirmed that a 13' transit width was sufficient, and that emergency pull-offs will be provided at locations to be determined during detailed engineering. Lorenzo confirmed that the I-270/US 15 Corridor light rail is modeled from the Baltimore Light Rail system.

TRAVEL DEMAND MODELING EFFORT

Phil Shapiro presented the 1998 (existing) and 2020 PM peak period travel demand modeling for the Baseline (No-Build) Scenario. Phil explained that the software used for the modeling was calibrated for the Metropolitan Washington D.C. region. Phil will have additional information, including updated travel times, available for the focus group to review at the next focus group meeting.

TRANSIT MODE

Lorenzo distributed the LRT vs. Busway Fact Sheet and explained the analysis. Members of the focus group expressed concern about the environmental impacts of the busway because it produces more fumes than the light rail. Lorenzo pointed out that the environmental impacts have not been completely assessed, however, air pollution would be one of the environmental concerns that the study team would analyze. Edson Tennyson expressed his opinion that the cost information on the fact sheet should not be based on national averages. He believes that the costs should be determined by averaging cost information from comparable transit systems. Lorenzo will re-evaluate these costs to include in this mode analysis chart.

August 12 Focus Group Meeting
Meeting Summary
Page 3

DULLES CORRIDOR

Rob Klein distributed the *Bus Rapid Transit (BRT) Case Study* done by the consulting firm of Parsons Brinckerhoff, Quade & Douglas, Inc., and a fact sheet on the Dulles BRT system. Rob then gave an overview of BRT characteristics and of the Dulles BRT system.

Raytheon, the company working on the Dulles BRT, will be hosting a presentation on November 1 at the Grand Hyatt Hotel in Washington D.C. to discuss the Dulles Corridor project. If any members of the Focus Group are interested in attending, please call Robert Klein at (240) 777-7195.

VALUE Pricing Study

Michelle distributed the Value Pricing Study Fact Sheet. She then gave a brief overview of the purpose of the Value Pricing Study. The Corridors being studied include:

Highway Study Corridors - State Highway Administration (SHA)

- I-270 from I-495 (Capital Beltway) to I-70 (Frederick County)
- I-495 (Maryland portion of the Capital Beltway)
- MD 210 (I-495 to MD 228 Connector)
- US 50 (MD 410 to US 301)
- I-95 (between Washington and Baltimore Beltways)

Toll Facility Study Corridors - Maryland Transportation Authority (MdTA)

- Baltimore Harbor Crossings
  - Fort McHenry Tunnel (I-95)
  - Baltimore Harbor Tunnel (I-895)
  - Francis Scott Key Bridge (I-695)
- US 50/US 301 (William Preston Lane Memorial (Bay) Bridge)
- I-95 (between the Baltimore Harbor Tunnel and Delaware)

UPCOMING MEETINGS

The next Focus Group meeting will be from 7:00 PM – 9:00 PM on Thursday October 14, 1999 at the SHA District 7 Office in Frederick, Maryland. This office is located at 5111 Buckeystown Pike. The agenda for the meeting will be distributed to the focus group 1 week prior to the 14th.

If you should have any questions, please feel free to call Michelle Hoffman, the SHA Project Manager, at 410-545-8547 or at 1-800-548-5026 or Lorenzo Bryant, the Mass Transit Administration (MTA) Project Manager, at 410-767-3754.

Enclosures
cc: File (with enclosures)
Attendees (with enclosures)
Focus Group (with enclosures)
I-270/US 15 Project Team (enclosures upon request)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: March 7, 2000

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: February 3, 2000 Focus Group Meeting
Maryland State Highway Administration (SHA) – District 7 Office

Members of the I-270/US 15 Project Team met with the Focus Group on February 3, 2000 to discuss travel demand issues and preliminary results, engineering issues, and future Informational Public Workshops for the alternates under evaluation. The following people attended:

Lorenzo Bryant	Mass Transit Administration (MTA)	410-767-3754
Dave Clark	Frederick Area Committee on Transp. (FACT)	301-694-7198
Jim Clarke	Sierra Club	301-340-8994
Hugh Davis	Frederick Co. Transit Advisory Committee	202-651-2265
Mark Friis	Rodgers & Associates	301-948-4700
Dan Goldfarb	Bellomo, McGee and Assoc., Inc. (BMI)	301-562-8760
Derick Hallahan	Rummel, Klepper & Kahl, LLP	410-728-2900
Charles Heath	City of Frederick	301-694-1498
Michelle Hoffman	State Highway Administration (SHA)	410-545-8547
Carol Krimm	Delegate Sue Hecht	301-293-0655
Quon Kwan	Action Committee for Transit (ACT)	410-290-0370

My telephone number is _____

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1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Pam Lindstrom	Shady Grove Alliance	301-869-7139
John Matthias	Montgomery County M-NCPPC	301-495-4569
Norman Mease	Upcounty Citizens Advisory Board	301-972-0424
Neil Parrott	State Highway Administration – Dist. 7 Traffic	301-624-8150
Jim Randle	Worman's Mill Civic Association	301-694-5431
Bruce L. Reeder	Frederick Area Committee on Transp. (FACT)	301-473-7923
Eric Soter	City of Gaithersburg	301-258-6330
Dick Strombotne	Clarksburg Civic Association	301-540-9597
George Walton	Parsons Brinckerhoff	410-385-4143
Jonathan Moore Warner	Frederick Area Committee on Transp. (FACT)	301-663-0202
Myra Wieman (for Lon Anderson)	AAA Mid-Atlantic	410-821-3912

The meeting began at 7:00 PM with brief introductions.

The following is a summary of the topics discussed:

VALUE PRICING OVERVIEW

Michelle Hoffman and George Walton highlighted the following topics during the value pricing presentation (for further information, please refer to the attached copy of the Value Pricing Overview slide presentation):

- Michelle Hoffman and George Walton described value pricing as a new innovative concept for managing travel demand during the peak hours of congestion. This value pricing study is a one-year study that started in the Fall of 1999 as a Maryland Department of Transportation (MDOT) and Federal Highway Administration (FHWA) pilot project, authorized by Section 1216(a) of TEA-21 (80% of the $859,000 study is Federally funded). This project is evaluating ten facilities in the Baltimore/Washington region, with five existing toll facilities operated by the Maryland Transportation Authority and five existing non-toll facilities operated by the State Highway Administration. These facilities include:

State Highway Administration
- I-270 (I-495 to I-70)
- I-495 (Maryland Portion)
- MD 210 (I-495 to MD 228)
- US 50 (I-495 to US 301)
- I-95 (between the Washington and Baltimore Beltways)

Maryland Transportation Authority
- Fort McHenry Tunnel (I-95)
- Baltimore Harbor Tunnel (I-895)
- Francis Scott Key Bridge (I-695)
- US 50/US 301 (William Preston Lane Memorial 'Bay' Bridge)
- I-95 (between the Fort McHenry Tunnel and Delaware)

- The concept of value pricing is simple, charging a higher toll when demand is high and delay is at its worst, typically during the peak commuting time periods. Similar peak period charge concepts exist in many industries, such as in the telephone and airline industries.

- Many value pricing projects across the nation, use the revenues collected for other transportation (and transit) programs.

- There are three components of value pricing, including scale, pricing strategy and supporting measures (please refer to the attached glossary of terms):

  1. **Scale**
     - Spot
     - Facility
     - Corridor
     - Area
     - Regional

  2. **Pricing Strategies**
     - Time of Day Pricing
     - Differential Pricing
     - High Occupancy Toll (HOT) Lanes
     - Dynamic Pricing
     - Fees for entering highly congested areas

     **Electronic tolls are being considered at most locations, which the Focus Group felt should be compatible with surrounding states' electronic toll systems.

  3. **Supporting Measures**
     - Parking Management
     - Transit Service Restructuring
     - Selected HOV Freeway-to-Freeway Connections
     - Selected Direct HOV/HOT Ramps
     - Alternate Work Schedules

- Four existing value pricing systems within the United States were presented at the meeting, including the State Route (SR) 91 Express Lanes in Anaheim, California; the Interstate 15 FasTrak program in San Diego, California; the LeeWay program in Lee County, Florida; and the Katy Freeway (I-10) QuickRide program in Houston, Texas. Please refer to the attached copies of the presentation slides for specific information about these systems.

- One of the questions that arose during the presentation was about how the I-15 system in San Diego, California adjusts its pricing for incidents and special events. The value pricing team will look into issues such as this throughout this feasibility study.

- The SR 91 system in Anaheim, California was constructed by a private developer and its revenues are used to help pay for the construction, as well as operations and overhead costs.

- There are two phases of Maryland's Value Pricing Study, with the first phase primarily including national and international research and a qualitative evaluation of the value pricing strategies for each of the ten facilities. The second phase includes a more quantitative evaluation of each of the ten facilities, including travel demand and traffic analysis; cost effectiveness analysis; environmental justice and equity analysis; implementation requirements; technology and toll collection applications; infrastructure and toll collection applications; infrastructure improvement needs; enforcement issues; and legislative needs. A range of options for each corridor will be reviewed and recommendations will be made at the end of the year-long study, anticipated in September, 2000. Please note that some of these recommendations could be incorporated into this I-270/US 15 Corridor Study for a more detailed evaluation.

- Michelle Hoffman distributed the first value pricing study newsletter (copy attached). The study team will meet with the Focus Group again this Summer, followed by workshops in the Fall of 2000. Michelle also encouraged the Focus Group members to review the study's website at www.mdotvaluepricing.com.

BACKGROUND

Michelle introduced the second part of the meeting by giving some general background information on the study, including study limits, alternates and strategies considered and a brief overview of the alternates. When asked about the extension of the Corridor Cities Transitway (CCT) alignment to Frederick, Michelle and Lorenzo responded that the transit alignment was only feasible, based on ridership, cost and other measures of effectiveness, to extend as far north as COMSAT in southern Clarksburg. The alignment from COMSAT to Frederick was dropped at the end of the first phase, the Major Investment Study (MIS) portion of this Corridor Study. Please refer to the attached Stage I Transportation Summary (Alternates Retained for Detailed Study/Congestion Management) package, prepared for this comprehensive study after all of the initial transportation strategies were fully evaluated and consequently placed into Combination Alternates packages.

ALTERNATES

- The I-270/US 15 Multi-Modal Corridor Study Team has made a decision to carry forward both transit modes (light rail transit – LRT and bus rapid transit – BRT) into more detailed planning studies. Therefore, seven alternates have been retained for detailed engineering and environmental analysis, including:
  1. No-Build (Baseline)
  2. Transportation Systems Management (TSM)/Transportation Demand Management (TDM)
     (includes vanpooling, intelligent transportation systems, a hiker/biker trail and an extension of HOV from I-370 to MD 121 in the southbound direction)
  3. Combination Alternate A-1 (LRT)
  4. Combination Alternate A-2 (BRT)
  5. Combination Alternate B (Premium – Express Bus)
  6. Combination Alternate C-1 (LRT)
  7. Combination Alternate C-2 (BRT)

- Bus Rapid Transit is a busway that provides an integrated bus system with significantly faster speeds, improved reliability and increased convenience. This can be accomplished through exclusivity (separate bus alignment), traffic signal preferences, shorter passenger stops (speedy fare collection and/or no steps for boarding), special infrastructure (stations similar to light rail stations), integrated bus services and transit oriented land use already developed by the local jurisdictions for all CCT transit modes. The BRT stations would be similar to the LRT stations, with a fare card system. BRT, like LRT, would also include express service on a fixed guideway, as well as service off the transitway to serve local areas. Both LRT and BRT modes would promote transit oriented development.

- Detailed noise analyses will be conducted in the next year for the entire I-270/US 15 Corridor. Noise abatement measures may be considered along US 15 through the City of Frederick, as well as at other locations, as the study progresses.

- A question was raised about why an interchange at I-270 and Park Mills Road is not included as part of the I-270/US 15 Multi-Modal Corridor Study, even though it is included on the Frederick County Master Plan. Frederick County had previously determined that MD 75 was a higher priority interchange and, for the year 2020, the County would like to pursue an interchange with MD 75 and I-270, which is also on the State's Highway Needs Inventory. There is a concern with both potential interchanges, since both (MD 75 and Park Mills Road) would be outside of the Urbana Priority Funding Area (PFA), making both interchanges in need of special exceptions from the Board of Public Works. The Smart Growth Areas Act went into effect on October 1, 1997. The intent of this legislation is to direct state funding for growth-related projects to areas designated by local jurisdictions as Priority Funding Areas (PFAs). PFA's are existing communities and other locally designated areas as

determined by local jurisdictions in accordance with "smart growth" guidelines. The Act is intended to direct development to existing towns, neighborhoods, and business areas by directing State infrastructure improvements to those places. It is important, if seeking an exception, that the State and County pursue the interchange which best meets the state and local needs, which both Frederick County and the State have expressed for the MD 75 interchange.

TRAVEL DEMAND EVALUATIONS *

- Dan Goldfarb presented the preliminary travel demand results to the group for the Baseline Alternate, as well as for Combination Alternates A-1 (LRT), A-2 (BRT) and B (Premium Bus). This travel demand information is based on the Metropolitan Washington Council of Governments model which has been approved for the region.

- Dan started with the highway volume projections, highlighting that traffic growth is directly related to land use growth and that there will be a doubling of traffic volumes in the areas with the highest land use growth. The minimum growth of traffic along the corridor was 25%.

- Transit service was then discussed and Dan highlighted that transit service is defined by in vehicle time and out of vehicle time (walk/drive, wait, and transfer). Good transit service has easy access, short wait times, and direct routes (minimal transfers and less circuitous).

- Combination Alternate A-1 (LRT) increased total corridor transit ridership by 25% versus the Baseline Alternate (this includes MARC ridership on the Brunswick Line). The group was interested in reviewing additional information on the results for Combination Alternate A-1 (LRT), such as travel times, cost/benefit ratios, farebox recovery ratios and ridership numbers. The Alternates Retained for Detailed Study report contains previous travel demand results (from Stage I) on the LRT transit mode; however the additional travel demand information for Combination Alternate A-1 (LRT) will be distributed to the Focus Group once it is completed and reviewed by the study team.

- Combination Alternate A-2 (BRT) increased total corridor transit ridership by 69% versus the Baseline Alternate. This is due to more frequent service, better access to transit and the reduced number of transfers.

- Combination Alternate B (Premium – Express Bus) increased total transit ridership by 76% versus the Baseline Alternate. This is due to its direct routes and fast service.

- In general, MARC ridership decreases with the Combination Alternates based on the transit modes, while Metrorail ridership increases. This is because the Corridor Cities Transitway terminates at the Shady Grove Metrorail Station, and most transit trips in the corridor are projected to transfer at Shady Grove.

- Combination Alternates C-1(LRT) and C-2 (BRT), which have the same transit service as Combination Alternates A-1 (LRT) and A-2 (BRT), were also briefly reviewed. For the highway improvements, Combination Alternates C-1 and C-2 include three lanes (one new lane) in each direction on I-270 between MD 121 and I-70 (existing section has two lanes in each direction), while Combination Alternates A-1 (LRT), A-2 (BRT) and B (Premium – Express Bus) include four lanes (two new lanes) in each direction in this segment. The modeling results concluded that the limited capacity on I-270 does not affect the transit ridership, and none of the transit modes significantly impact the highway demand.

- A summary of the preliminary travel demand results concludes that travel demand is increasing significantly. Because of new development in the corridor, I-270 will continue to be congested to 2020 and beyond, and there is a market for transit service in the corridor.

- It is important for both Montgomery and Frederick Counties, to consider high density land use around the transitway alignment in order for it to be completely effective and accommodate trips both through the corridor and within the corridor. Montgomery County is currently encouraging transit oriented development.

- Any build-out of the master plan development planned for 2020 has been addressed in these 2020 travel demand projections.

- Pamela Lindstrom made a brief presentation on the Montgomery County (M-NCPPC) Transportation Policy Report. M-NCPPC, as part of their Transportation Policy Report, developed 2050 transit ridership scenarios for the CSX and the CCT transitway alignments in order to compare the two alignments. The CSX scenario showed three times the transit ridership of the western CCT alignment, which was due to a proposed significant increase in the Metro ridership (11,000 Metro riders with CCT and 22,000 Metro riders with CSX). Pam stressed the need for guiding the development along the CSX alignment over the next 20 to 40 years. SHA, MTA, Montgomery County and Frederick County will continue to address these travel demand issues and will respond to Pam's concerns about the travel demand projections, however it is important to realize that the Stage I studies did evaluate and not carry forward the CSX alignment based on ridership, cost and other measures of effectiveness. These results were based on the 2020 regionally adopted land use and MINUTP model. Please refer to the Stage I Transportation Summary package.

* Due to the concerns of the project team and focus group, the travel demand modeling results are being reevaluated.

ENGINEERING FOR HIGHWAY AND TRANSIT IMPROVEMENTS

- The Combination Alternates were briefly reviewed and the proposed typical sections along the highway and transitway were presented to the group.

- Proposed interchanges have been developed at US 15/Biggs Ford Road, US 15/Trading Lane, I-270/Newcut Road and I-270/Watkins Mill Road. In addition, a proposed interchange has been developed at US 15/Hayward Road/Wormans Mill Road and interchange improvements have been proposed for the existing US 15/MD 26 interchange. Additional interchange concepts will be developed at I-270/MD 85 (improved interchange) and MD 75 extended (new interchange), and the existing interchanges along I-270 and US 15 will be analyzed for potential improvements.

INFORMATIONAL PUBLIC WORKSHOPS

- The Informational Public Meetings scheduled for March 20 and March 23, 2000 have been postponed until later this year due to the study team's desire to complete the travel demand analysis and engineering of the interchanges. The meetings will present travel demand results (traffic and patronage), engineering plans (interchanges, mainline I-270/US 15, transitway, typical sections, illustrative renderings), costs and environmental issues (resources and impacts) in an open house format, including a video overview presentation. A draft list of stations was distributed (attached).

ADDITIONAL ITEMS/NEXT STEPS

- Over the next several months, the study team will be completing the preliminary engineering designs of the alternates, performing environmental studies such as noise analyses, and will continue to define natural, cultural, historical and socioeconomic impacts.

- The draft environmental document is scheduled to be completed in the late Summer of 2001 and a Public Hearing will be held subsequently in the late Fall of 2001. Location and Design Approvals would consequently be achieved after the final environmental document is completed in late 2002 and a "preferred" alternate is selected based the results of the study and on public and agency comments. The earliest date to start construction in the corridor would be approximately 2005.

UPCOMING MEETINGS

Ms. Cynthia D. Simpson
I-270/US 15 Focus Group Meeting
Page 9

- Focus Group Meeting – A follow-up letter will be sent in the next month or so to confirm our next Focus Group meeting.

Please feel free to call either Michelle Hoffman, the SHA Project Manager, at 410-545-8547 or Lorenzo Bryant, the MTA Project Manager, at 410-767-3754 with any questions.

Attachments
cc: File (with attachments)
Focus Group (with attachments)
Project Team (attachments upon request)
MTA (hard copy and attachments)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: August 21, 2000

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: August 1, 2000 Focus Group Meeting

Members of the I-270/US 15 Project Team met with the Focus Group on Tuesday, August 1, 2000 at the Upcounty Government Center in Germantown to discuss travel demand issues and preliminary results, engineering issues, and the upcoming Informational Public Workshops for the alternates under evaluation. The following people attended:

Lon Anderson	AAA Mid-Atlantic	703-222-4100
Dick Arkin	Kentlands Citizens Assembly/ Action Committee for Transit	301-258-7874
Jeremy Beck	State Highway Administration	410-545-8547
Lorenzo Bryant	Mass Transit Administration	410-767-3754
Hugh Davis	Frederick Co. Transit Advisory Committee	202-651-2265
Mark Friis	Rodgers & Associates	301-948-4700
Jim Gugel	Frederick County Planning	
Michelle Hoffman	State Highway Administration	410-545-8547
Brian Horn	RK&K/PB Joint Venture	410-728-2900
Rob Klein	Montgomery County Department of Public Works & Transportation	240-777-7195
Pam Lindstrom	Shady Grove Alliance	301-869-7139
John Matthias	Montgomery County M-NCPPC	301-495-4569
Jim Randle	Worman's Mill Civic Association	301-694-5430

My telephone number is _____

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Phil Shapiro	Bellomo, McGee and Assoc., Inc.	301-562-9433
Eric Soter	City of Gaithersburg	301-258-6330
Dick Strombotne	Clarksburg Civic Association	301-540-9597
Mona Sutton	State Highway Administration	410-545-5643
E. L. Tennyson	Action Committee for Transit/ Shady Grove Alliance	703-281-7533
Jonathan Moore Warner	Frederick Area Committee on Transportation	301-663-0202

The meeting began at 7:00 PM with brief introductions.

The following is a summary of the topics discussed:

PURPOSE OF MEETING

Lorenzo Bryant began the Focus Group meeting by explaining the purpose of the meeting, which was to review the complex travel demand effort, review the next steps and to review other products in anticipation of the upcoming November Informational Public Workshops.

STAGE I REVIEW

Next, Lorenzo gave a brief overview of some factors that help define good transit. Some characteristics of good transit are conveniently located stations and alignment, a user-friendly design, and high public awareness of the transit mode.

Lorenzo then explained why three transit alternates (CSX alignment through Olde Towne, Gaithersburg, Metrorail extension, and transitway to Frederick) were not carried forward into Stage II. The CSX alignment through Olde Towne, Gaithersburg was not carried forward because it does not provide service to areas west of I-270 and is inconsistent with 2020 land use priorities. The Metrorail extension was not carried forward because it has not been identified as a 2020 recommended transportation project in the M-NCPPC Transportation Policy Report, it is dependent on higher land use densities than is called for in current master plans and it has less operational flexibility. The transitway to Frederick was not carried forward because the projected ridership by 2020 is insufficient to support the increased operational and maintenance costs.

The group spent some time discussing transit options. There were two general discussions that took place, as follows:

- Some members from Frederick County were interested in further evaluations of commuter rail from either Shady Grove or Rockville to Frederick. Some Montgomery County members expressed concern with how this would tie into or compete with the Corridor Cities Transitway (CCT) alignment. However, since it is likely to be considered beyond our study's design year of 2020, the MTA will include an evaluation (cost, ridership and engineering) as part of the MARC Master Plan. The group also discussed the MARC extension to Frederick off the Brunswick Line. Ed Tennyson felt that the MARC headway assumption of 15 minutes was unrealistic because of skip-stop service at some stations along that line. Also, the high CSX freight traffic along that line might make adding more MARC trains impractical.
- In addition, Pam Lindstrom re-addressed her interest in having transit evaluated along the CSX alignment in Olde Towne, Gaithersburg between Shady Grove and Metropolitan Grove. Concern was expressed that this alignment would not support transit-oriented development land uses in western Rockville (King Farm area). Pam insisted that this alignment could provide better ridership. While Lorenzo expressed that the cost and impacts might outweigh that ridership, he will get back to the group on re-evaluating this transit option.

STAGE II/TRAVEL DEMAND EVALUATIONS

Michelle Hoffman gave a brief description of the alternates that have been carried forward into Stage II. The I-270/US 15 Multi-Modal Corridor Study Team has made a decision to carry forward both transit modes (light rail transit – LRT and bus rapid transit – BRT) into more detailed planning studies. Therefore, the following seven alternates have been retained for detailed engineering and environmental analysis:

- No-Build (Baseline)
- Transportation Systems Management (TSM)/Transportation Demand Management (TDM) (includes vanpooling, intelligent transportation systems, a hiker/biker trail and an extension of HOV from I-370 to MD 121 in the southbound direction)
- Combination Alternate A-1 (LRT)
- Combination Alternate A-2 (BRT)
- Combination Alternate B (Premium – Express Bus)
- Combination Alternate C-1 (LRT)
- Combination Alternate C-2 (BRT)

Bus Rapid Transit is a busway that provides an integrated bus system with significantly faster speeds, improved reliability and increased convenience. This can be accomplished through exclusivity (separate bus alignment), traffic signal preferences, shorter passenger stops (speedy fare collection and/or no steps for boarding), special infrastructure (stations similar to light rail stations), integrated bus services and transit oriented land use already developed by the local jurisdictions for all CCT transit modes. The BRT stations would be similar to the LRT stations, with a fare card system. BRT, like LRT, would also include express service on a fixed guideway, as well as service off the transitway to serve local areas. Both LRT and BRT modes would promote transit oriented development.

Preliminary interchange concepts for MD 75, MD 109, MD 121 and Newcut Road were reviewed. The Newcut Road interchange is designed for the master planned Newcut Road and would initially end at I-270 with a future extension to the west and MD 121. The MD 75 interchange is also designed for a master planned roadway extension and would end at I-270. MD 109 is a reconstructed interchange that accommodates the widened highway. The project team will be evaluating the feasibility of closing this interchange in conjunction with the new MD 75 interchange. Finally, the MD 121 interchange is designed to accommodate new ramps for northbound I-270 to westbound MD 121 and from MD 121 to northbound I-270. The traffic forecasts showed that northbound I-270 traffic volumes were significant enough to separate traffic heading to eastbound MD 121 and westbound MD 121, respectively. However, since low traffic volumes are forecasted for the Newcut Road interchange, overflow MD 121 traffic could utilize the Newcut Road interchange.

Phil Shapiro started his presentation by describing the three phases of travel demand for this project: Stage I – Preliminary/Conceptual Planning, Stage II – More Detailed Planning, and Stage III – Final Planning. He then described the flow chart for each stage in detail. He pointed out that the first stage is complete and resulted in the selection of the combination alternates that are being evaluated in Stage II. He then described the flow chart for Stage II and pointed out that as a result of the issues raised by the focus group and others, an independent review by another consultant was performed on the forecasts for Combination Alternates A and B. This review did not find any fatal flaws with the forecasts. Stage II is ongoing and will result in forecasts for all of the Combination Alternates. It is anticipated that after the Informational Public Workshop this fall, another set of forecasts will be performed for selected alternates. These forecasts will reflect changes in projected land use and in highway and transit alternates. These forecasts will be used for the draft environmental document that will be taken to the public hearing. Then, Phil noted that Stage III will result in the selection of an alternate and finalization of the environmental document.

Phil then quickly reviewed those alternates for which forecasts are currently being prepared. He reviewed a table that outlined the travel demand assumptions related to land use, highway and transit network, transit headways and travel speeds, parking, fare structure, and drive access links, which were used in Stage I and Stage II.

Next, Phil reviewed the preliminary conclusions resulting from the travel forecasts. This travel demand information is based on the Metropolitan Washington Council of Governments (MWCOG) model which has been approved for the region. The conclusions were:

- In general, with the Combination Alternates, MARC ridership decreases, while Metrorail ridership increases. This is because the Corridor Cities Transitway terminates at the Shady Grove Metrorail Station, and most transit trips (60%) in the corridor are projected to transfer at Shady Grove. The transit forecasts continue to show the need for additional transit service in the corridor beyond what is currently in place.
- Highway travel demand is increasing significantly. Because of new development in the corridor, I-270 will continue to be congested to 2020 and beyond. Although the highway demand and congestion are relatively unaffected by any of the transit alternates, they provide additional mobility and modal options with free-flow conditions and consistent travel times. Six lanes of traffic from MD 121 to I-70 vs. eight lanes does not affect transit ridership.
- The modeling results concluded that the limited capacity on I-270 does not affect the transit ridership, and none of the transit modes significantly impact the highway demand. However, a multi-modal approach still makes sense for the corridor.

With these preliminary traffic analysis results and highway/interchange designs, the project team will continue to advance the engineering and environmental understanding of the corridor. Our goal is to share the Frederick County segment traffic and engineering information at our next Focus Group meeting, similar to the Montgomery County segment presented at this Focus Group meeting.

INFORMATIONAL PUBLIC WORKSHOPS

The upcoming Informational Public Workshops have been scheduled for November 14, 2000 at Urbana High School in Urbana from 5:30-8:30 PM, and on November 30, 2000 at Martin Luther King, Jr. Middle School in Germantown from 5:30-8:30 PM. The meetings will present travel demand results (traffic and patronage), engineering plans (interchanges, mainline I-270/US 15, transitway, typical sections, illustrative renderings), costs and environmental issues (resources and impacts) in an open house format, including a video overview presentation.

ADDITIONAL ITEMS/NEXT STEPS

Over the next several months, the study team will be completing the preliminary engineering designs of the alternates, performing environmental studies such as noise analyses, and will continue to define natural, cultural, historical and socioeconomic impacts.

The draft environmental document is scheduled to be completed in the late Summer of 2001 and a Public Hearing will be held subsequently in the late Fall/Winter of 2001. Location and Design Approvals would consequently be achieved after the final environmental document is completed in late 2002 and a "preferred" alternate is selected based the results of the study and on public and agency comments. The earliest date to start construction in the corridor would be approximately 2005.

UPCOMING MEETINGS

The next Focus Group Meeting will be held on Thursday, October 26, 2000 from 7-9 PM at the SHA District 7 Office Training Room.

Please feel free to call either Michelle Hoffman, the SHA Project Manager, at 410-545-8547 or Lorenzo Bryant, the MTA Project Manager, at 410-767-3754 with any questions.

Attachments
cc: Attendees (with attachments)
File (with attachments)
Focus Group (with attachments)
Project Team (attachments upon request)
MTA (hard copy and attachments)

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: October 31, 2000

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: October 26, 2000 Focus Group Meeting

Members of the I-270/US 15 Project Team met with the Focus Group on October 26, 2000 at the SHA – District 7 office (5111 Buckeystown Pike) in Frederick to discuss the preliminary transit and highway designs, traffic, upcoming travel demand modeling assumptions and the overall project schedule. The following people were in attendance:

Lorenzo Bryant	Mass Transit Administration	410-767-3754
John Carroll (for Quon Kwan)	Action Committee for Transit	301-588-7606
Hugh Davis	Frederick Co. Transit Advisory Committee	202-314-1325
Derick Hallahan	RK&K/PB Joint Venture	410-728-2900
Michelle Hoffman	State Highway Administration	410-545-8547
J.P. Randle	Worman's Mill Civic Association	301-694-5431
Dick Strombotne	Clarksburg Civic Association	301-540-9597

Engineering Plans – Highway (Combination Alternates A & B)
The proposed highway plans and traffic issues were reviewed, highlighting the main issues along I-270 and US 15:

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

- In the City of Frederick, traffic analyses have shown that three through lanes plus one auxiliary lane (currently two through lanes in each direction) would operate at an acceptable level of service in most areas along US 15. There is one area along US 15 (between US 40/MD 144 and Jefferson Street) where the level of service (LOS) would operate at a failing LOS (LOS F), which is highlighted in the table below:

US 15 Interchanges	2020 Build Combination Alternate A-1 (LRT) & A-2 (BRT) AM(PM) Peak Hour Mainline Level of Service	
	Southbound US 15	Northbound US 15
North of Biggs Ford Road	B(A)	A(B)
Biggs Ford Road to Trading Lane	C(A)	A(C)
Trading Lane to MD 26	C(C)	C(E)
MD 26 to Opossumtown Pike	C(C)	B(C)
Opossumtown Pike to 7th Street	C(C)	B(C)
7th Street to Rosemont Avenue	C(D)	C(C)
Rosemont Avenue to US 40/MD 144	D(D)	D(E)
US 40/MD 144 to Jefferson Street	[redacted]	D(E)
Jefferson Street to I-70 (I-270)	D(D)	C(E)

Along I-270 in Frederick County, traffic conditions would generally operate at an acceptable LOS, except along northbound I-270 through the Monocacy National Battlefield (noted below). In Montgomery County, traffic congestion significantly increases, resulting in poor LOS conditions, even with the inclusion of additional auxiliary lanes between interchange ramps along the C-D lanes. However, the study team has come to the conclusion that, while we are improving the level of service on I-270 and US 15, particular in the 2020 design year, we must be responsible in our design concepts from a cost and environmental stand point. Therefore, with the exception of auxilliary lanes, the typical section will maintain consistent with earlier graphics. This is particularly true in the southeast part of the Corridor, where complex ramp and lane improvements would not significantly improve the levels of service.

I-270 Interchanges	2020 Build Combination Alternate A-1 (LRT)[1] & A-2 (BRT) AM(PM) Peak Hour Mainline Level of Service[2]			
	Southbound I-270		Northbound I-270	
	C-D Lanes	Mainline	Mainline	C-D Lanes
I-70 to MD 85	-	E(C)	B(D)	-
MD 85 to MD 80	-	E(C)	[redacted]	-
MD 80 to Proposed MD 75	-	D(C)	B(E)	-
Proposed MD 75 to MD 109	-	D(C)	B(E)	-
MD 109 to MD 121	-	D(C)	B(E)	-
MD 121 to Proposed Newcut Road	-	D(C)	B(E)	-
Prop. Newcut Road to Father Hurley Blvd.[3]	E(C)	E(C)/D(B)	B(E)/A(E)	C(E)
Father Hurley Boulevard to MD 118	D(B)/D(C)	D(B)	A(E)	[redacted]
MD 118 to Middlebrook Road	E(B)/E(C)	[redacted]	[redacted]	D(D)/C(D)
Middlebrook Road to Prop. Watkins Mill Rd.	[redacted]	[redacted]	B(E)	C(E)
Proposed Watkins Mill Road to MD 124	[redacted]	E(A)	[redacted]	C(E)/D(E)
MD 124 to MD 117	E(D)	E(A)/E(B)	[redacted]	D(E)
MD 117 to I-370	[redacted]	[redacted]	[redacted]	[redacted]
South of I-370	E(D)	[redacted]	[redacted]	[redacted]

Notes:

1. Additional auxiliary lanes beyond those proposed in Combination Alternate A-1 have been proposed in order to improve LOS. An auxiliary lane was proposed along southbound I-270 from the eastbound I-70 to southbound I-270 acceleration lane to the westbound MD 85 deceleration lane. In addition, auxiliary lanes were proposed along the northbound and southbound I-270 Collector-Distributor (C-D) Lanes.
2. Two levels of service are noted in areas where the level of service changes due to the proposed improvements for the I-270/MD 85/I-70 interchange and the slip ramps along the C-D lanes.
3. C-D lanes begin (southbound I-270)/end (northbound I-270) slightly north of Father Hurley Boulevard.

- The horizontal and vertical geometric design of Combination Alternate A continues to be developed. Right-of-way and environmental impacts will be quantified and evaluated as the design progresses. (Combination Alternates A and B share similar designs.)
- The US 15/MD 26 interchange continues to be reviewed for improvements. Currently there are two proposed designs: a standard diamond interchange and an urban diamond interchange.
- Interchange improvements/concepts continue to be considered for US 15 interchanges with Jefferson Street, Rosemont Avenue and US 40/Patrick Street. SHA is considering permanently closing the loop ramp in the southwest quadrant of the US 15/Jefferson Street

interchange in order to eliminate the southbound weave along US 15 between the two loop ramps (the ramp is currently closed as part of the I-70 interchange improvements).

- Several improvement options are under consideration for the I-270/MD 85 interchange. The options are attempting to separate the traffic heading to northbound I-270 and to the MD 85 and I-70 interchanges with the US 15 traffic.
- The I-270/MD 80 interchange is being evaluated for possible geometric improvements.
- The I-270 interchanges at MD 75 and MD 109 continue to be evaluated. Some options under consideration include closure of the existing MD 109 interchange and construction of the MD 75 interchange; partial closure of the MD 109 interchange and a construction of a partial interchange at MD 75; making geometric improvements to the MD 109 interchange and construction of the MD 75 interchange; and maintaining the existing MD 109 interchange and construction of the MD 75 interchange.
- The I-270/MD 121 interchange is being evaluated for possible geometric improvements.
- Interchange concepts have been developed for the proposed I-270/Newcut Road interchange. As with the proposed MD 75 interchange in Frederick County, this interchange would provide access solely to the east side of I-270 (no access to the west would be provided).
- A loop ramp has been proposed for the northwest quadrant of the I-270/Middlebrook Road interchange to reduce the left turn volumes on Middlebrook Road to access I-270 southbound. This loop ramp has the potential for significant wetland impacts; however, SHA will review this proposed loop ramp and will attempt to avoid/minimize impacts to the wetlands.
- Interchange concepts for the I-270/Watkins Mill Road interchange have been developed as a separate planning study and will be evaluated for how they tie into the proposed I-270 improvements.
- A loop ramp was proposed for the southwest quadrant of the I-270/MD 117 interchange in order to alleviate traffic congestion at the MD 124 interchange (due to the removal of an existing loop ramp in the southwest quadrant to construct the park and ride lot).
- The transitway alignment (both the alignment to COMSAT and the right-of-way preservation to Frederick) will ultimately be shown on the highway plan sheets for the public workshops.

Engineering Plans – Corridor Cities Transitway (Combination Alternates A & C)
The group reviewed the preliminary design of the transitway. The following is a general summary of the issues that were discussed:

- Additional clarification will be provided on the plan sheets to identify where the transit alignment will be traveling on a structure, where it will travel below grade and where it will cross existing roads at grade.
- The stations shown on the plan sheets were reviewed. Some have drive access, some walk access only and others have been deferred beyond 2020.
- Existing/proposed properties and developments will be shown along the transitway alignment to fill in the current holes in the mapping.

- The hiker/biker path along the transitway alignment is identified on the plan sheets. In addition, the hiker/biker path will show connections to the proposed bikeway in Montgomery County, primarily for access to transit stations.
- The speeds shown on the plans represent the design speed for each curve along the alignment and will not be shown on the final plans for the workshops since they are not the operating speeds.
- Transitioning a Bus Rapid Transit (BRT) alignment to a Light Rail Transit Alignment (LRT) alignment is a possibility because the transitway alignment is being designed for Light Rail, which has more stringent horizontal and vertical design constraints than a BRT alignment.
- There are three locations identified near COMSAT for the proposed yard/shop. Site 1, which is located near the board of education property, is not favored by MTA – Design Engineers due to environmental and operational issues.

Travel Demand Modeling

The Study Team is in the process of revising and reviewing assumptions to reevaluate transit patronage. This is being referred to as Stage II(b) travel demand modeling, and is based on Round 6.2 Regional Cooperative Land Use Forecasts. The modeling will begin in the next month or so, however, the results of this modeling effort will not be available for the February 2001 workshops. An assumptions table for this effort was distributed to the group for review and comment, and the following changes were highlighted (see attached):

- Change Stage II (b) Land Use forecast model from Round 6.1 to Round 6.2.
- Change the Highway and Transit Network to the 2000 Constrained Long Range Plan (previously the 1997 Constrained Long Range Plan).
- Reduce the LRT headways from ten minutes to six to eight minutes.
- Change Transit Travel Speeds for MARC from 53 mph to 35 mph.
- Possibly change drive access assumptions; auto connect coding will be reviewed to ensure consistency with MWCOG coding conventions.

Informational Public Workshops

The upcoming Informational Public Workshops have been scheduled for February 15, 2001 at Urbana High School in Urbana from 5:30 to 8:30 PM, and will be scheduled also in February 2001 at Martin Luther King, Jr. Middle School in Germantown from 5:30 to 8:30 PM. The meetings will present preliminary travel demand results (traffic and patronage), engineering plans (interchanges, mainline I-270/US 15, transitway, typical sections, illustrative renderings), costs and environmental issues (resources and impacts) in an open house format.

Additional Items/Next Steps

Over the next few months, the Study Team will be completing the preliminary engineering designs of the alternates, performing environmental studies, and will continue to define natural, cultural, historical, and socioeconomic impacts.

The Draft Environmental Document is scheduled to be completed in December 2001and a Location/Design Public Hearing will be held in February 2002. A "Preferred Alternate" will be selected in the fall of 2002, based on the results of the study and on public and agency comments. Location/Design approvals will subsequently be achieved after the final environmental document is completed in the spring of 2003.

Upcoming Meetings

The next Focus Group meeting will be held after the February workshops. Focus Group members will be contacted to determine a possible date.

Please feel free to contact either Michelle Hoffman, the SHA Project Manager, at 410-545-8547 or Lorenzo Bryant, the MTA Project Manager, at 410-767-3754 with any questions.

Attachments
cc: Attendees (with attachments)
File (with attachments)
Focus Group (with attachments)
Project Team (attachments upon request)
MTA (hard copy and attachments)
Frederick County (hard copy and attachments)

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Steve Plano
Project Manager for
Project Planning Division

DATE: July 9, 2001

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: May 31, 2001 Focus Group Meeting

The I-270/US 15 Focus Group met on May 31, 2001 at the Upcounty Regional Services Center in Germantown to discuss citizen comments from the February, 2001 Informational Public Meetings, the alternates repackaging, highway and transitway engineering issues and the Stage IIB travel demand modeling. The following people attended:

Richard Arkin	Kentlands Citizens Assembly	301-827-4359
Jeremy Beck	SHA – Project Planning	410-545-8518
Al Clapp	Urbana Civic Association	301-831-8900
James Clarke	Sierra Club	301-340-8994
Diane Dorney	Kentlands	301-990-8105
Mark Friis	Rodgers and Associates, Inc.	301-948-4700
Dan Goldfarb	BMI	301-562-9633
Derick Hallahan	RK&K for SHA	410-545-8547
Rick Kiegel	McCormick, Taylor & Associates, Inc. for MTA	410-662-7400
Quon Kwan	Action Committee on Transit	301-460-7454
Alan Lehrman	Worman's Mill Civic Association	301-846-4040
Norman Mease	Upcounty Citizens Advisory Board	301-972-0424
Nadia Pimentel	SHA – Project Planning	410-545-8533

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Steve Plano	Parsons Brinckerhoff for SHA	410-545-8547
James Randle	Worman's Mill Civic Association	301-694-5431
Carol Rieg	Upcounty Citizens Advisory Board	301-977-6582
Eric Soter	City of Gaithersburg	301-258-6330
Richard Strombotne	Clarksburg Civic Association	301-540-9597

The meeting began at 7:00 PM with brief introductions. The following is a summary of the topics discussed.

February 2001 Public Meeting Summary

Steve Plano presented a brief overview of the Informational Public Meetings that were held in February 2001 and handed out a sheet summarizing the public comments. He stated that most of the public comments were in regards to site-specific issues. The focus group asked if a tally of the key issues could be distributed. Quon Kwan was concerned that the comments from citizens fearing the transitway might increase crime and decrease property values represent a public perception problem because he felt that his research shows opposite results. Other focus group members added that the public tends to equate the noise impacts of light rail with heavy freight rail, even though light rail is quieter. Steve suggested that the focus group take a field trip along the Baltimore light rail line and tour the yard/shop facility in order to become more familiar with the visual and noise impacts of light rail. It was suggested that the project team present an informational video about light rail at all upcoming public meetings. Rick Kiegel replied that the Mass Transit Administration (MTA) is currently producing an informational light rail video. Steve noted that the Corridor Cities Transitway (CCT) alignment could still accommodate either light rail or a busway, and added that several project team members are planning to visit the Pittsburgh busway in early June.

Alternates Repackaging

Steve discussed the project team's recent efforts to "repackage" the alternates in order to make them easier to understand. He added that none of the elements of each alternate have fundamentally changed; however, the new description of each alternate attempts to make the alternates more distinct. Some focus group members felt that the new Alternates 3 and 4 were confusing because their names were too similar. They suggested that Alternate 3 be renamed "HOV Extended Master Plan" and Alternate 4 be renamed "General Purpose Master Plan" to emphasize the differences between the alternates. The focus group members also asked that the transit components be emphasized to reflect the fact that this is a multi-modal study.

Engineering Issues

Derick Hallahan presented the primary engineering issues associated with the highway and transitway alignments. For highway impacts, it was pointed out that the I-270/Watkins Mill Road Extended and US 15/MD 26 interchanges have been broken out of this study and are being considered in separate State Highway Administration (SHA) planning studies. The team is also improving the I-270/MD 85 interchange in conjunction with a separate SHA study for the MD 85 corridor between Spectrum Drive and English Muffin Way. A few focus group members had questions about the impacts of the proposed MD 75 Extended alignment.

Several focus group members commented on the transitway issues:

- Diane Dorney stated that as road congestion increases, people would move to more transit-oriented development areas. The focus group felt that although the current CCT alignment serves the King Farm development, it misses other employment and residential developments, such as the Kentlands/Lakelands developments and the Life Sciences Center. The focus group members felt that transit ridership would is low as a result of not providing service to these locations, and asked about the Kentlands Alternative alignment in the City of Rockville's transportation program. Rick said that the study team will check if alternate transitway alignments were reviewed in earlier stages of the study, and added that bus rapid transit would allow for much more cross service than light rail, which may allow more developments to be served by the transitway.
- Quon asked if it would be cheaper to run a shuttlebus from a light rail station to an employment/residential development, although it would require a transfer. The focus group felt that ridership would only be lost through transfers if the arrival times were not coordinated. It was asked if bus-to-bus and bus-to-rail transfers have different penalties, and Dan Goldfarb replied that they do.
- Richard Arkin felt that the Rockville and Gaithersburg transportation programs have historically not been well-coordinated.
- The focus group felt that Metrorail is becoming more of an all-day transit mode instead of a peak-period transit mode, and that as Montgomery County becomes more of an inner suburb, the CCT will also be an all-day transit mode.
- Some focus group members felt that it was illogical to end the transitway alignment at the COMSAT property, which they felt is near an existing bottleneck on I-270.

Steve discussed the possible yard/shop locations along the transitway alignment. He stated that although the transitway alignment is included in the Montgomery County master plan, the counties had made no provisions for stations or yard/shop facilities. Steve said that in the environmental document, the impacts of the yard/shop locations would be evaluated separately from the general transitway alignment. It was asked how the transitway crosses the existing CSX tracks south of the Metropolitan Grove station. Steve replied that the transitway crosses under the CSX tracks. The CSX alignment is elevated at this location because it crosses over Quince Orchard Road, and the CCT would have large visual impacts if it crossed over the CSX tracks. The study team will check if the CCT alignment running below the CSX tracks was ever studied.

Travel Demand Modeling

Dan discussed the Stage IIB travel demand modeling assumptions and results. The Stage IIB modeling includes a reevaluation for year 2025 and Round 6.2 land use cooperative forecasts. He stressed that the numbers are preliminary and have not yet been released to the general public. The focus group asked whether the travel demand projections were regional, and Dan replied that the numbers represent just the travel demand on the I-270/US 15 corridor. Dan noted that the new model predicts higher HOV volumes than the older model, and that the new model includes master planned HOV facilities that were not included in earlier models. The focus group asked what the modeling assumptions were for the light rail and busway modes.

Dan replied that light rail has a headway of 8 minutes and an average speed of 22 mph, while the busway is more dynamic, with a maximum frequency of 88 buses/hour, a similar average speed and 20 minute headways on the feeder routes. Dan said that the light rail travel demand also includes feeder bus routes to the stations. The focus group asked why there is a difference in ridership between light rail and bus rapid transit if they both run on the same alignment. Dan replied that the busway has higher ridership forecasts due to its greater connectivity with the existing transportation network with the ability of buses to leave the CCT, make stops on existing streets, and reenter the CCT at another point. Some focus group members felt that the public's perception of light rail as being more appealing than buses should be accounted for in the travel demand projections. However, the MWCOG travel demand model looks at the characteristics of service, not vehicle type.

The focus group asked what transit vehicles the study team is considering for the CCT if a busway is selected; however, the study team is not currently studying individual vehicle characteristics at this stage of the study. Some focus group members feared that articulated buses would be too large for feeder service in neighborhoods, and Steve replied that articulated buses are geometrically compatible with the local streets. Quon said that articulated buses might not have enough horsepower to quickly accelerate once on the CCT, which may have negative impacts on vehicle flow on the transitway. In addition, several focus group members felt that the average busway speeds of 22.5 mph used in the model were too high.

The focus group briefly discussed the capital and operating & maintenance (O&M) costs for light rail and bus rapid transit. A busway would typically have lower right-of-way costs and construction costs than a light rail transitway, but would typically have higher O&M costs due to the need for a greater number of vehicles and operators. The Stage I annual O&M costs for the CCT alignment were slightly higher for a busway than for light rail. The study team has already examined the capital cost for the CCT, and is currently studying the O&M costs. Some focus group members felt that standard 40-foot buses, as compared to articulated buses, would have greater costs due to the need for a greater number of buses and operators. Steve said that the highway and transit components of the study may be funded separately for construction, with the highway improvements most likely being funded for construction before the CCT. Focus group members asked if the two components would then end up competing for funding.

Project Schedule

Steve briefly presented the overall project schedule and highlighted upcoming milestones. A location/design public hearing is anticipated in April 2002. Location/design approval is expected in August 2003 and the signed record of decision is expected in September 2003.

The next Focus Group meeting is tentatively scheduled for August 2001. If you have any questions, please contact Steve Plano, the SHA project manager, at 410-545-8547 or toll-free at 1-800-548-5026, or by email at plano@pbworld.com. Lorenzo Bryant, the MTA project manager, can be reached at 410-767-3754 or by email at lbryant@mta.state.md.us.

C. Streamlined Process Agency Correspondence

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

September 5, 1995

RE: Contract No. F 192-101-771
I-270/US 15 Multimodal Study
from the Shady Grove Metro
Station to Biggs Ford Road
Frederick and Montgomery Counties
PDMS No. 101062

Mrs. Susan J. Binder
Division Administrator
Federal Highway Administration
The Rotunda-Suite 220
711 West 40th Street
Baltimore MD 21211

Attention: Mr. David Lawton

Dear Mrs. Binder:

In accordance with the combined NEPA/404 process, the Maryland State Highway Administration seeks your concurrence on the signature line below indicating your agreement with the attached Purpose and Need for the I-270/US 15 Multimodal Study. A draft Purpose and Need Statement was sent to you prior to the Purpose and Need presentation at the Interagency Review meeting held on June 15.

Please provide us with your concurrence or response by October 20, addressed to Ms. Gay L. Olsen of the Project Planning Division. Should you have any questions, please feel free to call Joseph Kresslein at (410) 333-1180.

Sincerely,

Hal Kassoff
Administrator

by: Cynthia D. Simpson for
Neil J. Pedersen, Director
Office of Planning
and Preliminary Engineering

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Concurrence:

for George V. Fick
Federal Highway Division Administrator

11-1-95
Date

HK:NJP
Attachment
cc: Mr. Dennis M. Atkins
Mr. Louis H. Ege
Ms. Anne Elrays
Mr. Joseph R. Kresslein
Ms. Gay L. Olsen
Ms. Cynthia Simpson
Ms. Mona Sutton

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

September 5, 1995

RE: Contract No. F 192-101-771
I-270/US 15 Multimodal Study
from the Shady Grove Metro
Station to Biggs Ford Road
Frederick and Montgomery Counties
PDMS No. 101062

Mr. Keith Harris
Special Projects Section
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore MD 21201

Attention: Mr. Art Coppola
CENAB-OP-R

Dear Mr. Harris:

In accordance with the combined NEPA/404 process, the Maryland State Highway Administration seeks your concurrence on the signature line below indicating your agreement with the attached Purpose and Need for the I-270/US 15 Multimodal Study. A draft Purpose and Need Statement was sent to you prior to the Purpose and Need presentation at the Interagency Review meeting held on June 15, 1995.

Please provide your concurrence or response by October 20, 1995 addressed to Ms. Gay L. Olsen of the Project Planning Division. Should you have any questions, please feel free to call Joseph Kresslein at (410) 333-1180.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: _____
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Keith Harris
Page Two

Concurrence:

_____
U.S. Army Corps of Engineers

9/18/95
Date

LHE:AE
Attachment
cc: Mr. Dennis Atkins
Mr. Louis H. Ege
Ms. Anne Elrays
Mr. Joseph R. Kresslein
Ms. Gay Olsen
Ms. Cynthia Simpson
Ms. Mona Sutton

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

PROJECT DEVELOPMENT DIVISION
OCT 17 10 58 AM '95
RECEIVED

September 5, 1995

RE: Contract No. F 192-101-771
I-270/US 15 Multimodal Study
from the Shady Grove Metro
Station to Biggs Ford Road
Frederick and Montgomery Counties
PDMS No. 101062

Mr. Robert Zepp
U.S. Department of Interior
Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis MD 21401

Attention: Mr. William Schultz

Dear Mr. Zepp:

In accordance with the combined NEPA/404 process, the Maryland State Highway Administration seeks your concurrence on the attached Purpose and Need for the I-270/US 15 Multimodal Study. A draft Purpose and Need Statement was sent to you prior to the Purpose and Need presentation at the Interagency Review meeting held on June 15, 1995.

Please provide us with your concurrence by October 20, 1995 addressed to Ms. Gay L. Olsen of the Project Planning Division. Should you have any questions, please feel free to call Joseph Kresslein at (410) 333-1180.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Robert Zepp
Page Two

William Schultz
Fish and Wildlife Service

9/23/95
Date

I-270/US 15 Multimodal Study

LHE:AE
Attachment
cc: Mr. Dennis Atkins
Mr. Louis H. Ege
Ms. Anne Elrays
Mr. Joseph R. Kresslein
Ms. Gay L. Olsen
Ms. Cynthia Simpson
Ms. Mona Sutton

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

September 5, 1995

RE: Contract No. F 192-101-771
I-270/US 15 Multimodal Study
from the Shady Grove Metro
Station to Biggs Ford Road
Frederick and Montgomery Counties
PDMS No. 101062

Mr. Roy Denmark, Chief
NEPA Compliance Section
Environmental Protection Agency
Region III
841 Chestnut Avenue
Philadelphia PA 19107

Dear Mr. Denmark:

In accordance with the combined NEPA/404 process, the Maryland State Highway Administration seeks your concurrence on the signature line below indicating your agreement with the attached Purpose and Need for the I-270/US 15 Multimodal Study. A draft Purpose and Need Statement was sent to you prior to the Purpose and Need presentation at the Interagency Review meeting held on June 15, 1995.

Please provide us with your concurrence or response by October 20, 1995 addressed to Ms. Gay L. Olsen of the Project Planning Division. Should you have any questions, please feel free to call Joseph Kresslein at (410) 333-1180.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: _____
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Roy Denmark
Page Two

Concurrence:

_____ 10.23.95
Environmental Protection Agency Date

LHE:AE
Attachment
cc: Mr. Dennis Atkins
Ms. Mary Ann Boyer
Mr. Louis H. Ege
Ms. Anne Elrays
Mr. Joseph R. Kresslein
Ms. Gay L. Olsen
Ms. Cynthia Simpson
Ms. Mona Sutton

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

PROJECT DEVELOPMENT DIVISION
OCT 2 10 02 AM '95

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MARYLAND HISTORICAL TRUST

September 5, 1995

RE: Contract No. F 192-101-771
I-270/US 15 Multimodal Study
from the Shady Grove Metro
Station to Biggs Ford Road
Frederick and Montgomery Counties
PDMS No. 101062

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

In accordance with the combined NEPA/404 process, the Maryland State Highway Administration is providing you a copy of the attached Purpose and Need Statement for the I-270/US 15 Multimodal Study. The Purpose and Need was presented at the Interagency Review meeting held on June 15, 1995.

Should you have any questions, please feel free to call Joseph Kresslein at (410) 333-1180.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: [signature]
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Archeo: #2 per BC 9/19/95
Ph. I will be needed

" MHT HAS NO OBJECTION TO THE
P & N STATEMENT"
[signature] 9/29/95

My telephone number is ______

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PROJECT DEVELOPMENT DIVISION
NOV 2 2 54 PM '95

MARYLAND *Office of Planning*

Parris N. Glendening
Governor

October 30, 1995

Ronald H. Kreitner
Director

Gay L. Olsen
Project Planning Division
State Highway Administration
P.O. Box 717
707 North Calvert Street
Baltimore, MD 21203-0717

Dear Ms Olsen:

Staff at the Maryland Office of Planning have reviewed the statement on the **Purpose and Need for I-270/U.S. 15 Multi-modal Study.** Our comments and questions follow.

Why is there no mention in the Background discussion that this is a Major Investment Study? OP staff obtained materials at the MIS kick-off meeting held in May 1995, which identified key steps for this MIS Study. Preparation of the Purpose and Need and identification of the Measures of Effectiveness were listed as first steps. When in the NEPA process will the MOE be discussed?

We understand this to be a study jointly sponsored by the SHA and the MTA. We do not find the background and analysis on transit provided in this document to be adequate. The specific areas of concern are noted in some of our comments.

Goal number five for this project is to "make optimal use of existing infrastructure while making cost effective investments in facilities and services which support other project goals." Each of the other four project goals is written to stand alone. Why is goal to optimize public investment cost effectiveness contingent on other project goals?

The project study area has been given two definitions. One has been identified in Figure 2 to include only the highway corridor and the MARC line corridor. However, for adequate analysis of the growth management and land use impacts we clearly support the other study area as shown in Figure 5, which is broader. One study area should be identified.

301 West Preston Street • Baltimore, Maryland 21201-2365
Comprehensive Planning: (410) 225-4562 Fax: 225-4480

The P&N statement further identified three "distinct components which differ in terms of physical characteristics." The MARC corridor is clearly distinguished by different needs and types of service yet, it is not even mentioned as a distinct component. If the study corridor area is to be broken into components for the evaluation of alternatives, then all major corridor components should be included.

Although the purpose of the study has been identified to include optimizing travel choices by mode, the supporting documentation is not provided for transit to be considered comparably with highway alternatives. The three paragraphs devoted to transit include ridership data on bus and rail services. The ridership information for MARC service, "Meet the MARC" bus service, and the Shady Grove Metro Station is for the peak period. However, the information provided for the Frederick Transit and Ride-On service is daily ridership. This data should be presented in a consistent format for a comparable time period.

The maps and background data provided on the highway are adequate. A map of 2020 link peak hour LOS would demonstrate the conclusion that unacceptable operating conditions on I-270 will continue even with all of the planned improvements in the corridor. An assessment of travel demand from 1966 to 1993 has been prepared for the highway, showing 5% average growth per year. Since MARC ridership has grown significantly in Maryland, it is important to include a comparable analysis of ridership growth on MARC and other transit services in the study area. This should include an assessment of the volume/capacity ratio on the various transit alternatives.

MDOT's 1995-2000 CTP includes a project to install an advanced traffic management system along I-270 from I-495 to MD 121. This congestion management project and its impact on the corridor should be discussed.

Some assessment of the safety of the transit modes should also be provided, since it is provided for the highway.

The section on regional growth and land use provides information on existing population and employment growth forecasts. However, there is no discussion of the development densities planned in the study area by Frederick and Montgomery Counties. Low density land use patterns in the study area will influence the viability of transit alternatives that may be proposed. We think that there needs to be an analysis of the proposed land use patterns as currently planned and their impact on possible transportation alternatives for this study. We further believe that the potential for land use options needs to be considered as part of the analysis of alternatives for the I-270/US 15 Study. We suggest that there be a meeting with SHA, OP, the local jurisdictions, the MTA and others you may wish to include, to discuss the role of land use strategies in the study.

We will look forward to hearing from SHA regarding our comments and questions on this project. Please contact me or Christine Wells to discuss follow-up to our comments.

Sincerely,

James T. Noonan

cc: Suhair Alkhatib, MTA
Mala Rao, OP Regional Planner
Christine Wells, OP

3

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

December 19, 1996

RE: Project No. FR192B11
I-270/US 15 Multi-Modal Study
from the Shady Grove Metro
Station to Biggs Ford Road
Frederick and Montgomery counties

Mr. James T. Noonan
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201-2365

Dear Mr. Noonan:

Our office received comments on the Purpose and Need Statement for the above referenced project from the Maryland Office of Planning in November of 1995. We also received comments on the project Measures of Effectiveness (MOEs) in February of 1996. The project management team has reviewed your comments and offers the following explanations and/or additional information. We apologize for the delay in responding to your comments.

Purpose and Need

We have tried to address everything in the same order as the comments in your letter. Suggested revisions to the Purpose and Need are shown in italics, and will be incorporated for inclusion in the Environmental Document.

One of your comments is that there is no mention in the **BACKGROUND** discussion that this is a Major Investment Study (MIS). Indeed, it may have been appropriate to add a couple of sentences in this section to explain that this study is an MIS in addition to being a Project Planning/NEPA Study. An MIS "kick-off" presentation was given to the agencies at the March 15, 1995 Interagency Review Meeting to review the following: the key steps in the study, the alternatives/strategies to be investigated, the level of analysis to be utilized, the roles of the agencies, and the public involvement process. Since the agencies had been briefed on these items, and all MIS documentation will most likely be incorporated into the final environmental document, we did not emphasize the fact that the project is an MIS in this particular document. *A brief history and description of the project as an MIS will be included in the **BACKGROUND** discussion.*

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

You had a question regarding goal number five, "Optimize Public Investment". This goal was simply meant to promote cost effectiveness. It is related to the other goals in that funds would be invested towards the improvement of transportation in the corridor. However, it also allows for cost effectiveness regarding other important issues such as environmental preservation and protection. This goal is not meant to be dependent upon any other goals, but is meant to direct the investments towards the proper destination. Making investments in something which would not in some way benefit transportation in the corridor would not be cost effective.

The issue of the project study area has been debated by our project team since the study began. Traditionally, the project planning study area has been denoted by the potential limits of disturbance as a result of the worst-case impacts from the proposed alternatives. The traditional study area is represented in Figure 2, which includes the highway corridor and the MARC corridor.

Figure 5 shows the approximate boundaries of several activity centers along the corridor. Obviously, the growth in these areas will affect future transportation in the corridor, which is why this information is incorporated into the traffic projections. The planning areas shown are not the only areas that feed into the corridor or expect significant growth. There are also locations not shown on the map, other existing or potential input areas, which are automatically included in the travel projections as well.

We understand that a broader area, such as that shown in Figure 5, is necessary to address growth management and land use impacts. However, we are designating a "traditional" study area for purposes of NEPA environmental and alternative analysis.

Another comment focused on the "three components" of the I-270/US 15 corridor. This was discussed to demonstrate the varying needs of different portions of the I-270/US 15 roadway, and make sure that they were addressed as part of the study. You are correct in saying that the MARC corridor is an entirely different component of the transportation system. Obviously these differences will be taken into account when analyzing the alternatives and strategies. *A MARC Corridor "component" will be included to more accurately describe the corridor and its need in the **NEED FOR PROJECT** discussion.*

You indicated in your comments that because some of the transit ridership data was presented in different formats, highway and transit alternatives would not be equally compared. For ridership data on the various transit mode, the data presented was simply the data most frequently used by each transit agency and most readily available. Please refer to the attached table for additional available data. Concerning the equal comparison of highway and transit alternatives, the team has gone through painstaking efforts, especially in developing the MOEs (discussed later), to ensure that both modes

will be compared as equally as possible. *The attached table will be added to the appendix and referenced in the text of the* ***EXISTING TRANSPORTATION FACILITIES - Transit*** *discussion for a more consistent comparison of transit ridership data.*

Please refer to the attached map of 2020 link peak hour LOS to address one of your comments related to future travel demand. *A map showing 2020 link peak hour LOS along the corridor will be added to the appendix and referenced in the text of the* ***NEED FOR PROJECT - Travel Demand*** *discussion.*

You also requested an assessment of transit ridership growth for MARC and other transit services in the study area. We have compiled and summarized this information in a table format as part of the attachments. Regarding an assessment of the volume/capacity ratio on the various transit alternatives, this type of analysis is not typically done and therefore no such data is available. An assessment of the safety of the transit modes is not normally completed for MTA environmental documents and is not available at this time. However, one of the study's objectives is to improve existing and future safety conditions. The I-270 Focus Group is very concerned about safety of the various modes and alternatives. Please be assured that this issue will not be ignored. *This ridership growth table will be included in the appendix and referenced in the text of the* ***NEED FOR PROJECT - Travel Demand*** *discussion.*

You mention a project in the 1995-2000 CTP to install an advanced traffic management system along I-270 from I-495 to MD 121. This project consists of the installation of variable message signs, closed circuit television, pavement condition sensors, traffic detectors, fiber optics, traveler's advisory radio, median barrier gates and supplemental signing within the project's limits. The project will link this area to the Statewide Operations Center at the Office of Traffic and Safety, resulting in improved incident responses and a reduction in incident-related congestion. This project is expected to be completed in the Spring of 1998. *A summary of this project will be included, most likely in the* ***EXISTING TRANSPORTATION FACILITIES*** *discussion.*

Although it is not within the scope of this study to directly address land use and density issues, the study team is acutely aware of the connection between these issues and the visibility of any transit alternatives proposed. You are probably already aware that there are representatives from Maryland-National Capital Park and Planning Commission, the Montgomery County Department of Public Works and Transportation, and the Frederick County Department of Planning and Zoning on the study team to ensure a cooperative approach is used to address these issues. The counties have already oriented the proposed land use patterns, zoning and densities included in their master plans according to the location of the proposed transitway, also included in their master plan.

In addition, with input from the county planners, the team incorporated these issues into Goal 1 - Support Orderly Economic Growth. The objectives that correspond to that goal are: 1) Improve accessibility of existing and planned economic development areas, and 2) Demonstrate consistency with applicable land use and transportation plans.

A brief discussion of these land use and density issues will be included in the ***REGIONAL GROWTH AND LAND USE PATTERNS*** *discussion, and expanded on in the* ***CONSISTENCY WITH MASTER PLANS*** *section.*

Measures of Effectiveness

Although the MOEs were developed by the project team and agreed upon by the focus group, they are constantly being challenged and discussed by the project team and are subject to revision as the study progresses.

One of your comments is that the priority function of I-270 as an interstate is not reflected in the MOEs. The team is more than aware that there are certain alternatives which would better address long distance trips and ones which better address more local or collector type travel. There are also MOEs to assess both as well, but they are not specifically labeled as such. The team attempted to address both types of corridor travel by using the word "throughout" in the wording for Goal #2, ENHANCE MOBILITY: Provide enhanced traveler mobility throughout the I-270/US 15 Corridor.

As an example, an MOE under GOAL #2 which would assess local travel is 1.a, or the AM peak period travel time between selected locations. The selected locations could be chosen to represent a typical local trip. An MOE which would assess how an alternative affects long distance travel may be 1.b, percent reduction in AM peak period person hours traveled. As you point out, I-270 provides an interstate function, and this is of primary importance to SHA. However, this is a joint study with MTA, and the project team includes representatives from many diverse organizations with different interests and priorities. Instead of focusing on only the interstate highway, the team focused on developing measures to analyze the corridor's transportation system, being careful to treat transit and highways equally.

The distinction between Stage I Objectives/MOEs and Subsequent Stage Objectives/MOEs is simple. As the study team was developing the goals, objectives and MOEs for this study, we discovered that some of the Objectives and MOEs were more appropriately applied during Stage I Project Planning to provide an initial, preliminary evaluation of the alternatives under consideration. To the contrary, some of the objectives and MOEs either required more detailed analysis not included in the current scope, or did not provide information critical in comparing the alternative modes. The team did not want to forget about these objectives and MOEs, so they were

retained to be considered for subsequent stages of study. "Subsequent" stages could include Stage II Project Planning or even a latter part of Stage I. *The project team plans to re-evaluate the MOEs before completing Stage I. This will include: reassessing both Stage I and Stage II MOEs, determining which MOEs are most appropriate to use for the remainder of Stage I, and checking whether any Stage II MOEs would be useful during Stage I.*

Regarding Stage I MOE #1, we believe the MOEs are adequate to measure travel between development areas, which fall under the goals of Economic Growth and Mobility. Travel within development areas may not always fall within the scope of this study. Many smaller studies and projects exist which seek to improve travel within smaller development areas. This study will not attempt to investigate traffic in every development area, as this would be a significant task. Yet, the project team will identify problem areas when they can and handle them on a case be case basis.

Concerning the 45 minute time frame used in several MOEs under Goal #1, this number originated from the Metropolitan Washington Council of Governments. They have been consistently applying this same measure with 45 minutes to all regional projects. You indicate that the 45 minute commute time is not appropriate for truck movements through the corridor, yet there is no mention of a 45 minute commute time in any of the MOEs under the IMPROVE GOODS MOVEMENT goal. The primary movement being targeted by this MOE is the home-to-work trip. For other types of movements, other MOEs such as travel time between selected locations (MOE 2.1.a) would probably be utilized.

You seem concerned about using the AM peak period LOS as a measure to determine appropriate transportation improvements, however, peak period LOS has always been used for this purpose. There is no such thing as an average daily LOS. To look at the "overall efficiency" of a transportation facility, you have to look at its performance during the peak traffic period. This measure (MOE 1.3.a) is already being used by Montgomery County to assess the peak period LOS in a traffic analysis zone (TAZ). Therefore, it is already somewhat of an average since it is not the LOS along one portion of a roadway, but in the entire zone.

You discuss a way to measure objective 1.2 by assessing the type of land use and development densities in the master plan for consistency with the alternatives, and by assessing whether the alternatives are consistent with the master plans. This is something which has already been suggested and is being investigated by our consultant. A combination of both methods will most likely be utilized in applying this MOE.

The project schedule calls for the completion of Stage I Project Planning activities by the Spring of 1997. Please let us know if you are still interested in meeting

with us. If you have any further questions regarding transit, please feel free to call Suhair Alkhatib, the MTA project manager. Otherwise, please call Donald Sparklin at 545-8564 or Michelle Hoffman at 545-8547. Thank you again for your participation.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Donald Sparklin
Donald Sparklin
Project Manager
Project Planning Division

Attachments
cc: Mr. Suhair Alkhatib
Ms. Michelle D. Hoffman
Mr. Alan H. Straus

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

November 4, 1998

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Elder Ghigiarelli
Maryland Department of the Environment
Water Management Administration
Non-Tidal Wetlands and Waterways Division
2500 Broening Highway
Baltimore MD 21401

Dear Mr. Ghigiarelli:

Consistent with the NEPA/404 process, the Maryland State Highway Administration requests your concurrence on the signature line below, indicating your agreement with the Alternates Retained for Detailed Study for the I-270/US 15 Multimodal project. The Alternates Retained for Detailed Study were presented at the last Interagency Review meeting, held on October 21 and are documented in the attached summary.

Please provide your concurrence by December 7. Your response should be addressed to the attention of Ms. Gay Olson in the Project Planning Division. If we do not hear from you within 30 days we will assume that you have no concerns. Should you have any questions, please feel free to call Joseph Kresslein at 410-545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Alternates Retained for Detailed Study

Please check one:

☑ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attached)

Elder A. Ghigiarelli
Maryland Department of the Environment

11/17/98
Date

LHE:AE
Attachment
cc: Mr. Terry Clark, MDE
Mr. Ray Dintaman, DNR
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays
Ms. Michelle D. Hoffman
Mr. William Hollinau, EPA
Mr. John Howard, NPS
Mr. Joseph R. Kresslein
Mr. J. Rodney Little, MHT
Mr. Robert Sanders
Mr. David Sutherland, FWS
Ms. Bihui Xu, MDP

Parris N. Glendening
Governor

Maryland Department of Natural Resources
ENVIRONMENTAL REVIEW
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Carolyn D. Davis
Deputy Secretary

December 17, 1998

Gay Olsen
Project Planning Division
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Dear Ms. Olsen:

This letter is in reply to Joseph Kresslein's letter of request, dated November 4, 1998, for Maryland Department of Natural Resources (DNR) concurrence on the Alternates Retained for Detailed Study for the I-270/U.S. 15 Multimodal project, from the Shady Grove Metro Station in Montgomery County to North of Biggs Ford Road in Frederick County. Project No. FR192B11.

The Department participated in discussions of this project at the Interagency Meetings. We concur with the Alternates Retained for Detailed Study as presented in the October, 1998 package. We have previously contacted Ms. Anne Elrays of the State Highway Administration regarding a minor wording change necessary in the description of the Scenic and Wild River Program referred to on page 17 of the package. Also, we encourage the State Highway Administration to develop project plans which will first avoid and then minimize impacts to natural resources, including fish and wildlife habitat, wetlands, and waterways in the project study area. In addition, we note that the project area is a heavily used commuting corridor which carries a large number of long distance trips. We strongly advocate progressive planning and maximized use of mass transportation alternatives to single car trips, such as car pooling, bus transportation, and future rail transit.

Also, we remind you that any potential impacts to DNR lands should be coordinated at the earliest possible time with our Resource Planning Unit (contact person: Arnold Norden, at 410-260-8406). At least two DNR properties, Urbana Lake and Seneca Creek State Park, may be affected by this project. Our review of wetland and waterway impacts through the interagency NEPA/404 process is a separate review, and does not fulfill DNR's requirements to review impacts to DNR property.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 260-8334.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

cc: Arnold Norden, Resource Planning

Telephone:
DNR TTY for the Deaf: (410) 974-3683

Mr. Ray Dintaman
I-270/US 15 Multimodal Project
Frederick and Montgomery Counties
Page Two

Alternates Retained for Detailed Study

Please check one:

☐ Concur (without comments)

☒ Concur (comments attached)

☐ Do not concur (comments attached)

Ray C. Dintaman, Jr.
Maryland Department of Natural Resources

12-17-98
Date

LHE:AE
Attachment
cc: Mr. Terry Clark, MDE
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays
Mr. Elder Ghigiarelli, MDE
Mr. William Hoffman, EPA
Ms. Michelle D. Hoffman
Mr. John Howard, NPS
Mr. Joseph R. Kresslein
Mr. J. Rodney Little, MHT
Mr. Robert Sanders
Mr. David Sutherland, USFWS
Ms. Bihui Xu, MOP

Mr. William Hoffman
I-270/US 15 Multimodal Project
Frederick and Montgomery Counties
Page Two

Alternates Retained for Detailed Study

Please check one:

☒ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attached)

U.S. Environmental Protection Agency

12/21/98
Date

LHB:AE
Attachment
cc: Mr. Terry Clark, MDE
Mr. Ray Dintaman, DNR
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays
Mr. Elder Ghigiarelli, MDE
Ms. Michelle D. Hoffman
Mr. John Howard, NPS
Mr. Joseph R. Kresslein
Mr. J. Rodney Little, MHT
Mr. Robert Sanders
Mr. David Sutherland, FWS
Ms. Dihui Xu, MDP

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

November 4, 1998

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Nelson J. Castellanos
Division Administrator
Federal Highway Administration
The Rotunda - Suite 220
711 West 40th Street
Baltimore MD 21211

Attention: Ms. Pamela Stephenson

Dear Mr. Castellanos:

Consistent with the NEPA/404 process, the Maryland State Highway Administration requests your concurrence on the signature line below, indicating your agreement with the Alternates Retained for Detailed Study for the I-270/US 15 Multimodal project. The Alternates Retained for Detailed Study were presented at the last Interagency Review meeting, held on October 21, and are documented in the attached summary.

Please provide your concurrence by December 7. Your response should be addressed to the attention of Ms. Gay Olsen in the Project Planning Division. If we do not hear from you within 30 days we will assume that you have no concerns. Should you have any questions, please feel free to call Joseph Kresslein at 410-545-8550.

Sincerely,

Parker F. Williams
Administrator

by: _____
Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

(888) 204-4828
My telephone number is _____
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Alternates Retained for Detailed Study

Please check one:

- [X] Concur (without comments)
- [ ] Concur (comments attached)
- [ ] Do not concur (comments attached)

_____ 12-9-98
Federal Highway Administration — Date

Attachment
cc: Mr. Terry Clark, MDE
Mr. Ray Dintaman, DNR
Mr. Louis H. Ege, Jr.
Mr. Steve Flinsky, COE
Ms. Anne Elrays
Mr. Elder Ghigiarelli, MDE
Ms. Michelle D. Hoffman
Mr. William Hoffman, EPA
Mr. John Howard, NPS
Mr. Joseph R. Kresslein
Mr. J. Rodney Little, MHT
Mr. Robert Sanders
Mr. David Sutherland, FWS
Ms. Bihui Xu, MOP

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

November 4, 1998

Re: Project No. FR19ZB11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Richard Spencer
U.S. Army Corps of Engineers
CENAB-OP-RX
PO Box 1715
Baltimore MD 21201

Attention: Mr. Steve Elinsky

Dear Mr. Spencer:

Consistent with the NEPA/404 process, the Maryland State Highway Administration requests your concurrence on the signature line below, indicating your agreement with the Alternates Retained for Detailed Study for the I-270/US 15 Multimodal project. The Alternates Retained for Detailed Study were presented at the last Interagency Review meeting, held on October 21 and are documented in the attached summary.

Please provide your concurrence by December 7. Your response should be addressed to the attention of Ms. Gay Olsen in the Project Planning Division. If we do not hear from you within 30 days we will assume that you have no concerns. Should you have any questions, please feel free to call Joseph Kresslein at 410-545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

410-545-8500
My telephone number is _____
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Alternates Retained for Detailed Study

Please check one:

- ☐ Concur (without comments)
- ☑ Concur (comments attached)
- ☐ Do not concur (comments attached)

U.S. Army Corps of Engineers — Date: 12-7-98

LHE:AE
Attachment
cc: Mr. Terry Clark, MDE
Mr. Ray Dintaman, DNR
Mr. Louis H. Ege, Jr.
Mr. Steve Elinsky, COE
Ms. Anne Elrays
Mr. Elder Ghigiarelli, MDE
Mr. William Hoffman, EPA
Ms. Michelle D. Hollman
Mr. John Howard, NPS
Mr. Joseph R. Kresslein
Mr. J. Rodney Little, MHT
Mr. Robert Sanders
Mr. David Sutherland, FWS
Ms. Bihui Xu, MOP

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO ATTENTION OF

Operations Division

DEC 07 1998

Subject: CENAB-OP-RX (MD SHA/I 270/US 15/MULTIMODAL PROJECT FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD/FREDERICK AND MONTGOMERY COUNTIES/ALTERNATIVES RETAINED FOR DETAILED STUDY) 96-00876 12

Maryland State Highway Administration
Attn: Ms. Gay Olsen
707 North Calvert Street
Baltimore, Maryland 21202

Dear Ms. Olsen:

The U.S. Army Corps of Engineers, Baltimore District (Corps) has reviewed the Alternatives Retained for Detailed Studies package and offers the following comments and recommendations. The Corps concurs with the Alternatives package with the following comments:

1. The Maryland State Highway Administration (MD SHA) must develop and include variations of Interchange Options 4 and 5 which would avoid the existing palustrine forested wetland systems (PFO) presently located in those areas. It is anticipated that during the functional assessment of the wetland systems associated with I-270/US 15 project, the PFO's associated with the two interchange options will be determined to provide high functions and values to the natural environment.

2. The SHA and Maryland Mass Transit Association (MTA) will also be required to demonstrate the avoidance and minimization of impacts to waters of the United States including jurisdictional wetlands throughout the I-270/US 15 Intermodal Project consistent with the Section 404(b)(1) guidelines of the Clean Water Act.

The Corps also forwards the following recommendations to avoid and/or minimize impacts to waters during the development of any alternative/option to be used in the Draft Environmental Impact Statement:

(a). While shoulders should be designed to meet the project purpose and provide for safety, the inside and outside shoulder widths should be minimized to reduce the overall footprint of the project thereby avoiding and/or minimizing impacts to waters of the United States.

(b). Where applicable, sideslopes and grading should be reduced to avoid or minimize impacts to waters. MD SHA should also examine the use of retaining walls at the toe to further reduce impacts.

(c). Where applicable, any proposed widening of I 270/US 15 should be directed towards the median. This would exclude areas in the median where stream systems (i.e., Wildcat Branch) or jurisdictional wetlands presently occur.

(d). Streams that are presently located at or near the toe of slope that would be filled during construction should be relocated rather than piped.

(e). Where applicable, any culvert that is to be extended or constructed should be designed to allow fish/animal passage.

(f). During the investigation of alignments for mass transit, the MTA should examine the study area for the presence of any existing inactive railbeds that could be utilized for rail lines.

(g). All proposed park and ride facilities associated with the entire project will be examined for impacts to waters of the United States. Any impacts to those areas will be applied to the overall impacts associated with I-270/US 15 Intermodal Project.

(h). MD SHA and MTA should immediately begin a preliminary search for sites that would provide viable compensatory mitigation.

2

If you have any questions regarding this matter, please contact Mr. Steve Blinsky of this office at (410) 962 4503.

Sincerely,

Richard K. Spencer
Acting Chief, Special Projects
Permits Section

Copy furnished:
EPA
FHWA
USFWS
MDE (nontidal)
MDP
MHT

3

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M. Hoffman

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Nelson J. Castellanos
Division Administrator
Federal Highway Administration
The Rotunda – Suite 220
711 West 40th Street
Baltimore MD 21211

Attention: Ms. Pamela Stephenson

Dear Mr. Castellanos:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

One additional concept that will be added to one of the project alternatives, Combination Alternate B, consists of converting two existing High Occupancy Vehicle (HOV) lanes, one lane northbound/southbound, to high occupancy toll (HOT) lanes in the median from I-70 south to I-370. The HOT lanes are being considered as a value pricing strategy to more efficiently manage highway capacity and would be included within the footprint of any of the combination alternates. Finally, the conversion of the existing inside shoulder of the southbound I-270 lane between MD 121 and I-370 to an HOV lane is proposed as part of the TSM/TDM Alternate. This will consist mainly of restriping and will allow for the HOV system on I-270 to start and end at the same locations (I-495 to the south and MD 121 to the north).

(888) 204-4828
My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

We request your concurrence on the signature line below, indicating your agreement with the revised Alternates Retained For Detailed Study by June 19, addressed to the attention of Ms. Gay L. Olsen in the Project Planning Division. Please feel free to call Michelle Hoffman, the project manager, at 410-545-8547 or Anne Elrays, the environmental manager, at 410-545-8562 if you should have any questions or toll free at (800) 548-5026.

Please check one:

☐ Concur (without comments)

☒ Concur (comments attached)

☐ Do not concur (comments attach

CONCURRENCE:

Pamela S Stephenson for — June 15, 199

Federal Highway Administration
Division Administrator — Date

Sincerely,

Parker F. Williams
Administrator

by: _____
Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

From: Steve Kapley
To: PSSTEPHENSON
Date: 6/15/99 10:41am
Subject: I-270 Project response

Based on the guidance provided in the Federal-aid highway program guidance on HOV lanes and the request for concept revision in the May 19, 1999 letter from the State Highway Administration, I suggest that we provide the following conditions to our approval of the proposed conversion of two existing HOV lanes to HOT lanes:

1) A conformity analysis of the revised transportation plan and TIP including the proposed HOT lanes should be conducted by the Metropolitan Washington Council of Governments;

2) The proposed change should be designed to improve the safety and operation of the facility. Appropriate geometric and design features (such as cross-section, alignment, lane and shoulder widths, etc.) should support the proposed new use.

3) If the proposed HOT facility results in a significant change in operation from the existing HOV facility, such change should be addressed through revision or updating of the Congestion Management System.

See attached referenced guidance.

CC: PELESSROVDC, AMIMOJOSA

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

July 13, 1999

RE: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to
North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Nelson J. Castellanos
Division Administrator
Federal Highway Administration
The Rotunda - Suite 220
711 West 40th Street
Baltimore MD 21211

Attention: Ms. Pamela Stephenson

Dear Mr. Castellanos:

We are in receipt of the Federal Highway Administration's (FHWA) concurrence with comments on the revisions to the Alternates Retained for Detailed Study for the I-270/US 15 Multi-Modal Corridor Study. I would like to respond to the comments attached to your concurrence letter.

The State Highway Administration (SHA) is aware of the policies concerning High Occupancy Vehicle (HOV) lanes as set forth in the Federal-Aid Highway Program Guidance. Conversion of existing and proposed HOV lanes to High Occupancy Vehicle/Toll (HOT) lanes is only one option of all of the Combination Alternates under consideration in the detailed planning study. Please note that a conformity analysis would be conducted for the preferred alternate prior to completion of the final environmental document. In addition, the Metropolitan Washington Council of Governments (MWCOG) is pursuing a regional analysis of HOT lanes, while the Maryland Department of Transportation (MDOT) is initiating a Value Pricing Study.

The HOT lanes for the I-270/US 15 Multi-Modal Corridor Study are a part of Combination Alternate B and would be designed in a manner to maximize both the safety and traffic operations of the I-270 Corridor. Finally, MDOT maintains and updates as needed the Congestion Management System (CMS) for all of the Maryland corridors.

My telephone number is (888) 204-4828
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Please feel free to call Michelle Hoffman, the project manager, at 410-545-8547 or Anne Elrays, the environmental manager, at 410-545-8562 if you should have any questions. Both Ms. Hoffman and Ms. Elrays can also be reached toll-free within Maryland at 1-800-548-5026.

Sincerely,

Parker F. Williams
Administrator

by: Neil J. Pedersen
Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

cc: Ms. Anne Elrays
Ms. Michelle Hoffman
Ms. Marsha Kaiser
Ms. Cynthia D. Simpson

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Richard Spencer
U.S. Army Corps of Engineers
CENAB-OP-RX
P.O. Box 1715
Baltimore MD 21201

Attention: Mr. Steve Elinsky

Dear Mr. Spencer:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

One additional concept that will be added to one of the project alternatives, Combination Alternate B, consists of converting two existing High Occupancy Vehicle (HOV) lanes, one lane northbound/southbound, to high occupancy toll (HOT) lanes in the median from I-70 south to I-370. The HOT lanes are being considered as a value pricing strategy to more efficiently manage highway capacity and would be included within the footprint of any of the combination alternates. Finally, the conversion of the existing inside shoulder of the southbound I-270 lane between MD 121 and I-370 to an HOV lane is proposed as part of the TSM/TDM Alternate. This will consist mainly of restriping and will allow for the HOV system on I-270 to start and end at the same locations (I-495 to the south and MD 121 to the north).

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

We request your concurrence on the signature line below, indicating your agreement with the revised Alternates Retained For Detailed Study by June 19, addressed to the attention of Ms. Gay L. Olsen in the Project Planning Division. Please feel free to call Michelle Hoffman, the project manager, at 410-545-8547 or Anne Elrays, the environmental manager, at 410-545-8562 if you should have any questions or toll free at (800) 548-5026.

Please check one:

- [x] Concur (without comments)
- [ ] Concur (comments attached)
- [ ] Do not concur (comments attach

CONCURRENCE:

_____ 6.7.99
U.S. Army Corps of Engineers Date

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Ms. Denise Rigney
NEPA Compliance Section
Environmental Protection Agency
Region III - 3ES30
1650 Arch Street
Philadelphia PA 19103-2029

Attention: Ms. Jamie Stark

Dear Ms. Rigney:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

One additional concept that will be added to one of the project alternatives, Combination Alternate B, consists of converting two existing High Occupancy Vehicle (HOV) lanes, one lane northbound/southbound, to high occupancy toll (HOT) lanes in the median from I-70 south to I-370. The HOT lanes are being considered as a value pricing strategy to more efficiently manage highway capacity and would be included within the footprint of any of the combination alternates. Finally, the conversion of the existing inside shoulder of the southbound I-270 lane between MD 121 and I-370 to an HOV lane is proposed as part of the TSM/TDM Alternate. This will consist mainly of restriping and will allow for the HOV system on I-270 to start and end at the same locations (I-495 to the south and MD 121 to the north).

My telephone number is _____

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Please check one:

☒ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attach

CONCURRENCE:

for Environmental Protection Agency — 6/28/99 Date

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

Joseph R. Kressleih
Assistant Division Chief
Project Planning Division

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Robert Zepp
U.S. Department of the Interior
Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis MD 21401

Dear Mr. Zepp:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

One additional concept that will be added to one of the project alternatives, Combination Alternate B, consists of converting two existing High Occupancy Vehicle (HOV) lanes, one lane northbound/southbound, to high occupancy toll (HOT) lanes in the median from I-70 south to I-370. The HOT lanes are being considered as a value pricing strategy to more efficiently manage highway capacity and would be included within the footprint of any of the combination alternates. Finally, the conversion of the existing inside shoulder of the southbound I-270 lane between MD 121 and I-370 to an HOV lane is proposed as part of the TSM/TDM Alternate. This will consist mainly of restriping and will allow for the HOV system on I-270 to start and end at the same locations (I-495 to the south and MD 121 to the north).

My telephone number is _____

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Please check one:

☒ No Action ~~Concur (without comments)~~

☐ Concur (comments attached)

☐ Do not concur (comments attach

CONCURRENCE:

U.S. Fish and Wildlife Service

5-25-99
Date

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by Joseph R. Kressler
Joseph R. Kressler
Assistant Division Chief
Project Planning Division

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. John Howard
National Park Service
Antietam National Battlefield
P.O. Box 158
Sharpsburg MD 21782

Dear Mr. Howard:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

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My telephone number is _____

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Please check one:

☒ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attach

CONCURRENCE:

J.W.T. — 6-14-99

National Park Service — Date

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kressler
Joseph R. Kressler
Assistant Division Chief
Project Planning Division

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Elder Ghigiarelli
Maryland Department of the Environment
Water Management Administration
Non-Tidal Wetlands and Waterways Division
2500 Broening Highway
Baltimore MD 21401

Dear Mr. Ghigiarelli:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

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Please check one:

☑ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attach

CONCURRENCE:

Elder A. Ghigiarelli _____ 7/14/99

Maryland Department of the Environment — Date

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 19, 1999

Re: Project No. FR192B11
I-270/US 15 Multimodal Project
from the Shady Grove Metro Station
to North of Biggs Ford Road
Frederick and Montgomery Counties

Mr. Ray Dintaman, Director
Environmental Review Unit
Maryland Department of Natural Resources
Tawes State Office Building, B-3
Annapolis MD 21401

Dear Mr. Dintaman:

The purpose of this letter is to request your formal concurrence in an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project.

Though presented at the October, 1998 Interagency Review meeting, Technology Boulevard (Option 7) and Watkins Mill Road Extended (Option 4) will be removed from the Alternates Retained for Detailed Study package. Technology Boulevard serves a more local need for the Urbana area and will be added to the Frederick County Master Plan. It has been dropped from the I-270/US 15 corridor study and will be shown on our plans as "to be constructed by others". The need for improving Watkins Mill Road Extended at I-270 differs from the purpose and need for the overall I-270 corridor and is being proposed as the State Highway Administration's (SHA) pilot streamlining project. SHA will address segmentation issues in subsequent documentation. Both Technology Boulevard and Watkins Mill Road Extended will be included in the secondary and cumulative effects evaluation for the I-270/US 15 project.

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My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

We request your concurrence on the signature line below, indicating your agreement with the revised Alternates Retained For Detailed Study by June 19, addressed to the attention of Ms. Gay L. Olsen in the Project Planning Division. Please feel free to call Michelle Hoffman, the project manager, at 410-545-8547 or Anne Elrays, the environmental manager, at 410-545-8562 if you should have any questions or toll free at (800) 548-5026.
Please check one:

☐ Concur (without comments)

☒ Concur (comments attached)

☐ Do not concur (comments attach

CONCURRENCE:

Ray C. Dintaman Jr. — June 22, 1999
Maryland Department of Natural Resources — Date

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Parris N. Glendening
Governor

Kathleen Kennedy Townsend
Lt. Governor

Maryland Department of Natural Resources
ENVIRONMENTAL REVIEW
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Stanley K. Arthu
Deputy Secretary

June 22, 1999

Gay Olsen
Project Planning Division
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Dear Ms. Olsen:

This letter is in reply to Joseph Kresslein's letter of request, dated May 19, 1999, for Maryland Department of Natural Resources (DNR) concurrence on an amendment to the Alternates Retained for Detailed Study for the I-270/US 15 project, Project No. FR 192B11, Frederick and Montgomery Counties.

The Department participated in discussions of this project at the Interagency Meeting. We have no comments on the amendment as described in the May 19, 1999 letter.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 260-8334.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

Telephone: (410) 260-8330
DNR TTY for the Deaf: (410) 260-8835
Toll Free [illegible]: 877-620-8DNR

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

April 26, 2002

Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Attn: Ms. Anne Elrays

RE: I-270/US 15 Multi-Modal Corridor Study, Air Quality Technical Report
Frederick and Montgomery Counties, Maryland

Dear Ms. Simpson,

In accordance with the National Environmental Policy Act (NEPA) and the Maryland Streamlined Environmental and Regulatory Process, the Environmental Protection Agency (EPA) has reviewed the air quality analysis for the above referenced project.

Based on the review provided by EPA's Air Protection Division, it is concluded that the report is satisfactory. The document has correctly identified the appropriate air quality issues and studies which will be required as the project proceeds.

Thank you for the opportunity to review and comment on this document. EPA looks forward to continued cooperation in the evaluation of impacts and protection of natural resources. If you have any questions, please contact Barbara Rudnick at (215) 814-3322.

Sincerely,

for Thomas A. Sienkamp
Deputy Director
Office of Environmental Programs

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D. Elected Officials

Maryland Department of Transportation
State Highway Administration

O. James Lighthizer
Secretary
Hal Kassoff
Administrator

November 4, 1993

The Honorable Ronald L. Sundergill
President
Frederick County Commissioners
Winchester Hall
12 East Church Street
Frederick MD 21701

Dear Commissioner Sundergill:

Thank you for your recent letter requesting improvements to the I-70, I-270 and US 15 crossings of New Design Road.

The I-70 project, as you know, is not funded for construction. SHA, however, would like to work with the county in discussing inclusion of these improvements in the current design project, as well as discussing funding considerations. Inclusion of these improvements and funding will be a function of the timing of improvements to both I-70 and New Design Road.

SHA will consider improvements to I-270/US 15 at the New Design Road crossing as part of the I-270 feasibility study from MD 121 in Montgomery County to MD 26. We look forward to working together with the county to identify the needs for this county road. I have asked our Office of Planning and Preliminary Engineering to take the lead in discussing these issues with your staff.

If you have any further questions, please feel free to contact me or Neil Pedersen. Neil can be reached at (410) 333-1110.

Sincerely,

Hal Kassoff
Administrator

cc: Mr. Neil J. Pedersen

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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ROSCOE G. BARTLETT
8TH DISTRICT, MARYLAND

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89 76

Congress of the United States
House of Representatives
Washington, DC 20515–2006

312 CANNON BUILDING
WASHINGTON, DC 20515
(202) 225-2721

6831 BUCKEYSTOWN PIKE
SUITE E
FREDERICK, MD 21701
(301) 694-3030

100 WEST FRANKLIN
HAGERSTOWN, MD 21740
(301) 797-6843

50 BROADWAY STREET
FROSTBURG, MD 21532
(301) 689-6034

GARRETT ALLEGANY COUNTIES
1-800-889-3012

75 EAST MAIN STREET
SUITE 110
WESTMINSTER, MD 21157
(410) 857-1115

8267 MAIN STREET
ELLICOTT CITY, MD 21043
(410) 418-4832

HOWARD COUNTY
1-800-705-2385

August 30, 1994

Mr. O. James Lighthizer
Secretary
Maryland Department of Transportation
P.O. Box 8755
Baltimore, Maryland 21240-0755

Dear Secretary Lighthizer:

As the Representative of the 6th Congressional District in Maryland, I have heard many complaints to congestion which commuters experience on I-270.

It is for this reason that I am contacting you today. As Secretary of the Maryland Department of Transportation, I would like to inquire as to the long term plans that MDOT may have with addressing the severe congestion problems in this area. Additionally, I would like to know if there are any long range plans to widen I-270 out to the Frederick area. I cannot stress enough how tedious the commute between the Frederick to Washington area has become due to intense daily traffic.

Thank you in advance for your assistance in this matter. I would appreciate any information you can provide.

Sincerely,

Roscoe G. Bartlett
Member of Congress

RGB:ekf

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Maryland Department of Transportation
The Secretary's Office

William Donald Schaefer
Governor
O. James Lighthizer
Secretary
Thomas L. Osborne
Deputy Secretary

September 23, 1994

The Honorable Roscoe G. Bartlett, Jr.
United States Congress
312 Cannon Building
Washington DC 20515

Dear Congressman Bartlett:

Thank you for your recent letter concerning congestion experienced by commuters along the I-270 corridor. You might be interested in some of the Maryland Department of Transportation's plans to address this problem.

Beginning later this year, construction will begin on a project to widen I-270 between Middlebrook Road in Germantown and MD 121 in Clarksburg. In addition, next year a project will begin to widen the west spur of I-270 between the "Y" split south of Montrose Road and the Capital Beltway.

The Mass Transit Administration is completing planning studies to extend MARC service between Point of Rocks and Frederick. Contingent upon receipt of federal approvals and funding, we expect service on this facility to begin in 1998. This will allow commuters from Frederick to Washington to use MARC trains rather than drive on I-270.

The Department is also underway with a long-term study regarding the possibility of widening I-270 between MD 121 in Montgomery County and the City of Frederick. This study involves analysis of a number of alternatives, including high occupancy vehicle lanes. We are working cooperatively with Montgomery and Frederick counties to complete this study.

As you can see, the Department is working on a number of projects designed to alleviate congestion in this area. It is our hope that, provided adequate funds are available, we can proceed with these in the future.

My telephone number is (410)- 859-7600
TTY For the Deaf: (410) 684-6919
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

If you have any other questions or comments, please feel free to contact Neil Pedersen, Director of the State Highway Administration's Office of Planning and Preliminary Engineering, at (410) 333-1110.

Sincerely,

O. James Lighthizer
Secretary

cc: Ms. Elise Finley
Mr. Neil Pedersen

Gaithersburg
A CHARACTER COUNTS! CITY

October 31, 1997

The Honorable Parris N. Glendening
The State House
Annapolis, MD 21404

Dear Governor Glendening:

I want to take the time to thank you for your efforts on behalf of the City of Gaithersburg as a result of your late summer visit to the City. The State Highway Administration has granted the City access to our relocated commuter lot proximate to the intersection of Maryland Route 355 and Cedar Avenue. Quick action by the State officials, following your visit, has made it possible for us to meet short-term development deadlines associated with a project key to the revitalization of the City's Smart Growth-oriented Olde Towne.

As a continuation of our Smart Growth efforts, the Mayor and City Council have recently appointed a Smart Growth Committee whose task it will be to distill and create a Smart Growth policy for endorsement at the local level. Their efforts will conclude at the time of the Smart Growth Conference planned in Baltimore in December, at which time the City will host a tour of Kentlands.

As we continue to focus on economic development efforts within our City, we must press for support for the key transportation projects which we outlined for you during our August presentation in Gaithersburg. The modification of Exit 10 at I-270 to provide more direct eastbound access into Gaithersburg must continue to be supported as we await updated traffic numbers to justify its feasibility. The relocation of the West Diamond Avenue ramp to link it to Cedar Avenue in Olde Towne Gaithersburg will provide an expeditious entryway into our original business district. We are presently evaluating several design options for this improvement project. The State's funding support will be vital to see this project realized. A final project of importance that has a more long range status is the completion of a new interchange at West Watkins Mill Road and I-270. We must all work together to see these projects inserted into the Consolidated Transportation Program so they can become a reality for Gaithersburg and the region.

City of Gaithersburg • 31 South Summit Avenue, Gaithersburg, Maryland 20877-2098
301-258-6300 • FAX 301-948-6149 • TDD 301-258-6430 • www.gaithersburg.inter.net

MAYOR
W. Edward Bohrer, Jr.

COUNCIL MEMBERS
Stanley J. Alster
Charles F. Davis
Geraldine E. Edens
Sidney A. Katz
Henry F. Marraffa, Jr.

CITY MANAGER
David B. Humpton

Once again, we thank you for your diligence and follow through associated with the aforementioned access issue. We look forward to your continued support of our transportation projects and the City's Smart Growth efforts.

Sincerely yours,

Geri Edens, Vice President
City Council

GE/mab

STATE OF MARYLAND
OFFICE OF THE GOVERNOR

December 4, 1997

PARRIS N. GLENDENING
GOVERNOR

ANNAPOLIS OFFICE
STATE HOUSE
100 STATE CIRCLE
ANNAPOLIS, MARYLAND 21401
(410) 974-3901

WASHINGTON OFFICE
SUITE 317
444 NORTH CAPITOL STREET, N.W.
WASHINGTON, D.C. 20001
(202) 638-2215

TDD (410) 333-3098

The Honorable Geri Edens
Vice President
Gaithersburg City Council
31 South Summit Avenue
Gaithersburg MD 20877-2098

Dear Geri:

Thank you for your recent letter outlining Gaithersburg's Smart Growth initiatives for development and revitalization. Your letter mentioned several transportation improvements the City believes will be key to its success in this effort.

State Highway Administrator Parker Williams informs me his staff is working with the City to improve access to Olde Towne from MD 355 and MD 117 and the City is developing several options to forward to State Highway Administration (SHA) for their review. I also understand SHA is working with the City to review potential modifications to the I-270/MD 117 interchange so as to provide direct access to Gaithersburg.

Montgomery County is evaluating the feasibility of an interchange connecting I-270 and Watkins Mill Road. I understand this analysis should be completed in the near future, at which time County officials will forward it to SHA.

Since each of these proposals is in the preliminary planning state, funding for these improvements is not included in the Department of Transportation's Consolidated Transportation Program (CTP). In developing future CTPs, the Department will coordinate with the City and with Montgomery County officials in determining funding priorities for these improvements.

Again, thank you for sharing the City's Smart Growth plans with me. If I may be of further assistance, please feel free to call me or Transportation Secretary David Winstead, who may be reached at (410) 865-1000.

Sincerely,

Parris

Parris N. Glendening
Governor

cc: The Honorable Douglas M. Duncan, Montgomery County Executive
Mr. Graham J. Norton, Director, Montgomery County Department of Public Works and Transportation
The Honorable David L. Winstead, Secretary, Maryland Department of Transportation

bcc: Mr. Ronald T. Burns, Chief, State Highway Administration
Louis H. Ege, Jr., Deputy Director, State Highway Administration
Ms. Michelle D. Hoffman, Project Manager, State Highway Administration
Mr. John Lewis, Legislative Liaison, State Highway Administration
Mr. Neil J. Pedersen, Director, State Highway Administration
Mr. John D. Porcari, Deputy Secretary, Maryland Department of Transportation
Mr. Frederick P. Rappe, Director, Maryland Department of Transportation
Mr. Douglas H. Simmons, Chief, State Highway Administration
Mr. Charlie K. Watkins, District Engineer, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

Drafted by: James Dooley, SHA, 545-5675, 11/20/97

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor
David L. Winstead
Secretary
John D. Porcari
Deputy Secretary

February 17, 1998

The Honorable Paul S. Stull
Maryland House of Delegates
323 Lowe House Office Building
6 Governor Bladen Boulevard
Annapolis MD 21401-1991

Dear Delegate Stull:

Thank you for your recent letter regarding the need for funding for the I-70/I-270 interchange project in Frederick County. I appreciate your concern regarding the construction of this and related transportation projects.

Obtaining funding for the I-70/I-270 interchange continues to be one of our top priorities. We are working with Maryland's congressional delegation to pursue funding for this as part of the transportation reauthorization bill in congress. This project will provide some relief to the current congestion on MD 85. We are likewise pursuing funding for the remaining improvements along I-70.

There is an ongoing analysis of the I-270/MD 15 Corridor, from the Shady Grove Metro Station to north of Biggs Ford Road. This analysis is evaluating a variety of long-term multi-modal strategies for addressing congestion along I-270.

The Draft 1998-2003 Consolidated Transportation Program includes construction funding for a segment of East Street Extended from East Patrick Street to South Street. Completion of this portion of the project will be coordinated with the opening of the downtown Frederick MARC station.

Thank you again for your interest in this project. If you need any additional information regarding this project, please do not hesitate to contact me or Mr. Parker F. Williams, State Highway Administrator, who can be reached at 410-545-0400 or 1-800-206-0770.

Sincerely,

David L. Winstead
Secretary

cc: Mr. Robert L. Fisher, District Engineer, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

My telephone number is (410)-865-1000
Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

bcc: Mr. Stan Arthur, Assistant Secretary, Department of Transportation
Ms. Vanessa Braddy, Project Manager, State Highway Administration
Ms. Michelle Hoffman, Project Manager, State Highway Administration
Mr. John Lewis, Legislative Officer, Department of Transportation
Mr. Paul Maloney, Project Manager, State Highway Administration
Mr. Neil J. Pedersen, Director, State Highway Administration
Mr. John Petty, Assistant to the Secretary, Department of Transportation
Mr. Frederick P. Rappe, Jr., Director, Department of Transportation
Ms. Nanette Schiecke, Legislative Analyst, Department of Transportation
Mr. Douglas H. Simmons, Chief, State Highway Administration

Drafted by: James Dooley, SHA, 545-5675, 2/10/98

SER10379

PATRICK J. HOGAN
DISTRICT 39
MONTGOMERY COUNTY

BUDGET & TAXATION COMMITTEE
JOINT AUDIT COMMITTEE
JOINT COMMITTEE ON FEDERAL RELATIONS

OFFICE ADDRESS:
316 JAMES SENATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401-1991
WASHINGTON AREA (301) 858-3686
UP COUNTY AREA 1-800-492-7122 EXT. 3686
OTHER AREAS (410) 841-3686
FAX (410) 841-3617
E-MAIL: Patrick_Hogan@senate.state.md.us

SENATE OF MARYLAND
ANNAPOLIS, MARYLAND 21401-1991

March 12, 1998

Mr. Neil Pedersen, Director
Planning and Preliminary Engineering
State Highway Administration
707 North Calvert Street
Baltimore, MD 21202

Dear Mr. Pedersen:

I have been informed that the State Highway Administration is considering improvements to the I-270/MD124 interchange in conjunction with the installation of a new Park-n-Ride lot in the same location.

As I understand it, the proposed changes will include reconstructing Ramp "E" (southbound I-270 to westbound MD 124 ramp) and adding a signalized intersection at MD 124 to accommodate both east and westbound traffic. Ramp G will be removed and a Park-n-Ride lot will be constructed in the general vicinity that ramp G occupied.

The purpose of my letter is to express my concerns regarding these proposed changes. It seems to me that placing a Park-n-Ride in the middle of a functional traffic cloverleaf and changing that cloverleaf to include a signal light for east and westbound traffic on Route 124 would *increase* traffic backup and create additional safety hazards. Not only will you have traffic entering and exiting the Park-n-Ride area, you will also have the increased wait and potential backup onto I 270 from the added signal light.

I therefore respectfully request that these plans be reconsidered with input from the local governing body to better assess the local impact that these "improvements" may create. Thank you for your attention to this matter.

Sincerely,

Patrick J. Hogan
State Senator

PJH/lgh

cc: The Hon. W. Edward Bohrer, Jr.
Ms. Anne B. Swain

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

April 8, 1998

The Honorable Patrick J. Hogan
Senate of Maryland
316 James Senate Office Building
110 College Avenue
Annapolis MD 21401-1991

Dear Senator Hogan:

Thank you for your recent letter to our Director of Planning and Preliminary Engineering, Mr. Neil Pedersen, which expressed your concerns regarding the I-270/MD 124 interchange improvements and the addition of the park and ride lot.

The improvements in this area were proposed in order to improve the safety and operations of the interchange. By removing the existing loop ramp (Ramp G), we can eliminate some of the hazards to the motoring public, which are in part due to a substandard weaving section on I-270. This will also improve the ability of motorists to enter southbound I-270 by extending the merge area. This improvement is warranted independent of whether we construct a park and ride lot. An analysis performed by our Office of Traffic and Safety concludes that modifications to the interchange ramp configuration and the addition of a signal on MD 124, will have minimal impacts on the MD 124 corridor and will enhance the safety for traffic on I-270. The Federal Highway Administration has reviewed and approved this analysis. Throughout our final design process, the operations on MD 124 will be a primary consideration.

The State Highway Administration (SHA) has undertaken a concerted effort to identify park and ride locations along the I-270 corridor to promote the use of transit and carpooling. We have included representatives from the City of Gaithersburg and the Montgomery County Department of Public Works as part of a team that has developed concepts to this point.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

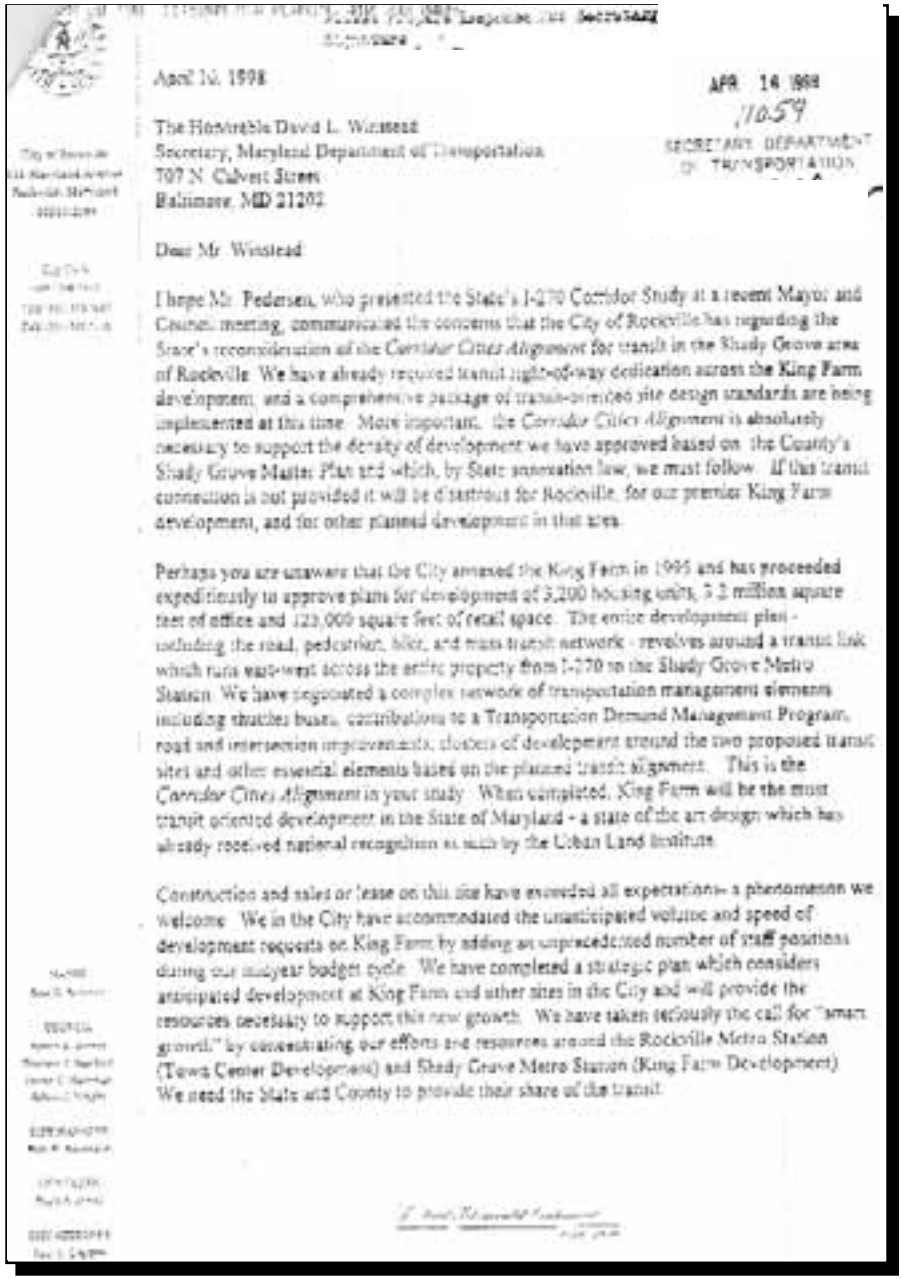
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

A meeting in April is to be scheduled with local elected officials to brief them on this project and will notify you of the date. Thank you again for your continued interest in these improvements. If you have questions regarding this project, please do not hesitate to contact me or Ms. Melinda Peters, Project Manager, who can be reached at 410-545-8772.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Neil J. Pedersen, Director, State Highway Administration
Ms. Melinda Peters, Project Manager, State Highway Administration
Mr. Charlie Watkins, District Engineer, State Highway Administration



April 10, 1998

APR 14 1998
1059
SECRETARY, DEPARTMENT OF TRANSPORTATION

The Honorable David L. Winstead
Secretary, Maryland Department of Transportation
707 N. Calvert Street
Baltimore, MD 21202

Dear Mr. Winstead:

I hope Mr. Pedersen, who presented the State's I-270 Corridor Study at a recent Mayor and Council meeting, communicated the concerns that the City of Rockville has regarding the State's reconsideration of the *Corridor Cities Alignment* for transit in the Shady Grove area of Rockville. We have already required transit right-of-way dedication across the King Farm development, and a comprehensive package of transit-oriented site design standards are being implemented at this time. More important, the *Corridor Cities Alignment* is absolutely necessary to support the density of development we have approved based on the County's Shady Grove Master Plan and which, by State annotation law, we must follow. If this transit connection is not provided it will be disastrous for Rockville, for our premier King Farm development, and for other planned development in that area.

Perhaps you are unaware that the City annexed the King Farm in 1995 and has proceeded expeditiously to approve plans for development of 3,200 housing units, 3.2 million square feet of office and 120,000 square feet of retail space. The entire development plan - including the road, pedestrian, bike, and mass transit network - revolves around a transit link which runs east-west across the entire property from I-270 to the Shady Grove Metro Station. We have negotiated a complex network of transportation management elements including shuttle buses, contributions to a Transportation Demand Management Program, road and intersection improvements, clusters of development around the two proposed transit sites and other essential elements based on the planned transit alignment. This is the *Corridor Cities Alignment* in your study. When completed, King Farm will be the most transit oriented development in the State of Maryland - a state of the art design which has already received national recognition as such by the Urban Land Institute.

Construction and sales or lease on this site have exceeded all expectations - a phenomenon we welcome. We in the City have accommodated the unanticipated volume and speed of development requests on King Farm by adding an unprecedented number of staff positions during our midyear budget cycle. We have completed a strategic plan which considers anticipated development at King Farm and other sites in the City and will provide the resources necessary to support this new growth. We have taken seriously the call for "smart growth" by concentrating our efforts and resources around the Rockville Metro Station (Town Center Development) and Shady Grove Metro Station (King Farm Development). We need the State and County to provide their share of the transit

David L. Winstead
April 10, 1998

Page 2

infrastructure support by proceeding with design and funding for the *Corridor Cities Alignment*.

We are aware that you and the Washington Metropolitan Area Council of Governments (COG) are considering possible implementation of mass transit plans which include an alternative to the King Farm transit. The alternative utilizes the CSX railroad right-of-way, and is known as the *CSX Alignment Alternative*. While there are obvious benefits to utilizing the CSX right-of-way, which extends north of Shady Grove Metro Station to Gaithersburg and beyond, development of the King Farm should eliminate it as a viable alternative at this time.

We would welcome the opportunity to discuss this with you before important decisions are made about this transitway. Kathy Mitchell, our Director of Community Planning and Development Services, will call your office to arrange a meeting on this urgent matter. We would be happy to give you a tour and show you how much we have accomplished toward the transportation goals the City and State share.

Sincerely,

Rose G. Krasnow

Rose G. Krasnow
Mayor

cc: Julia Novak, Acting City Manager
Kathy Mitchell, Director, CP&DS
Larry Marcus, Principal Transportation Engineer, COG
Members, District 17 Delegation

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor
David L. Winstead
Secretary
John D. Porcari
Deputy Secretary

April 24, 1998

The Honorable Rose G. Krasnow
Mayor
City of Rockville
111 Maryland Avenue
Rockville MD 20850-2364

Dear Mayor Krasnow:

Thank you for your letter concerning the Corridor Cities' Transitway alignment in relation to the I-270/US 15 Multi-Modal Corridor Study, which extends from the Shady Grove Metrorail Station in Montgomery County to Biggs Ford Road in Frederick County. I appreciate the opportunity to respond to your questions and concerns.

The State Highway Administration and the Mass Transit Administration, along with representatives from Montgomery and Frederick counties and the cities of Frederick, Rockville and Gaithersburg, have been investigating options to relieve congestion in this important transportation and technology corridor for the past several years. Thus far, the Study Team has investigated several transportation strategies, including a separate alignment transitway (as either a busway or light rail) along Montgomery County's Corridor Cities' Transitway alignment, High Occupancy Vehicle lanes, general use lanes, interchange improvements, park and ride lots, enhanced bus services and hiker/biker trails. While none of these strategies alone have been found to solve the comprehensive needs within this Corridor, the Study Team has been investigating combining these strategies into Combination Alternates.

The Maryland Department of Transportation recognizes the arguments in favor of the Corridor Cities Transitway but the National Environmental Policy Act requires us to study all reasonable alternatives. We are currently developing information that will enable us to determine which alternatives will be carried into detailed studies. We will keep your staff involved in the development of information on the alternatives and identification of which alternatives would be studied in detail.

My telephone number is (410) 865-1000
Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

Thank you again for your letter. I also thank you for the interest which prompted you to write. If you need additional information, please do not hesitate to contact me or Mr. Parker F. Williams, State Highway Administrator, who can be reached at 410-545-0400 or 1-800-206-0770.

Sincerely,

David L. Winstead
Secretary

cc: The Honorable Kumar P. Barve, Delegate, Montgomery County
The Honorable Michael R. Gordon, Delegate, Montgomery County
The Honorable Cheryl C. Kagan, Delegate, Montgomery County
Mr. Lawrence Marcus, Principle Transportation Engineer, Council of Governments
Ms. Kathy Mitchell, Director, Community Planning and Development Services
Ms. Julia Novak, Acting City Manager, City of Rockville
Mr. Ronald Freeland, Administrator, Mass Transit Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor
David L. Winstead
Secretary
John D. Porcari
Deputy Secretary

May 5, 1998

The Honorable W. Edward Bohrer, Jr.
Mayor
City of Gaithersburg
31 South Summit Avenue
Gaithersburg MD 20877-2098

Dear Mayor Bohrer: Ed

Thank you for your follow-up letter to our April 3 meeting with the State Delegation and City representatives. We are supportive of the City of Gaithersburg's efforts to revitalize the downtown (Olde Towne) area of the City.

Before we can consider a commitment of funding for the West Diamond Avenue extension or any of the other proposed improvements within the City, sufficient engineering needs to be done to ensure the projects are constructable, costs are fully developed, and right-of-way issues are resolved. All of the projects under consideration need to be looked at in a comprehensive manner. Further discussions are needed to develop funding and an implementation sequence for these interrelated projects.

Mr. Neil Pedersen, the State Highway Administration's Director of Planning and Preliminary Engineering, is tentatively scheduled to brief the City Council on May 26, on the status of our plans for the park and ride lots at MD 124 and MD 117. Mr. Pedersen will also discuss the traffic implications of providing access to southbound I-270 from the MD 124 park and ride lot. Included in the briefing will be the status of the proposed widening of MD 117 to accommodate the park and ride lot.

Thank you again for your letter. If you would like to discuss this matter further, please do not hesitate to call me or State Highway Administrator Parker F. Williams, who can be reached at 410-545-0400 or 1-800-206-0770.

Sincerely,

David L. Winstead
Secretary

cc: The Honorable Kumar Barve, Maryland House of Delegates
The Honorable Jennie Forehand, Senate of Maryland
The Honorable Michael Gordon, Maryland House of Delegates
The Honorable Cheryl Kagan, Maryland House of Delegates
Mr. Neil J. Pedersen, Director, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

My telephone number is (410)- 865-1000
Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 685-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

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Maryland Department of Transportation
The Secretary's Office

Michelle

Parris N. Glendening
Governor
David L. Winstead
Secretary
John D. Porcari
Deputy Secretary

June 12, 1998

The Honorable W. Edward Bohrer, Jr.
Mayor
City of Gaithersburg
31 South Summit Avenue
Gaithersburg MD 20877-2098

Dear Mayor Bohrer:

Thank you for your recent letter advocating separation of the proposed new interchange at I-270/Watkins Mill Road from the I-270/US 15 Multi-Modal Corridor Study. I understand the importance of this interchange to the City of Gaithersburg's economic development plans.

Montgomery County is conducting a study for the City of Gaithersburg to identify engineering concepts, environmental issues and costs for a proposed new interchange at I-270/Watkins Mill Road. This report with recommendations should be completed in the next few months. We will be in a better position to make a decision regarding the separation of this proposed new interchange from the I-270/US 15 Multi-Modal Corridor Study once Montgomery County's study is complete. We will consider this project in development of the FY 1999-2004 Consolidated Transportation Program.

Thank you again for your continued interest in resolving issues regarding a new interchange at I-270/Watkins Mill Road. If I can be of further assistance, please feel free to call me or State Highway Administrator Parker F. Williams, who may be reached at 410-545-0400 or 1-888-206-0770.

Sincerely,

David L. Winstead
Secretary

cc: Mr. Parker F. Williams, Administrator, State Highway Administration

My telephone number is (410)- 865-1000
Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

July 31, 1998

The Honorable W. Edward Bohrer, Jr.
Mayor, City Of Gaithersburg
31 South Summit Avenue
Gaithersburg MD 20877-2098

Dear Mayor Bohrer:

I enjoyed meeting with you and other elected officials regarding transportation issues in the Gaithersburg area. At that meeting, you inquired about the possibility of a joint use opportunity for an informational kiosk in our proposed park and ride lot located within the I-270/MD 117 and the I-270/MD 124 interchanges. I would like to share with you the information gathered in pursuing this request.

The Code of Federal Regulations 752.6 (d) allows states to construct and lease the operations of informational facilities within federally funded highways with the Regional Administrator's permission. Some key components of this regulation require advertising to be limited to matters of interest to the traveling public. No charge to the public may be made for goods and services except by vending machines.

We would encourage the Gaithersburg Chamber of Commerce and local businesses to provide funds for construction and maintenance of such a facility. Blind Industries would have first option at operating any services. A maintenance agreement would be required with SHA for a kiosk. Mr. Jim Dooley is SHA's contact for development of an agreement. Jim may be reached at 410-545-5675 or 1-888-204-4828.

With regard to installing tourism signs on I-270, we would consider placing "Gaithersburg Attractions-Use MD 124" signs along the southbound I-270 lanes between the exits for MD 121 and MD 118. If you would like to pursue this, or if you have any questions or comments, please contact Mr. Thomas Hicks, Director of the Office of Traffic and Safety, at 410-787-5815 or 1-888-963-0307.

My telephone number is 410-545-0400 or 1-800-206-0770
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Once again, I appreciate your interest in transportation issues in your area. If you want to discuss these options further, please contact me or Glen A. Smith, our Regional Planner for Montgomery County. Glen may be reached at 410-545-5675 or 1-888-204-4828.

Sincerely,

Parker F. Williams
Administrator

cc: The Honorable Jennie M. Forehand, Senate of Maryland
The Honorable Kumar P. Barve, Maryland House of Delegates
The Honorable Michael R. Gordon, Maryland House of Delegates
The Honorable Cheryl C. Kagan, Maryland House of Delegates
Mr. James E. Dooley, Jr., Park and Ride Coordinator, State Highway Administration
Mr. Thomas Hicks, Director of Traffic and Safety, State Highway Administration
Mr. Glen A. Smith, Regional Planner, State Highway Administration

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

September 9, 1998

The Honorable Jean W. Roesser
Senate of Maryland
308 James Senate Office Building
110 College Avenue
Annapolis MD 21401-1991

Dear Senator Roesser:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study, which extends from the Shady Grove Metrorail Station in Montgomery County to Biggs Ford Road in Frederick County. I appreciate the opportunity to provide you with information regarding the project status and schedule.

The State Highway Administration (SHA) and the Mass Transit Administration (MTA), along with representatives from Montgomery and Frederick counties and the cities of Frederick, Rockville and Gaithersburg, have been investigating options to relieve congestion in this important transportation and technology corridor for the past several years. Thus far, the Study Team has investigated several transportation strategies, including a separate alignment transitway (as either a busway or light rail) along Montgomery County's Corridor Cities' Transitway (CCT) alignment, High Occupancy Vehicle (HOV) lanes, general-use lanes, interchange improvements, park and ride lots, enhanced bus services and hiker/biker trails. While none of these strategies alone have been found to solve the comprehensive needs within this Corridor, the Study Team has been investigating combining these strategies into combination alternates.

The alternates under consideration and recommended for more detailed environmental and engineering analysis include a No-Build (Baseline) Alternate, with no capacity or transit improvements in the I-270 Corridor; Transportation System Management (TSM)/Transportation Demand Management (TDM) Strategies, such as additional park and ride lots and bus services; and three combination alternates, A, B and C. These include highway and transit improvements as shown in the enclosed summary package. Study activities over the next two years will involve detailed analysis of these five alternates so we can better understand the impacts and benefits associated with them. The milestone schedule is as follows:

- Agency concurrence on the Alternates Retained for Detailed Study;
- Informational Public Workshop (1999);
- Preparation of final environmental document;
- Combined Location/Design Public Hearing (2000);
- Preparation of final environmental document; and
- FHWA approval of selected alternative(s)

My telephone number is 410-545-0400 or 1-800-206-0770
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1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your continued interest. If you have any questions, please do not hesitate to contact me or Mr. Neil J. Pedersen, our Planning Director, who may be reached at 410-545-0411 or 1-888-204-4828.

Sincerely,

Parker F. Williams
Administrator

Enclosure
cc: Mr. Ronald Freeland, Administrator, Mass Transit Administration
Mr. Neil J. Pedersen, Planning Director, State Highway Administration
Mr. Charlie K. Watkins, District Engineer, State Highway Administration

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

November 16, 1999

The Honorable Jennie M. Forehand
Senate of Maryland
214 James Senate Office Building
110 College Avenue
Annapolis MD 21401-1991

Dear Senator Forehand:

The purpose of this letter is to respond to your inquiry regarding the pursuit of a partial interchange at I-270 and Gude Drive. It is my understanding that your specific interest is in providing the movement from northbound I-270 to eastbound Gude Drive, in an effort to relieve traffic congestion at the I-270/Montgomery Avenue interchange.

It is my pleasure to inform you that the State Highway Administration will evaluate the feasibility of providing interstate access at this location. Detailed mapping is being requested for this area, so that the engineering study can be conducted.

Thank you again for your continued interest in transportation improvements along I-270. I look forward to discussing the results of this feasibility study with you. If you have any questions, please feel free to contact me or Mr. Neil J. Pedersen, our Director of Planning and Preliminary Engineering, who can be reached at 410-545-0411 or 1-888-204-4828.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Neil J. Pedersen, Planning Director, State Highway Administration
Mr. Charlie K. Watkins, District Engineer, State Highway Administration

My telephone number is **410-545-0400 or 1-800-206-0770**
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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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TIMOTHY R. FERGUSON
STATE SENATOR
DISTRICT 4
FREDERICK & CARROLL COUNTIES

JUDICIAL PROCEEDINGS COMMITTEE
EXECUTIVE NOMINATIONS COMMITTEE
JOINT COMMITTEE ON INVESTIGATIONS

SENATE OF MARYLAND
ANNAPOLIS, MARYLAND 21401-1991

ANNAPOLIS
403 JAMES SENATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401-1991
(301) 858-3704
(410) 841-3704
FAX (410) 841-1133

timothy_ferguson@senate.state.md.us

March 18, 1999

Mr. Robert L. Fisher
District Engineer
State Highway Administration
5111 Buckeystown Pike
Frederick, Maryland 21701

Dear Mr. Fisher:

Mr. James Randle, president of the Worman's Mill Civic Association has contacted my office concerning ramps to connect MD26 to northbound US15 and southbound US15 to MD26 and other problems. May I please have your review and comments so that I may inform Mr. Randle about the current SHA plans.

Thank you for your help in this matter.

Very truly yours,

Timothy R. Ferguson
State Senator

Enclosure

James P. Randle
2464 Bear Den Road
Frederick, Maryland 21701

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WORMAN'S MILL CIVIC ASSOCIATION
2464 Bear Den Road
Frederick, MD 21701
Tel. 301-694-5431
e-mail eldnar@aol.com
March 16, 1999

Senator Timothy Ferguson
James Senate Office Building
110 College Avenue
Annapolis, MD

Dear Senator Ferguson:

The people of Frederick urgently need your action to obtain long sought RAMPS to connect MD26 to northbound US15 and southbound US15 to MD26. Unfortunately, the current on-going I-270/US15 Multi Modal STUDY does NOT reflect the priority the junction between these two 55 mile per hour roads should have.

Our Civic Association has been on record since 1994 formally expressing concerns to the State Highway Administration, Mayor, City and County Planning Commissions, County Commissioners, and more recently the Governor regarding the need for these ramps to enhance safety, facilitate traffic, and prevent an overload on Trading Lane. (Trading Lane is a small part of the locally proposed road called Jobs Pathway and is inappropriately used to join MD26/US15). These planned ramps would also offer a far better junction between MD355 and US15 than any other alternative Since construction of these ramps can save taxpayers substantial costs, your legislative efforts to obtain a high priority for building them is especially appropriate and is earnestly sought.

Our concerns are related to safety, significant unidentified costs to taxpayers, and unnecessary traffic congestion. We also urge you to seize this opportunity to advance the objectives of the Jobs Pathway, including heavy industry truck traffic, without the use of Trading Lane. You can, at less expense to taxpayers, by use of these ramps dramatically enhance the traffic flow of MD26 to and from US 15 as these two 55mph roads intersect. Trading Lane, adjacent to our development, is a city street and county road and is the access/egress for thousands of homeowners and commuters and certainly cannot safely handle the projected 11,500 vehicles per day on the Pathway. Trading Lane already has ten or more accesses including Frederick Trading Company, a strip shopping mall, an on-grade railroad crossing, and a speed limit of 25 miles per hour. There will be numerous additional accesses as adjacent M-1 zoned property is developed. Part of Trading Lane is only 20 feet wide curb to curb with no shoulders and is only marginally sufficient for a safe passage of autos. Part of it is only one lane each way.

Concerns are amplified as we face the prospect of the passage of school buses, fire trucks, ambulances, commuter and residential autos -- and now the proposal for heavy truck traffic from heavy industry such as the recently located CSR. Frederic Trading Company, to enhance their own traffic flow, has already been directed to develop acceleration and deceleration lanes (at their expense) as a matter of safety at the MD26/Trading Lane intersection. Without these ramps, in addition to the derogation of safety, the increased burden of heavy truck traffic will mandate extensive modifications to Trading Lane. These modifications will be a significant expense to taxpayers because industry has not been tasked with this expense. The State should take aggressive steps to complete these ramps in a timely manner.

The MD26/US15 RAMP will improve the Jobs Pathway. The property for the ramp for northbound traffic was paid for by Maryland taxpayers many years ago. The state should build that ramp and not use our city and county roads at our expense. Additionally, the ramp for the southbound US15 traffic for MD26 eastbound traffic can use the already constructed underpass by the simple expedient of a down ramp with traffic lights controlling traffic alternating in opposite directions from and to MD26. While it may be necessary to purchase some property for the down ramp, the alternative of Trading Lane to US15 outlined in the Study would require a major overpass over US15. This is a major highway which includes four lanes with room for two more, a median strip, and the overpass would require cloverleaf accesses on both sides of US15. In short, this overpass would be an extraordinary expense which can be avoided by use of these ramps at MD26/US15.

Finally, sooner or later a direct connection between MD26 and US15must be made. You can avoid the delay, political/ public contentiousness, and related unnecessary expense encountered with the I-70/I-270 intersection by acting now. We urge you to make vigorous representation of this need in the current legislative session to obtain state funding for these ramps -- with related savings to taxpayers, facilitated traffic flow, and enhanced traffic safety. .

Respectfully,
James P. Randle
President, Worman's Mill Civic Association

Cc: Frederick County Delegation
File:PREZrampDelegation

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

PLEASE REPLY TO:
Office of District Engineer
5111 Buckeystown Pike
Frederick, MD 21704

April 1, 1999

The Honorable Alex X. Mooney
Senate of Maryland
302 James Senate Office Building
Annapolis, MD 21401

Dear Senator Mooney:

Thank you for your recent letter regarding interchange improvements at US 15 and MD 26 within the City of Frederick on behalf of James Randle of the Worman's Mill Civic Association. As requested, I am providing you with information on this interchange improvement project.

Several members of the Worman's Mill community have expressed interest in expeditiously pursuing the ramp from eastbound MD 26 to northbound US 15. This ramp movement will be addressed in the I-270/US 15 Multi-Modal Corridor Study. The I-270/US 15 study anticipates completing the planning and approval process in late 2001, with a public workshop tentatively scheduled for the Winter of 2000 and a public hearing tentatively scheduled for the Winter of 2001. This schedule would allow for high priority transportation needs from this 28-mile Corridor Study to be advanced for design and construction upon completion of these approvals and procurement of funding. If this ramp were advanced out of this project planning study, it would likely follow the same schedule or longer because of the National Environmental Policy Act process and associated environmental regulations.

New interchanges are proposed, as part of the I-270/US 15 Multi-Modal Corridor Study, at both US 15/Trading Lane and US 15/Biggs Ford Road to provide access onto US 15. While concern has been previously expressed over the location of the US 15/Trading Lane interchange, this interchange as well as the one located at Biggs Ford Road is identified in the Frederick Comprehensive Plan for future access to US 15. In addition, Trading Lane provides the City and County with a connection between the east and west side of the city as part of the Jobs Pathway in the Comprehensive Plan. Another location for this interchange may be inconsistent with the master plan and may not serve the same purpose. This relocation issue may best be addressed through the routine master plan updates. The SHA however, will consider this suggestion during the upcoming project planning engineering evaluation. Michelle Hoffman, the Project Manager for this Corridor Study, can be reached at (410) 545-8547 or (800) 548-5026.

My telephone number is (800) 635-5119

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your letter. If I can be of any further assistance, please feel free to call me at (301) 624-8101 or toll free at (800) 635-5119.

Sincerely,

Robert L. Fisher
District Engineer

cc: Mr. Neil J. Pedersen, Planning Director, State Highway Administration
Mr. Parker Williams, Administrator, State Highway Administration
Ms. Michelle D. Hoffman, Project Manager, State Highway Administration
Mr. John Lewis, Legislative Liaison, Maryland Department of Transportation

JAMES S. GRIMES
Mayor

Aldermen

META S. NASH
President Pro Tem
WILLIAM G. HALL
BLAINE R. YOUNG
DONNA S. KUZEMCHAK
JOSEPH W. BALDI

Dear Mr. Pederson:

As a member of the Board of Aldermen of The City of Frederick, I have heard concerns from many groups of citizens about traffic issues throughout the city. One of those concerns deals with the issue of a traffic interchange from Route 26 to Interstate 15.

As I'm sure you know, there is no way for traffic headed west on Route 26 to merge directly with traffic on Interstate 15; nor is there an interchange for traffic traveling south on Interstate 15 to merge directly with traffic on Route 26. The traffic wishing to travel in either of those directions is therefore directed onto either Worman's Mill Road or Trading Lane. Each of these roads travels directly past residential properties and are not built to standards that would allow heavy truck traffic.

Many residents are concerned that development in the Route 26 corridor will rapidly overcome the ability of the roads to handle the traffic. In light of their concerns, I would like you to seriously consider the idea of an interchange at Route 26 and Interstate 15. I believe that this additional interchange could alleviate much of the heavy truck traffic that would otherwise be traveling through residential neighborhoods while still allowing local access to businesses as necessary.

Thank you for your time and consideration.

Sincerely,

Donna S. Kuzemchak

Donna S. Kuzemchak
Alderman,
The City of Frederick

CC: Robert Fisher, State Highway Administration
Delegate Sue Hecht, House of Delegates

City Hall, 101 North Court Street, Frederick, Maryland 21701-5416

301-694-1440
FAX: 301-694-1381

10/18/1999 10:22 301 SHA-TRAFFIC PAGE 02/02

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

October 25, 1999

The Honorable Donna S. Kuzemchak
Alderman, The City of Frederick
City Hall
101 North Court Street
Frederick MD 21701-5415

Dear Alderman Kuzemchak:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study, as well as for your letter requesting interchange improvements at US 15 and MD 26. I appreciate the opportunity to provide you with information related to this important transportation study and related improvements planned for US 15 at MD 26.

The Maryland Department of Transportation is engaged in a variety of efforts to find solutions to the Washington metropolitan area's transportation problems. From I-370 north on I-270 and continuing on to US 15 in Frederick County and City, the Maryland State Highway and Mass Transit Administrations are jointly working on a multi-modal planning study of ways to relieve congestion and improve safety conditions. Several combination alternates have been developed. These include transportation strategies such as general-use lanes, collector/distributor or local lanes, High Occupancy Vehicle (HOV) lanes, a transitway (bus rapid transit or light rail transit between Shady Grove and COMSAT), extended feeder and express bus services, park and ride lots, and hiker/biker paths. These transportation strategies were packaged together since earlier analyses show no single transportation strategy would solve the transportation needs in the I-270/US 15 Corridor.

Several community representatives and elected officials have expressed the interest in expeditiously pursuing the missing ramp from westbound MD 26 to northbound US 15. This ramp movement is being addressed in the I-270/US 15 Multi-Modal Corridor Study. This study is currently evaluating detailed travel demand projections to discern the traffic patterns and traffic needs over the next twenty years. This movement, as well as the other missing movement in this interchange, southbound US 15 to eastbound MD 26, will be evaluated as part of this assessment. Upon completion of the travel demand analyses, the detailed engineering concepts will be conducted and the environmental impacts will be determined. Completing the planning and approval process for the I-270/US 15 Study is anticipated in late 2001/early 2002, with a Informational Public Workshop tentatively scheduled for the Winter of 2000 and a Public Hearing tentatively scheduled for the Winter of 2001. This schedule would allow for high priority transportation needs from this 28-mile Corridor Study to be advanced for design and construction upon completion of these approvals and procurement of funding.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your interest in the I-270/US 15 Multi-Modal Corridor Study. If I can be of any further assistance, please feel free to contact me at 410-545-0411 or toll free at 1-888-204-0138.

Very truly yours,

Neil J. Pedersen

Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

cc: The Honorable Sue Hecht, Maryland House of Delegates
The Honorable James S. Grimes, Mayor, City of Frederick
Mr. Bobby Fisher, District Engineer, State Highway Administration
Mr. Parker Williams, Administrator, State Highway Administration

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

December 22, 1999

The Honorable Jan H. Gardner
Frederick County Commissioner
6102 Fieldcrest Drive
Frederick MD 21701

Dear Commissioner Gardner:

Thank you for your continued interest in the comprehensive I-270/US 15 Multi-Modal Corridor Study, as well as for your comments on the proposed US 15 interchange with Trading Lane within the City of Frederick. This letter responds to your questions regarding the interim intersection improvements that have been requested by the North Gate Plaza Developer.

As you know, the State Highway Administration (SHA) and the Mass Transit Administration (MTA), in conjunction with the local jurisdictions and federal and State agencies, are jointly conducting a Multi-Modal Corridor Study for 28 miles of I-270 and US 15. This effort will investigate options to relieve congestion and improve safety throughout the I-270/US 15 Corridor. All of the interchanges on US 15, south of MD 26, including proposed new interchanges with Biggs Ford Road and Trading Lane, are under evaluation as part of this planning study. Long-term improvements for this part of the corridor will be identified through this study and presented in a draft environmental document in Summer 2001 and at a public hearing that is anticipated for Fall 2001.

About two years ago, a representative of the North Gate Plaza development contacted SHA to determine the feasibility of an interim access point from US 15 into their proposed development in the southwest quadrant of Trading Lane/Christopher's Crossing and US 15. Early discussions took place regarding the potential for constructing an at-grade intersection, utilizing the southwest ramp of a proposed "long-term" interchange, at this location. While this ramp would be consistent with City, County and State plans, the State recently reviewed the traffic and accident data along US 15 and reevaluated the placement of an at-grade intersection, even temporarily, at this location. Preliminary results indicate that there are potential safety problems associated with a new interim intersection. The reevaluation is ongoing, and the State will continue to review traffic and accident data at this location, as well as to coordinate with the developer, to determine the best action at this location.

My telephone number is 410-545-0400 or 1-800-206-0770
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your inquiry. If you have any further questions, please feel free to contact me or our Director of Planning and Preliminary Engineering, Mr. Neil Pedersen, who may be reached at 410-545-0411 or 1-888-204-4828.

Sincerely,

Elizabeth J. Homer, Deputy
for Parker F. Williams
Administrator

cc: The Honorable C. Sue Hecht, Maryland House of Delegates
Mr. Robert L. Fisher, District Engineer, State Highway Administration
Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, State Highway Administration

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 8, 2000

The Honorable Christopher B. Shank
Maryland House of Delegates
321 Lowe House Office Building
6 Governor Bladen Boulevard
Annapolis MD 21401-1991

Dear Delegate Shank:

Thank you for your letter to the Maryland State Highway Administration (SHA) regarding the I-270 High Occupancy Vehicle (HOV) lanes in Montgomery County, Maryland. I appreciate the opportunity to provide you with information regarding the proposed future expansion of these lanes, as well as any improvements under consideration for the I-270 Corridor, in order for you to share information with your constituents.

The demand for transportation along the I-270 Corridor is projected to increase beyond the capacity of the existing general-use lanes. The Maryland Department of Transportation (MDOT) has determined that adding general-use lanes will not suffice to meet the growing demand. Since HOV lanes move more people than general-use lanes do, HOV lanes are a good way to make maximum use of our limited transportation resources. The primary objective of HOV lanes is to provide high-occupancy vehicles with a travel time that is both reduced and more predictable.

When we built a new lane on I-270 southbound between MD 121 and I-370, we intended it to be an HOV lane. At the time of construction, MD 355, the parallel route in this vicinity, was also under construction and, consequently, the southbound I-270 HOV lane was temporarily opened as a general-use lane. This additional lane quickly approached a failing level of service and, as a result, MDOT determined that the traffic impacts would be too great if this lane were converted to a dedicated HOV lane.

There are, however, plans to extend the HOV lanes further north. We are evaluating the possibility of using the inside shoulder of southbound I-270 between MD 121 and I-370 to permit HOV traffic during the morning peak period. In addition, SHA and the Mass Transit Administration (MTA) are jointly working on a multi-modal planning study to relieve congestion within the I-270/US 15 Corridor. Several combination alternates have been developed, including concepts extending the HOV lanes to I-70 in Frederick, and a light rail or bus transitway from Shady Grove to COMSAT (Clarksburg), as part of a multi-modal solution.

My telephone number is 410-545-0400 or 1-800-206-0770

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your interest in transportation improvements in the I-270 Corridor. I have included a copy of the I-270/US 15 Multi-Modal Corridor Study Newsletter for your reference. Please feel free to contact Ms. Michelle Hoffman, the SHA Project Manager, if you would like to receive periodic newsletters and project information in the future. Ms. Hoffman may be reached at 410-545-8547 or via e-mail at <mhoffman@sha.state.md.us>.

Sincerely,

Parker F. Williams
Administrator

Enclosure
cc: Ms. Michelle Hoffman, Project Manager, State Highway Administration (w/incoming)
Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, State Highway Administration

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor

Kathleen Kennedy Townsend
Lt. Governor

John D. Porcari
Secretary

Beverley K. Swaim-Staley
Deputy Secretary

April 4, 2000

The Honorable Blair Ewing
Montgomery County Council
100 Maryland Avenue
Rockville MD 20870

Dear Councilman Ewing:

Thank you for your letter to Governor Parris N. Glendening regarding the I-270/US 15 Multi-Modal Corridor Study. The Governor received your letter and asked me to respond to you on his behalf.

The Maryland Department of Transportation (MDOT) recognizes the need for additional capacity improvements in the Washington region, including the I-270 Corridor, where travel demand is projected to increase beyond the capacity of the existing facility. In a time of increasing transportation congestion and heightened environmental concerns, the State must find the most effective way to meet its transportation needs. To that end, the Mass Transit Administration (MTA) and State Highway Administration (SHA) are currently engaged in an I-270/US 15 multi-modal study, with limits extending from the Shady Grove Metro Station north to Biggs Ford Road in Frederick County. The project team is evaluating a variety of long-term strategies for addressing congestion along I-270, including a transitway, high occupancy vehicle (HOV) lanes, and highway widening. The alternates under consideration include a no-build alternate, a transportation system/demand management alternate and three combination alternates (which consist of highway and transit improvements).

At a recent focus group meeting, preliminary travel demand results were presented for the no-build alternate, as well as for the combination alternates. This travel demand information is based on the Metropolitan Washington Council of Governments' regionally approved model, which includes the MARC Brunswick Line extension to Frederick.

Combination Alternate A-1 (with Highway, Transit, and a Light Rail Transitway) increased total corridor transit ridership by 25 percent versus the Baseline Alternate. Combination Alternate A-2 (with highway, transit, and a bus rapid transitway) increased total corridor transit ridership by 69 percent versus the Baseline Alternate, as a result of more frequent service, better access to transit, and the reduced number of transfers as compared to the light rail transitway. Combination Alternate B (with highway, transit, and premium-express bus in the HOV lanes), increased total transit ridership by 76 percent versus the Baseline Alternate, as a result of direct routes and faster service compared to both the light rail transitway and bus rapid transitway. In addition, the preliminary modeling results concluded that the limited capacity on I-270 does not affect transit ridership and that none of the transit modes significantly impacts highway demand.

My telephone number is 410-865-1000
Toll Free Number 1-828-713-1414 TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

Please note that federal procedures require that a number of measures of effectiveness be considered in the recommendation and selection of viable transit corridors and modes. Potential ridership is one of several key measures; however, it is the alternate which best addresses a cross-section of measures, including cost-effectiveness, public support, and support of land use patterns, that will be pursued in future phases of the project.

Over the past month, both MTA and SHA staff have had the opportunity to review the ridership forecasts more closely to determine whether the modeling inputs and the subsequent travel-demand results are reasonable. We are presently meeting with our consultants and team representatives from Montgomery County and the Metropolitan Washington Council of Governments to discuss the travel-demand processes that were developed for this study. This review will provide a better understanding of how changes in the model components could affect ridership numbers. This review may necessitate further travel-demand efforts, which would add time to our project schedule and delay our planned public information workshop. We will be pleased to share the results and the reasons for any changes with the focus group, and you, as they become available.

Thank you again for your letter. The Governor appreciates hearing from you, and on his behalf, I also thank you for the interest which prompted you to write. If you have any questions, please feel free to contact Mr. Henry Kay, Planning Director, MTA at 410-767-3778 or Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, SHA at 410-545-0411 or 1-888-204-4828.

Sincerely,

John D. Porcari
Secretary

cc: Mr. Albert Genetti, Director, Montgomery County Department of Public Works and Transportation
Mr. William Hussmann, Chairman, Montgomery County Planning Board
Mr. Richard White, General Manager, Washington Metropolitan Area Transit Authority
Mr. Ronald Freeland, Administrator, Mass Transit Administration
Mr. Henry M. Kay, Director of Planning and Programming, Mass Transit Administration
Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

APR 10 '00 12:55PM SHA ADMINISTRATOR 410 209 5009 P.2/4

Sue Hecht
3rd Legislative District
Frederick and Washington Counties
Deputy Majority Whip

Member
Appropriations Committee
Vice Chair
Transportation and
the Environment Subcommittee
Capital Budget Subcommittee
Personnel Oversight Committee
Program Open Space and Agricultural
Land Preservation Oversight Committee

President-Elect
Women Legislators of Maryland

The Maryland House of Delegates
ANNAPOLIS, MARYLAND 21401-1991

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District Office
8 East Street
Suite 200
Frederick, Maryland 21701
301-293-8651
Fax 301-293-0614

April 6, 2000

Parker Williams
Administrator
State Highway Administration
707 N. Calvert Street
Baltimore, MD 21202

Dear Mr. Williams:

I am forwarding to you a copy of an e-mail I received from a constituent, Richard Sarver, in regard to traffic congestion on Interstate 270. I would appreciate your reviewing the e-mail and responding to issues 1, 2, and 3. Thank you for your attention to this matter. I look forward to your response.

Very truly yours,

Sue Hecht
District 3 Delegate

APR 10 '00 12:55PM SHA ADMINISTRATOR 410 209 5009 TO 91301293 0655 P.3/4

Delegate Sue Hecht

To: Devin Sarver
Subject: RE: Area issues

Dear Mr Sarver,

Thank you for your e-mail regarding traffic issues on Route 270. I appreciate the detailed descriptions of not only what you see as the problems but potential solutions. I will forward your letter both to State Highway Director Mr. Parker Williams, and to State Police Commander David Mitchell for their specific response to your ideas. When I get those I will be back in contact. Thank you for your input. I am so glad I don't have to make that commute & I can only image how frustrating it must be most days.

Regards,

Sue Hecht

From: Devin Sarver[SMTP:DSarver@LUGIJACT.GW.HAYY.MIL]
Sent: Thursday, March 30, 2000 11:28 AM
To: 'sue_hecht@house.state.md.us'
Subject: Area issues

Ms. Hecht,

I am a federal employee who lives in Frederick(Whittier) and I make the commute to Wash DC daily. There are several commuting problems I need to address and I don't know where to start, so I am sending this to you. The 15/270 trip is awful and part of the problem is due to the State Highways lack of foresight. I get up at 4 am to leave at 5 am and the traffic is already bumper to bumper.

1. Going South towards DC the truck weigh station after Rt. 109 dumps onto 270 at an incline. No loaded truck can merge into rush hour traffic, which starts at 5am, at speed. This causes an immediate backup on 15/270. A quick fix would be, make an extra lane coming from the weigh station all the way up to where the 3rd lane starts about a 1/2 mile up. That would give the trucks their own lane coming on to 270 and allow the traffic to continue a good flow without the trucks merging.

2. I also do not agree with the HOV in MD. It is not working, and it actually perpetuates the congestion. In the evening, the traffic backup starts on the Beltway/270 spur at about 3:00 pm. If the HOV lane was removed, traffic would continue to flow steadily minimizing the severity and duration of the backup. It amazes me that Montgomery County would support HOV since the bulk of traffic congestion is isolated in their county. Thousands of cars sitting in traffic for 3 hours daily is not good for the environment, fuel conservation or the well being of the constituents. Some simple things can be attempted to immediately alleviate this problem. At a minimum remove HOV restrictions from the spurs. See how it works, then remove HOV completely.

3. The northbound HOV lane on 270 ends a 1/4 mile before the 3rd or right hand lane ends. This is a major backup in the evenings, because the 3rd lane needs to merge and the middle lane cannot move over to the far right because the stub HOV. Essentially it is two lanes merging into one. The HOV needs to end a mile or so before the end of the 3rd lane giving enough distance for merging.

4. Do not use State Troopers to enforce HOV on the spurs during rush hour. Last week a 3 trooper HOV sting was set up at 2:30pm on the north bound spur and it took 45 minutes to travel 4 miles. This operation is run once a month and the negative environmental impact and anger generated by this can not be worth the

APR 10 '00 12:56PM SHA ADMINISTRATOR 410 209 5009 TO 913813938455 P.03/04

few (flenders that were caught. If the numbers were looked at, I bet very few people were caught. Since Governor Glendening, who claims to be a staunch environmentalist and is for fairness and equity for all, seems to support these measures, he needs to come out and see how they are working.

I apologize for the length of this, I tried to get the points across as concisely as possible. Any help or information you can provide on these issues would be greatly appreciated. Tell me where to direct these complaints, I can't believe others don't have the same concerns. I see thousands of them every day. Some thing needs to be done to start alleviating the congestion. Mass transit is not the complete answer, it does not work for most people, it is expensive and time consuming to use.

Thank you for your time,

Richard Sarver

Page 2

TOTAL P.003

04/10/2000 09:37 301-624-8225 MD DEPT TRANS PAGE 04

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

May 1, 2000

The Honorable C. Sue Hecht
Maryland House of Delegates
Suite 200
6 East Street
Frederick MD 21701-5679

Dear Delegate Hecht:

Thank you for your recent letter regarding your constituent, Mr. Richard Sarver, who is concerned about congestion in the Washington Metropolitan Region. I appreciate your forwarding his email on this important issue and offer the following response.

In a time of increasing transportation congestion and heightened environmental concerns, Maryland must find the best, most efficient way to meet its transportation needs. To that end, the Maryland Department of Transportation (MDOT) is engaging in an I-270/US 15 Multi-Modal Study, from the Shady Grove Metro Station north to Biggs Ford Road. The project team is evaluating a variety of long-term strategies for addressing congestion along I-270, including a transitway, High Occupancy Vehicle (HOV) lanes, and highway widening (one or two lanes in each direction north of MD 121). Since we cannot continue to widen the roadway in the area south of I-370 to meet the growing demand, and HOV lanes move more people than do general-use lanes, HOV lanes are a good way to maximize our limited transportation resources. Potential improvements include plans to extend the HOV lanes further north, as well as the possibility of using the inside shoulder of southbound I-270, between MD 121 and I-370, for HOV traffic during the morning peak period.

Mr. Sarver makes a good point about the current terminus of the northbound HOV lanes—that is, that the HOV lane stops where a northbound general-use lane is lost. The State Highway Administration (SHA) will evaluate this issue further. Although long-term plans show the possible extension of both the general-use lane and the HOV lane, our Office of Traffic and Safety will evaluate Mr. Sarver's concerns over merging traffic and backups and determine potential solutions.

The primary objective of HOV lanes is to provide high-occupancy vehicles with both travel time savings and more predictable travel times. A significant volume of commuters should find this alternative attractive enough to voluntarily switch to using a higher occupancy mode. As they do so, capacity will be added to the general-use lanes for those whose schedules do not permit carpooling. Your constituent may want to call Commuter Connection at 1-800-745-RIDE (7433) to learn more about ridesharing opportunities in the area.

My telephone number is 410-545-0400 or 1-800-206-0770

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Extensive monitoring is being conducted on the HOV lanes. We regularly count the number of vehicles using each lane on I-270 during peak periods, as well as the number of people in each of those vehicles. We are working with the Maryland State Police (MSP) to determine the number of vehicles which use the HOV lane illegally and to monitor accident data along the HOV lane.

Mr. Sarver also mentioned the I-270 weigh stations. The acceleration and deceleration lanes meet the national standards established by the American Association of State Highway and Transportation officials. To my knowledge, merging traffic has not prevented safety issues at this location.

Although you did not ask me to address police patrols on I-270, I have several comments. My staff has spoken with local troopers who enforce HOV regulations about concerns that enforcement activity can cause significant backups. The MSP is working with us to find the most appropriate enforcement plan which does not create additional problems for commuters who use the general-use lanes. We are experimenting with different strategies to find the ideal approach.

The State is working on final design for improvements to the I-270 spurs, including new and improved interchanges at Democracy Boulevard, Rockledge Drive, and Fernwood Drive. If you have any specific questions on this design project, please feel free to contact Mr. Kirk McClelland, our Chief of Highway Design, at 410-545-8800 or 1-888-288-6971. There are no current plans to widen the spurs; however, the State is engaged in a value pricing study that could provide an option for single occupancy vehicles to "buy" a premium trip in the HOV or High Occupancy Toll (HOT) lanes. Value pricing is an emerging concept that involves a system of fees or tolls which vary according to the level of congestion. Higher tolls are usually charged when congestion is heaviest and delay is at its worst. This approach rations limited road capacity by encouraging some peak-period users to shift to off-peak periods, HOV lanes, transit (including MARC), or less congested routes. You may reach the Project Manager, Ms. Michelle Hoffman, at 410 545-8547 or 1-800-548-5026 if you would like more specific information. She can also be reached by email at mhoffman@sha.state.md.us.

The Honorable C. Sue Hecht
Page Three

Thank you again for your letter. If you have any questions, please feel free to contact me or my Director of Planning and Preliminary Engineering, Mr. Neil J. Pedersen, who can be reached at 410-545-0411 or 1-888-204-4828.

Sincerely,

Elizabeth L. Homer, Deputy

for Parker F. Williams
Administrator

cc: Mr. Thomas Hicks, Director of Traffic and Safety, State Highway Administration
Ms. Michelle Hoffman, Project Manager, State Highway Administration
Mr. Kirk McClelland, Division Chief, State Highway Administration
Mr. Neil J. Pedersen, Planning Director, State Highway Administration

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

June 22, 2000

The Honorable Sue Hecht
Maryland House of Delegates
Suite 200
6 East Street
Frederick MD 21701

Dear Delegate Hecht:

Thank you for your continued participation and interest in the I-270/US 15 Multi-Modal Corridor Study. The purpose of this letter is to respond to several of your questions raised with staff at a recent meeting regarding MD 85 interchange improvements, High Occupancy Vehicle (HOV) Lanes and Transit.

The purpose of the I-270/US 15 Multi-Modal Corridor Study is to investigate options to help relieve congestion and improve safety conditions as a result of existing and projected growth within the corridor. In response to this need, the study team has been investigating multi-modal solutions in this 30-mile regional corridor over the last several years. After evaluating a number of transportation strategies as stand-alone alternates, we learned that a combination of these strategies would be necessary to solve the transportation needs in the corridor. The study team then packaged together, for further consideration, combination alternates that included both highway and transit improvements in addition to the baseline, or no-build, scenario. The I-270/US 15 Multi-Modal Corridor Study does not attempt to, nor will it, solve all of the local transportation needs in the surrounding areas of the corridor. Local improvements may be necessary, however, to facilitate the effectiveness of any proposed strategy.

As part of the study of each of the combination alternates, the study team is evaluating the traffic, engineering and environmental feasibility of implementing a direct access ramp from the extended HOV lanes, both northbound and southbound, into an access road to the Monocacy MARC Station proposed along MD 355 in Frederick. We will evaluate this connection at its originally shown location, as well as at the proposed location identified by the Frederick Area Committee on Transportation (FACT), where Shockley Drive could extend over I-270 to connect with Spectrum Drive. We will need to be cautious of the northern limit of the Monocacy National Battlefield, which extends along I-270 in this vicinity.

My telephone number is **410-545-0400 or 1-800-206-0770**
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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The preliminary investigation of the transit strategies for either bus or light rail transit (LRT) showed little demand for transit north of COMSAT in Montgomery County prior to the design year 2020. The study team has spent the better part of two years reevaluating transit along two alignments—the Corridor Cities Transitway (CCT) and CSX—and with two modes—LRT and bus—to serve the corridor. These evaluations have included investigation of various northern termini (Metropolitan Grove, Germantown, COMSAT, and Frederick); alternative fare structures (competitive with Metrorail); a reduced number of transit stations; an aggressive feeder bus network; and increased land-use densities within one-half mile of the transit stations. The results of these analyses have shown that COMSAT is the northernmost location along the CCT which would generate 2020 ridership high enough to justify studying a transitway as part of this study. The study team would, however, like to see the transitway alignment through Clarksburg, Urbana, and Frederick maintained within the Washington Metropolitan region's Long Range Plan and local master plans for right-of-way preservation (for implementation beyond the year 2020). Please refer to the attached background information on the previous transit analysis.

Recently, in reviewing new travel demand results, the study team found lower LRT ridership than previously predicted. With concern for the multi-modal aspect of this study, we carefully reviewed the inputs and assumptions for the model runs, using the regionally adopted model and land use from Frederick County and the Metropolitan Washington Council of Governments (MWCOG). We found these assumptions to be credible and will now pursue the engineering and environmental studies for the transit and highway component of the combination alternates. More recently, the study team recognized that revised 2020 land use for Frederick County, which will shortly be incorporated into the MWCOG model, shows an increase in employment in the County for the year 2025. We will therefore perform modeling tests prior to completing the draft environmental document. The study team emphasizes the reservation of the current Frederick County transitway alignment.

The State Highway Administration and the Mass Transit Administration are currently beginning detailed planning studies to investigate traffic conditions, engineering plans, and environmental impacts. The detailed environmental and engineering analyses will be summarized in a Draft Environmental Document and presented at a Location/Design Public Hearing tentatively scheduled in the Fall/Winter of 2001, with location/design approvals tentatively anticipated for a preferred alternate in the Summer or Fall of 2002.

The Honorable Sue Hecht
Page Three

Thank you again for your interest in the I-270/US 15 Multi-Modal Corridor Study. If you have any further questions, please feel free to contact Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, at 410-545-0411 or 1-888-204-4828 or Mr. Henry Kay, Director of Planning and Programming at the Mass Transit Administration, at 410-767-3787.

Sincerely,

Parker F. Williams
Administrator

Enclosures
cc: The Honorable Joseph Baldi, Alderman, City of Frederick
Mr. Bob Fisher, District Engineer, State Highway Administration
Mr. Ronald L. Freeland, Administrator, Mass Transit Administration
The Honorable Jan H. Gardner, Commissioner, Frederick County
The Honorable James S. Grimes, Mayor, City of Frederick
Mr. James Gugel, Principal Planner, Frederick County, DPW&T
The Honorable William Hall, Alderman, City of Frederick
Ms. Michelle Hoffman, Project Manager, State Highway Administration
Mr. Kris Hughes, Planning Director, Frederick County, DPW&T
Mr. Henry Kay, Director, Planning and Programming, Mass Transit Administration
The Honorable Donna Kuzemchak, Alderman, City of Frederick
The Honorable Meta Nash, Alderman, City of Frederick
Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, State Highway Administration
The Honorable Blaine Young, Alderman, City of Frederick

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SUE HECHT
3rd Legislative District
Frederick and Washington Counties
DEPUTY MAJORITY WHIP

Member
Appropriations Committee
Vice Chair
Transportation and
the Environment Subcommittee
Capital Budget Subcommittee
Personnel Oversight Committee
Program Open Space and Agricultural
Land Preservation Oversight Committee

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July 17, 2000

Parker F. Williams
Administrator
State Highway Administration
Maryland Department of Transportation
P.O. Box 717
Baltimore, MD 21202

Dear Mr. Williams:

Thank you for your June 22nd letter and your comments regarding the I-270/US 15 Multi-Modal Corridor Study. I appreciate the Administrator of the State Highway Administration taking the time to address so many concerns relating to mass transit alternatives in the I-270/US 15 Corridor. While I appreciate that these concerns may be better addressed directly to the Mass Transit Administration (MTA), I thought I would take this opportunity to clarify some of my concerns and those of my constituents.

In your letter you discuss the light rail transit (LRT) option and the apparent lack of ridership "north of Comsat in Montgomery County prior to the design year 2020." My concern is that we have not addressed the need for a direct mass transit link between Frederick and Rockville. The issue is not traffic north or south of Comsat, but the traffic in the entire corridor between Frederick and Rockville/Shady Grove and the need to move all travelers, not just commuters, in a safe, efficient and effective manner. For a corridor in excess of 30 miles, LRT is not a practical option. With an average speed of 29 miles per hour and high capital costs associated with overhead wires and infrastructure, the LRT option is much better suited for an urban environment and has limited, if no applicability to a "corridor" such as Frederick to Rockville.

We are requesting that the MTA in coordination with SHA look at and study the option of establishing a MARC type "heavy rail" alignment which would directly link Frederick to Rockville. We are not suggesting a METRO system but a traditional rail alignment served by our MARC service. This new alignment could also incorporate a bike/hiking trail.

In order to evaluate this option we need to understand ridership and costs associated with this option. To date it is my understanding that this option has not been evaluated. The pending Frederick MARC connection via Point of Rocks is an excellent first step in expanding service to Frederick; however, we need to understand how many more people would utilize this service if travel times could be reduced by 30% to 40% through a direct connection between Maryland's second and third largest cities. We already know that 40% of our residents commute out of the county and as our populations continue to grow this number will not decrease. In addition, the intermediate stops between Frederick and Rockville represent some of the largest and fastest growing communities in Maryland including Gaithersburg, Germantown, Clarksburg, and Urbana. One can hardly compare the contribution from these cities to ridership with likes of Dickerson, Barnesville and Boyds. We need a mass transit option that is poised to handle corridor travel for the 21st Century and beyond.

In suggesting the significant capital investment entailed in such a new alignment, many factors must be taken into consideration. While the interrelationship of cost and ridership/revenue is one of the paramount issues we need to understand, there are several other important points to consider. New alignments are costly and involve a significant understanding of topography and local development plans to arrive at the final alignment. With the development of Clarksburg and Urbana still in their infancy, now is the time to fully evaluate the corridor to assure that the appropriate engineering issues are understood prior to reserving any "transitway alignment." Once these communities have been built out, reserving alignment will be much more difficult and more costly. Let us assure in advance that the alignment we have drawn on the map is in fact a viable alignment from an engineering standpoint.

One major issue as we move forward is capacity on the existing Brunswick line, since the CSX/Conrail merger traffic on the Brunswick line has grown by more than 30% according to published reports. You are certainly aware of CSX's feeling toward passenger rail service and the inherent conflicts between passenger and freight priorities that can only worsen as commuter demands increase in this region. Given the restriction in rail line capacity, the MTA's ability to add capacity is severely limited. While capacity can be supplemented by adding double decker cars, new frequencies will be much more difficult if not impossible given past experiences. By developing a new dedicated passenger rail alignment we could achieve more competitive and attractive travel times as well as increased frequencies in this corridor including mid day train service. By providing an effective transportation alternative for residents that connects with the WMATA system, a transportation alternative far more comprehensive than a commuter option can be achieved.

Another consideration in evaluating this important East-West corridor is the impact of ridership from surrounding jurisdictions. I understand that the WCOG model does not include trip generation from Washington, Allegany, or Garrett County. Similarly the model apparently does include trips from Pennsylvania or West Virginia. You need only travel I-70 or Route 15 in the morning to understand that significant number of trips are generated outside the current WCOG modeling. These trips need to be accounted for in order to have accurate ridership

numbers.

If the current capacity problems on the Brunswick line were alleviated in the future due to a direct connection from Frederick, MARC service for Hagerstown should also be considered over existing freight lines. This will help unify the state and move us toward our goal of One Maryland.

I appreciate that the issues raised here are significant. However, the magnitude of the study is significant for shaping transportation to some of Maryland largest communities for decades to come. I challenge you and your fellow associates in the SHA, MTA, and MDOT to broaden the vision and help develop an integrated transit system for the I-270 corridor that responds to the vision we need in the 21st Century. I look forward to discussing this matter in greater detail with you at your earliest convenience.

Very truly yours,

Sue Hecht
District 3 Delegate

cc: The Honorable Louise Snodgrass, Frederick County Delegation Chair
The Honorable James Grimes, Mayor, City of Frederick
Robert Fisher, SHA District Engineer
Ronald Freeland, MTA Administrator
The Honorable Jan Gardner, Commissioner, Frederick County
Mr. James Gugel, Principal Planner, Frederick County
Michelle Hoffman, SHA Project Manager
The Honorable Donna Kuzemchak, Alderman, City of Frederick
The Honorable Meta Nash, Alderman, City of Frederick
Kris Hughes, Planning Director, DPW&T
Henry Kay, MTA Director of Planning and Programming
Neil Pedersen, SHA Director of Planning and Preliminary Engineering
Jonathan Warner, FACT
Dave Clark, FACT

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

August 1, 2000

The Honorable Sue Hecht
Maryland House of Delegates
Suite 200
6 East Street
Frederick MD 21701

Dear Delegate Hecht:

Thank you for your recent letter regarding commuter rail transit between Frederick and Rockville in the I-270/US 15 corridor. While I appreciate the opportunity to respond to some of your questions, questions about transit decisions and opportunities between Frederick County and Rockville are best answered by the Mass Transit Administration (MTA). I am therefore sharing your letter with Mr. Ronald Freeland, the MTA Administrator, and Mr. John Clark, Montgomery County's Director of Public Works and Transportation.

The I-270/US 15 Multi-Modal Corridor Study has followed a two-step approach: first evaluating several stand-alone highway and transit strategies, including bus and light rail to Frederick; and then evaluating, in more detail, several combination alternates, which include transit, highway, and non-traditional improvements. Prior to the initiation of this study, Montgomery and Frederick counties participated in several transit feasibility studies, including assessments of commuter rail, light rail, and bus to Frederick in the I-270 Corridor. The enclosed Executive Summary of the March 1991 *"I-270 Corridor Cities Transit Easement, Frederick County Extension Study"* may be of interest to you in that regard. Nine alternate alignments were evaluated as either light rail or bus, with one commuter rail alternate, establishing a likely range of transit demand for 2010. We identified several alignments or potential rights-of-way on the basis of geometry, environmental issues, and capital costs, and we selected the best preliminary alignments. It is my understanding that the results were similar to those of a July, 1988 study by Frederick County, which concluded that light rail or bus should be pursued in an alignment adjacent to I-270. The evaluation process determined that a specific commuter rail service option need not be carried forward into more detailed analysis. The reasons were that this options would generate the least ridership, compared to other modes, that it would have high engineering and operating costs relative to ridership (as a result of the technology's highly restrictive design criteria); and that it would entail significant environmental impact issues. The evaluation determined that the capacity to support commuter rail technology need not be carried forward as a requirement in the selection of preliminary alignments.

My telephone number is 410-545-0400 or 1-800-206-0779

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The I-270/US 15 Multi-Modal Study has always coordinated with representatives of Frederick County, Montgomery County, the City of Rockville, the City of Frederick and other local jurisdictions and has developed consensus in regard to the mode deemed most appropriate. Earlier planning efforts of the local jurisdictions have therefore remained consistent with the alternates in the I-270 Study.

Your and your constituents' desire to find the most efficient location for any future transit alignment, particularly beyond the 2020 design year of the I-270/US 15 Study, is certainly appreciated. I urge you to continue your coordination efforts with the MTA and local jurisdictions to seek opportunities for additional transit between Frederick and Rockville.

Thank you again for your letter. If you have any additional questions or concerns regarding the I-270/US 15 Study, please do not hesitate to contact Mr. Neil J. Pedersen, my Director of Planning and Preliminary Engineering, at 410-545-0411 or 1-888-204-4828 or Mr. Henry Kay, Director of Planning and Programming at the Mass Transit Administration, at 410-767-3787.

Sincerely,

Parker F. Williams
Administrator

Enclosures
cc: Mr. Robert Fisher, District Engineer, State Highway Administration
Mr. Ronald L. Freeland, Administrator, Mass Transit Administration
The Honorable Jan H. Gardner, Frederick County Commissioner
The Honorable James S. Grimes, Mayor, City of Frederick
Mr. James Gugel, Principal Planner, Frederick County Department of Public Works and Transportation
The Honorable William Hall, Alderman, City of Frederick
Ms. Michelle Hoffman, Project Manager, State Highway Administration
Mr. Kris Hughes, Planning Director, Frederick County Department of Public Works and Transportation
Mr. Henry Kay, Director, Planning and Programming, Mass Transit Administration
The Honorable Donna Kuzemchak, Alderman, City of Frederick
The Honorable Meta Nash, Alderman, City of Frederick
Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, State Highway Administration
The Honorable Louise Snodgrass, Frederick County Delegation Chair
The Honorable Blaine Young, Alderman, City of Frederick

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

PLEASE REPLY TO:

OFFICE OF DISTRICT ENGINEER
5111 BUCKEYSTOWN PIKE
FREDERICK, MARYLAND 21704

July 31, 2000

The Honorable James S. Grimes, Mayor
The City of Frederick
101 N. Court Street
Frederick MD 21701

Dear Mayor Grimes:

This letter is in regards to traffic operations along US 15 at its intersection with Hayward Road / Wormans Mill Road in Frederick County. The State Highway Administration (SHA) has recently completed an evaluation of the intersection, and we would like to share our findings and recommendations with you.

The intersection of US 15 with Hayward Road / Wormans Mill Road has experienced an increase in the number of accidents over the last three years. This increase can be attributed to an overall increase in the volume of traffic at the intersection and a sight distance concern when vehicles sit opposite each other waiting to make a left turn. Motorists have also been observed trying to maneuver straight across US 15 through the crossover even though this use has been restricted.

As a result of these findings, the SHA plans to install flexible delineation posts in the median to further prohibit vehicles from illegally crossing US 15. This installation will take place in September. We are also taking steps to close the left turn lane from southbound US 15 to Wormans Mill Road and expect this change to occur in the fall. This modification will change the traffic pattern so that motorists who currently turn left from southbound US 15 onto Wormans Mill Road will be directed to turn left at Trading Lane or U-turn south of Wormans Mill Road. With this change, the Trading Lane intersection is projected to operate at an acceptable level of service.

As you may know, the State Highway Administration (SHA) has also discussed various traffic mitigation options with the developer of the proposed Northgate Plaza. The option that currently seems most viable will be to completely close the median at Hayward Road / Wormans Mill Road and create a new access to US 15 south of Trading Lane. This new intersection will be a "T" intersection serving the west-side of US 15 with a connection to Thomas Johnson Drive. Access to and from Hayward Road at US 15 may be eliminated under this scenario. Although this modification would improve operations, a time frame can not be identified for this work. The developer could begin as soon as next year, or delay building the proposed shopping center indefinitely. As a result, the SHA has determined that the above-mentioned improvements are currently needed along this stretch of US 15.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Thank you again for your interest in this matter of traffic safety. If we can provide further assistance at this time, please feel free to call me or Mr. Neil Parrott of our Traffic Division. Neil may be reached at 301-624-8150, or 1-800-635-5119.

Sincerely,

Robert L. Fisher
District Engineer

cc: The Honorable David Gray, President, Frederick County Commissioners
Ms. Michelle Hoffman, Project Engineer, State Highway Administration
Mr. Randy Houck, Resident Maintenance Engineer, State Highway Administration
Mr. Neil Parrott, Traffic Engineer, State Highway Administration

Fred

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

November 21, 2000

The Honorable Louise V. Snodgrass
Chairman
Frederick County State Delegation
403 James Senate Office Building
110 College Avenue
Annapolis MD 21401-1991

The Honorable David P. Gray
President
Frederick County Commissioners
Winchester Hall
12 East Church Street
Frederick MD 21701

Dear Delegate Snodgrass and President Gray:

Thank you for your recent letter regarding "State Secondary and Primary Priority Listings" for Frederick County. I appreciate your interest in the State's transportation system. The County's priorities will be considered this Fall as we develop our final Consolidated Transportation Program (CTP).

The US 40 Alternate project in Middletown will have Smart Growth issues that will need to be addressed. Coordination with the Maryland Department of Planning will be required to ensure the project is consistent with the Governor's Smart Growth initiative.

The County Commissioner's offer to provide $200,000 for project planning for both the US 40 Alternate Middletown and US 15/MD 26 projects is very much appreciated. This will be helpful as we develop the final CTP.

My telephone number is 410-545-0400 or 1-800-206-0770

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Street Address: 707 Nor ox 717 • Baltimore, MD 21203-0717

Thank you again for your letter. We look forward to continuing our cooperative relationship with the County Commissioners and the Delegation. If you have any questions, please feel free to contact me or Mr. Neil J. Pedersen, our Deputy Administrator for Planning and Engineering. He may be reached at 410-545-0411, 1-888-204-4828 or, via email, at npedersen@sha.state.md.us.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Robert L. Fisher, District Engineer, State Highway Administration
Mr. Neil J. Pedersen, Deputy Administrator for Planning and Engineering, State Highway Administration
The Honorable John D. Porcari, Secretary, Maryland Department of Transportation
The Honorable Harriet Tregoning, Secretary, Maryland Department of Planning

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

The Honorable Nancy Dacek
Montgomery County Council
15113 Grey Pebble Drive
Darnestown MD 20874

Dear Councilwoman Dacek:

Thank you for your interest in the I-270/US 15 Multi-Modal Corridor Study. I would like to take this opportunity to address some of the questions you raised at our October 22 briefing to the Montgomery County Council Transportation and Environment Committee regarding the alternates retained for the detailed planning evaluations.

The State Highway Administration (SHA) and the Maryland Mass Transit Administration (MTA), in conjunction with the local jurisdictions and the federal and state agencies, are jointly conducting a multi-modal corridor study for 28 miles of I-270 and US 15. The purpose of this study is to investigate options to relieve congestion and improve safety throughout the I-270/US 15 corridor. Five alternates have been retained for detailed study, including:

- The No-Build Scenario,
- The Transportation System Management (TSM)/Transportation Demand Management (TDM) Scenario,
- Combination Alternate A with the Corridor Cities Transitway (CCT) to COMSAT (busway or light rail) and eight lanes between MD 121 and I-70,
- Combination Alternate B with Premium/Express Bus Service on the HOV lanes and eight lanes between MD 121 and I-70,
- Combination Alternate C with the CCT to COMSAT and six lanes between MD 121 and I-70.

Six Lanes vs. Eight Lanes - MD 121 to I-70
The project team investigated both a six lane (an additional general use lane in each direction) and an eight lane (with both an additional HOV lane and general use lane in each direction) scenario in the early evaluations of the stand alone transportation strategies. These travel demand evaluations showed that volumes operated beyond the capacity of the six lanes as did the eight lane scenario. In fact, for the design year of 2020, the HOV lanes showed the need for 3+ HOV carpools. Therefore, based on these preliminary studies, both six lanes and eight lanes will be retained in the various combination alternates. This will also enable the project team to evaluate the effect the number of lanes will have on transit usage in the corridor.

My telephone number is _____

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Northern Terminus of the Corridor Cities Transitway (CCT)
The preliminary investigations of the transit stand alone strategies for either bus or light rail showed little demand for additional transit north of COMSAT by the design year 2020. The project team has spent the better part of the last two years re-evaluating transit along two alignments (CCT and CSX) and with two modes (light rail and bus) to serve the Corridor Cities. These evaluations have included investigating various northern termini (Metropolitan Grove, Germantown, COMSAT, and Frederick), alternative fare structures (competitive with Metrorail), a reduced number of transit stations, an aggressive feeder bus network and increased land use densities within one half mile of the transit stations, all with the existing lane configurations to increase travel times and ridership, while not increasing the cost. The results of these analyses has shown that COMSAT is the farthest north ridership high enough to justify studying a transit line as part of this study. However, the project team would like to see the CCT transitway alignment through Clarksburg, Urbana and Frederick maintained within the Washington Metropolitan region's Long Range Plan and local master plans for right-of-way preservation.

Reverse Peak MARC Transit Service
The MTA has evaluated operating the MARC Service in the reverse peak direction and we are aware of the potential for this type of service to connect the two ends of the WMATA Metrorail (Metro) Red Line in Montgomery County. One reverse train, primarily operated to move equipment and crew back to Brunswick for the day, carried so few riders that it was discontinued several years ago. The present CSXT contract will not allow reverse commuter service because of the heavy freight traffic on the line and CSXT's wish to keep at least one track open for freight.

We believe the demand for such service is minimal. The Metrorail Red Line serves Silver Spring, Rockville, Gaithersburg and Germantown either directly or via Ride-On connections from Metrorail stations with higher frequencies from more origins than MARC could offer with a limited number of trains. The present limited patronage from west of I-270 exists because there are few connections to the employment centers, which are located closer to Metrorail stations or on the west side of I-270 where neither MARC nor Metrorail run. This is the portion of the corridor to be served by the Corridor Cities Transitway alignment.

The present market for this service in the northern portion of Montgomery County and in Frederick County is likewise affected by the separation of employment centers and station locations. Additionally, CSXT is reluctant to allow shared usage of the line for reverse commuter trains in these areas as well.

The Honorable Nancy Dacek
Page Three

The SHA and MTA are currently beginning detailed planning studies to investigate detailed traffic conditions, engineering plans and environmental impacts. These detailed environmental and engineering analyses will be completed in a Draft Environmental Document and at a Location/Design Public Hearing tentatively in the Fall of 2000, with location/design approvals granted for a preferred alternate tentatively in the Spring of 2001.

Thank you again for your interest in the I-270/US 15 Multi-Modal Corridor Study. If you have any further questions, please feel free to contact Neil at 410-545-0411 or 1-888-204-4828 or Henry at 410-767-3787.

Sincerely,

Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

Sincerely,

Henry Kay, Director
Planning and Programming
Mass Transit Administration

cc: The Honorable Derick Berlage, Montgomery County Council
The Honorable Gail Ewing, Montgomery County Council
The Honorable Isiah Leggett, Montgomery County Council
Dr. Glenn Orlin, Staff, Montgomery County Council
Mr. Ron Freeland, Administrator, Mass Transit Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

June 5, 2001

The Honorable Kumar Barve
Maryland House of Delegates
7 Belinder Road
Gaithersburg MD 20878-5249

Dear Delegate Barve:

The State Highway Administration (SHA) and Mass Transit Administration (MTA) have completed initial project planning studies for transportation improvements along the I-270/US 15 Corridor. The project team, which consists of a multi-jurisdictional group of federal, state, and local governmental agencies, has been evaluating both highway and transit strategies to relieve the current and projected congestion and improve safety conditions along the corridor in both Frederick County and Montgomery County. The corridor provides an essential connection between the Washington DC area and both central and western Maryland. Much of this corridor suffers from bumper-to-bumper congestion during the morning and evening rush hours. Conditions are expected to worsen considerably by 2020, as traffic is expected to increase up to 60 percent over this time period.

Proposed alternates have been developed and an environmental inventory of the area has been completed to identify social, economic, natural, and cultural resources. These resources have been considered during the development of the alternates. The public has been involved as this study has progressed through various public workshops/hearings, newsletters, news articles, briefings, presentations, and discussions with community organizations and a focus group. Key activities relating to this study include:

- June 1994: Initiated Major Investment Study (MIS)/National Environmental Policy Act (NEPA) Study
- May 1995: Public Initiation Meeting
- Winter 1995/1996: Public Alternates Workshops
- March 1997: Alternates Workshops/Public Hearings
- Fall 1998: Concluded the MIS
- February 2001: Informational Public Meetings

A copy of the brochure from the February 2001 Informational Public Meetings is enclosed for your reference.

My telephone number is **410-545-0400 or 1-800-206-0770**

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A Draft Environmental Impact Statement (DEIS) document is scheduled for completion by Spring of 2002. The DEIS document will describe each proposed alternative, summarize the potential impacts, and will be made available to the public prior to the public hearing. A Location/Design Public Hearing will be held in Spring of 2002 before the preferred alternate(s) decisions are made. In accordance with Section 8-612, of the Transportation Article of the Annotated Code of Maryland, we request your concurrence to continue with final planning/preliminary engineering studies for the I-270/US 15 Multi-Modal Corridor Study.

Thank you for your continued interest in this very important issue. If you have any additional questions or concerns, please do not hesitate to contact Mr. Neil J. Pedersen, SHA's Deputy Administrator of Planning and Engineering at 410-545-0411, 1-888-204-4828 or, by email, at npedersen@sha.state.md.us. He will happy to assist you.

Sincerely,

Elizabeth L. Horner, Deputy

for Parker F. Williams
Administrator

Enclosure
cc: Mr. Neil J. Pedersen, Deputy Administrator of Planning and Engineering, State Highway Administration

E. Minutes

QUESTION/COMMENT:

MR. BRUCE GREY, SHA:

Began with introductions.

Contract No. F 192-101
I-270/US 15 Feasibility Study in
Montgomery and Frederick Counties
Status: Major Investment Study (MIS) Presentation
Project Manager: Mr. Dennis Atkins x1139
Environmental Manager: Ms. Anne Elrays x6747

QUESTION/COMMENT:

MR. DENNIS ATKINS, SHA:

The I-270 corridor study was initiated in the late 1980's. Planning studies in the corridor were re-instated in June of 1994. Today's presentation is broken up into the following five categories: an overview study, the key steps for this study, the strategies and alternatives that may be investigated, the roles and level of analysis that will be utilized for this study, and the public involvement process.

Federal Requirements relating to the Clean Air Act and ISTEA in 1990 and 1991 resulted in new federal planning regulations in 1993 that emphasized multi modal transportation studies. As a result, the State Highway Administration is preparing Major Investment Studies (MIS) for major transportation projects.

The intent of an MIS is to reduce the range of alternatives to a preferred transportation mode or transportation demand strategies. The project sponsor works with the MPO and participating agencies to make decisions on the concept and scope of the investment for inclusion in the long range plan.

The MIS will identify the choice of transportation modes likely to be implemented. With this study, the project team is also going to ensure that the project complies with the Congestion Management System (CMS) requirements as well and ensure that the project is consistent with the 1992 Growth Management Policy Act.

The I-270/US15 corridor provides a direct connection between Central and Western Maryland and the District and the suburbs of Montgomery County. The corridor currently experiences severe congestion during peak traffic periods. Over the next 20 years, that congestion is expected to increase as development becomes more dispersed, resulting in substantial growth in the corridor. Multi modal improvements for the corridor are included in the Transportation Improvement Program (TIP) and the Constrained Long Range Plan (CLRP).

The next step in the presentation relates to the MIS and project development process. The project planning activities resumed in June of 1994 and the project team has initiated a feasibility study to identify possible transportation strategies for the quarter, the results of which will be used to satisfy the MIS requirements.

This is a unique project team that has been meeting almost every other week to try to keep this project moving forward. The project team includes members from MDOT, State Highway Administration, Mass Transit Administration, Frederick and Montgomery Counties, Maryland National Capital Park and Planning Commission, MWCOG, WAMATA, and private consultants.

The project sponsorship is jointly held by SHA and MTA with SHA generally taking the lead role in the project stated activities. The first step in the proposed process is to prepare a preliminary purpose and need and identify

measures of effectiveness or MOE's.

These are criteria which will assist the team in reducing the number of alternatives and strategies. Our purpose today is instead of holding one kick-off meeting with the MPO as is called for under the MIS requirements, the team will hold three kick off meetings. This being the first kick-off meeting with the interagency group, the second one will be this afternoon with MWCOG, and the third meeting will be sometime in late April or early May with the public. The basic presentation will be the same for all three meetings.

A public involvement program will be initiated with the kick off meeting. The team also plans to have a focus group with this project with the first meting scheduled for mid to late April.

The next step is obtaining agency concurrence on the purpose and need. The project team is currently developing the purpose and hope to make a presentation at the May meeting.

The team will then develop the preliminary alternatives and strategies in May and then use the measures of effectiveness to determine which of those strategies and alternatives are feasible. The results of this analysis would be presented at an alternates public meeting which is tentatively scheduled for the fall of 1995.

Subsequent to the alternates public meeting, based on comments received from the public and from the agencies, the team will select alternatives for detailed study and proceed through the next step of the NEPA concurrence process which would be obtaining concurrence on alternatives retained for detailed study.

After that, in the winter of '95 and early '96, the team would coordinate again with the MPO to ensure that the MIS requirements are being met. After that, the project would follow a normal project planning process. The team could complete the NEPA/404 process and move towards location approval. Ultimately, whatever alternative or strategy is selected, it would have to be

included in the Constrained Long Range Plan.

Some of the alternatives and strategies that may be considered are listed on the overhead. On the bottom of the overhead, the team has listed some of the measures of effectiveness that will be used to evaluate these alternatives and strategies.

The first alternative would be the no build alternative which would basically include all programmed improvements, i.e. roadway widening or any heavy rail improvements such as extension of the MARC line into Frederick from Point of Roues. The team would also be looking at transportation systems management and transportation demand management strategies, HOV, light rail, busway, widening, or a combination of HOV and widening.

The next part of the presentation focussed on the proposed extent of analysis and the agency roles. Basically, the MIS is going to use the same level of analysis currently used for project planning in NEPA studies. However, the MIS generally addresses the alternatives and strategies on a broader scale than the NEPA process does.

For example, the team would investigate the type of mode and facility and design aspects effecting regional emissions where as under the NEPA process the team would have more detailed design alternatives and strategies, i.e. the precise location of transit stations and configurations of highway interchanges.

For the I-270/US 15 project, the team will be preparing combined MIS/NEPA documentation, and to ensure that the principals of NEPA are considered, the project team will be discussing the proposed scope of analysis at this kick off meeting.

The purpose of the MOE again is to establish criteria and provide enough information to eliminate strategies. Major categories include systems performance, consistency with master plans, cost, and environmental impacts. Anne Elrays to described some of the environmental MOE's that the team is going to be looking at in more detail a little bit later.

Right now the team is developing travel demand forecast data and updating some of the data that was developed for the previous study for each of the preliminary alternatives and strategies. It is a cooperative effort between MWCOG, SHA, and MTA. From this information systems performance objectives such as capacity, delay, and level of service can be determined.

Consistency with local master plans will be assessed using regional land use plans, transportation plans, and through coordination with county representatives. The cost analysis will include capital costs as well as user cost, operating cost, and lifecycle cost. Sources for the cost data will include SHA, MTA, MWCOG, the Federal Transit Administration and Federal Highway.

QUESTION/COMMENT:

MS. ANNE ELRAYS, SHA:

When a draft NEPA document is prepared as part of the MIS process, the scope of analysis or level of detail should satisfy both NEPA and MIS requirements. The environmental measures of effectiveness are the direct and indirect cost of the alternates or strategies associated with the project.

They can be qualitative or quantitative and will be used to evaluate and identify alternates or strategies for the alternates public meeting. Items from the environmental inventory have been selected to serve as measures of effectiveness. These measures of effectiveness or screening criteria have been selected based upon anticipated magnitude of impact or the resource or issues sensitivity.

To complete the inventory, existing resources, local and regional master plans, and field studies were used. Preliminary identification of environmental impacts will be consistent with stage 1 project planning activities. The measures of effectiveness were selected from two broad categories. They are the natural and the socioeconomic categories.

From natural, we selected streams, floodplains, and wetlands. From

socio-economic, we selected clusters of development, cultural resources, and publicly-owned public parks. For streams, hydric soils, wetland maps, tidal and non tidal were selected to identify the wetlands. In addition, wetlands of special state concern or other classifications of wetlands have been noted.

SHA will list wetlands crossed and provide a narrative assessment of their type and value. In addition, wetlands will be field verified. For streams, we will coordinate with the appropriate officials to identify class of stream, time of year restrictions, and any special classifications such as whether it is a Wild & Scenic river or an aquifer in the project area.

SHA will quantify total number of streams crossed by class. For floodplains, we will use FEMA or Federal Emergency Management Administration mapping to locate and identify the floodplains. We will quantify the acreage of floodplain impacted by alternate strategy and provide a preliminary assessment of effect.

Now, under the broad socio-economic category, for parks publicly owned and recreational facilities, we will coordinate with the appropriate officials to identify 4F resources within the project area. We will identify potential impacts to the 4F resources.

For cultural resources, SHA will identify known, historic standing structures and archeological sites in the project area. We will list the sites that are crossed. For clusters of development, we will locate clusters of residential, business, and industrial development. We will determine the general potential for impact based upon quantifying properties, businesses, and residences crossed and by looking at whether the alternate or strategy bisects, bypasses, or intersects a community.

SHA will establish preliminary property ownership or property lines from tax parcel mapping. In sum, this is what we do by the end of Stage 1 activities. Thank you.

QUESTION/COMMENT:

MR. DENNIS ATKINS, SHA:

As stated previously, the team includes representatives from MDOT, SHA, MTA, Frederick and Montgomery Counties, Maryland National Capital Park and Planning Commission, Metropolitan Washington Counsel of Governments, Washington Metropolitan Area Transit Authority, and private consultants.

All the team members have been providing very valuable information throughout the feasibility study and it is going to be very important to maintain their involvement through the development of the MIS. The project sponsorship is jointly held by SHA and MTA with SHA taking the lead role right now.

Federal Highway and FTA will be involved in the project as it proceeds forward. Also the environmental review and regulatory agencies will be involved just like a normal project planning study at the appropriate concurrence points and the different field reviews as well as right now when the team is trying to agree on the different measures of effectiveness that are being considered.

The team is starting the public involvement process for this project with these meetings. The team hopes to have a focus group that will get together in April. The focus group is going to be more issue driven as opposed to driving the project.

The team will have different meetings with community groups as requested as would occur in any other project. The team also would have the traditional alternates meeting and public hearing.

The team is also going to try to keep the public informed through a periodic distribution of newsletters. Right now the team is starting with the project mailing list and may produce a newsletter semianually. The team may sent it out more frequently, but a specific decision regarding newsletter circulation and publication has not been reached.

QUESTION/COMMENT:

MR. NAT BROWN:

Stated that perhaps SHA should also consider at some point the disposal and handling of waste materials with respect to the actual construction activities, any demolition activities that are involved. SHA has to look at air quality conformity eventually at that point and we will continue to provide you with whatever input we can and any help or assistance that we can offer.

Stated he thinks it would be beneficial for SHA to consider involving MDE as early on as possible.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Restated for clarity, the measures of effectiveness are going to be used before the alternative for detailed study, and that is what we are going to use to evaluate those alternatives?

RESPONSE:

MR. DENNIS ATKINS, SHA:

Responded yes.

QUESTION/COMMENT:

MS. CHRIS DUTCH, FHWA:

Asked once FHWA has concurred on alternatives for detailed study, those alternatives would undergo the normal NEPA level of analysis?

RESPONSE:

MR. DENNIS ATKINS, SHA:

Responded yes.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, COE:

Stated she agreed that the agencies respond as soon as possible.

QUESTION/COMMENT:

MR. PAUL WETTLAUFER, COE:

Asked did he understand that the measures of effectiveness would be weighed and balanced together so that it would be like a trade off if one alternative provided superior capacity, but also had the most environmental impact, it might be kept in because it was superior in one area.

RESPONSE:

MR. DENNIS ATKINS, SHA:

Stated the MOEs are used to determine something that would be considered a fatal flaw.

QUESTION/COMMENT:

MR. PAUL WETTLAUFER, COE:

Stated he was trying to see how this new process differed from the old process. Stated he noticed that under the old process, SHA used to go to the alternates meeting when there was a very broad range of preliminary alternatives and then would get public feedback and then reduce that down to a number of alternatives to carry forward.

In this process it looks like SHA has narrowed down to the alternatives

that SHA wants to carry forward and then take it to the public. Is that correct?

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

Stated what is there is simply the types of alternatives that SHA will be looking at. It is a general type and prior to the alternates meeting, SHA may eliminate some of those, we don't know yet.

The major differences between the old process and the MIS NEPA process is one, the kick-off meetings and two, there are some new actors involved. The MPO's and MTA because these are multi modal studies. Those are the basic differences in the processes.

QUESTION/COMMENT:

MR. PAUL WETTLAUFER, COE:

Stated she left the one bullet where SHA presents results at an alternates public meeting prior to SHA seeking agency concurrence on the alternatives retained for detailed studies. It sounds like SHA has narrowed it down to a limited number of alternates before SHA went to that meeting.

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

Responded no. It is the same process SHA uses now. SHA usually carry some preliminary alternatives to an alternates meeting. At the alternates meeting, the public and/or the agencies in the same time frame may suggest other alternatives.

It is after the alternates meeting that SHA will narrow down the alternatives and identify those that will be retained for detailed study.

QUESTION/COMMENT:

MS. BETH COLE, MHT:

Stated "SHA will identify the amount of historic structures and places and list the things that are going to be crossed," and asked for more detail on what that means. Asked is SHA only looking at sites that are currently identified or will SHA also be doing assessment of potential and preliminary assessments.

RESPONSE:

MS. ANNE ELRAYS, SHA:

Stated SHA will be looking at historic standing structures and for previously recorded known archeological sites.

QUESTION/COMMENT:

MS. BETH COLE, MHT:

Asked but SHA won't be doing an assessment of potentials for archeology?

RESPONSE:

MS. ANNE ELRAYS, SHA:

Responded yes.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Stated that SHA will be meeting with you so that SHA can further refine the measures of effectiveness in determining the level of documentation for the

cultural resources.

QUESTION/COMMENT:

MS. BETH HANNOLD, MHT:

Stated there are lots of other ways that historic properties can be effected besides being "crossed" and felt that better wording could be used.

QUESTION/COMMENT:

MR. JOHN NICHOLS, NMFS:

Stated that he has no comments on this project because it is NMFS's area of concern.

QUESTION/COMMENT:

MS. CHRIS WELLS, MOP:

Asked is this a jointly sponsored project with the MTA and does that mean that the MTA would be evaluating the transit alternates and doing that part of the analysis?

RESPONSE:

MR. DENNIS ATKINS, SHA:

Stated right now they are an inactive team member and they are helping the team evaluate that. SHA has hired a consultant to actually do that for us, but right now it is in SHA's control.

QUESTION/COMMENT:

MS. CHRIS WELLS, MOP:

So the MTA's comments are just like those.....

RESPONSE:

MR. DENNIS ATKINS, SHA:

Stated they are as involved as SHA is with the consultants, it is just coming out of SHA's pocket.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Asked about the kick-off meeting for the public. Is it going to be like a focus group or is that a full public meeting?

RESPONSE:

MR. DENNIS ATKINS, SHA:

Stated it is going to be more like a workshop. SHA will probably have some kind of presentation and then we will have people that are answering questions. SHA does not have any alternative developed or anything like that.

QUESTION/COMMENT:

MS. CHRIS DUTCH, FHWA:

Asked is it going to be a full public meeting, ads in the paper and all that?

RESPONSE:

MR. DENNIS ATKINS, SHA:

Responded yes.

QUESTION/COMMENT:

MS. CHRIS DUTCH, FHWA:

Could SHA send us the MOEs as far as which ones are being looked at and to what level they are being looked at so FHWA can put it in the files?

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Stated these kick off meetings that are held at the interagency are the same as those held at the MPO's. The agencies are invited to the kick off meetings at the MPO.

QUESTION/COMMENT:

MR. DENNIS ATKINS, SHA:

Stated that it is 15 minutes in length, but other than that, it is the same information.

QUESTION/COMMENT:

MS. CHRIS WELLS:

Asked, as of this moment, if she is invited? Stated she didn't get any notice.

RESPONSE:

MS. CYNTHIA SIMPSON:

Stated yes.

approving those when the work was done and keeping any new structures passable for fish.

Contract No. F 192-101 P
I-270/US 15 Study in
Montgomery and Frederick Counties
Status: MIS and Purpose and Need
Project Manager: Mr. Dennis Atkins x6748
Environmental Manager: Ms. Anne Elrays x6747

MR. DENNIS ATKINS:

I-270/US 15 multi modal study project limits are from the Shady Grove Metro Station roughly north to US 15 Bigsford Road. There are three components to the I-270 corridor that serve three different functions that SHA will talk about and that have been talked about in the purpose and need and will be in our slide presentation. I-270 from Shady Grove to I-70, then there is US15 through the city of Frederick, and then US15 north of MD 26 to Bigsford Road.

Showed slide presentation. It is a travel demand slide presentation and it kind of gives the existing conditions and what would happen in the future if there was a no build alternative.

This is a multi modal study and it is not just State Highway working here, it is MTA and State Highway participating in a joint study.

MS. ANNE ELRAYS SHA:

Described the environmental inventory map. This is the south end of the project area going up to the north end. The yellow areas are corporate city limits. The wetlands are a lighter shade of blue, the 100 year floodplain limits are shown in purple. The state wild and scenic rivers are shown in gray. This is the Monocacy River and on the southern part by MD 355 there is Great Seneca Creek. There is Sole Source Aquifer that goes from about MD 118 all the way up to Urbana around MD 80.

So far SHA has done a wetland corridor study for the proposed roadway improvements and for the expanded study area consistent with stage 1, SHA will do a wetland corridor survey also. Right now SHA has used DNR mapping and NWI mapping for the expanded area. The wetlands are riverine and pallustrine.

There is one wetland of special state concern within the project area. The special concern area is right around MD 118 and they are related to little Seneca Creek and there are some state threatened species there. There are no federally threatened or endangered plant or animal species in the project area, and as of right now, and there are no anadramous fish.

There is the Great Seneca Park near MD 355, there is Black Hill Regional Park going to the north right around Little Seneca Creek. There is Little Bennett Regional Park around MD 355, there is Monocacy National Battlefield Park which is also a significant historic site in Frederick County.

The floodplains are pretty much where the major stream crossings are. Great Seneca Stream, that is a floodplain and that is where the state wild and scenic river is.

Monocacy River of course has a large floodplain which runs through Monocacy National Battlefield and Tuscarora Creek and Monocacy River up north of Frederick, those are large 100 year floodplains. The class of the streams in the project area are primarily Class I. Class IV is in the northern part of the project area north of US 40 and some Class IV in Little Seneca Creek, again north of MD 118.

SHA has not completed identification of all significant historic sites at this time. Some of the historic districts include Washington Grove, Gathersburg, Clarskburg, Hyattstown, and Urbana.

To the north, the Monocacy National Battlefield and Park and towards Frederick, there is the Frederick Historic District and north of the Frederick Historic District there is Rose Hill Manor. The project area is considered to have historic and pre-historic archeological resources, there are some known archeological resources.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Asked if there will be Agency field reviews?

RESPONSE:

MS. ANNE ELRAYS:

Stated yes.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Asked when? Sometime this summer or in the fall?

RESPONSE:

MS. ANNE ELRAYS, SHA:

Stated more likely in the fall.

MS. LISA RAECKE, SHA:

You all should have the draft copy of the purpose and need that SHA sent out with the package a couple of weeks ago. There are some holes in it, some tables and figures that SHA still needs to fill in.

SHA actually wrote the purpose and need or this draft before we prepared the slide presentation was prepared and came up with some better figures and more developed figures and better ways to describe things, better wording, so we will be incorporating some of the figures and some of the wording from the slide presentation into the purpose and need so it flows a little better and it is a little easier to understand.

In addition, the environmental consideration section was moved to the end of the document.

SHA also added a section on the background of the study and the classifications for the roadways.

Currently, the only information, the most recent information SHA has is from the period '90 to '92. SHA has requested more recent accident data. What we wanted to get was '92 to '94 because we want the most recent data possible. Unfortunately, the '94 data is not available yet.

QUESTION/COMMENT:

MR. ART COPPOLA, COE:

Stated the gentleman on the slide said that the project was going to follow the existing alignment. I was curious of the project area. Stated he is generally concerned.

RESPONSE:

MS. LISA RAECKE, SHA:

Stated that project area is the area that SHA took that would be possibly impacted from our preliminary concept alternatives. For example, a possible widening of I-270 or there are some transit easements that are in the county master plans and we took those into consideration when we made that project area.

Something else that is probably going to be included in our project area in the future is the MARC corridor. SHA has met with MTA about that and they want us to keep that corridor in mind, although there are already programmed improvements.

QUESTION/COMMENT:

MR. SEAN SMITH, DNR:

Did the traffic demand modeling that was discussed in the slide show make any assumptions regarding east west travel relative to ICC alternatives?

RESPONSE:

MS. MONA SUTTON:

Stated the ICC was not included. The master plan alignment that was in the long range plan at the time was included.

QUESTION/COMMENT:

MR. SEAN SMITH, DNR:

Asked if the numbers presented in the purpose and need assumed east west conveyance?

RESPONSE:

MS. MONA SUTTON:

Stated yes.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

I just want to comment that I agree with MTA in keeping the marc corridor alternative as a consideration for now. I also think the purpose and need should include numbers for 355 since it is so clearly parallel to and could serve some of the traffic functions in this corridor.

Is the highway reconstruction on I-70 in Frederick widening? I know the interchange is part of a larger project, it is a phase of the I-70 project.

RESPONSE:

MR. DENNIS ATKINS:

Stated at some point there will be widening on I-70.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Asked for a description of the northern project area from like 26 to Bigsford Road, i.e. the typical sections, the adjoining sections and the development around there.

RESPONSE:

MS. LISA RAECKE:

Stated I think it is 4 lane divided section.

RESPONSE:

MR. DENNIS ATKINS:

Responded there are no access controls.

QUESTION/COMMENT:

MR. ROBERT HOUST:

Stated north to Hayward Road there is access control, but there are at grade intersections.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Stated the graphics in the appendix did not have numbers and information for that section between MD 2 and Bigsford Road. Are the graphics available? If that is going to be a distinct section of the project, we are going to need some level of detail.

RESPONSE:

MR. ROBERT HOUST:

That is part of the project for the purpose and need.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Stated the section north between 26 and Bigsford Road seems to be a different section that is separate from the major north south travel.

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QUESTION/COMMENT:

MR. GREG GOLDEN, DNR

Are you keeping in touch with Butch with Department of Natural Resources, they do the review of usage.

RESPONSE:

MS. PATRICIA GREENE, SHA:

Stated we are in touch with them and we have had several letters from him and he said he wants to be involved in the project.

Project No. FR 192B11
I-270/US 15 Corridor Study in
Frederick and Montgomery Counties
Status: Project Update
Project Manager: Tom Folse x 8543
Environmental Manager: Anne Elrays x 8562

MS. MICHELLE HOFFMAN, SHA:

The I-270/US 15 multi modal corridor study is a study of the corridor between Shady Grove Metro in Montgomery County to and through US 15 in Frederick County.

We had a project initiation interagency review and presentation to the MPO in March of '95 and a public initiation in May of 1995. Again we had an interagency review presentation of purpose and need in June of '95 which we have received comments and received concurrence on the September '95 document.

A field review was led by Ann in November of '95 and we held alternates public meetings one in each county in December of last year and January of this year.

Some of the strategies presented at those public meetings through our stage 1 process were in addition to the base line which is the programmed improvements included in the Constrained Long Range Plan were TSM, TDM strategies such as telecommuting, park and ride facilities, flex hours, ITS technology, express bus

SHA would also investigate as part of the study some reconstruction of existing interchanges if needed due to whatever widening would be proposed.

QUESTION/COMMENT:

MR. DON SPARKLIN, SHA:

We mainly have transit go as far as Metropolitan Road and even as far as Germantown, but it may end here or here.

QUESTION/COMMENT:

MS. MICHELLE HOFFMAN, SHA:

At the Alternates Public Meeting we presented a light rail transit way following this corridor to Frederick and Clarksburg. We analyzed both of those and our initial study showed that there is not feasible transit ridership as part of our study so we are investigating a...transit way to either Metropolitan Grove or Germantown.

Up coming events include a focus group meeting. We have alternates recommended for detailed study, interagency review anticipated for January and February time frame and we still expect to have a Location Design Public Hearing in the spring of '98.

SHA is in the process of planning a public workshop/hearing for spring of '97 which would have multiple purposes. It would introduce or conclude stage 1 project planning to the public as well as conclude our major investment study so we could recommend alternatives for the Long Range Plan to the MPO.

QUESTION/COMMENT:

MS. CHRIS WELLS, MOP:

Asked this is in the regular NEPA process and the MIS process so it will be at same point on the alternatives retained?

QUESTION/COMMENT:

MS. MICHELLE HOFFMAN, SHA:

They have a development envelope and I think it is right around Trading Lane and everything...expected to develop. Our stage 1 strategies didn't show the same typical section on US 15 north of Frederick City as it did in the southern part of I-270.

QUESTION/COMMENT:

MR. BILL SCHULTZ, USFW:

Asked is there a 12 lane section below....where is your 12 lane section for I-270?

RESPONSE:

MS. MICHELLE HOFFMAN, SHA:

That is below our study area.

QUESTION/COMMENT:

MS. PAM STEPHENSON, FHWA:

Perhaps you might want to go back and sort of explain what we are doing as part of our MIS approach and now how we are coming up with some of the combination strategies. Maybe it needs further elaboration.

QUESTION/COMMENT:

MS. MICHELLE HOFFMAN, SHA:

I mentioned some of the strategies we are looking at and again we are looking at widening, both general use and HOV in the I-270 corridor for Shady Grove although in certain parts of it has already been widened. From I-270 north to Frederick City and up through Biggs Ford Road we are looking at more of a 6 lane section without HOV.

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Project No. FR192B11
I-270/US 15 Transportation Study in
Montgomery and Frederick Counties
Status: Alternates Retained for Detailed Study
Presentation Goal: Agency Comments on Alternates Retained
Project Manager: Michelle Hoffman x8547
Environmental Manager: Anne Elrays x8562

Presentation Summary

SHA (Michelle Hoffman) introduced the members of the project team and noted that the team includes representatives from SHA, Maryland Transit Administration (MTA), Maryland Department of Transportation (MDOT), Maryland Office of Planning (OP), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Montgomery and Frederick Counties, the Cities of Rockville, Gaithersburg, and Frederick, the Maryland-National Capital Park and Planning Commission, the Washington Metropolitan Area Transit Authority (WMATA), and the Metropolitan Washington Council of Governments.

SHA (Michelle Hoffman) oriented the representatives to the study area. The project extends from the Shady Grove Metro Station north to Biggs Ford Road and includes the MARC Brunswick Line and MD 355. SHA will revise the report based on comments received from the agency representatives and distribute a revised package and request for formal concurrence.

The project Purpose and Need was presented in June1995 and concurrence was obtained in September 1995. Upcoming Interagency Review Meeting handouts are the distribution of the Study Goals and Measures of Effectiveness for Stage II in November and presentation of scoping for cumulative effects in December.

Public involvement in the study to date has consisted of public workshops held in March 1995, December 1995, and March 1997 newsletters, news articles, conversations, briefings, presentations and discussions with community organizations, and an active focus group.

MTA (Lorenzo Bryant) described the existing transit service in the study area. Commuter rail service is available through MTA's Maryland Rail Commuter Service (MARC) System. MARC offers service from Martinsburg, West Virginia through Point of Rocks, Maryland to Washington, D.C. The stations along this corridor are primarily oriented toward commuters working in downtown Washington, D.C., as well as commuters who work in locations along the Metrorail system. Bus service in the area is provided by the Montgomery County Ride-On, the Frederick County TransIT local bus system, and WMATA Metrobus.

The study team evaluated stand alone transit options after the March, 1997, Public Workshop at the request of several citizens. These options are:

1. Light Rail Transit (LRT) along the Eastern or CSX (MARC) alignment from the Shady Grove Metro Station to Metropolitan Grove continuing along the Corridor Cities Transitway (CCT) alignment to Frederick.

2. Busway along the Western or CCT alignment from the Shady Grove Metro Station to Frederick.
3. LRT along the Western or CCT alignment from the Shady Grove Metro Station to Frederick.

Based on ridership studies, operational costs and other factors, the study team recommended transit options 2 and 3 as far north as COMSAT for further evaluation.

SHA (Anne Elrays) provided an overview of the environmental resources in the study area. All impacts shown in the matrices are preliminary. Two field reviews have been conducted to date in 1995 and 1997. A jurisdictional determination for wetlands has been started and should be completed by the end of the year.

Resources in the area include 27 public parks and recreation areas, streams, and wetlands. No federally listed threatened or endangered species have been identified in the corridor. The identification of significant historic resources has been completed. A Phase I archeological study will be completed during the next phase of Project Planning.

SHA (Julia Dietz) reviewed the five alternates, including the No-Build Alternate, recommended for detailed study. The No-Build Alternate would not include any major capacity improvements on I-270 or US 15 in the project area, but would consist of routine maintenance.

The Transportation System Management (TSM)/Transportation Demand Management (TDM) Strategies Alternate would not include any highway widening or capital transit improvements. This alternate would focus on TSM/TDM strategies such as hiker/biker paths, ridesharing, telecommuting, ramp metering, vanpooling, park and ride lots, parking management strategies, alternative work hours, extended bus services, and Intelligent Transportation Systems (ITS) Technology.

Combination Alternate A would include highway widening to add general use lanes in both counties, extended HOV lanes, auxiliary and Collector/Distributor (C/D) lanes and interchange improvements; TSM/TDM strategies listed above, and the CCT from Shady Grove to COMSAT as a separate alignment busway or light rail transit system.

Combination Alternate B consists of highway widening to add general use lanes in both counties, extended HOV lanes, auxiliary and C/D lanes, and interchange improvements; TSM/TDM strategies listed above; and premium/express bus service from Shady Grove to Frederick as a busway along the HOV lanes with exclusive slip ramps into transit centers.

Combination Alternate C includes highway widening to extend HOV lanes, auxiliary and C/D lanes, interchange improvements, and additional general use lanes on US 15 in Frederick County. Only one additional lane is being proposed between MD 121 and I-70. This lane will be evaluated as both an HOV lane and a general use lane. This alternate also includes TSM/TDM strategies listed above and the CCT from Shady Grove to COMSAT as a separate alignment busway or light rail transit system.

Maryland Department of Transportation
State Highway Administration
Interagency Review Meeting
Meeting Summary
October 21, 1998

Issues Discussed/Comments

DNR (Greg Golden) had no comments.

FHWA (Pam Stephenson) requested additional information on the options under consideration. She also asked if the options were stand-alone. SHA responded that the options could be stand-alone and could be mixed. SHA clarified that Options 1, 2, and 3 are specific options for the collector/distributor lanes, Options 4, 5, and 6 are new interchanges along I-270, and Option 7 is for Technology Boulevard. Options 8 and 9 are for additional lanes and only for Combination C. FHWA (Pam Stephenson) suggested that in the future, impacts should be shown by alignment (highway or transit) and option. In response to a question from COE (Brian Yanchik), SHA responded that most of the impacts are the result of a combination of both widening to I-270 and Technology Boulevard.

COE (Brian Yanchik) commented that there was little difference in impacts between alternates. SHA (Michelle Hoffman) stated that SHA was trying to keep the widening within the existing right-of-way but that the transit is on an entirely new alignment. Montgomery County has conducted transit alignment studies to find the one with the least impacts. The purpose of these alignment studies was to enable preservation of the proper alignment.

MDE (Elder Ghigiarelli) expressed concern about the wetland impacts. SHA noted that the impacts were based on a preliminary delineation and should represent the worst case. FHWA (Pam Stephenson) noted that the study encompasses a long corridor and incorporates multi-modal features at the request of the agencies.

Materials Distributed

Outstanding NEPA/404 Correspondence (10/20/98)
NEPA/404 Tracking Chart (10/19/98)
Calendar (10/19/98)
Agency Contact Team Members List (9/21/98)
Tentative Schedule of Project Activities and/or Information to be provided to Resource Agencies (9/8/98)
Draft Interagency Review Meeting Summary (9/16/98)
Maryland Route 210, Interagency Update, Alternates/Options to be Presented at the 12/3/98 Alternates Public Workshop (10/21/98)
MD 5 Metro Access Study, Alternatives Under Consideration (October 21, 1998)
I-270/US 15 Multi-modal Corridor Planning Study, Alternates Retained for Detailed Study Summary (October 21, 1998)

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Maryland Department of Transportation
State Highway Administration
Interagency Review Meeting
Meeting Summary
December 16, 1998

STATUS OF AGENCY CONCURRENCE/COMMENTS

SHA (Gay Olsen) reviewed the outstanding NEPA/404 correspondence.

MRECAS

SHA noted that concurrence had not yet been received from COE or MDE. COE (Vance Hobbs) stated that he would contact Steve Harman about the status. MDE was not represented at the meeting.

MD 97

COE (Vance Hobbs) stated that he had sent a response letter to the FHWA.

I-270/US 15

MOP (Bihui Xu) noted that comments had been submitted. Concurrence had been received from the COE.

PROJECT ACTIVITIES

SHA (Gay Olsen) requested that she be notified of any changes or additions to the tentative schedule of project activities.

CALENDAR

SHA (Wanda Brocato) noted that a MRECAS field view was being held today to complete the jurisdictional determination. She added that the purpose of the calendar was to avoid scheduling conflicts.

It was also noted that the Managers' Meeting for the Interagency Meeting was cancelled. COE (Vance Hobbs) requested that the agenda for the Managers' Meeting be distributed in advance.

OTHER

USFWS (Bob Zepp) asked if anyone had been contacted regarding the Woodrow Wilson Bridge. He is tentatively scheduled to meet with project team members on January 12 or 13 to discuss mitigation concerns. There was discussion regarding the need for meeting separately. It was agreed that it is more appropriate and efficient for the project to be discussed at the Interagency Meeting when all the agencies are present. FHWA (Pam Stephenson) will let others know that there was concern expressed regarding individual meetings.

SHA (Gay Olsen) reminded the representatives to use the pink evaluation forms for each presentation.

COE (Vance Hobbs) requested information regarding the schedule for the Manchester Purpose and Need statement. SHA responded that the revised purpose and need statement will tentatively be distributed on January 4, 1999.

FHWA (Pam Stephenson) noted that MD 97 would require a joint public notice and that it needs to be out by January 25. COE (Vance Hobbs) submitted comments on the notice to Carmeletta Harris via e-mail but he has not heard back from her yet. SHA (Cynthia Simpson) asked what type of input the COE would provide for the script for the public hearing. COE (Vance Hobbs) responded that the COE would submit standard language for SHA to incorporate into the script.

COE (Steve Elinsky) stated that he had received several telephone calls from SHA requesting new jurisdictional determinations for some projects. He said that JDs are valid for five years as stated in the letters.

The Draft Purpose and Need Statement for MD 355/Montrose Road was distributed. SHA (Gay Olsen) requested that any preliminary comments be submitted to Michelle Hoffman. The formal presentation is scheduled for the January 20 Interagency Review Meeting.

DNR (Greg Golden) asked about the western Maryland corridor study. He stated that the Governor's office had said that Maryland would participate in the reviews. SHA (Cynthia Simpson) responded that it was being conducted by another office.

SHA (Cynthia Simpson) announced that Dennis Atkins would be the new project manager for the US 301 study. She reminded everyone that the meeting for US 301 had been cancelled.

Role of Cooperating Agencies
Presentation Summary

COE (Vance Hobbs), FHWA (Pam Stephenson), and EPA (Jamie Stark) reviewed the role of cooperating agencies. EPA (Jamie Stark) commented that the process involves EPA earlier and therefore allows their comments and issues to be addressed.

FHWA (Pam Stephenson) noted that the Council of Environmental Quality (CEQ) regulations define cooperating agencies and encourage the FHWA as the lead agency to request that agencies that have a special interest or expertise be cooperating agencies. The FHWA, 23 CFR Part 771 require that the lead agency request agencies that have jurisdiction be invited to be a cooperating agency.

FHWA (Pam Stephenson) added that cooperating agencies are only used for Environmental Impact Statements. The Final EISs that have involved cooperating agencies should be sufficient for those agencies and the agencies' informational needs should be met through the process.

The role of the lead agency is to identify the purpose and need, identify cooperating agencies, consult with agencies throughout the process (data requirements, technical studies). Lead agencies can also request that the cooperating agency prepare a specific section of the EIS in the agency's area of expertise. The lead agency and the cooperating agency participate in joint field reviews and public involvement activities. Cooperating agencies review the preliminary documents and work with the lead agency on developing mitigation measures.

The role of the cooperating agency consists of responding to requests sent by FHWA to be a cooperating agency and identifying any constraints, such as time and schedule, in the response. The cooperating agency attends meetings as requested and provides early input. The cooperating agency conducts an independent review of the Final EIS and should adopt the document if it meets its informational needs. The cooperating agency also assists in identifying alternates and mitigation options.

Discussion

MDE (Elder Ghigiarelli) asked if "cooperating agency" was a formal term and if it was only for federal agencies. FHWA (Pam Stephenson) responded that it is a formal term and while it is not necessarily only federal agencies. MDE (Elder Ghigiarelli) asked if there would be any benefit to having cooperating agencies for Environmental Assessments. FHWA (Pam Stephenson) answered that EAs do not usually require the same level of coordination and therefore it is reserved for EISs.

MDE (Elder Ghigiarelli) asked how an agency's responsibilities change with regard to time constraints when it agrees to be a cooperating agency. COE (Vance Hobbs) referred to Page 3-15 of the handout where it states that the reviews and comments will be provided in the earliest possible time frame. FHWA (Pam Stephenson) added that the preliminary reviews should reflect permitting information needs.

MDE (Elder Ghigiarelli) asked what happens when a cooperating agency and the lead agency have a conflict regarding issues. COE (Vance Hobbs) referred to page 3-16 of the handout where a conflict resolution process is described. The cooperating agency could then prepare its own EIS if necessary for permit approval.

USFWS (Bob Zepp) noted that there was concern regarding the amount of time required to serve as a cooperating agency. If the time commitment were similar to that of the integrated NEPA/404 process than participation would be more possible for his agency. COE (Vance Hobbs) noted that the COE only participates when permitting issues are involved.

FHWA (Pam Stephenson) added that when an agency declines to participate as a cooperating agency, a written response is required.

COE (Vance Hobbs) stated that he had copies of the 40 most asked questions and suggested that one or two be discussed at the monthly Interagency Review Meeting. SHA (Cynthia Simpson) commented that last November a training team was established and that a 3-day seminar and 2-hour seminars were proposed with some training to occur at the monthly Interagency Review

Meetings. FHWA (Pam Stephenson) suggested that the training team meet again to agree on the direction of the training.

SHA (Cynthia Simpson) agreed to schedule a meeting for the Steering Committee that includes Elder Ghigiarelli, Vance Hobbs, Pam Stephenson, Denise Rigney, and Cynthia Simpson.

Conflict Resolution Process Team
Presentation Summary

SHA (Jason Latham) distributed a handout summarizing the findings of the conflict resolution process team. The team initially identified the problems in the existing process, which are:

1. Participants are unsure of when, how and by whom the conflict resolution process should be initiated.
2. Use of the process is indication of failure
3. Process is time consuming.
4. Agencies make continual requests for additional information.
5. Staff level employees may not feel empowered to make decisions.

The team recommended that all participants come to meetings prepared to discuss issues, ask questions, and make decisions. It was also recommended that the process be streamlined by combining steps two and three of the process (see matrix in handout).

Other recommendations included that for type 1 projects, staff level personnel should be involved in step 2 meetings with their managers to provide the necessary technical and project specific details need for decisionmaking.

It was also recommended that that the conflict resolution process be initiated at a clearly identified point. The team further recommended that this point be when additional information provided by SHA is still deemed insufficient by the non-concurring agency and the agency responds through formal written correspondence which clearly identifies the unresolved issue(s) which are preventing concurrence.

Discussion

SHA (Gay Olsen) noted that copies of the Type 1 and 2 hierarchy charts and other proposed changes will be distributed to agency representatives for review to make sure the correct titles are used. MDE (Elder Ghigiarelli) asked how the changes would be made formal. SHA (Gay Olsen) responded that the revise procedures would be distributed for review and adoption.

FHWA (Pam Stephenson) commented that it is important that FHWA be notified that the conflict resolution process is being initiated. COE (Vance Hobbs) agreed and suggested that a list of informational needs and why the agency is not concurring be submitted to FHWA with a copy sent to SHA when the agency feels the issue needs to be resolved through the conflict resolution process.

MDE (Elder Ghigiarelli) asked if the conflict process should be limited to concurrence points. SHA (Gay Olsen) noted that there are other times where conflict occurs such as during document reviews.

SHA (Jason Latham) said that he would inform the team of the agency representatives' comments and that the process would be submitted to the agency representatives for review. The Steering Committee will meet to develop guidance on how to finalize the recommendations.

Secondary and Cumulative Effects Team
Presentation Summary

SHA (Darrell Sacks) stated that SHA has had an internal cumulative effects team to develop internal guidelines to address the renewed emphasis on secondary and cumulative effects analysis in environmental documents. SHA (Carmeletta Harris) added that the purpose of the guidelines is to provide a consistent framework for the analysis.

SHA (Carmeletta Harris) went on to define secondary or indirect effects as those caused by the action and that are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

SHA defined cumulative impacts as impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

SHA stated that scoping for secondary and cumulative effects would be initiated at the initial field view after preliminary alternates have been identified.

The initial analysis for secondary and cumulative effects will include identification of resources that will be directly affected by the project, identification of geographical and resource boundaries to be used in the analysis; and the data analysis and methodologies.

A matrix on data will be included in the environmental document and will be presented at the initial field view instead of at the Interagency Review Meeting.

Data analysis for all projects will include GIS, trend analysis, and matrices because these tools have been shown to be most effective. However, varying levels of detail will be used for each project.

If no direct impacts result to a resource result from a project, then no secondary or cumulative analysis will be required. This will be justified in the environmental document. Similarly, if there is insufficient existing information to identify impacts, this will be justified in the environmental document.

The secondary and cumulative effects analysis will be included in technical reports and in a separate section of the environmental document.

Discussion

MDE (Elder Ghigiarelli) commented that the impacts should always be evaluated on a watershed basis. SHA (Darrell Sacks) noted that SHA usually evaluates impacts downstream of the project. MDE requeseted that upstream impacts also be considered.

FHWA (Pam Stephenson) stated that the guidelines should provide consistency but that the analysis must be project specific and should be discussed during scoping for secondary and cumulative impacts.

COE (Vance Hobbs) expressed concern regarding the use of no cumumlative impacts when there is no further analysis is warranted. SHA will devise appropriate wording as part of the justification for not conducting further analysis for a resource.

Project No. FR192B11
I-270/US15 Transportation Study in
Montgomery and Frederick Counties
Status: Secondary/Cumulative Effects Scoping and Methodologies
Presentation Goal: Receive Agency Comments on Above
Project Manager: Michelle Hoffman x8547
Environmental Manager: Anne Elrays x8562

Presentation Summary

SHA (Julia Dietz) stated that the purpose of the presentation was to receive agency comments on the scoping and methodologies for the secondary and cumulative effects (SECA) analysis.

SHA (Anne Elrays) noted that the time frame for the analysis would be 1980 to 2020. THE year 1980 was used because it is the most recent growth spurt. The geographic boundaries are based on census tracts and watershed boundaries.

SHA (Glen Smith) reviewed the history of transportation projects in the study area.

Issues Discussed/Comments

COE (Steve Elinsky) asked if the boundaries were based on the current lack of sewer and water. He added that the COE had recently authorized permits for sewer and water in Urbana. SHA (Anne Elrays) responded that areas that were proposed for sewer and water were included in the SECA boundary.

MOP (Bihui Xu) asked if the resources which will be considered for the secondary and cumulative effects analysis and would be presented at another meeting. SHA (Anne Elrays) responded that the

resources and the methodologies would be included in the environmental document based on the new SHA guidelines presented today.

Agency representatives requested a copy of the maps showing the SECA boundaries as well as written justification. SHA agreed to distribute the map to the agency representatives.

DNR (Greg Golden) suggested that the boundary be expanded in the Frederick area. COE (Vance Hobbs) agreed with an expanded boundary in Frederick and Urbana. The boundaries will be evaluated more closely when the maps are received.

Frederick County (Jim Gugel) noted that Damascus and Mount Airy are too far removed from the I-270/US 15 corridor to be included. Limited development will occur outside of the town limits.

Materials Distributed

Outstanding NEPA/404 Correspondence (12/11/98)
Calendar (12/15/98)
Tentative Schedule of Project Activities and/or Information to be provided to Resource Agencies (12/11/98)
Maryland State Highway Administration's Internal Secondary and Cumulative Effects Guidelines (12/2/98)
I-270/US 15 Secondary and Cumulative Effects Scoping Approach

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Maryland Department of Transportation
State Highway Administration
Interagency Review Meeting
Meeting Summary
January 17, 2001

Project No. MO843A11
I-270/US 15 Multi-Modal Corridor Study
Status: Alternates Retained for Detailed Study
Presentation Goal: Agency Comments on Project Updates
Project Manager: Michelle Hoffman x8547
Environmental Manager: Anne Elrays x8562

Maryland Department of Transportation
State Highway Administration
Interagency Review Meeting
Meeting Summary
January 17, 2001

Presentation Summary

SHA (Michelle Hoffman) stated that the purpose of the project was to update the agency representatives on the alternates retained for detailed study. Public meetings are scheduled for February 12 and February 20, 2001. All agency representatives are invited to attend. The last Interagency Meeting presentation on the project was in December 1998. The project team can come back to the meeting after the public meetings and show the displays to the agency representatives.

SHA introduced Derek Hallahan who will be taking over project management responsibilities. SHA stated that the purpose of the project is to relieve congestion and improve safety. The no-build alternate and three build alternates are being evaluated.

The no-build alternate consists of routine maintenance and spot improvements.

Combination Alternate A consists of highway widening in both counties, extended HOV lanes, auxiliary and Collector-Distributor lanes and interchange improvements. Combination Alternate A also includes construction of the Corridor Cities Transitway from the Shady Grove Metro Station to COMSAT as a separate alignment for a busway or light rail transit system.

Combination Alternate B consists of highway widening as in Combination Alternate A but transit improvements consists of premium/express bus service form the Shady Grove Bus station to Frederick as a busway along the HOV lanes of I-270 with exclusive slip ramps for key intermodal connections.

Combination Alternate C is the same as Alternate A but highway widening would only be three lanes in each direction. Only one additional lane would be added and would be used as either HOV or general-purpose lane. The transit component of the alternate is the same as that for Combination Alternate A.

New information to be presented at the public meetings consists of more detailed engineering plans, preliminary right-of-way and environmental impacts, updated preliminary cost estimates, and traffic conditions for the 2020 No Build and Build Scenarios

The Preliminary Draft Environmental Impact Statement is scheduled for distribution in September with a public hearing scheduled for February 2002. The FEIS would be published in Spring 2003 and design/location approval is anticipated in Summer 2003.

Issues Discussed/Comments

There were no comments.

Maryland Department of Transportation
State Highway Administration
Interagency Review Meeting
Meeting Summary
June 20, 2001

Project No. FR192B11
I-270/US 15
Frederick/Montgomery Counties
Status: Alternatives Development
Presentation Goal: Comments on Modifications to Alternatives
Project Manager: Steve Plano/Derick Hallihan
Environmental Manager: Anne Elrays x8562

Presentation Summary

The purpose and need for the project was presented in February 1995. SHA is in the process of preparing the Draft Environmental Impact Statement and anticipates circulation in spring 2002. The alternates have been repackaged to simplify and clarify their presentation. Although the alternates have been renamed, none of the alternates have been changed. The original alternate name is shown in parentheses.

In addition to the No-Build and Transportation System Management (TSM) /Transportation Demand Management (TDM) alternates, alternates that include several combinations of transit and highway strategies are being evaluated. These strategies include general-purpose lanes, auxiliary lanes, High Occupancy Vehicle (HOV) lanes, High Occupancy Toll (HOT) lanes, Collector-Distributor (C-D) lanes, Light Rail Transit (LRT), Busway or Bus Rapid Transit (BRT). (Post meeting note: HOT lanes are no longer being considered.)

Alternates 3A and 3B include TSM/TDM strategies, additional general purpose, C-D, HOV, and auxiliary lanes (with one additional HOV lane in each direction along 1-270 between MD 121 and I-70), interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 3A) or BRT (Alternate 3B).

Maryland Department of Transportation
State Highway Administration
Interagency Review Meeting
Meeting Summary
June 20, 2001

Alternates 4A and 4B include TSM/TDM strategies, additional general purpose, C-D, HOV, and auxiliary lanes (with one additional general purpose lane in each direction along I-270 between MD 121 and I-70), interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 4A) or BRT (Alternate 4B).

Alternates 5A, 5B, and 5C include TSM/TDM strategies, additional general purpose, C-D, HOV, and auxiliary lanes (with one additional HOV lane and general purpose lane in each direction along I-270 between MD 121 and I-70), interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 5A) or BRT (Alternate 5B), or a premium express busway along I-270 HOV lanes (includes an option to evaluate HOT lanes) (Alternate 5C). (Post meeting note: HOT lanes are no longer being considered.)

Alternates 3 and 4 have the same general footprint. There is a 12-lane through section to Father Hurley Boulevard and 8-lane through section beyond to MD 121. North of MD 121, the footprint remains the same six lane through section, but the lane designation would differ. Alternate 3 has an HOV lane and Alternate 4 has all general-purpose lanes.

Alternate 5 has the same general footprint as Alternates 3 and 4 up to MD 121. It has an 8-lane section from north of MD 121 to I-70 that consist of 3 general-purpose lanes and 1 HOV lane.

Issues Discussed/Comments

COE (Steve Elinsky) asked about the location of Wild Cat Branch and outside widening at its location. SHA responded that it is located near Comus Road and that both inside and outside widening are proposed at that location. However, it may be possible to avoid the stream by widening to the outside in this location.

DNR (Greg Golden) asked if the whole project is considered widening. SHA responded that that intersection and interchange improvements may be required, new interchanges are being considered and a transitway alignment is being considered.

DNR (Greg Golden) asked if Old Baltimore Road at the interchange at New Cut Road would be eliminated. SHA responded that there are no plans to take the road out of service.

Maryland Department of Transportation
State Highway Administration
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MdTA stated that revised documents would be distributed to agency representatives by June 29. Comments and concurrence would be requested the week of August 13.

Materials Distributed:
Outstanding Streamlined Process Correspondence (6/19/01)
Tentative Schedule of Project Activities and/or Information to be Provided to/by Resource Agencies (6/19/01)
Three-Month Calendar (6/19/01)
Agency Contact Team Members List (5/31/01)

Attendance

Name	Representing	Telephone Number
Bill Branch	State Highway Administration	410-545-8626
Wanda Brocato	State Highway Administration	410-545-8569
Prakash Dave	State Highway Administration	410-545-8355
Bruce Grey	State Highway Administration	410-545-8540
Jamaica Kennon	State Highway Administration	410-545-8512
Joe Kresslein	State Highway Administration	410-545-8550
Anne Elrays	State Highway Administration	410-545-8562
Gay Olsen	State Highway Administration	410-545-8504
Odessa Phillip	State Highway Administration	410-545-8517
Darrell Sacks	State Highway Administration	410-545-8527
Don Sparklin	State Highway Administration	410-545-8564
John Stavlas	State Highway Administration	410-545-8563
Jim Wynn	State Highway Administration	410-545-8520
Barry Bergman	BMC	410-732-0500x1048
Barbara Rudnick	Environmental Protection Agency	215-814-3322
Caryn Brookman	Federal Highway Administration	410-962-4342x130
Dan Johnson	Federal Highway Administration	410-962-4342x145
Denise Winslow	Federal Highway Administration	410-962-4342x145
Esther Strawder-Davon	Federal Highway Administration	410-962-4342x134
Phillip Bello	Federal Highway Administration	410-962-4342x148
Jitesh Parikh	Federal Highway Administration	410-962-4342x128
David Whitaker	Maryland Department of Planning	410-767-4564
Bihui Xu	Maryland Department of Planning	410-767-4567
Greg Golden	Maryland Dept. Natural Resources	410-260-8334
Paul Wettlaufer	Corps of Engineers	410-962-5676
Steve Elinsky	Corps of Engineers	410-962-4503
Steve Plano	PB	410-385-4140
Derick Hallihan	RK&K	410-728-2900
Brian Horn	RK&K	410-728-2900
Noreen Kirkpatrick	Greenhorne & O'Mara, Inc.	301-982-2800

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MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Steve Plano
Project Manager for
Project Planning Division

DATE: February 21, 2002

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: July 17, 2001 Department of Natural Resources Coordination Meeting

Members of the I-270/US 15 project team met with Maryland Department of Natural Resources (DNR) representatives on Tuesday, July 17, 2001 to review the possible impacts to Seneca Creek State Park from the proposed I-270 highway and transitway alternates. The following people were in attendance:

Jeremy Beck	SHA – PPD
Walter Brown	MD Department of Natural Resources
Angie Ehrhart	RK&K
Anne Elrays	SHA – PPD Environmental
Mark Epstein	RK&K
Derick Hallahan	RK&K
Dan Johnson	FHWA
Steve Plano	Parsons Brinckerhoff
Charlie Utermohle	McCormick, Taylor & Associates, Inc.

The meeting began at 9:00 AM with brief introductions. The following is a summary of the topics discussed.

Schedule/Status of Study
Steve Plano gave a brief overview of the study's upcoming activities, and distributed a sheet summarizing the study's major milestones (see attached). The Draft Environmental Impact Statement is expected to be completed in Spring 2002, and a Location/Design Public Hearing is

also anticipated in Spring 2002. The SHA expects to select a Preferred Alternate in Spring 2003. Location/Design approvals are expected in Summer/Fall 2003.

Park Boundary Confirmation
Steve Plano presented the I-270 alternates mapping and asked DNR to confirm the Seneca Creek State Park boundary as presented on the mapping for accuracy.

Walter Brown suggested that the Seneca Creek Greenway Trail should be displayed on the mapping. This narrow unpaved hiking trail extends through the park from MD 355 to the Potomac River. Although there are no plans to upgrade the trail to a multi-use facility, DNR suggested that this trail could eventually connect to the hiker-biker trail along the proposed Corridor Cities Transitway (CCT).

Alternates Being Evaluated
The I-270 build alternates include both highway and transit components. Within the area of the Seneca Creek State Park boundary, the highway components propose converting the existing inside southbound general-purpose lane on I-270 to an HOV lane, as well as constructing a two-lane Collector-Distributor (C-D) roadway and one auxiliary lane (between Watkins Mill Road and Middlebrook Road) in each direction. The highway widening alternates under consideration result in outside widening along I-270 within the park boundaries. In order to be consistent with the I-270/Watkins Mill Road interchange study, the I-270/US 15 Multi-Modal Corridor Study will incorporate the southbound painted C-D typical section and the eastern mainline alignment shift. This section will reduce impacts to the park; however, the I-270/US 15 Study will result in additional park impacts than stated in the Watkins Mill Road Study due to the C-D lanes being extended through the park, the proposed northbound and southbound auxiliary lanes, and the proposed transitway alignment to the west.

The transit components of the build alternates propose either Light Rail Transit (LRT) or Bus Rapid Transit (BRT) on the CCT alignment. The right-of-way requirements presented at the meeting included impacts associated with the CCT alignment, which runs parallel to and west of I-270 within the park boundary. Steve stated that the master planned CCT alignment is a long-term planning study with a 20 to 25 year time frame for construction and is based on a general master plan study by Montgomery County; detailed engineering work still needs to be completed.

Potential Impacts
The study team distributed a sheet summarizing potential right-of-way impacts to Seneca Creek State Park both with and without retaining walls.

Highway Impacts
The total *preliminary* pre-avoidance (no retaining walls) highway impact to Seneca Creek State Park is approximately 8.1 acres, based on a 25 foot buffer distance from the cut/fill line to the proposed right-of-way line. If retaining walls were provided along the length of the park, this would minimize park right-of-way impacts to approximately 3.2 acres. These retaining walls

would range in height from approximately 24 feet high on the northbound side to approximately 19 feet high on the southbound side, and would vary in visibility from the road and from the park, depending upon the topography. The walls would generally be visible from the park for approximately 700 to 900 feet north of the bridge over Seneca Creek. Walter Brown stated that DNR would most likely favor retaining walls over grading since retaining walls would reduce right-of-way impacts.

Transitway
The transitway right-of-way impact to Seneca Creek State Park is approximately 5.8 acres.

Highway and Transitway
The *preliminary* pre-avoidance (no retaining wall) combined highway and transitway right-of-way impact to the park is approximately 11.1 acres due to overlapping impacts between the highway and transit alternates. Please note that the design of both the highway and transitway in this section are preliminary and the right-of-way impacts may be refined as the study progresses.

Walter Brown stated that Seneca Creek State Park contains approximately 7,000 acres, and noted that the right-of-way impacts from the I-270 study seemed reasonable. For right-of-way impact mitigation, DNR would require a 1:1 replacement of land taken, and the replaced land should be contiguous to the park. Walter Brown noted that the park is a wildlife habitat, and that watershed and right-of-way impacts should be minimized. Walter Brown will consider the need to address any critical view shed impacts to the park.

Study team members explained that the storm water management pond on the east side of I-270, north of Great Seneca Creek, would most likely be impacted by the proposed highway widening. Steve stated that the study team will continue to review right-of-way impacts in this area to determine whether a portion of the pond will be impacted or if the entire pond will need to be taken. Walter Brown confirmed that DNR owns this storm water management pond.

Follow Up Items

- Subsequent to the meeting, Walter Brown has confirmed park boundaries and the location of the Seneca Creek Greenway Trail.
- Walter Brown to provide any view shed issues to Anne Elrays.
- RK&K/PB to continue evaluating the right-of-way impacts through the park based on the proposed highway and transitway alternates.

If you have any questions, please contact Steve Plano, the project manager for SHA, by telephone at 410-545-8547, by email at plano@pbworld.com, or the environmental manager, Anne Elrays at 410-545-8562.

Attachments
cc: File (with attachments)
Attendees

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MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Steve Plano
Project Manager for
Project Planning Division

DATE: February 21, 2002

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: September 5, 2001 Maryland National Capital Park and Planning Commission Coordination Meeting

Members of the I-270/US 15 project team met with Maryland National Capital Park and Planning Commission (M-NCPPC) representatives on Wednesday, September 5, 2001 to review the possible impacts to Black Hill Regional Park from the proposed I-270 highway and transitway alternates. The following people were in attendance:

Jeremy Beck	SHA – PPD
Kathleen Dearstine	M-NCPPC
Sue Edwards	M-NCPPC
Angie Ehrhart	RK&K
Anne Elrays	SHA – PPD Environmental
Derick Hallahan	RK&K
John Hench	M-NCPPC – Countywide Planning
Dan Johnson	FHWA
Karen Kumm Morris	M-NCPPC – I-270 Corridor
Jim McMahon	M-NCPPC – Black Hill Region
Rosemary Nichols	M-NCPPC – Black Hill Region
Steve Plano	Parsons Brinckerhoff
Russell Walto	SHA - PPD

The meeting began at 10:30 AM with brief introductions. The following is a summary of the topics discussed.

Schedule/Status of Study
Steve Plano gave a brief overview of the study's upcoming activities, and distributed a sheet summarizing the study's major milestones (see attached). The Draft Environmental Impact Statement is expected to be completed in Spring 2002, and a Location/Design Public Hearing is also anticipated in Spring 2002. The SHA expects to select a Preferred Alternate in Spring 2003. Location/Design approvals are expected in Summer/Fall 2003.

Park Boundary Confirmation
Steve Plano presented the I-270 alternates mapping and asked M-NCPPC to confirm the Black Hill Regional Park boundary as presented on the mapping for accuracy.

M-NCPPC noted that the southernmost area on the east side of I-270 shown on the alternates mapping as part of Black Hill Regional Park is currently privately owned land. The area is designated to be part of the future Clarksburg Greenway, and M-NCPPC asked that it remain labeled as park property on the alternates mapping. M-NCPPC asked that consideration be given to providing larger extensions to the culvert in the southern portion of the park such that they may be able to provide a trail connecting the east and west sides of the park during dry conditions. Steve Plano asked that M-NCPPC provide the study team with a copy of their master plan for Black Hill Regional Park. M-NCPPC provided an overview of their development plans and surrounding development that they are aware of to the study team. M-NCPPC is planning a maintenance facility on the west side of I-270 in a clearing over 1,000 feet from the existing highway, as well as undergoing a study of an access road from Crystal Rock Drive as shown of the 1989 Germantown Master Plan. M-NCPPC also noted the status of the Clarksburg Triangle residential development on the west side of I-270 as being 10+ years and that the Crystal Rock pumping station is under construction on the west side of I-270.

Alternates Being Evaluated
The I-270 build alternates include both highway and transit components. Within the area of the Black Hill Regional Park boundary, the highway components propose converting the existing southbound inside general-purpose lane to an HOV lane and adding two general-purpose lanes to the outside in both the northbound and southbound directions. Approximately 900 feet north of the northern boundary of Black Hill Regional Park (West Old Baltimore Road), the I-270/US 15 Multi-Modal Corridor Study proposes a new interchange, I-270/Newcut Road, as shown on the Clarksburg Master Plan. This new interchange will have direct access ramps (ramps from the median carrying traffic directly from the HOV lanes to the proposed Newcut Road) to serve the proposed transitway's Comsat Station. Due to these direct access ramps, no widening to the inside can occur throughout the Black Hill Regional Park.

The transit components of the build alternates propose either Light Rail Transit (LRT) or Bus Rapid Transit (BRT) on the CCT alignment. Within the Black Hill Regional Park vicinity, the transitway is proposed to run along the median of the Observation Drive (a proposed roadway not part of the I-270/US 15 Multi-Modal Corridor Study). Steve Plano stated that the master planned CCT alignment is a long-term planning study with a 20 to 25 year time frame for

construction and is based on a general master plan study by Montgomery County; detailed engineering work still needs to be completed.

Potential Impacts
The study team distributed a sheet summarizing potential right-of-way impacts Black Hill Regional Park both with and without retaining walls.

Highway Impacts
The total *preliminary* pre-avoidance (no retaining walls) highway impact to Black Hill Regional Park is approximately 7.5 acres, based on a 25 foot buffer distance from the cut/fill line to the proposed right-of-way line. If retaining walls were provided along the length of the park, this would minimize park right-of-way impacts to approximately 4.2 acres. These retaining walls would range in height from approximately 4 feet to 17 feet high on the northbound side to approximately 20 feet high on the southbound side, and would vary in visibility from the road and from the park, depending upon the topography. The walls would generally be visible from the park. M-NCPPC gave no indication on their preference for retaining walls over grading, but instead asked for time to review the areas within the proposed right-of way for large trees and animal habitats.

Transitway
There are no transitway right-of-way impacts to Black Hill Regional Park.

Dan Johnson suggested a shifting the centerline of the highway to the east such that all widening would occur to the east of the existing highway, therefore eliminating or at least reducing the impacts to the park property on the west side of I-270. Karen Kumm Morris stated that due to the zoning of the Linthicum Farm on the east side of I-270, they would prefer an equal balance of widening on both sides of I-270. M-NCPPC noted that for right-of-way impact mitigation, they would require a 1:1 replacement of land taken, and the replaced land should be contiguous to the park. M-NCPPC asked the time frame under which SHA would begin to purchase land. Study team members stated that the earliest time at which land could begin to be purchased is 5 years. M-NCPPC asked whether noise issues were being studied in the Black Hill Regional Park. Study team members explained that noise was being studied at sensitive locations in the I-270/US 15 corridor, however Black Hill Regional Park was not one of the locations being studied. M-NCPPC questioned how widening to the outside would affect the stream on the west side of I-270. The study team replied that relocation of the stream and wetland replacement is being studied.

Follow Up Items
- M-NCPPC to confirm park boundaries and provide the master plan for Black Hill Regional Park.
- M-NCPPC to provide vegetation and habitat concerns to Anne Elrays.
- RK&K/PB to continue evaluating the right-of-way impacts through the park based on the proposed highway and transitway alternates.

If you have any questions, please contact Steve Plano, the project manager for SHA, by telephone at 410-545-8547, by email at plano@pbworld.com, or the environmental manager, Anne Elrays at 410-545-8562, by email at aelrays@sha.state.md.us.

Attachments
cc: File (with attachments)
Attendees

Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Steve Plano
Project Manager for
Project Planning Division

DATE: August 22, 2001

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: June 11, 2001 National Park Service Coordination Meeting

Members of the I-270/US 15 Project Team met with National Park Service (NPS) representatives on Monday, June 11, 2001 to review the possible impacts to the Monocacy National Battlefield from the proposed study alternates. The following people were in attendance:

Jeremy Beck	SHA – PPD	410-545-8518
Roy A. Cannon, Jr.	SHA – District 7 R/W	301-624-8158
Kendall Drummond	RK&K	410-728-2900
Angie Ehrhart	RK&K	410-728-2900
Anne Elrays	SHA – PPD Environmental	410-545-8562
Jim Gugel	Frederick County	301-694-1144
Derick Hallahan	RK&K	410-728-2900
Brian Horn	RK&K	410-728-2900
John Howard	NPS – Monocacy Battlefield	301-432-7648
Frank Knapp	SHA – District 7 R/W	301-624-8155
Steve Plano	Parsons Brinckerhoff	410-385-4140
Susan Trail	NPS – Monocacy Battlefield	301-662-3515

The meeting began at 10:00 AM with brief introductions. The following is a summary of the topics discussed.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Schedule/Status of Study

Steve Plano gave a brief overview of the study's major upcoming milestones. The Draft Environmental Impact Statement is expected to be completed in Spring 2002, and a Location/Design Public Hearing is also anticipated in Spring 2002. The SHA expects to select a Preferred Alternate in Spring 2003. Location/Design approvals are expected in Summer/Fall 2003.

Park/Historic Boundary Confirmation

Susan Trail stated that the legislative and national register boundaries of the Monocacy National Battlefield are now the same. The legislative boundary of the battlefield includes approximately 1,650 acres. A question was raised about the ownership status of the triangular parcel of land on the west side of I-270, south of Shockley Drive. According to NPS representatives, NPS holds an easement on this 13.562 acre property (Tract 101-42). There was some discussion that Shockley Honda had an option to purchase that parcel in order to expand their business. There are two restrictions identified for this easement (this easement was recorded in Liber No. 1800, Folio 1126 in Frederick County):

1. No structures, improvements, or buildings of any kind, temporary or permanent, shall be constructed or placed on this tract that exceed forty feet in height.

2. No advertising signs or billboards may be displayed or placed on the premises which are visible from lands owned by the United States and lying within the Monocacy National Battlefield without the prior written approval of the United States. This provision shall not preclude the Grantor, or their successors or assigns, from posting the property against trespassing as long as the signs do not exceed 24 inches x 24 inches, or to advertise the property for sale as long as the signs do not exceed 40 inches x 40 inches. The Grantors, their successors or assigns retain the right to place on any building constructed on the parcel of land a maximum of three signs per building limited to the name of the owners or tenants of the building. The signs must be non-illuminated and not visible from lands owned by the United States within Monocacy National Battlefield.

The proposed High Occupancy Vehicle (HOV) direct access ramps, which would connect to the Shockley Drive bridge, would impact this parcel. The proposed Shockley Drive/Spectrum Drive overpass is listed on Frederick County's draft master plan; however, the direct access ramps are not on the Frederick County master plan. In the area of the scenic overlook at the southern end of the battlefield, the park boundary follows the curved state right-of-way fencing. The presentation mapping was left for National Park Service representatives to confirm the overall boundaries shown.

Susan also presented a brief update on the NPS plans for Monocacy National Battlefield. She stated that the Monocacy National Battlefield is to become a separate entity within the NPS (separated from the Antietam National Battlefield). Susan said that she would provide SHA with a copy of the NPS General Management Plan that indicates an outline/vision for future development by NPS over the next 10 to 20 years within the battlefield. NPS is currently working on an Environmental Assessment for a new visitor center at the Best Farm, which it hopes to have completed by the end of the year. Susan also discussed the NPS trail plan for the battlefield and noted that trails are located along the Clapp Farm. The existing trail network runs from MD 355 to Worthington Farm, crossing under the existing I-270 bridge at the Monocacy River. Jim Gugel said that Frederick County has a master-planned Monocacy Greenway trail proposed to run along the Monocacy River and could potentially tie into the battlefield trails. The study team will work closely with NPS to not preclude any future trails within the battlefield with the proposed I-270 improvements.

Alternates Being Evaluated/Potential Impacts

The proposed build alternates through the battlefield include extending HOV or general-purpose lanes on I-270 north to I-70. The highway alternates under consideration include both inside and outside widening of I-270 within the park boundaries. Inside widening in Alternates 3A/B, 4A/B, and 5A/B/C would be accommodated within the existing median of I-270, south of the Monocacy River and CSX Railroad bridges. Approaching these bridges, all improvements would be located to the outside of I-270, and would therefore result in impacts to the battlefield. Inside/Outside widening in Alternates 5A/B/C, would result in the most impacts to the battlefield.

The right-of-way requirements of the alternates do not include an easement for the Corridor Cities Transitway (CCT) alignment, which runs parallel to I-270 through the battlefield. The CCT alignment being evaluated in this study is proposed to extend from the Shady Grove Metro Station north to COMSAT. However, Frederick County is protecting the right-of-way for the entire alignment from the Frederick County/Montgomery County line to the City of Frederick. The Frederick County CCT alignment is based on a 1991 feasibility study and has been included on local master plans since approximately 1992-1993; detailed engineering design needs to be completed before the final alignment and impacts are determined.

For right-of-way impact mitigation, NPS requires 1:1 equal value replacement of land taken. Project team members asked if NPS would accept slope easements or a land swap. Anne Elrays said that easements would still be considered a Section 4(f) impact if they permanently change the land use. Impacts to the battlefield will be addressed in the Environmental Impact Statement. NPS and the rest of the study team will most likely be able to review the draft document this Fall, before the formal comment period next Spring. In addition, general recommendations regarding feasible and prudent minimization/mitigation options would be included in the draft environmental document.

Alternates 5A/B/C result in the most significant right-of-way impacts to the battlefield. Detailed right-of-way impacts for Alternates 3A/B and 4A/B are still being evaluated; however, Alternates 3A/B and 4A/B consist mainly of inside widening, except at the Monocacy River and CSX Railroad bridges. Steve added that operational improvements to the I-270/MD 85 and I-270/I-70 interchanges might impact the northern end of the battlefield, but that they are currently included in the total impacts.

Alternates 5A/B

This alternate would include widening I-270 from two lanes in each direction to four lanes in each direction through the battlefield. The impacts associated with Alternates 5A/B would total approximately 16 acres, based on a 25 foot buffer distance from the cut/fill line to the proposed right-of-way line. If retaining walls were provided along the length of the battlefield, this would minimize right-of-way impacts to the battlefield to approximately two acres. These retaining walls would range in height from 6 to 12 feet, and would vary in visibility from the road and the battlefield, depending upon the topography. If the typical section were reduced through the battlefield (i.e. reduce the inside shoulder from 14 feet to 12 feet), the total right-of-way impacts through the battlefield would reduce from 16 acres to approximately 15 acres.

Alternate 5C

This alternate would include widening I-270 from two lanes in each direction to four lanes in each direction through the battlefield. In addition, HOV direct access ramps at the proposed Shockley Drive/Spectrum Drive overpass would be provided and would begin to form after the CSX Railroad crossing, resulting in greater impacts to the Monocacy Battlefield. The impacts associated with Alternate 5C would total approximately 20 acres, based on a 25 foot buffer distance from the cut/fill line to the proposed right-of-way line. If retaining walls were provided along the length of the battlefield, this would minimize right-of-way impacts to the battlefield to approximately six acres. These retaining walls would range in height from 6 to 23 feet, and would vary in visibility from the road and the battlefield, depending upon the topography. If the typical section were reduced through the battlefield (i.e. reduce the inside shoulder from 14 feet to 12 feet), the total right-of-way impacts through the battlefield would reduce from 20 acres to approximately 19.5 acres.

Susan stated that NPS is generally not in favor of retaining walls along I-270 within the park boundary because they disrupt the scenic vistas within the battlefield, which NPS wants to preserve. Frank Knapp said that gradual slopes, even though they require more right-of-way than retaining walls, might be better for the battlefield because they allow for landscaping and could preserve the scenic vistas. John asked what retaining walls on I-270 would look like from the battlefield. I-270 alternates between sections of cut and fill within the park boundary; at the fill sections, the retaining walls would be approximately 8-12' high. In the cut sections, only the tops of the retaining walls would be visible. Noise impacts to the battlefield are currently being addressed in the DEIS.

Susan stated that NPS would provide SHA with a list of critical view locations within the Monocacy National Battlefield (i.e. potential important view sheds from the Best Farm and the Clapp Farm on the east and Worthington Farm on the west). John Howard/Susan Trail will verify the possibility of GIS data being used to evaluate view shed impacts (although they said that this is unlikely and that they usually use USGS mapping for their topographical information).

Follow Up Items

- Susan Trail to provide Anne Elrays with the NPS General Management Plan; information on the proposed visitor center; and the NPS trail map.
- Susan Trail to provide Anne Elrays with a list of important view sheds based on the mapping provided by RK&K.
- Susan Trail to confirm park and historic boundaries and will provide Anne Elrays with the draft National Register updated boundary and the historic resource survey.

The next NPS coordination meeting has been tentatively scheduled for August. If you have any questions, please contact Steve Plano, the project manager for SHA, by telephone at 410-545-8547 or by email at plano@pbworld.com.

Attachments
cc: File (with attachments)
Attendees
Mr. Daniel W. Johnson, Federal Highway Administration
Mr. J. Rodney Little, Maryland Historical Trust

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MEMORANDUM

Date: February 25, 2002

TO: Russ Walto, Project Manager
SHA Project Planning

FROM: Brian Horn
RK&K/PB Joint Venture

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

RE: November 1, 2001 NPS/SHA Meeting

Members of the I-270/US 15 Project Team met on Thursday, November 1, 2001 with the National Park Service to discuss their initial summary review of the Preliminary Draft Environmental Impact Statement (DEIS). The following people were in attendance:

Anne Elrays	SHA – PPD Environmental	410-545-8562
Derick Hallahan	RK&K	410-728-2900
Brian Horn	RK&K	410-728-2900
Dan Johnson	FHWA	410-962-4342 x145
Susan Trail	NPS – Monocacy Battlefield Superintendent	301-662-3515
Russ Walto	SHA – PPD	410-545-8547

The meeting began at 10:00 AM with brief introductions. The following is a summary of the topics discussed.

Brian began by providing an overview of the Preliminary DEIS, what elements are to be completed, and the overall DEIS preparation schedule as the project proceeds towards the April 2002 Public Hearing. The next major steps in the schedule include:

FHWA/FTA initial review	11/16/01 thru mid-January 2002
SHA/MTA revisions	mid-February 2002
FHWA/FTA final review/signature	early March 2002
Public Notice/Distribution	30 to 45 days
Public Hearing	mid to late April 2002

*NOTE: The above dates have been revised following this meeting.

Susan began by stating that she had only performed a cursory review of the October 19, 2001 Preliminary DEIS sections which expressly describe or affect the Monocacy National Battlefield. She distributed her typed comments. Anne explained the normal SHA process of preparing environmental documents does not include distributing preliminary copies of the draft environmental document this early, as there are pieces of information yet to be developed. The incomplete sections are to be addressed between now and the FHWA/FTA reviews.

Susan reviewed her comments as follows:

1. Refer to the battlefield as the Monocacy National Battlefield. Delete "park" and "monument".
2. Provide more discussion in section VI-3, to include a listing or discussion of individual contributing resources, acknowledgement of landscape significance, and of the visitation figures within the battlefield.
3. Figure III-5 future land use map does not show battlefield as parkland.
4. Page III-147 contains a statement about the Monocacy National Battlefield and the Monocacy River is confusing – please adjust.
5. Existing sound levels exceed noise abatement criteria for activity category A, yet there is no discussion of mitigation measures (Note: Activity category for the battlefield is Category B as noted by FHWA). The need for mitigation measures will be determined after detailed noise studies are completed.
6. Expand discussion of mitigation measures beyond retaining walls, such as removal of exotic vegetation along corridor and establishment of vegetative buffer of native vegetation in areas where required, and; acquisition of other battlefield land to offset land needed for highway right of way.
7.

Susan also noted that the Worthington Trail and access to the Worthington Farm are affected by the highway improvements and that a boat ramp provides recreational access to the Monocacy River at the MD 355 bridge. Upon review of these facilities, it was determined that the Worthington Trail is located adjacent to the proposed right of way and generally not impacted. The boat ramp would not be impacted by the build alternates. In addition, it is feasible to consider removal of non-native vegetation along the corridor; however, some vegetation species would require substantial invasive techniques to completely eradicate. It is recommended to further evaluate this mitigation request during the FEIS phase.

In addition, NPS informed SHA of three activities that may affect information about the battlefield presented in the EIS and for future coordination reference. First, NPS is in the process of submitting a National Register nomination form for the Monocacy National Battlefield structures. Second, NPS is conducting a cultural landscape inventory of the battlefield. Third, NPS is about to begin with development of an Interpretive Trail Plan. Based on the timing of this plan development, SHA will need to factor the trails plan into the FEIS coordination schedule. Discussion centered on the viewshed issues of expanding the highway within the

battlefield limits. NPS opinion is there will be viewshed issues related to the Lewis Farm, Best Farm and the Worthington Farm. Susan also informed SHA that the battlefield boundary may be adjusted such that the legislative boundary and the National Register boundary are identical, however, this adjustment is dependent on the National Register nomination being approved. SHA's cultural historian will coordinate with NPS to update coordination with Maryland Historical Trust, accordingly.

Susan stated appropriate mitigation methods would include native plant species for screening/buffers, land replacement, and viewshed elements/typical section adjustments.

If you have any questions, please contact either Russell Walto, SHA Project Manager or Anne Elrays, SHA Environmental Manager at 410.545.8547 or 410.545-8562 respectively.

cc: File
Attendees

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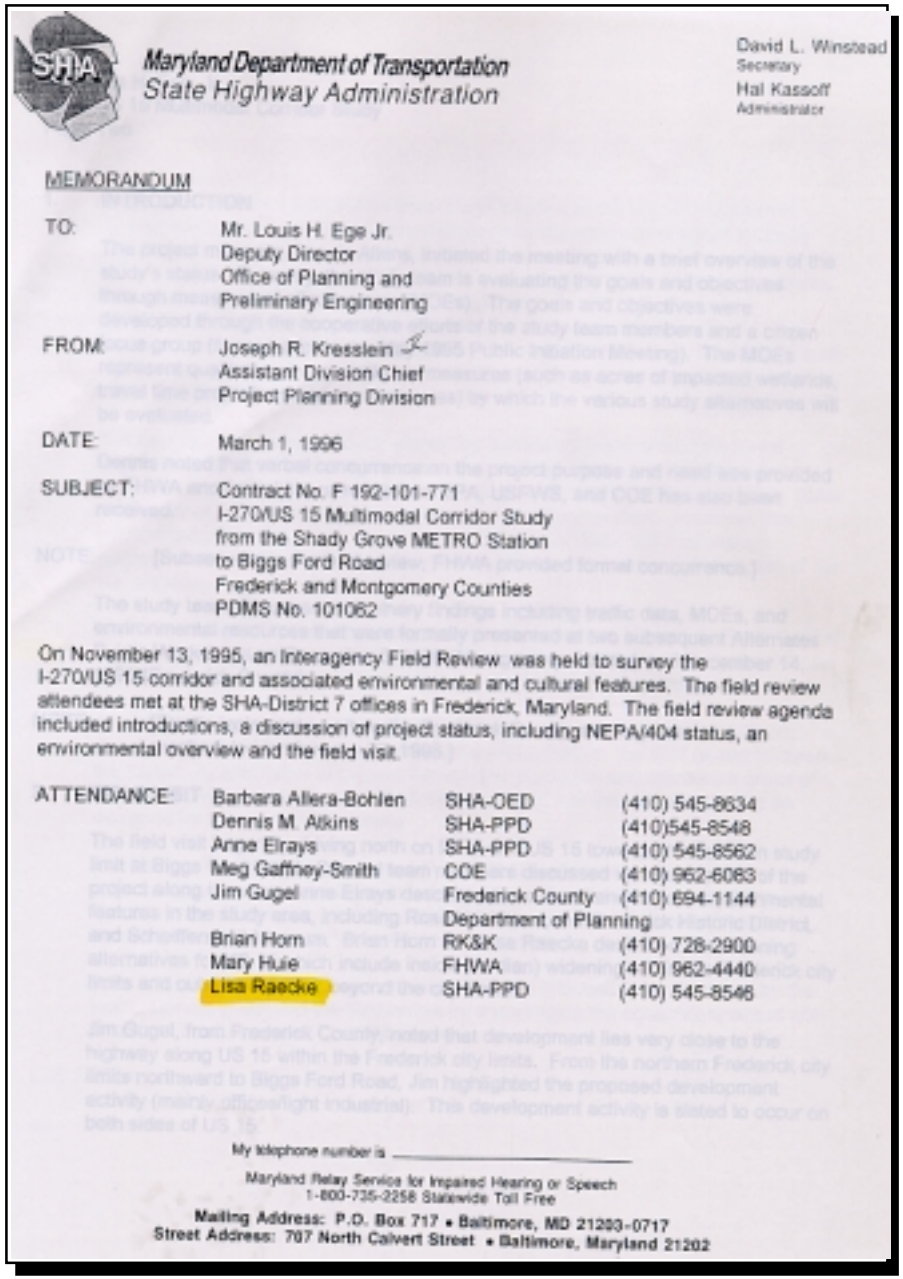

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

DATE: March 1, 1996

SUBJECT: Contract No. F 192-101-771
I-270/US 15 Multimodal Corridor Study
from the Shady Grove METRO Station
to Biggs Ford Road
Frederick and Montgomery Counties
PDMS No. 101062

On November 13, 1995, an Interagency Field Review was held to survey the I-270/US 15 corridor and associated environmental and cultural features. The field review attendees met at the SHA-District 7 offices in Frederick, Maryland. The field review agenda included introductions, a discussion of project status, including NEPA/404 status, an environmental overview and the field visit.

ATTENDANCE:			
	Barbara Allera-Bohlen	SHA-OED	(410) 545-8634
	Dennis M. Atkins	SHA-PPD	(410)545-8548
	Anne Elrays	SHA-PPD	(410) 545-8562
	Meg Gaffney-Smith	COE	(410) 962-6083
	Jim Gugel	Frederick County Department of Planning	(410) 694-1144
	Brian Horn	RK&K	(410) 728-2900
	Mary Huie	FHWA	(410) 962-4440
	Lisa Raecke	SHA-PPD	(410) 545-8546

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

1. INTRODUCTION

The project manager, Dennis Atkins, initiated the meeting with a brief overview of the study's status. Currently, the study team is evaluating the goals and objectives through measures of effectiveness (MOEs). The goals and objectives were developed through the cooperative efforts of the study team members and a citizen focus group (formed prior to the May 1995 Public Initiation Meeting). The MOEs represent qualitative and quantitative measures (such as acres of impacted wetlands, travel time projections and cost estimates) by which the various study alternatives will be evaluated.

Dennis noted that verbal concurrence on the project purpose and need was provided by FHWA and formal concurrence from EPA, USFWS, and COE has also been received.

NOTE: [Subsequent to the field review, FHWA provided formal concurrence.]

The study team discussed preliminary findings including traffic data, MOEs, and environmental resources that were formally presented at two subsequent Alternates Public Workshops on December 5, 1995 (Montgomery County) and December 14, 1995 (Frederick County).

NOTE: [Due to inclement weather, the Frederick County meeting was rescheduled for January 23, 1996.]

2. FIELD VISIT

The field visit began by driving north on I-270 and US 15 towards the northern study limit at Biggs Ford Road. Several team members discussed various aspects of the project along the way. Anne Elrays described the cultural and natural environmental features in the study area, including Rose Hill Manor, the Frederick Historic District, and Scheifferstadt Museum. Brian Horn and Lisa Raecke described the widening alternatives for US 15 which include inside (median) widening within the Frederick city limits and outside widening beyond the city limits.

Jim Gugel, from Frederick County, noted that development lies very close to the highway along US 15 within the Frederick city limits. From the northern Frederick city limits northward to Biggs Ford Road, Jim highlighted the proposed development activity (mainly offices/light industrial). This development activity is slated to occur on both sides of US 15.

Mr. Louis H. Ege, Jr.
I-270/US 15 Multimodal Corridor Study
Page Three

The field review then traveled southward and stopped at the US 15 bridges over Tuscarora Creek. It was noted here that the widening alternatives would probably impact the 100 year floodplain, as a new bridge would likely be required. Continuing south through Frederick, Jim reviewed land use, zoning and development pressures between the I-270/MD 85 interchange and Urbana. The largest proposed development within this segment of the corridor will occur in Urbana. This development will include office, industrial and residential land uses. Frederick County has focused future development east of I-270 near existing development. West of I-270, the land will remain zoned agricultural.

The field review continued south, identifying cultural and natural environmental features along I-270, including the Monocacy National Battlefield Park, Monocacy Scenic River, Bennett Creek, Little Bennett Regional Park, Little Bennett Creek, Black Hill Regional Park, Great Seneca Creek and Great Seneca Park. Jim noted that transportation master plans propose relocating the I-270/MD 109 interchange northward into Frederick County. This improvement will be investigated as part of the current study.

Land use along I-270 in Montgomery County will continue to be mixed office/industrial and residential development both east and west of I-270 with some agricultural land use to the west of I-270 from Comus Road to the Montgomery County line.

The I-270 portion of the field review ended at the southern study limit, the Shady Grove Metro Station. From the Shady Grove Metro Station, the field review followed the transitway alternative alignment through the residential and office park areas of Germantown located west of I-270. It was explained that the transitway could be designed for rail transit or a busway.

The field review continued northward along MD 355. Team members discussed alignment issues associated with the transitway, cultural features including the Hyattstown and Clarksburg historic districts, and natural environmental features including stream crossings, wetlands and floodplains.

Future field reviews will be conducted as additional information is developed by the team. Dennis concluded the field review by encouraging the agencies to attend one or both of the Alternates Public Workshops.

LHE:AEG:sc

cc: Attendees

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Interagency Review Team

FROM: Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

DATE: May 21, 1997

SUBJECT: Project Number FR192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro to Biggs Ford Road

RE: Field Review

The I-270/US 15 Study Team recently completed two Public Alternates Meetings in March to present the alternates investigated throughout the study, as well as some preliminary recommendations to the public. The Combination Alternates (A & B) presented at these recent public meetings combined several of the previously investigated transportation strategies, such as park and ride lots, telecommuting, hiker/biker paths, ramp metering, extended feeder and express bus services, a transitway (busway or light rail transit), High Occupancy Vehicle (HOV) lanes, general use lanes, and Collector/Distributor (C/D) lanes. These transportation strategies were packaged together since earlier analysis showed that no transportation strategy alone, would solve the transportation needs in the I-270/US 15 corridor. In addition, we are recommending that the right-of-way be preserved for the Corridor Cities Transitway between Shady Grove and Frederick for further analysis once the transit demand increases. In the next several months, the preliminary studies will be completed and alternates will be recommended for detailed engineering and environmental analysis to the Interagency Review Team.

Since a general project and environmental field review was held in November of 1995, the Study Team would like to offer the agencies another opportunity to review this corridor, including the Combination Alternates. We would like to spend a day looking at the corridor and offer the following Thursday dates to you: June 19th, June 26th, July 17th and July 24th. Please respond with your interest and which dates you would be available by June 6th.

My telephone number is _____

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Thank you and I look forward to your involvement throughout the development of the alternates. Please feel free to call me at (410) 545-8547 or Anne Elrays at (410) 545-8562 to respond to this request or if you should have any further questions or comments.

By: Michelle D. Hoffman
Michelle D. Hoffman
Project Manager
Project Planning Division

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

DATE: May 22, 1997

SUBJECT: Project No. FR192B11
I-270/US 15 Multi-Modal Corridor Study
the Shady Grove to Biggs Ford Road

RE: Bus Tour

On May 1, a field review along the I-270/US 15 Corridor was held with representatives from the Federal Highway Administration (FHWA), the State Highway Administration (SHA), Rummel, Klepper & Kahl (RK&K) and Parsons Brinckerhoff (PB). The purpose of the field review was to review the combination alternates and to identify points of interest for the detailed engineering and environmental assessment.

Attendance

Ken Briggs, SHA-HD	(410) 545-8761
Derick Hallahan, RK&K	(410) 728-2900
Carmen Harris, SHA-PPD	(410) 545-8522
Albert Hinojosa, FHWA	(410) 962-4342 x127
Michelle Hoffman, SHA-PPD	(410) 545-8547
Brian Horn, RK&K	(410) 728-2900
Peter Kleskovic, FHWA	(410) 962-4342 x125
Edwin Okonkwo, FHWA	(410) 962-4342 x131
Glen Smith, SHA-RIPD	(410) 545-5675
Pam Stephenson, FHWA	(410) 962-4342 x145
George Walton, PB	(410) 385-4141

The following issues were discussed at the I-270/US 15 Multi-Modal Corridor Study bus tour:

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

I-270 Interchange Spacing

FHWA was concerned with the potential interchange spacing due to the proposed new interchanges located at Watkins Mill Road, Newcut Road and MD 75 extended. Since Watkins Mill Road is located in the Urban Interstate section of I-270 (between I-495 and Little Seneca Creek - north of Father Hurley Boulevard), there is a minimum spacing requirement of one mile between interchanges. FHWA noted that this proposed interchange, which is located 3/4 of a mile (0.76 miles) north of MD 124, may be acceptable if C-D lanes are extended. In the Rural Interstate section (between Little Seneca Creek and the Monocacy River - south of MD 85), where there is a minimum spacing requirement of three miles between interchanges, the Newcut Road extended interchange is proposed 1.70 miles north of Father Hurley Boulevard and 0.95 miles south of MD 121 and the MD 75 extended is proposed 0.95 miles north of MD 109 and 2.65 miles south of MD 80. FHWA suggested that a C-D lane or service road system is investigated between MD 75 extended and MD 109.

I-270/MD 124 Interchange

Marty Cohn reviewed the interchange improvements that are proposed separately at the I-270/MD 124 interchange. These improvements include the closure of the I-270 southbound exit loop ramp onto MD 124 eastbound and the extension of the deceleration lane for the I-270 northbound loop ramp from MD 124 eastbound. In addition, the existing ramp from I-270 southbound onto MD 124 westbound will be widened to two lanes. It was noted that since the southwest quadrant of the interchange will be left without any interchange movements/ramps, it may be a feasible park and ride lot location.

I-270 at the Weigh Stations

The section of I-270 in the vicinity of the weigh stations (south of the Frederick County/Montgomery County line) has a wide median full of trees and vegetation that serve as a natural barrier between the northbound and southbound I-270 lanes. Pete Kleskovic proposed that the widening for both the general use lane and the HOV lane be pursued toward the outside shoulders in order to preserve the vegetation in the median.

I-270/MD 109 Interchange

An improved partial cloverleaf may enhance traffic operations at this interchange, if this interchange remains open. The existing loop ramps have tight turning radii and the acceleration/deceleration lanes could also be extended to accommodate a higher design speed.

I-270 Structure over Doctor Perry Road
This structure will be widened/reconstructed due to the proposed widening of I-270.

I-270/MD 80 Interchange
MD 80 is scheduled for relocation beginning in the Spring of 1998 in order to tie into the existing MD 80/MD 355 intersection where MD 80 joins MD 355 from the east. The existing park and ride lot in the southeast quadrant of the MD 80/I-270 interchange has a current daily usage of 150 vehicles and would be impacted by the MD 80 relocation. Therefore, an additional lot is planned for the north side of MD 80 located adjacent to the Exxon station. This proposed lot is planned to initially accommodate 150 spaces; however, it would be expanded to ultimately hold 189 spaces. FHWA suggested that the MD 80 interchange be modified to allow for safer and higher design speeds at the entrance and exit ramps, particularly for the westbound MD 80 access onto I-270 northbound. Pete Kleskovic suggested considering either a partial cloverleaf or a simple diamond interchange. The MD 80 relocation project and the I-270/US 15 Corridor Study have been coordinating efforts in this area and the developer is looking at an I-270 northbound to MD 80 eastbound ramp that would avoid the park and ride lot.

North of the MD 80 interchange, there have been some concerns from home owners on the west side of I-270 adjacent to the highway. They are worried about vehicles traveling along the I-270 southbound horizontal curve in this area losing control and running off the road into their back yards. They would like to see guardrails installed in this area.

Park Mills Road Structure
This structure will be considered for reconstruction in association with the proposed widening of I-270.

Monocacy National Battlefield Park
The I-270/US 15 Study Team will be in contact with the National Park Service to discuss Section 4(f) issues once potential impacts to the park are defined by the proposed widening along I-270.

I-270/MD 85 Interchange
The issue of providing access for the Crown American group from MD 85 to the Francis Scott Key Mall was discussed; however, this is not a concern for FHWA. The west side elevation of the I-270 northbound to I-70 access ramp bridge over New Design Road is a concern. Widening of this bridge to accommodate an additional lane for I-70 eastbound traffic would significantly reduce the vertical clearance along New Design

Road because of the vertical profile of the roadway.

I-70 Structures
The structure widths need to be evaluated to see if they can accommodate the proposed I-270 widening.

US 15 Access Points
Existing access points along US 15 would be eliminated from MD 26 to Biggs Ford Road including, the U-turn bay, the Hayward Road/Wormans Mill Road intersection and the Willow Road intersection while the Trading Lane and Biggs Ford Road intersections would become interchanges.

US 15/Jefferson Street and US 15/Patrick Street Interchanges
The weaving sections between these two interchanges should be evaluated and eliminated, if possible. This may be accommodated by the proposed auxiliary lanes between Jefferson Street and MD 26.

US 15/Rosemont Avenue Interchange
The loop ramps in this interchange should be reviewed for safer and higher design speed turning radii. FHWA requested that SHA investigate whether the homes across from Scheifferstadt are identified as historic.

Apple Avenue
A suggestion was made to make Apple Avenue a one-way street in order to provide more green space between the proposed US 15 widening and existing Apple Avenue. FHWA requested that SHA investigate whether the homes along Apple Avenue, as well as the homes along Biggs Avenue (on the west side of US 15) were built as part of the Fort Detrick military base and if so, whether they have any historic significance.

US 15/Opossumtown Pike Interchange
The Opossumtown Pike bridge over US 15 would have to be investigated for reconstruction in order to accommodate the proposed inside widening and the extension of the auxiliary lanes to the outside along US 15 as part of the I-270/US 15 Study.

US 15/MD 26 Interchange
The railroad crossing of MD 26 would impact the proposed MD 26 westbound to US 15 northbound ramp and should be taken into consideration. The movement from southbound US 15 to eastbound MD 26 is not a significantly high traffic volume movement, therefore, no provisions for this movement are currently proposed. SHA

Mr. Louis H. Ege, Jr.
I-270/US 15 Multi-Modal Corridor Study
Page 5

should determine whether there is a need to provide this traffic movement as part of this study.

US 15/Trading Lane *Proposed* Interchange
FHWA noted that there may be secondary development concerns associated with the impact of this interchange. The time frame that this interchange would be built may also be an issue due to the proposed development in the southwest quadrant.

US 15/Biggs Ford Road *Proposed* Interchange
Biggs Ford Road, located one mile north of the proposed Trading Lane interchange, is the northern limit of the Urban area; therefore, a one mile spacing between these interchanges is acceptable. SHA outlined an option to possibly connect a parallel service road to Sundays Lane and design the US 15 southbound exit ramp to tie into the service road. This would provide access for residential, commercial and emergency traffic. FHWA asked SHA to verify whether the Birely-Roelkey Farmstead, located in the southeast quadrant of the existing intersection of Biggs Ford Road, is a "Century Farm." In addition, historic sites north of Biggs Ford Road should be identified on our project mapping.

This bus tour provided an excellent opportunity to review the I-270/US 15 Corridor and corresponding interchanges with SHA, FHWA and the Stage II consultant team. If you should have any questions about any of the issues outlined above, please feel free to contact me at (410) 545-8547.

cc: File
Attendees
Mr. Neil J. Pedersen
Mr. Alan H. Straus
Ms. Anne Elrays

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Michelle D. Hoffman
Project Manager
Project Planning Division

SUBJECT: Project Number FR 192B11
I-270/US 15 Multi-Modal Corridor Study
Shady Grove Metro Station to Biggs Ford Road

DATE: August 26, 1997

RE: July 25 Interagency Field Review

On Thursday, July 24, an Interagency Field Review was held to survey the I-270/US 15 Corridor and associated natural, social and cultural environmental features. The field review attendees met at the SHA-District 7 Office in Frederick, Maryland. The field review included introductions, a discussion of the project progress, an environmental overview and a field visit/van tour. The following people were in attendance:

Margot Bartosh, SHA-EPD	(410) 545-8622
Alan Belniak, SHA-PPD	(410) 545-8542
Bill Branch, SHA	(410) 545-8626
Anne Elrays, SHA-PPD	(410) 545-8562
Jim Gugel, Frederick County	(301) 694-1144
Derick Hallahan, RK&K	(410) 728-2900
Steve Hammond, MNCPPC	(301) 495-4548
Carmeletta Harris, SHA-PPD	(410) 545-8522
Vance Hobbs, COE	(410) 962-6084
Michelle Hoffman, SHA-PPD	(410) 545-8547
Rob Klein, MCDPWT	(301) 217-2291
Jonh Matthias, MNCPPC	(301) 495-4589
Nader Mondanipour, SHA-BRD.	(410) 545-8357
John Schultz, SHA-BRD.	(410) 545-8358

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Bill Seager, MDE	(410) 631-8094
Ron Spalding, MDOT	(410) 865-1286
David Sutherland, USFWS	(410) 573-4535
Susan Trail, NPS	(301) 432-7648
Kim Williams, MHT	(410) 514-7637
Bihul Xu, MOP	(410) 767-4556

INTRODUCTION

Michelle Hoffman discussed the agenda items for the field review and meeting. She reviewed the purpose of the field review which was to refresh the group on the environmental features within the I-270/US 15 Corridor and review the alternates under consideration including both the new transportation elements and the stand alone transit option(s). Michelle then reviewed the limits of the I-270/US 15 Multi-Modal Corridor Study which extends from the Shady Grove Metro Station (Montgomery County) north to Biggs Ford Road (Frederick County), including the MARC Brunswick Line and MD 355. Michelle also highlighted the project purpose which is to investigate comprehensive solutions to relieve traffic congestion and improve safety conditions within the I-270/US 15 Corridor due to the existing and projected growth within the Corridor.

Michelle reviewed the background of the I-270/US 15 Multi-Modal Corridor Study, which began in June of 1994 as a joint coordination between the State Highway Administration (SHA) and the Mass Transit Administration (MTA). Other project team members include the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), Montgomery and Frederick Counties, the Cities of Rockville, Gaithersburg and Frederick, the Maryland National Capital Park and Planning Commission (M-NCPPC), the Washington Metropolitan Area Transportation Authority (WMATA) and the Metropolitan Washington Council of Governments (MWCOG).

EXISTING CONDITIONS

Michelle discussed the existing conditions within the limits of the I-270/US 15 Multi-Modal Corridor Study, highlighting the limits of the High Occupancy Vehicle (HOV) lanes, the Collector/Distributor (C/D) lanes, and the general use lanes.

ALTERNATES PACKAGE

Michelle and Derick reviewed some of the proposed transportation strategies and improvements contained within the combinations alternates under consideration. Please see the enclosed package for more detail.

BASELINE MODIFIED (NO BUILD) ALTERNATE

The Baseline Modified (No-Build) Alternate consists of elements adopted in the Constrained Long Range Transportation Plan (CLRP) with the exception of the south bound segment of I-270 between I-370 and MD 121. This No-Build Alternate would retain the same number of existing lanes within this segment; however, all of the lanes in the southbound direction would be general use lanes as they are currently implemented. No major capacity improvements would be made in the I-270/US 15 Corridor. Only routine maintenance and spot improvements are included.

COMBINATION ALTERNATES A AND B

Combination Alternate A and Combination Alternate B both have the same highway improvements, however, they differ in their transit components. Combination Alternate A will be evaluated with light rail transit (LRT) and busway services and Combination Alternate B will be evaluated with express/premium bus services along the I-270 HOV lanes to Frederick (I-70) with direct access (slip) ramps to the seven activity centers in Shady Grove, Gaithersburg, Metropolitan Grove, Germantown, Clarksburg, Urbana and Frederick.

STAND ALONE TRANSIT OPTION(S)

Several citizens and county representatives asked for the Study Team to evaluate additional stand alone transit option(s) with additional transit incentives. They wanted to see an option that consisted of either no or minimal highway improvements in conjunction with enhanced transit services. Two locations will be tested for LRT: from Shady Grove to Frederick along the eastern (CSX) alignment in Old Town Gaithersburg and along the western Corridor Cities Transitway (CCT) alignment. One location will be tested for a Busway to Frederick along the western Corridor Cities Transitway (CCT) alignment.

ENVIRONMENTAL INVENTORY

Anne Elrays gave a brief summary of the environmental features, as well as the associated impacts. (see enclosure)

ENGINEERING CONSTRAINTS AND ISSUES

Derick reviewed the engineering constraints and challenge area issues that the Study Team will be addressing as the study progresses. Some of the issues highlighted by Derick at the meeting are summarized below.

If C/D lanes are extended from where they currently terminate (MD 124 northbound/ I-370 southbound) to Father Hurley Boulevard, they may impact Great Senaca Park. Potential roadway widening on I-270 may both physically and visually impact the Monocacy National Battlefield. In order to minimize potential impacts, slope limits and retaining walls may be necessary. The CSX railroad crossing over I-270, south of the MD 124 interchange, may require modifications due to proposed C/D lane widening along I-270 southbound. Widening along US 15, particularly in the area south of the 7th street interchange, may impact residences along Apple Avenue (northbound US 15) and Biggs Avenue (southbound US 15). Noise walls will probably be considered in this area, in addition to the possibility of converting Apple Avenue into a one way street.

The Montgomery County (Clarksburg) Master Plan shows the closure fo the I-270/MD 109 interchange, with the addition of the proposed new interchange at MD 75. However, there are potential I-270 access concerns if this interchange is closed. A potential C/D lane option may be considered to serve both interchanges because of the close proximity (approximately 5,000 feet) of the two interchanges. In addition, the MD 109 bridge may need to be replaced due to its aged condition. The proposed Watkins Mill Road interchange may have wetland impacts on the west side of I-270 and stormwater management impacts on both sides of I-270. The proposed Newcut Road interchange may impact Black Hill Regioned Park. The preliminary conceptual design of this interchange has tried to minimize impacts to the park and the Study Team may also consider a retaining wall at this location. Due to the two proposed interchanges along US 15 (Biggs Ford Road and Trading Land), other access points would be closed at Sundays Lane, Willow Road, Haywood Road/Worman's Mill Road, the U-turn bay and local driveways. Traffic issues will be addressed to determine the effects of these local access point closures.

UPCOMING STEPS

Travel Demand model runs for the Baseline Modified, Combination Alternates A and B and the stand alone transit option(s) will be completed this Fall/Winter. A Transportation Summary Package is being prepared to conclude the Major Investment Study (MIS) and recommend alternates for detailed study for late Fall/ Winter. The MIS will be presented to MWCOG and the Alternates Retained For Detailed Study will be presented to the Federal, State and local agencies later this Fall or early this Winter. The Jurisdictional Wetland Field Review will be contained within the right-of-way band and is scheduled for either this Fall and/or Spring. The detailed engineering and environmental evaluation will take approximately eighteen to twenty four months to complete and will be presented in a public hearing and environment document.

At this point, there were no questions and everyone proceeded to get into the vans.

FIELD REVIEW

The vans left the SHA District 7 Office and proceeded north to US 15. There were approximately eighteen stops. Please refer to the I-270/US 15 Multi-Modal Corridor Study Interagency Field Review itinerary.

At Biggs Ford Road, the northern limit of the study, everyone got out of the vans to discuss future planned developments, access control issues along US 15, and the proposed interchanges at Biggs Ford Road and Trading Lane.

Most of the stops had both environmental and transportation improvement issues. Questions of concern from the agencies throughout the day are summarized below.

Kim Williams, MHT, asked if any of the bridge structures that would be impacted by the improvements are fifty years or older. Michelle replied by saying that none of the structures along I-270 and US 15 meet the fifty year historic criterion.

Vance Hobbs, COE, wanted to know what rivers were impacted. Anne Elrays replied that there are two wild and scenic rivers: the Monocacy River and Great Seneca Creek that would potentially be impacted, in addition to other stream crossings.

David Sutherland, USFWS, wanted to know what C/D lanes were and whether the Transitway Alignment would impact Gaithersburg. Michelle explained that the Collector/Distributor (C/D) lanes collect and distribute local traffic on lanes which are barrier separated from the mainline through-lanes. These C/D lanes improve merge, diverge and weave conditions at interchanges. The Corridor Cities Transitway Alignment will impact some environmental resources, the extent of these impacts will be further determined in the detailed engineering and environmental studies, if this alternate is carried forward.

Kim Williams and Bill Branch suggested widening to the inside on US 15 north of Frederick City, if the right-of-way to the outside is not State owned property.

Susan Trail, of the National Park Service, suggested that SHA widen towards the inside near the Monocacy Historic Battlefield Park. The transportation improvements in this area are proposed for both inside and outside widening.

It was noted that Tuscarora Creek is classified as a Use Class "3" and Little Bennett Creek and Bennett Creek are classified as Use Class "1".

It was also noted that Michelle will be providing David Sutherland and Vance Hobbs with photogrammery mapping of the southern section of I-270 between Shady Grove and MD 121, the transitway alignment, Technology Boulevard and MD 75 Extended, when it becomes available.

A question was raised regarding why the LRT alignment along the CSX Railroad tracks is not being considered on the eastside of the tracks. John Matthias, M-NCPPC, reviewed the right-of-way and operational constraints with widening to the east and concluded that the west side of the CSX tracks made most sense. Since the Field Review, the Study Team has decided to evaluate an LRT option that runs along the eastern CSX alignment, but still on the west side of these tracks.

Thank you again for your time and input. This tour was beneficial for the group to review the Corridor, the environmental features, the challenge area issues and the alternates under consideration. If you should have any questions, please feel free to call Michelle D. Hoffman at (410) 545-8547 or Carmeletta T. Harris at (410) 545-8522. Both Michelle and Carmen can be reached toll-free in Maryland at (800) 548-5026.

By: Carmeletta T. Harris
Project Engineer
Project Planning Division

Enclosures
cc: File
Attendees (w\enclosures)
Project Team (w/enclosures)
Mr. Alan Belniak (w/enclosure)
Ms Anne Elrays (w/enclosures)
Mr. Derick Hallahan (w/enclosures)
Ms. Cynthia Simpson (w/enclosures)
Mr. Jim Wynn (w/enclosures)

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
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MEETING MEMORANDUM

TO: Ms. Susan M. Jacobs, Chief
Environmental Programs Division

FROM: Ms. Cheryl Jordon, Team Leader
Environmental Programs Division

DATE: June 18, 2001

SUBJECT: Contract No.: FR192B11
I-270/US 15 Multi-Modal Corridor Study

RE: Agency Field Review of Potential Wetland Mitigation Sites

Field reviews of the potential wetland mitigation sites were held on-site on April 25, 26 and May 2, 3. The sites are proposed as compensation for unavoidable impacts to wetlands and waterways resulting from the subject project. The following individuals were in attendance.

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Introduction

The meeting commenced with self-introductions followed by a description of the project and a current estimate of the proposed wetland and waterway impacts. The proposed project entails road widening, interchange improvements and a transitway along the I-270 and US15 corridor within Montgomery and Frederick counties. Approximately 20 acres of wetlands and 27,000 linear feet of waterways are currently estimated to be impacted under the worst case scenario.

Representatives of the Maryland Department of the Environment (MDE) were unable to attend on April 25, 26 and May 2. Consequently, MDE reviewed the sites on May 3 and resulting comments were added for each site listed below. Text in italics is information that was compiled/discovered after the completion of field reviews.

General

- ACOE requests that the project team verify/quantify any impacts to Wetlands of Special State Concern.
- Agricultural properties with prior converted wetlands will need a formal jurisdictional determination by the National Resource Conservation Service.
- Each accepted site would require natural heritage and historic/archeological coordination.

Site 21 –Vannoy Property

- The western portion of the site is being excluded from site review due to an uncooperative property owner. The eastern portion is being considered for the restoration and enhancement of wetlands, and stream restoration in the form of riparian plantings, livestock exclusion and bank stabilization.
- Mr. Vannoy, owner of the eastern portion of the site, met the reviewers on-site and presented a list of objectives that he developed for his property. Mr. Vannoy pointed out some features of the property including: a spring entering from east side (between Dollyhyde Road and the knoll - near Vannoy house location) that was ditched by previous farmer and appears to be feeding an area mapped as prior converted wetlands; seeps are present east of the knoll; and, a field on the northwest portion of the property (west of creek) that he would like to keep for hay production.
- One of Mr. Vannoy's objectives is to construct a pond. Agencies comments included concerns for increase temperature from pond outfall; preference for an "off-line" system; and, the need for plantings around the pond for shading/cooling.
- Agency concurred on the use of this site with the following comments: perform hydrologic/hydraulic studies on stream and floodplain; northeastern end of site appears to be higher and drier than the rest and may not be as suitable for wetland creation; riparian plantings would be beneficial on-site; groundwater monitoring wells should be installed to investigate water budget; recommend a mosaic of forested and emergent wetland creation; and, some of the very wet areas may not support forested wetlands.
- There was also a recommendation for an investigation for Bog Turtle habitat in the wet meadow.

Preliminary estimate of mitigation credits:

Vannoy Property: Approx. 23 Acres
Approximately 2,500 L.F. of Potential Stream Restoration
7.35 acres of Upland Buffer
2.92 acres of Existing Wetlands (10:1) = 0.29
10.27 acres of Wetland Creation (1:1) = 10.27
10.56 Acres Wetland Mitigation Credits

10.27 acres of Wetland Creation (1:1) = 10.27
10.56 Acres Wetland Mitigation Credits

Site 5 – Walker Property

- The Walker property has been owned by same family for 200 years and borders the National Register Eligible Browningsville Historic District. Mr. (Buddy) Walker, son of the property owner, measured water temperature approximately April 23rd near Bennett Creek crossing with Clarksburg Rd. at 62° F, which he noted was too high for trout. Additional information provided by Mr. Walker included: flooding from a 3-inch rain event covers entire floodplain area; in the last 5 years the site/floodplain was pretty dry (drought years) and Bennett Creek did not flood in those years; his family raises 40 head of cattle on 40 acres and ships their prized breed all over the world; the amount of erosion is the same on his property as the amount of erosion upstream in forested area; and, muskrats are present on site and mink are starting to "come back" on site. Property owner would like to create a pond with commercial fishery ("channel catfish").
- Site 5 is associated with the regional sole source aquifer.
- Agency concurrence of site. Comments included extending the riparian planting into the north end of site to create upland forest transitioning into forested wetlands for greater canopy coverage.

Preliminary estimate of mitigation credits: *NE Area - Approx. 20 Acres*
SW Area - Approx. 3.6 Acres
Approximately 2,600 L.F. of Potential Stream Restoration
1.28 A of Mapped Pf Wetlands (4:1) = 0.32
2.92 A of Estimated Existing Wetlands (4:1) = 0.88
18.81 A of Wetland Creation (1:1) = 18.81
20.01 Acres Wetland Mitigation Credits

Site 28 - Jordan Property

- The original mitigation approach was to enhance the existing emergent wetlands and transition to forested wetlands where possible. However, the site may be too wet for forested wetlands and emergent wetlands are more extensive than mapped.
- The western area of site (near railroad tracks) is inadequate for wetland creation. However, there is the possibility for some riparian enhancement opportunities for unnamed tributary to Horsehead Run.
- Potential stream restoration for Horsehead Run between areas mapped as emergent wetlands could include riparian plantings and livestock exclusion.
- Agencies agree with the use of this site at least for preservation.

Preliminary estimate of mitigation credits: *Site Area = Approx. 11 Acres*
Approximately 1,100 L.F. of Potential Stream Restoration
3.8 A of Mapped & Estimated Existing Wetlands (10:1) = 0.38
3.8 A of Mapped & Estimated Existing Wetlands (4:1) = 0.95
3.4 A of Wetland Creation (1:1) = 3.40
4.73 acre Wetland Mitigation Credits

Site 11 - Burdette/Hollingsworth Properties

- This site provides an opportunity for enhancement of prior converted wetlands and wetland creation.

- Depth to groundwater should be determined with monitoring wells and a water budget should be developed.
- Agencies concurred on the use of the site. Comments included: hydrology for the wetlands should be "off-line" from Bush Creek; create an upland forest buffer transitioning to the created forested wetlands; and, riparian stabilization plantings would be beneficial along portions of Bush Creek.

Preliminary estimate of mitigation credits: *Site Area = Approx. 21 Acres*
Approximately 3,200 L.F. of Potential Stream Restoration
2.0 A of Upland Buffer
1.66 A of Mapped Pf Wetlands (4:1) = 0.42
0.97 A of Mapped PFO Wetlands (10:1) = 0.10
16.37 A of Wetland Creation (1:1) = 16.37
16.89 Acres Wetland Mitigation Credits

Site 15 – Arnold/Ellis Properties

- The approach for this site is primarily for stream restoration with incidental creation of wetlands and/or vernal pools in a few areas and enhancement of existing wetlands on-site. Some of the stream channels appear to have been straightened or otherwise altered. Additional investigation of historical photos/imagery may be warranted to determine the extent of channelization that has occurred on the site.
- Approximately 6,000 L.F. of Potential Stream Restoration exists on-site. Wetland mitigation credits were not estimated for the site, but would involve enhancement of existing wetlands and creation of pocket wetlands and/or vernal pools within the floodplain.
- The agencies concurred on the use of this site with the following comments: hydrologic/hydraulic studies will be needed; a wider riparian corridor would be beneficial; and, Mr. Radcliffe thought that the streambanks could be restored to a stable angle along certain reaches of the stream.

Site 16 – Tressler Property

- The proposed mitigation for this site would include forested wetland creation, riparian plantings and cattle exclusion. However, the property owner is not cooperative.
- The site may require more excavation than initially thought, perhaps up to 3 to 4 feet of cut on western portion of the site (corresponds to area mapped w/Chewacla soil). Recommend the completion of a water budget and installation of monitoring wells. Site does have stream restoration potential. However, riparian plantings and livestock exclusion would be contrary to the operation of business (dairy farm) for the property owner.
- In general, agencies thought site was marginal for wetland creation. It was recommended that the site be used primarily for riparian area enhancements.

Site 18 – Wilson Property

- The mitigation concept for this property would include wetland creation, enhancement and preservation along with stream restoration. Potential stream restoration could include livestock exclusion, bank stabilization and riparian plantings. Riparian plantings would be focused on west and northeast areas. Existing forested wetlands would be preserved and the existing emergent and prior converted wetlands would be enhanced by the establishment of woody vegetation. Wetland creation would be confined to the southwest area of site and on areas adjacent to creek on north side of Glissans Mill Road. Hydrologic/hydraulic and water budget studies will need to be conducted for the site.

- Agencies concurred on the use of site with the following comments: address the sediment input from steep slope near the house; and, the NRCS would be helpful in working with the adjacent Boll family who have chosen not to reply to correspondence from SHA.

Preliminary estimate of mitigation credits: *Site Area = 23.34 Acres (Excludes Boll Property)*
Approximately 1,400 L.F. of Potential Stream Restoration
8.07 A of Mapped PSS/PFO Wetlands (10:1) *= 0.81*
2.15 A of Mapped PEM & Pf Wetlands (4:1) *= 0.54*
13.12 A of Wetland Creation (1:1) *= 13.12*
14.47 Acres Wetland Mitigation Credits

Site 25 – Delgado Property

- The proposal for this site is to create wetlands on the east side of Israel Creek, enhance the existing wetlands and restore stable banks to a portion of the creek. The existing prior converted wetlands are inundated with 1-6 inches of standing water and are vegetated primarily by non-native species. Soil borings revealed a fragipan at a depth of 2 feet in the area between prior converted wetlands and Israel Creek. Stream restoration would include livestock exclusion, bank stabilization and riparian plantings that would improve water quality and aquatic habitat. The property owner said that there used to be trout and sunfish in the stream but there is no longer any fish in the stream. DNR may have historically stocked this stream.
- Agency concurrence on the use of site with the following comments: investigate the water budget with monitoring wells; the work proposed in the existing wetlands may be consider preservation with some enhancement with native herbaceous plants; slightly grade higher areas transitioning from emergent to forested wetlands; additional potential wetland on the west side of Israel Creek; NRCS will need to perform a jurisdictional determination; and, make use of hydrology from a drainage ditch/stream identified on west side of Israel Creek parallel to south side of Woodsboro Road.

Preliminary estimate of mitigation credits: *Site Area = 17 Acres (Delgado Property only)*
Approximately 1,500 L.F. of Potential Stream Restoration
4.89 A of Upland Buffer
2.40 A of Existing Wetlands (4:1) *= 0.60*
9.71 A of Wetland Creation (1:1) *= 9.71*
10.31 Acres Wetland Mitigation Credits

Site 23 – Lehigh/Zimmerman/Schroyer Property

- Portions of this site are within Lehigh mining company property. These three properties could provide approximately 4,000 L.F. of stream restoration opportunities. This and adjacent properties that make up Site 23 would be negatively affected by mining operations, which would be contrary to mitigation efforts at this site.
- Agencies did not concur with the use of this site due to issues associated with Lehigh's mining operation.

Site 12 – Raystock LLC Property

- The mitigation approach for this site is primarily enhancement of existing wetlands, wetland restoration and stream restoration. Stream restoration could include riparian plantings and possibly some in-stream work (bank stabilization, j-hooks) to repair vertical banks. North and south areas

of site would involve enhancement of emergent wetlands with transition to forested wetlands in the drier areas. Enhancement would include eradication of reed canary grass and reestablishment of native species. Hydrology could be increased by the blocking/filling of drainage ditches and interspersing vernal pool topography throughout site. Site is associated with the sole source aquifer.

- Agency concurred on the use of this site with the following comments: make sure that the site has historic and natural heritage review (historic plaque on-site); and, conduct hydrologic/hydraulic studies with special regard to potential road flooding.

Preliminary estimate of mitigation credits: *Site Area = 23.5 Acres*
Approximately 2,400 L.F. of Potential Stream Restoration
19.00 A of Existing Wetlands (4:1) *= 4.75*
4.50 A of Wetland Creation (1:1) *= 4.50*
9.25 Acres Wetland Mitigation Credits

Site 19/20 - Frey Properties

- The Frey properties consist of three parcels owned by members of the Frey family. Portions of these properties were included in both Sites 19 and 20. They are being considered primarily for stream restoration and wetland creation where feasible. These large properties would serve to expand and connect the discontinuous greenways in this predominantly agricultural area.
- The western portion of Site 20 owned by the Frey family has potential for wetland creation. A ditch/swale present on the south side of Talbot Branch would provide additional hydrology. Stream restoration associated with this site could include riparian plantings, willow staking and livestock exclusion, and streambank alternations in some areas.
- West area of Site 19 has some stream restoration potential, which could include riparian enhancements, livestock exclusion and possibly some in-stream work. There may be potential to create some pocket wetlands along portions of this area. Agencies suggested additional investigation of wetland creation potential with monitoring wells.
- The valley to west of Site 19 (Adam Frey Property – Parcel 27) contains a straightened reach with some adjacent emergent wetlands. This area, not described in the Site Selection Report, has stream restoration opportunities including riparian plantings for reducing stream temperatures and promoting trout reproduction. There may be the potential to create additional wetland pockets; however, this requires additional investigation of the water budget.
- Agencies concurred that these sites would be instrumental in connecting and expanding greenways especially in conjunction with other adjacent mitigation sites. This site would provide stream restoration and wetland restoration/creation opportunities. They recommend investigating any records at local soil conservation district to determine if drainage tiles were installed on the site.

Preliminary estimate of mitigation credits: *Site 20 Area = 15.25 Acres*
Approximately 10,000 L.F. of Potential Stream Restoration for all of Frey Properties
0.92 A excluded for power line ROW
2.29 A of Existing Wetlands (4:1) *= 0.57*
12.04 A of Wetland Creation (1:1) *= 12.04*
12.61 Acres Wetland Mitigation Credits

Site 22 – Zimmerman Property

Considered mainly for its 2,000 L.F. of potential stream restoration, this site was rejected by the agencies primarily due to issues associated with Lehigh's mining operation upstream of site.

Site 14 – Griffin Et Al Properties

- Site 14 is considered mainly for potential stream enhancements, as Ballenger Creek is considered natural trout waters (Use III Waters). Sparse woody vegetation along this reach does not currently provide adequate shading or bank protection to promote trout reproduction. However, the channel has a good substrate of gravel and cobble
- Approximately 2,000 L.F. of stream in the eastern portion of site has some potential for stream restoration, primarily riparian plantings and buffer enhancements. The portion of the site west of Ballenger Creek Pike is slated to be used as a reforestation area for an adjacent housing development.
- Agencies suggest that this site is not suitable for wetland creation efforts. However, riparian enhancements would benefit water quality and trout reproduction.

Site 13 – Jordan Property

- Site 13 is associated with an unnamed tributary that flows into the western portion of Site 28. This deep and narrow, spring-fed tributary begins just upstream of the site across New Design Road. Portions of this tributary to Horsehead Run are dominated by submerged aquatic vegetation (SAV). The original mitigation approach was to restore a more natural dimension and pattern to this apparently straightened and deepened reach, which would provide approximately 2,500 L.F. of stream restoration.
- Site is not recommended by the agencies for wetland creation or for stream restoration due to the prevalence of SAV's in the stream. Disturbance or even riparian plantings may shade the SAV's and diminish their water quality benefits.

Site 8 – Pleasants/Johnson Properties

- This unnamed tributary to the Little Monocacy River is associated with sole source aquifer. Site 8 could provide an opportunity to create wetlands and expand the woody vegetated buffer that currently exists along the stream. Stream restoration associated with the site would primarily involve riparian plantings. The connection of greenways would be an additional benefit of the reforestation of this riparian area.
- The agencies concurred with the use of this site for riparian planting and wetland creation. Comments included a recommendation to investigate the depth to groundwater and other hydrologic sources for the wetland creation component.

Updated Summary of Potential Wetland and Stream Mitigation Sites

Priority#	Site#	Preliminary Estimates of Wetland Mitigation Credits	Preliminary Estimate of Potential Stream Restoration (L.F.)
1	5	20.01	2,600
2	19/20 (Frey Properties)	12.61+	10,000+
3	18	14.47	1,400
4	25	10.31	1,500
5	21	10.56	2,500
6	15	Incidental	6,000+
7	12	9.25	2,400
8	11	16.89	3,200

These minutes are compiled as a summary of comments and conversations resulting from the four field review days. If you should have any corrections or comments, please notify this office within 20 days. Otherwise, these minutes will stand as written.

CC: All attendees
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VIII. LIST OF PREPARERS

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Technical reports that were produced during the I-270/US 15 Multi-Modal Corridor project include:

- Air Quality Technical Report
- Assessment of Effects to Architectural/Historical Properties
- Natural Environment Technical Report
- Noise and Vibration Technical Report
- Preliminary Screening Assessment of Transportation Corridor Alignments (HAZMAT) March 1999
- Socio-Economic Technical Report
- Traffic Analysis Technical Report

The above technical reports are available for inspection during normal business hours at SHA and MTA:

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B. Glossary

B. GLOSSARY

Below is a selection of the terms, definitions and acronyms believed to be of most use to the readers of the I-270/ US 15 DEIS.

A-Weighted Decibels (dBA):

A noise measurement unit that corresponds to the average response of the human ear.

AADT:

Annual Average Daily Traffic. The number of vehicles passing a given point over a 24-hour period (daily traffic), averaged over an entire calendar or fiscal year.

Access Control:

The restriction of direct access between a roadway and an immediate adjacent property. 1) Full Access Control -- Allows access to a highway facility via interchange only (i.e. no at-grade crossings), eliminating private driveway access. 2) Partial Access Control – Allows access to a highway facility from public roads and from private driveways through intersections or interchanges. 3) Uncontrolled Access – Access is limited only to safe locations dependent upon the horizontal and vertical characteristics of the highway. All crossroads, driveways, etc. may have points of ingress or egress to the highway.

Access Management:

Limits and/or removes the number of points at which vehicles may enter or exit a highway. Access management may include combining entrances and parking lots and adding service roads.

ADT:

Average Daily Traffic. The number of vehicles that pass a specified location over a 24-hour period.

AGP:

Annual Growth Policy. The AGP helps Montgomery County officials coordinate the timing of private development with the availability of public facilities. The AGP is designed to affect the timing of development not the total amount, type, or mix of development.

Air Pollution:

The presence of unwanted material in the air in sufficient amount and under such circumstances as to interfere significantly with human comfort, health, or welfare, or with full use and enjoyment of property.

Alignment:

The horizontal and vertical location of a roadway, railroad, transit route or other linear transportation facility.

Alternates:

Two or more reasonable options for addressing Corridor transportation problems.

Ambient Air Quality:

A physical and chemical measure of the concentration of various chemicals in the outside air, usually determined over a specific time period, for example, 5 minutes, 1 hour, or 1 day.

APE:

Area of potential effect. The geographic area within which a transportation project may cause changes in the character of or use of historic properties.

APFO:

Adequate Public Facilities Ordinance. APFOs are local ordinances that require adequate public facilities and services to be available before new development can be built.

Aquifer:

A water-bearing unit or stratum of permeable rock, sand, or gravel capable of yielding considerable quantities of water to wells and springs.

ARDS:

Alternates Retained for Detailed Study. A set of transportation strategies that are evaluated in the SHA Stage II Project Planning process. In Stage II, as part of the NEPA process, the alternates retained from previous studies (in this case, the No-Build, TSM/TDM, Alternates 3A/B, 4A/B and 5A/B/C) were evaluated under a new MWCOG travel forecasting model run with revised traffic volume information; detailed engineering and environmental analyses were performed; and a Draft Environmental Impact Statement (DEIS) was produced that reviews the detailed alternates and environmental impacts.

Arterial:

A major thoroughfare, used primarily for through traffic rather than for access to abutting land, that is characterized by high vehicular capacity and continuity of movement.

Baseline Conditions:

Existing conditions from which the environmental effects (air quality, water quality, traffic, noise and vibration) are measured.

Best Management Practice (BMP):

Measures to control the quantity and quality of stormwater leaving a drainage basin. Local and state jurisdictions have adopted BMPs to counteract physical development and construction activity that may concentrate stormwater or produce soil erosion.

BRT:

Bus rapid transit. BRT uses buses to emulate the speed, reliability, and image of light rail. Bus service will operate in two general formats: (1) line haul along the CCT; and (2) smaller feeder buses which circulate through neighborhoods before using the busway.

Busway:

A roadway exclusively reserved for transit buses.

CAA:

Clean Air Act. The Clean Air Act Amendments of 1990 (CAA) directed the EPA to implement strong environmental policies and regulations that will ensure cleaner air quality.

Calibration:

1) Reconciliation of an instrument with an established standard. 2) In modeling, the procedure used to estimate the parameters of a model or to adjust a model to replicate actually measured conditions.

Capital Cost:

The expense of transportation improvement project construction, materials procurement, equipment installation, and vehicles.

CBD:

Central Business District. The downtown area of a city.

CCT:

Corridor Cities Transitway. A transit alignment from the Shady Grove Metro Station to COMSAT for a separate busway or light rail transit system.

CERCLA:

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund. Enacted by Congress on December 11, 1980, this law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

CERCLIS:

The Comprehensive Environmental Response, Compensation and Liability Information System is a compilation of sites the USEPA has investigated or is currently investigating for a release of hazardous substances pursuant to CERCLA.

Champion Tree:

The largest tree of its species within the US, the state, county, or municipality as determined by each jurisdiction.

CHART:

Coordinated Highway Action Response Team. It is comprised of a number of sub-systems, including traffic monitoring, traveler information, incident management, and traffic management. All of these mechanisms help with the flow of traffic throughout the state of Maryland.

CLRP:

Constrained Long Range Plan. Responds to federal requirements that funding sources be identified for all strategies and projects included in long-range plans. Updated at least every three years, the CLRP includes only those projects and strategies that can be implemented over the planning period with funds that are reasonably expected to be available.

CMS:

Congestion Management System. CMS was introduced as a requirement by the Intermodal Surface Transportation Efficiency Act (ISTEA) and provides for comprehensive monitoring, evaluation and enhancement of multi-modal transportation system performance in metropolitan areas with a population of over 200,000. The program requires that planning for all projects, which may add highway capacity in non-attainment areas, consider CMS strategies that reduce single-occupant vehicle travel and improve transportation efficiency.

COMAR:

Code of Maryland Regulations. A permanent compilation of all Maryland agency regulations. Started in 1977, COMAR is divided into 31 titles, with each title usually corresponding to a department or agency within State government.

Commuting Patterns:

Travel behavior patterns in a given area for persons traveling to and from their place of employment.

Commercial Areas:

Areas in which commercial (retail) activity is the predominant land use.

Comprehensive Plan:

An overall plan stating public policy intentions for the future development of a community or jurisdiction, including the general location and character of development. Also, called a general or master plan, it provides official guidelines for growth and change in a community.

Conceptual Engineering:

The level of design at which the basic characteristics of each alternate is defined, including location on the ground, height, location of possible stations, frequency of service and operating policies, and general capital, operating and maintenance costs.

Conformity:

The Clean Air Act stipulates that any approved transportation project, plan, or program must conform to the State Implementation Plan (SIP), a document that prescribes procedures for the implementation, maintenance, and enforcement of primary and secondary air pollutants.

Corridor:

A strip of land between two termini within which topography, environmental and other characteristics are evaluated for transportation purposes.

Cost-Effectiveness:

An analytical technique used to choose the most effective method for achieving a program or policy goal. The costs of alternates are measured by their requisite estimated monetary expenditures. Effectiveness is defined by the degree of goal attainment and may also (but not necessarily) be measured in monetary terms.

CSIS:

Candidate Safety Improvement Section (formerly known as an High Accident Section, or HAS) is defined as a half-mile section (or less) of roadway with an accident rate exceeding the statewide average, discounting intersection-related accidents.

CSPS:

Countywide Stream Protection Strategy. The first countywide assessment of stream resource conditions based upon assessment of aquatic life and stream channel habitat indicators in addition to typically applied stream chemistry measurements.

CTP:

Consolidated Transportation Program. A report developed each year in draft form and presented to every county in Maryland and Baltimore City. Following distribution of the draft document, the Maryland Department of Transportation representatives visit each county both to present the information and receive comments on the plan and program.

Cumulative Effects:

The impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency (Federal, or non-Federal) or person undertakes such other actions.

dBA:

Decibels (A-weighted scale which adjusts to simulate human hearing).

DEIS/EIS:

Draft Environmental Impact Statement/Environmental Impact Statement. A comprehensive study of likely environmental impacts that will result from major federally assisted projects. The National Environmental Policy Act of 1969 requires an EIS.

Density (land use):

Refers to the concentration of development in a given geographical area.

DBH:

Diameter at Breast Height. Diameter of trees at breast height (about 4.5 feet from the ground).

DEP:

Montgomery County Department of Environmental Protection. The Department of Environmental Protection protects and enhances the quality of life through conservation, **preservation, and restoration of the environment, guided by the principles of science,** resource management, sustainability, and stewardship. The two components of the department are Watershed Management and Environmental Policy and Compliance.

DNR:

Maryland Department of Natural Resources. State agency responsible for the protection, restoration and enhancement of natural resources such as fisheries, wildlife resources, forests, aquatic habitat, threatened and endangered species, etc. under its jurisdiction.

Effect:

For purposes of this DEIS, refers to a measurable change precipitated by the proposed transportation improvement.

EJ:

Environmental Justice. A term referring to unjust dispersion of adverse effects to human health and the environment on minority or low-income populations resulting from public infrastructure projects, such as construction of highways and land fills.

Endangered:

An organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.

Equity:

In transportation planning, a normative measure of fairness among recipients of mobility benefits, costs and impacts.

Express Bus:

A bus that makes few or no stops between the start and end points of the bus route.

Feeder Bus:

Local bus routes connecting to rail stations.

FEIS:

Final Environmental Impact Statement. The final version of one or more drafts and supplemental draft environmental impact statements for a given federally assisted project.

FEMA:

Federal Emergency Management Agency. FEMA has ten regional offices, and two area offices. Each region serves several states, and regional staff work directly with the states to help plan for disasters, develop mitigation programs, and meet needs when major disasters occur.

FHWA:

Federal Highway Administration. A component of the US Department of Transportation, established to oversee the development of a national road and highway system. The FHWA assists states in constructing highways and roads and provides financial aid at the local level.

FIRM:

Flood Insurance Rate Maps. Maps produced by the Federal Emergency Management Agency (FEMA) to determine the locations of flood risks and hazards.

Floodplain:

Land that is periodically inundated by floodwaters.

Forecast Zone:

Large aggregate analysis areas comprised of several individual transportation analysis zones (TAZs are small analysis areas formed by jurisdictional boundaries, major highways, and barriers to travel such as rivers).

FPPA:

Farmland Protection Policy Act. Congress enacted the Farmland Protection Policy Act as a subtitle of the 1981 Farm Bill. The FPPA stipulates that federal programs be compatible with state, local and private efforts to protect farmland. For the purposes of the law, federal programs include construction projects – such as highways, airports, dams and federal buildings – sponsored or financed in whole or in part by the federal government, and the management of federal lands. The US Department of Agriculture's Natural Resources Conservation Service is charged with oversight of the FPPA.

FTA:

Federal Transit Administration. A component of the US Department of Transportation, established to oversee the development of the public transportation system. The FTA assists states in constructing public transit systems and provides financial aid at the local level.

Fugitive Dust:

Dust created by the movement of construction equipment over exposed land.

Future Design Year:

The year for which traffic projections have been made and transportation needs analyzed; 2025 is the Future Design Year for the I-270/US 15 Multi-Modal Corridor DEIS.

GIS:

Geographic Information System.

Grade:

1) Refers to a rise in elevation within a specified distance. For example, a 1% grade is a 1-foot or 0.305 meter rise in elevation in 100 feet or 30.5 meters of horizontal distance. 2) "At grade" refers to a transportation facility built at ground level.

Guideway:

The structure or surface upon which a transit vehicle will operate.

Headway:

Refers to the number of minutes between transit service, bus or train departures.

HOV:

High Occupancy Vehicle. Motorcycles or vehicles containing two or more occupants may use a dedicated lane for HOV use. HOV lanes are used to encourage commuters to carpool.

Hydric Soils:

"A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation," according to current wetlands delineation methodology (USCOE, 1987).

ISA:

Initial Site Assessment. Consists of a database search for prior hazardous materials violations and a site reconnaissance to identify environmental conditions, such as dumping or stained soils, that warrant additional investigation.

ISTEA:

Intermodal Surface Transportation Efficiency Act of 1991, a major authoring legislation for surface transportation. Includes various programs and initiatives for improving transportation safety, protecting communities and the natural environment, and advancing the nation's economic growth through efficient and flexible transportation.

ITS:

Intelligent Transportation System. Broad range of diverse technologies, including information processing, communications, control, and electronics that enables people and goods to move more safely and efficiently through a state-of-the-art intermodal transportation system.

JD:

Jurisdictional Determination. A map or document prepared in accordance with US Army Corps of Engineers (USCOE) standards and procedures to identify the locations and extent of wetlands and waters of the US under their jurisdiction.

Kiss-and-Ride:

An access mode to transit whereby passengers (usually commuters) are driven to a transit stop and left to board a transit unit and then met after their return trip. Transit stations usually provide a designated area for dropping off and picking up such passengers.

L_{eq}:

A descriptor commonly used to represent fluctuating sound levels over an extended period of time as a constant value.

L-A-C:

Local Activity Center. A zoning category consisting of a mixture of commercial retail and service uses along with complimentary residential densities within a hierarchy of centers servicing three distinct service areas: neighborhood, village, and community.

LOS:

Level of Service. 1) A set of characteristics that indicate the quality and quantity of transportation service provided, including characteristics that are quantifiable (system performance, e.g., frequency, travel time, travel cost, number of transfers, safety) and those that are difficult to quantify (service quality, e.g., availability, comfort, convenience, modal image). 2) For highway systems, a qualitative rating of the effectiveness of a highway or highway facility in serving traffic, in terms of operating conditions. The Highway Capacity Manual identifies operating conditions ranging from A, for best operations (low volume, high speed), to F, for worst conditions.

LOV:

Low occupancy vehicles.

LRT:

Light Rail Transit. An electrically powered transit mode using overhead wires that can be operated in street, in mixed traffic, with street crossings and in exclusive rights of way.

M-A-C:

Major Activity Center. A zoning category consisting of a mixture of high concentration uses such as commercial and other public and private sector businesses that serve a regional residential market or provide concentrated employment, arranged to allow easy pedestrian access between uses. May also include other land uses including residential and recreational uses.

Major Employment Center:

An area characterized by a high concentration of public and private employment.

MARC:

Maryland Rail Commuter. The local commuter rail passenger service operated by the Maryland Transit Administration (MTA). MARC service offers three lines: Penn Line from Perryville, MD (Cecil County) to Baltimore and Washington, DC; Camden Line from downtown Baltimore to Washington, DC; and Brunswick Line from Martinsburg, WV to Washington, DC.

MBSS:

Maryland Biological Stream Survey. Maintained by the Maryland Department of Natural Resources Monitoring and Non-Tidal Assessment Division.

MDE:

Maryland Department of the Environment. State agency responsible for the protection, restoration and quality of Maryland's air, water and land resources including wetland habitats, ground and surface waters, mineral resources, etc. under its jurisdiction.

MDOT:

Maryland Department of Transportation. A cabinet-level state agency of the State of Maryland with responsibility for the development and management of transportation facilities and services within the State.

MDP:

Maryland Department of Planning. State agency responsible for consideration of transportation alternatives under the State's growth policies including the Smart Growth and Neighborhood Conservation Initiatives, including the Priority Funding Areas Act (PFA).

SHA:

Maryland State Highway Administration. An agency of the Maryland Department of Transportation with responsibility for the planning, development, operation and maintenance of the state's highway and road network.

Median:

The center portion of a divided highway separating opposing lanes of traffic.

MIS:

Major Investment Study. The MIS is a transportation planning process undertaken to decide the design concept and scope of a major transportation investment for a given corridor. This process is required for a major metropolitan transportation investment that is identified and in which Federal funds may be involved.

Mitigation Measures:

Steps taken to moderate or reduce the adverse effects of constructing or operating a major transit improvement.

Mixed Traffic:

The use of a single guideway or street by various types of transportation vehicles, such as cars, buses, and trucks.

M-NCPPC:

Maryland-National Capital Park and Planning Commission. An agency of the State of Maryland responsible for a variety of public property management activities in Montgomery County including the preparation and adoption of the General Plan for physical development of the Maryland-Washington Regional District and the acquisition, development, operation and maintenance of public parkland.

Modal Split (Mode Split):

1) The proportion of total person trips that uses each of various specified modes of transportation. 2) The process of separating total person trips into the modes of travel used. 3) A term that describes how many people use alternative forms of transportation. It is frequently used to describe the percentage of people who use private automobiles, as opposed to the percentage who use public transportation.

Mode:

A particular form of travel, for example, walking, traveling by automobile, traveling by bus, traveling by train.

Model:

1) A mathematical or conceptual presentation of relationships and actions within a system. It is used for analysis of the system or its evaluation under various conditions; examples include land use, economic, socioeconomic, transportation. 2) A mathematical description of a real life situation that used data on past and present conditions to make a projection about the future.

MPDU:

Moderately Priced Dwelling Unit Program. Montgomery County ordinance that requires projects with 50 or more units to have 12.5% to 15% moderately priced units, defined as units affordable at 65% of the County's median income.

MPO:

Metropolitan planning organization. Regional planning organization that integrates urban transportation planning at the local level.

MTA:

Maryland Transit Administration. An agency of the Maryland Department of Transportation responsible for the development and management of mass transit services within the State.

Multi-Modal:

A transportation study, plan, project and/or evaluation involving more than one transportation mode.

MVM:

Million vehicle miles.

MWCOG:

Metropolitan Washington Council of Governments. A regional public agency with responsibility for coordinating a variety of public services, including transportation, for the greater Washington metropolitan area.

NAAQS:

National Ambient Air Quality Standards. A level of air pollution concentration, as defined by the US Environmental Protection Agency, that cannot be exceeded as mandated by the Federal Clean Air Act. A concentration is an amount of pollution in the air over a given time period.

NEPA:

National Environmental Policy Act of 1969. A comprehensive Federal law requiring an analysis of the environmental effects of Federally-assisted actions and projects, including the preparation of an Environmental Impact Statement (EIS) for every major Federal project that significantly affects the quality of the human environment.

Network:

1) In planning, a system of links and nodes that describes a transportation system. 2) In highway engineering, the configuration of highways that constitutes the total system. 3) In transit operations, a system of transit lines or routes, usually designed for coordinated operation.

NHPA:

National Historic Preservation Act of 1969, as amended. Federal legislation to safeguard the Nation's prehistoric resources and historic buildings sites, and environments.

NIH:

National Institutes of Health. The NIH is one of eight health agencies of the Public Health Services, which in turn, is part of the US Department of Health and Human Services. Comprised of 27 separate components, mainly Institutes and Centers, NIH has 75 buildings on more than 300 acres in Bethesda, MD.

NIST:

National Institute of Standards and Technology. Non-regulatory federal agency within the US Department of Commerce responsible for development of measurement, standards, and technology to enhance productivity, facilitate trade, and improve quality of life.

NPDES:

National Pollution Discharge Elimination System. All industrial and municipal wastewater treatment facilities which discharge effluents into Maryland's waters must have a National Pollutant Discharge Elimination System (NPDES) permit. This permit is issued by the Maryland Department of the Environment (MDE) and sets discharge limitations and contains various restrictions and monitoring requirements to insure that the discharge will not degrade water quality or harm aquatic life. The permits require the dischargers to monitor their effluents and submit their own data to show that they are complying with these restrictions.

NRCS:

Natural Resources Conservation Service. Agency under the US Department of Agriculture to help people conserve, improve, and sustain natural resources on private lands and in the environment.

NRHP:

National Register of Historic Places. A United States catalog that gives formal recognition to sites, structures, and districts of historic significance.

NWI:

National Wetland Inventory. The US Fish and Wildlife Service produces the NWI with information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats.

NTWSSC:

Nontidal Wetlands of Special State Concern. Nontidal wetlands of Special State Concern are the best examples of Maryland's nontidal wetland habitats and are designated for special protection under the State's nontidal wetlands regulations. These 365 wetland sites with exceptional ecological and educational value offer landowners opportunities to observe and safeguard the beauty and natural diversity of Maryland's best remaining wetlands. Many of these special wetlands contain the last remaining populations of native plants and animals that are now rare and threatened with extinction in the state.

Off-Peak Period:

In transit, the time of day during which vehicle requirements and schedules are not influenced by peak-period passenger volume demands (e.g., between morning and afternoon peak periods). At this time, transit riding is fairly constant and usually low to moderate in volume when compared with peak-period travel.

Park and Ride:

A parking area designed for use by mass transit patrons who start their trip by private automobile and then transfer to transit.

Patronage:

Refers to the potential ridership attracted to a transit system or a transit station.

Peak Period:

1) The period during the day in which the maximum amount of travel typically occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak. 2) The period when demand for transportation service is heaviest.

PFA:

Priority Funding Areas. PFAs consist of existing communities and other locally designated areas for future growth as determined by local jurisdictions in accordance with Maryland's Smart Growth guidelines.

Preferred Alternate:

A single alternate from a list of several alternates that is believed to best address transportation problems.

Project Area:

The immediate geographical boundaries of a given transportation improvement project.

Public Hearing:

A formal meeting called to receive public comment on a proposed action.

Public Meeting:

An informal meeting called to present information about and to discuss a proposed action.

PUD:

Planned urban development. Consists of residential buildings clustered or laid out with reduced setbacks and amenities, such as adequate open spaces and other design provisions, to create a more desirable environment.

RCRA:

Resource Conservation and Recovery Act of 1976. Federal legislation that provides for the environmentally safe disposal of hazardous materials.

Reverse Commuting:

A commuting travel pattern that is characterized by travel from the central city location to suburban locations, typically during peak hours.

Ridership:

Current or expected users of public transit.

ROD:

Record of Decision. A document prepared by the Division Office of the Federal Highway Administration that presents the basis for selecting a specific transportation proposal that has been evaluated through the various environmental and engineering studies of the Transportation Project Development Process. Typically, the ROD identifies that alternate selected in the Final Environmental Impact Statement (FEIS), the alternates considered, measures to minimize harm, monitoring or enforcement programs, and itemized commitments and mitigation measures.

ROW:

Right-of-Way. Land owned by state and/or local jurisdictions that is necessary to accommodate construction, drainage, and proper maintenance of transportation or other public facilities.

RTE:

Rare, threatened and endangered species. Species of fish, wildlife and plants facing extinction and subject to special protection.

SCEA:

Secondary and Cumulative Effects Analysis. Secondary or indirect impacts are "…caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." (40 CFR § 1508.8(b). Cumulative effects are "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal, or non-Federal) or person undertakes such other actions." (40 CFR § 1580.7, 1997).

Scoping:

A process occurring near the beginning of a Draft Environmental Impact Statement that defines the alternates to be studied, identifies issues to be addressed, and defines a public involvement program. A key feature is intensive public, interest group, and government agency involvement.

Scoping Meeting:

A formal opportunity for the public, interest group and government agency representatives to provide input on the alternates to be evaluated and the issues to be addressed in a Draft Environmental Impact Statement.

Screening of Alternates:

To evaluate many suggested alternates in order to identify the most reasonable alternates for, and to eliminate unreasonable alternates from, further consideration. Alternates proposed during Scoping will be screened during the analysis to determine their responsiveness to project goals, Scoping meeting and written input and System Planning findings, to compare their general design and operations characteristics, rough cost, and environmental impact potential.

SDWA:

Safe Drinking Water Act. The SDWA, which celebrated its 25th anniversary in 1999, is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.

Secondary Effects:

Effects that are caused by the action and are later in time, or farther removed in distance, but are still reasonable foreseeable.

Section 4(f):

Refers to Section 4(f) of the US Department of Transportation Act of 1966, which includes a national policy to make special effort to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and significant historic sites.

Section 106:

Refers to Section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to consider the potential effects of proposed federal action on any known or potential historic, architectural or archaeological resources.

Service Roads:

Parallel roadways constructed on the outside of major highways to accommodate local traffic and provide access to adjacent landowners.

SHPO:

State Historic Preservation Officer. The SHPO coordinates State participation in identifying historic properties, accessing effects to them, and considering alternatives to avoid or reduce those effects in compliance with NEPA and Section 106 of the National Historic Preservation Act.

SIP:

State Implementation Plan. SIPs are the adopted planning documents, which determine how the state will meet federal air quality standards. A SIP exists for each of six criteria pollutants identified and considered by USEPA to be the primary air pollutants of concern to human health. The criteria pollutants are: Ozone (O_3); Particulate Matter (PM_{10} and $PM_{2.5}$); Carbon Monoxide (CO); Nitrogen Dioxide (NO_2); Sulfur Dioxide (SO_2); and Lead (Pb).

SOV:

Single occupancy vehicles.

TAZ:

Transportation Analysis Zone. TAZs are small analysis areas formed by jurisdictional boundaries, major highways, and barriers to travel such as rivers.

TCM:

Transportation Control Measures. Strategies, which seek to reduce travel demand by changing the behavior of motorists. These strategies include the promotion of public transit, encouraging ridesharing and carpooling, and organizing employer-sponsored flexible work hour programs. Such strategies form part of an overall Travel Demand Management program.

TDM:

Transportation Demand Management. A program consisting of strategies, which seek to reduce travel demand rather than increase capacity. Examples of strategies included in a TDM program are regional telecommuting programs, ridesharing programs, public transit options, and non-intensive physical changes to existing infrastructure. TCM and TSM strategies are specific components of a Travel Demand Management program.

TEA-21:

Transportation Equity Act for the 21st Century. Congress passed TEA-21 on May 22, 1998 authorizing highway, highway safety, transit and other surface transportation programs until 2004.

TIP:

Transportation Improvement Program. The TIP contains funding information and schedules for various transportation divisions including highways, aviation, enhancements, public transportation, rail, bicycle and pedestrians, and the Governor's Highway Safety Program.

TDS:

Total dissolved solids. Total dissolved solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and small amounts of organic matter that are dissolved in water. TDS in drinking water originate from natural sources, sewage, urban run-off, and industrial wastewater. Salts used for road de-icing in some countries may also contribute to the TDS content of drinking water. Concentrations of TDS in water vary considerably in different geological regions owing to differences in the solubility's of minerals.

Traffic Volume:

The measurement of traffic flow on a particular roadway as expressed in vehicles per day.

Transit Dependent:

A person who through choice, economic and/or physical or mental conditions must rely on public transit to meet local transportation needs.

Transportation Disadvantaged (Low-Mobility Group):

People whose range of transportation alternatives is limited, especially in the availability of relatively easy-to-use and inexpensive alternatives for trip making. Examples include the young, the elderly, the poor, the disabled, and those who do not have automobiles.

TSM:

Transportation System Management. Transportation strategies that seek to reduce travel demand through non-intensive changes to existing infrastructure. These strategies do not seek to provide additional capacity, but attempt to improve circulation. TSM strategies consider such options as improvements to public transit systems, minor intersection improvements, signal timing improvements, and traffic management.

TSS:

Total suspended solids. TSS are solids in water that can be trapped by a filter. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes, and sewage. High concentrations of suspended solids can cause many problems for stream health and aquatic life.

USACOE:

United States Army Corps of Engineers. An agency of the federal government that regulates the discharge of fill or dredged material into waters of the US, including jurisdictional wetlands, as well as construction activities that could obstruct or impede navigation in navigable Waters of the US.

USDA:

United States Department of Agriculture. The USDA serves all Americans, the two percent who farm as well as everyone who eats, wears clothes, lives in a house, or visits a rural area or a national forest. USDA remains committed to assisting America's farmers and ranchers.

USEPA:

United States Environmental Protection Agency. An agency of the federal government responsible for the development and implementation of regulatory policies designed to protect natural and human environmental resources. Responsibilities include implementation of the National Environmental Policy Act of 1969 and the development and implementation of the national air quality emissions standards as provided for in the Clean Air Act Amendments of 1990.

USFWS:

United States Fish and Wildlife Service. Federal agency responsible for conservation, maintenance and management of the nation’s fish and wildlife resources.

USGS:

United States Geological Survey. The USGS, the sole science agency for the Department of the Interior, has natural science expertise and vast earth and biological data holdings to help resolve complex natural resource problems across the Nation and around the world.

V/C:

Volume-to-Capacity Ratio. A measurement of highway/roadway service quality which compares the number of vehicles using or expected to use a given road or segment of a road with the number of vehicles that the facility is designed to handle safely.

VMT:

Vehicle Miles of Travel. A measurement of total miles traveled by all vehicles on a given area or corridor over a given time period. It is calculated by multiplying the number of vehicles by the total number of miles traveled on a given corridor over a given period of time.

Watershed:

The region from which a river or stream receives its supply of water.

Wetlands:

A lowland area that is saturated with water and that contains plant and animal life characteristic of water areas. Wetlands are broadly classified according to where they are located. The major classifications are *marine* (oceanic), *estuarine* (tidal), *riverine* (river), *lacustrine* (lake), and *palustrine* (marsh).

WMATA:

Washington Metropolitan Area Transit Authority. Regional agency that provides bus and rail transit service to Washington, DC and neighboring communities.

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D. Maryland Relocation Assistance Program

Revised: July 7, 2000
State Highway Administration, Office of Real Estate

SUMMARY OF THE RELOCATION ASSISTANCE PROGRAM OF THE STATE HIGHWAY ADMINISTRATION OF MARYLAND

All State Highway Administration projects utilizing Federal funds must comply with the provisions of the Uniform Relocation and Real Property Acquisition Policies Act of 1970 (42 USC 4601), as amended by Title IV of the Surface Transportation & Uniform Relocation Assistance Act of 1987 (P.L.100-17) and Public Law 105-117. State funded projects must comply with Sections 12-112 and Subtitle 2, Sections 12-201 to 12-212 of the Real Property Article of the Annotated Code of Maryland.

The State Highway Administration's Office of Real Estate administers the Relocation Assistance Program for the Maryland Department of Transportation.

The aforementioned Federal and State laws require that the State Highway Administration provide relocation assistance payments and advisory services to eligible persons who are displaced by a public project. There are two categories of residential occupants: 180-day owner-occupants, and 90-day tenants and short-term owner-occupants. Non-residential occupants may be businesses, farms or non-profit organizations.

A displaced person that has owned and occupied a subject dwelling for at least 180 days prior to the initiation of negotiations for the property may receive a replacement housing payment of up to $22,500. The replacement housing payment is composed of three parts: a purchase price differential; an increased mortgage interest differential; and reimbursement for incidental settlement expenses.

The purchase price differential is the difference between the value paid by the State Highway Administration for the existing dwelling and the cost to the displaced owner of a comparable replacement dwelling, as determined by the State's replacement housing study.

The increased mortgage interest differential is a payment made to the owner at the time of settlement on the replacement dwelling to negate the effects of less favorable financing in the new situation. The payment is calculated by use of the "buy-down" mortgage method.

Reimbursable incidental expenses are necessary and reasonable incidental costs that are incurred by the displaced person in purchasing a replacement dwelling, excluding prepaid expenses such as real estate taxes and insurance. The maximum reimbursable amount for these incidental expenses is based upon the cost of the comparable selected in the replacement housing study.

A displaced person who has leased and occupied a subject dwelling for at least 90 days prior to the initiation of negotiations for the property may receive a replacement rental housing payment of up to $5,250. The replacement rental housing payment is the difference between the monthly cost of housing for the subject dwelling, plus utilities, and the monthly cost of housing for a comparable replacement rental unit, plus utilities, over a period of 42 months. Owner-

occupants of from 90-179 days prior to the initiation of negotiations for the subject dwelling are eligible for the same replacement rental housing payments as tenants.

As an alternative to renting, a displaced tenant occupant may elect to apply the rental replacement housing eligibility amount toward the down payment needed to purchase a replacement dwelling.

The comparable properties used in calculating any replacement housing payment eligibility must comply with all local standards for decent, safe and sanitary (DS&S) housing, and be within the financial means of the displaced person.

If affordable, comparable, DS&S replacement housing cannot be provided within the statutory maximums of $22,500 for 180-day owner occupants or $5,250 for 90-day tenants or short term owners, the maximums may be exceeded on a case by case basis. This may only be done after the completion and approval of a detailed study that documents the housing problem, explores the available replacement options and selects the most feasible and cost-effective alternative for implementation.

In addition, eligible displaced residential occupants may be reimbursed for the expense of moving personal property up to a maximum distance of fifty (50) miles, using either an actual cost or fixed schedule method.

Actual cost moves are based upon the lower of at least two commercial moving estimates, and must be documented with receipted bills or invoices. Other incidental moving expenses, such as utility reconnection charges, may also be paid in the same manner.

As an alternative method, the fixed schedule move offers a lump sum, all-inclusive payment based upon the number of rooms to be moved. Other incidental costs are <u>not</u> separately reimbursable with this method.

Non-residential displaced persons such as businesses, farms or non-profit organizations may also receive reimbursement for the expense of relocating and re-establishing operations at a replacement site on either an actual cost or fixed payment basis.

Under the actual cost method, a non-residential displaced person may receive reimbursement for necessary and reasonable expenses for moving its personal property, the loss of tangible personal property that is not moved, the cost of searching for a replacement site, and a re-establishment allowance of up to $10,000.

The actual reasonable moving expenses may be paid for a move by a commercial mover or for a self-move. Payments for the actual reasonable expenses are limited to a 50-mile radius unless the State determines a longer distance is necessary. The expenses claimed for actual cost moves must be supported by firm bids and receipted bills. An inventory of the items to be moved must be prepared in all cases. In self-moves, the State will negotiate an amount for payment, usually lower than the lowest acceptable bid. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business vehicles or

equipment, wages paid to persons who participate in the move, the cost of actual supervision of the move, replacement insurance for the personal property moved, costs of licenses or permits required and other related expenses.

In addition to the actual moving expenses mentioned above, the displaced business is entitled to receive a payment for the actual direct losses of tangible personal property that the business is entitled to relocate but elects not to move. These payments may only be made after an effort by the owner to sell the personal property involved. The costs of the sale are also reimbursable moving expenses.

If the business elects not to move or to discontinue the use of an item, the payment shall consist of the lesser of: the fair market value of the item for continued use at the displacement site, less the proceeds from its sale: or the estimated cost of moving the item.

If an item of personal property which is used as part of a business or farm operation is not moved and is promptly replaced with a substitute item that performs a comparable function at the replacement site, payment shall be of the lesser of: the cost of the substitute item, including installation costs at the replacement site, minus any proceeds from the sale or trade-in of the replaced item; or the estimated cost of moving and reinstalling the replaced item.

In addition to the moving payments described above, a business may be eligible for a payment up to $10,000 for the actual reasonable and necessary expenses of reestablishing at the replacement site. Generally, reestablishment expenses include certain repairs and improvements to the replacement site, increased operating costs, exterior signing, advertising the replacement location and other fees paid to reestablish. Receipted bills and other evidence of these expenses are required for payment. The total maximum reestablishment payment eligibility is $10,000.

In lieu of all moving payments described above, a business may elect to receive a fixed payment equal to the average annual net earnings of the business. This payment shall not be less than $1,000 nor more than $20,000. In order to be entitled to this payment, the State must determine that the business cannot be relocated without a substantial loss of its existing patronage; the business is not part of a commercial enterprise having more than three other establishments in the same or similar business that are not being acquired: and the business contributes materially to the income of a displaced owner during the two taxable years prior to the year of the displacement. A business operated at the displacement site solely for the purpose of renting to others is not eligible. Considerations in the State's determination of loss of existing patronage are the type of business conducted by the displaced business and the nature of the clientele. The relative importance of the present and proposed locations to the displaced business and the availability of suitable replacement sites are also factors.

In order to determine the amount of the "in lieu of" moving expenses payment, the average annual net earnings of the business is to be one-half of the net earnings, before taxes during the two taxable years immediately preceding the taxable year in which the business is relocated. If the two taxable years are not representative, the State may use another two-year period that would be more representative. Average annual net earnings include any compensation paid by the business to the owner, owner's spouse, or dependents during the

period. Should a business be in operation less than two years, the owner of the business may still be eligible to receive the "in lieu of" payment. In all cases, the owner of the business must provide information to support its net earnings, such as income tax returns, or certified financial statements, for the tax years in question.

Displaced farms and non-profit organizations are also eligible for actual reasonable moving costs up to 50 miles, actual direct losses of tangible personal property, search costs up to $1,000 and re-establishment expenses up to $10,000 or a fixed payment "in lieu of" actual moving expenses of $1,000 to $20,000. The State may determine that a displaced farm may be paid a minimum of $1,000 to a maximum of $20,000 based upon the net income of the farm, provided that the farm has been relocated or the partial acquisition caused a substantial change in the nature of the farm. In some cases, payments "in lieu of" actual moving costs may be made to farm operations that are affected by a partial acquisition. A non-profit organization is eligible to receive a fixed payment or an "in lieu of" actual moving cost payment, in the amount of $1,000 to $20,000 based on gross annual revenues less administrative expenses

A more detailed explanation of the benefits and payments available to displaced persons, businesses, farms and non-profit organizations is available in the brochure entitled "Relocation Assistance: Your Rights and Benefits", that will be distributed at the public hearing for this project and be given to all displaced persons.

Federal and state laws require that the State Highway Administration shall not proceed with any phase of a project which will cause the relocation of any persons, or proceed with any construction project, until it has furnished satisfactory assurances that the above payments will be provided, and that all displaced persons will be satisfactorily relocated to comparable decent, safe and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced person.

PUBLIC LAW 105-117

On November 21, 1997, President William J. Clinton signed Public Law 105-117, amending the Uniform Relocation Assistance and Real Property Acquisition Policies Act, also known as the Uniform Act. The law became effective on the same day that it was signed.

Public Law 105-117 provides that a person who is an alien and is not lawfully present in the United States shall not be eligible for relocation payments or other assistance under the Uniform Act. It also directed all State displacing agencies that utilize Federal funds in their projects to implement procedures for compliance with the 1997 amendments, in order to safeguard that funding.

To this end, displaced persons will be asked to certify

to their Citizenship or alien status prior to receiving payments or other benefits under the relocation assistance program.

E. Environmental Justice Guidelines

ENVIRONMENTAL JUSTICE GUIDELINES

for

MD State Highway Administration's Projects

8/29/01

I. INTRODUCTION

President Clinton issued Executive Order 12898 on February 11, 1994, which reinforces the importance of fundamental rights and legal requirements contained in Title VI of the Civil Rights Act of 1964 and the National Environmental Policy Act. The Executive Order directs that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations". Other documents which have been issued to further clarify the Executive Order are the US Department of Transportation's (DOT) Order on Environmental Justice, dated April, 1997; the Council on Environmental Quality's (CEQ) "Environmental Justice Guidance Under the National Environmental Policy Act", dated December, 1997; and the Federal Highway Administration's (FHWA) Order on Environmental Justice, dated December, 1998.

Maryland is committed to the principles of environmental justice (EJ) and is assessing and documenting the impacts of transportation projects on minority and low-income populations as a normal part of our environmental analysis efforts. A key aspect of an EJ analysis is to ensure the involvement of affected communities in the project development process. These guidelines are meant to provide the project team with a consistent framework for both preparing an EJ analysis and developing an effective public involvement strategy. They contain only principles and general procedures, which means that the specific approach must be tailored to the unique circumstances of each project and those communities affected by it. If the procedures do not seem appropriate for a particular project, then the team should develop a more suitable approach.

The guidelines apply to projects requiring all types of NEPA documentation (Environmental Impact Statements, Environmental Assessments, Categorical Exclusions or environmental reevaluations). The identification of minority or low-income populations actually begins during systems planning by the Metropolitan Planning Organization (MPO) or SHA's Regional and Intermodal Planning Division. This information will be used and supplemented during the environmental inventory and alternatives development phases of the project development process as additional data, analysis and public input are refined. Decision-makers will be better informed about the important issues and concerns of low income and minority populations to be considered along with other factors in determining project location, design and mitigation. The EJ analysis during project development will be conducted concurrently with other technical environmental analyses during the Alternatives Retained for Detailed Study stage.

An EJ analysis must be completed for each build alternative. Additionally, the No-Build alternative must be carefully considered as well. For example, it's possible that not building transportation improvements could impact minority or low-income populations (i.e., increased noise or air pollution, limited access to employment, etc.). A clearly written description of all EJ findings must be included in the environmental document.

II. ENVIRONMENTAL JUSTICE AND TITLE VI

The EJ Executive Order supplements the existing requirements of Title VI of the Civil Rights Act. Title VI says that each Federal agency is required to ensure that no person on grounds of race, color, or national origin is excluded from participation in, denied the benefits of, or in any other way subjected to discrimination under any program or activity receiving Federal assistance. Supplemental legislation provides these same protections from discrimination based on sex, age, disability or religion.

The concept of environmental justice is intended to ensure that procedures are in place to further protect groups which have been traditionally underserved. The fundamental principles of environmental justice are:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The major similarities and differences between the EJ Executive Order and Title VI are described below:

SIMILARITIES	DIFFERENCES
▪ Both address non-discrimination. ▪ Both capture minority populations. ▪ Both are rooted in the constitutional guarantee (14th Amendment) that all citizens are created equal and are entitled to equal protection. ▪ Both address involvement of impacted citizens in the decision-making process through meaningful involvement and participation.	▪ EJ covers minority and low-income, while Title VI and supplemental legislation cover race, color, national origin, sex, age, disability and religion. ▪ EJ is an executive order (an order of the President of the United States), while Title VI is a law (an act of Congress). ▪ EJ mandates a process, while Title VI prohibits discrimination.

A listing of existing laws and regulations addressing environmental justice and Title VI is included at the end of these guidelines.

III. DEFINITIONS

For your information, the following definitions are provided. They have been taken directly from the US DOT Order on Environmental Justice:

Low-Income
A person whose median household income is at or below the Department of Health and Human Services poverty guidelines.

Minority
A person who is:
(a) Black (a person having origins in any of the black racial groups of Africa);
(b) Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
(c) Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
(d) American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition)

Low-Income Population
Any readily identifiable group of low-income persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.

Minority Population
Any readily identifiable groups of minority persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.

Adverse Effects
The totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to:
- bodily impairment, infirmity, illness or death
- air, noise, and water pollution and soil contamination
- destruction or disruption of man-made or natural resources
- destruction or diminution of aesthetic values
- destruction or disruption of community cohesion or a community's economic vitality
- destruction or disruption of the availability of public and private facilities and services

- vibration
- adverse employment effects
- displacement of persons, businesses, farms, or nonprofit organizations
- increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community
- denial of, reduction in, or significant delay in the receipt of benefits of DOT programs, policies, or activities

Disproportionately High and Adverse Effects on Minority and Low-Income Populations

An adverse effect that:

(a) is predominately borne by a minority population and/or a low-income population, or

(b) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population

IV. PUBLIC OUTREACH

Public involvement is the foundation to effectively integrating environmental justice concerns into transportation decision-making. It is not a separate task, but must be fully integrated within the full range of SHA processes. Outreach to the public is already a critical component of SHA's project development process (as outlined in the Maryland Action Plan); environmental justice simply requires us to ensure that minority and low-income populations are included in this public outreach.

The public can provide valuable input and assist in validating information obtained from secondary sources such as census data. They can play an integral role in identifying issues and concerns of their communities, cataloging community resources and past actions affecting their quality of life, suggesting project alternatives, and negotiating avoidance, minimization, mitigation, and enhancements.

A primary goal of environmental justice is to engage those groups traditionally underrepresented in the project development process. For each project, the team should proactively reach out to the minority or low-income communities identified during systems planning and the environmental inventory and alternatives development stages. It doesn't matter whether the study area is predominantly minority or low-income, or if there is only a small EJ community. Outreach is still required to get them involved in the project development process. This outreach effort begins early in the project (i.e., in the same time frame as focus group formation) and continues throughout the process. In order to be effective, your public involvement strategy should be tailored to use adaptive or innovative approaches that overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation in the decision-making process.

Each project team will need to develop its own outreach strategy thoughtfully, based on the characteristics of the particular study area. There is no 'cookie-cutter' approach, so each project may need to be treated somewhat differently.

Your goal should be to identify minority and low-income populations, bring them into the project development process, and ensure that reasonable efforts are made to address their concerns and provide them meaningful opportunities to influence transportation decisions. This doesn't mean that your project outreach is directed only toward EJ communities to the exclusion of other communities. The outreach strategies listed below can be applied to all communities, not strictly to EJ communities.

Listed below is a menu of possible tools and strategies which may be useful in identifying, contacting, and engaging the public in the project development process. Remember, you don't have to use all of these strategies; you should use only those which are appropriate for your project and study area:

- For the following agencies, organizations and/or stores, consider posting fliers and notices on bulletin boards; including information in church bulletins, homeowner association newsletters, etc.; offering to make project presentations; etc.:
    - homeowner/community associations
    - community action agencies
    - religious organizations (churches, etc.)
    - civil rights organizations
    - minority business associations
    - Chambers of Commerce
    - business and trade organizations (e.g., Washington Board of Trade)
    - environmental and environmental justice organizations
    - rural/agricultural organizations
    - ethnic stores/shops
    - universities, colleges, vocational and local schools
    - fraternities/sororities
    - senior citizen groups (e.g., senior centers, county Office of Aging)
    - community/recreational centers
- Publish ads and notices in newspapers, radio and other media, particularly media targeted to minority and low-income populations
- In addition to ads and notices, actively pursue having articles about the project published in local newspapers
- Publish ads not just in the legal section of the newspapers, but also in more 'popular' sections
- Include minority or low-income people on project focus groups
- Depending on the make-up of the particular project area, consider translating documents, notices and hearings for limited English-speaking populations

- For public meetings and brochures:
  - include a slide asking for input from minority and low-income communities
  - include wording in brochures soliciting input and information
- If at all possible, hold public meetings in locations that are accessible to transit
- Hold meetings at times and locations that are convenient for the attendees
- If appropriate, consider using an independent facilitator at community meetings, task force meetings, etc.
- Consider providing a minute-taker at key community meetings and providing copies of the minutes to attendees and other interested people
- Hold neighborhood open-houses or charrettes
- In any notices for EJ community meetings, ask if there are unique needs/concerns (i.e., interpreter, etc.)
- Consider adding wording in project Initiation Ads and/or project mail-back cards to solicit input on, and active involvement from, minority/low-income/other populations – wording would have to be sensitive to any perception of discrimination
- Use the internet and other electronic media (e.g., SHA/MDOT web-site, some colleges and local schools have web-sites with bulletin boards, local governments)
- Place public meeting/workshop brochures, fliers and newsletters in the management offices of apartment buildings occupied by minority or low-income people
- Provide public meeting/workshop brochures, fliers and newsletters at local festivals and fairs
- Post signs in buses
- Distribute public meeting notices at bus/Metro stops
- Post notices in local libraries
- Contact school PTAs – they may be willing to have a presentation at one of their regular meetings
- Conduct in-street interviews to identify local issues/concerns
- Set up informational kiosks in malls, libraries, etc.

- Possible innovative/unique ideas for atypical projects:
  - Open a project field office in a minority or low-income area
  - In addition to the normal workshops or informational meetings which provide information about the project as a whole, hold workshops with affected populations by alternative in order to focus more on the alternative having the most impact on them
  - Use questionnaires to identify concerns of affected populations (issues, impacts, benefits, etc.) Any questionnaire would have to be developed and distributed early, so that ample time would be available to compile, analyze and use the data.
  - Put out fliers and do a "road show" in communities, parks, festivals, malls, etc.
  - To keep impacted communities involved and informed during final design and construction, consider having a community representative attend certain team meetings, developing flyers/brochures, etc.

V. IDENTIFICATION OF MINORITY POPULATIONS AND LOW-INCOME POPULATIONS

The identification of minority or low-income populations will begin during systems planning by the Metropolitan Planning Organization (MPO) or SHA's Regional and Intermodal Planning Division. This information developed during planning will be used and supplemented during the project development process as additional data, analysis and public input are refined to be included in the NEPA document. As more information becomes available and the alternatives are developed, the locations of populations will continue to be refined.

You need to be sensitive to the fact that you are identifying both minority and low-income populations, so don't just concentrate on minority communities. Also, remember that there are many wealthy minority communities and many poor non-minority communities.

A. Environmental Inventory

For environmental inventory purposes, the main sources of information regarding locations of minority or low-income populations are:

1. Census Data

Because census data is so readily available and easy to use, it is typically the first information gathered when trying to determine if there are minority or low-income populations in the project study area. However, census data is just the starting point used to "flag" census areas that potentially contain minority or low-income populations. You have to keep in mind that even census areas with a small minority or low-income percentage may contain a protected population in your study area – in some cases, a group of a few homes could be considered a population. "Disproportionately high and adverse effects", not size, are the basis for environmental justice. A small minority or low-income population in the project area does not eliminate the possibility of a disproportionately high and adverse effect on that population. That's why it is critical to continue gathering additional information from various sources in order to successfully locate and refine the geographic locations of the populations.

a. Determine whether you will use census "tracts" or "blocks". Generally, data based on census tracts should be used for larger project areas. For smaller project areas (like intersection improvements), data based on the smaller census blocks would probably be more appropriate.

b. Once the project study area is determined, identify all census tracts/blocks which overlap with it.

c. Determine the minority or low-income percentage for each census tract/block.

1) Minority Percentage

If there is more than one minority group in your study area, the minority percentage should be based on the aggregate of all minority people. For example, if the percentage of Black persons in the identified census tract/block is 20% and the percentage of Hispanic persons is 20%, then the total of 40% should be used for the minority percentage.

2) Low-Income Percentage

Census data provides the percentage of people below the poverty level (but does not actually provide the dollar amount of that poverty level). The dollar amount is defined by the Department of Health and Human Services. The data is revised annually and can be accessed at www.aspe.hhs.gov or www.census.gov. In order to be sensitive to low-income communities, do not include the poverty level dollar amount in the environmental document; you should simply keep the information in your project files. Be sure to identify the poverty level associated with the year of the census data being used (e.g., if you are using 1990 census data, use the corresponding 1990 poverty level).

Keep in mind that local jurisdictions may define their own 'poverty level'; however, you are to use the poverty level defined by the Department of Health and Human Services in order to maintain consistency between various jurisdictions.

d. Calculate the average minority percentage and average low-income percentage for your entire study area by averaging the individual tract/block percentages.

e. Determine which census tracts/blocks should be "flagged" because they could contain minority or low-income populations by comparing the minority or low-income percentage of each individual census tract/block to the average percentage for the study area. If this individual percentage is "meaningfully greater" than the average percentage, then a minority or low-income population is potentially located within that census tract/block.

On a project-by-project basis, the project team should define "meaningfully greater" and document the rationale. For example, if the minority percentage for a census tract is 10% and the study area average is 5%, this 5% difference could be "meaningfully greater" because it represents a doubling of the average. However, if the minority percentage for a census tract is 75% and the study area average is 70%, this 5% difference is probably not "meaningfully greater" since it represents only a small increase over the average.

2. SHA and Other Agencies

The project team should use a common sense approach when determining what further level of effort is appropriate for identifying EJ populations. For example, if the census data tells you that your project is in a mostly minority area, you may not need to use the other sources discussed below to identify minority populations – in essence, your entire project area would be a minority population. However, you would still need to go beyond just the census data to identify low-income populations.

Even if a census tract/block has a small percentage of minority or low-income persons - and is therefore not identified during Step 1 above - it is possible that a population(s) may still be located in that census tract/block. For example, a 5% Asian American population may be entirely located in one particular community, thus qualifying as a minority population. Therefore, you cannot rely on census data alone to identify populations.

At a minimum, you should also contact the following sources, via phone conversations, meetings (including project team meetings) or correspondence:

a. Local planning and transportation staff, including MPOs

b. State Highway Administration
   1) Regional and Intermodal Planning Division
   2) Office of Equal Opportunity
   3) District Right-of-Way Office

In any conversations with or letters to the above sources, you must be careful to include the following information so they understand why you are collecting EJ information. Information regarding the locations of EJ communities may raise sensitive issues, so you shouldn't just request locations of EJ communities without explaining why you need the information and what you will be doing with it.

- Provide the purpose/background of environmental justice (reference the Executive Order)
- Emphasize that you are looking for information on both minority and low-income populations – and that they are not the same thing
- Explain what the 4 minority groups are and what the poverty level is
- Request information on the location of minority or low-income populations, based on their knowledge of the project study area

B. Alternatives Development

After the environmental inventory stage, as preliminary/conceptual alternatives are developed, other sources of information must be used to confirm and further refine the locations of minority and low-income populations. As described earlier, public involvement is a critical component to this effort. The project team will need to determine, based on each particular project, which sources are appropriate to contact.

This contact can be made via formal written correspondence (letters, flyers, etc.), meetings/presentations, phone calls and/or e-mails – the team needs to determine which method is most appropriate for a particular source. Some sources, such as religious groups and schools, in addition to providing race and national origin information about the people attending their services or classes, may also be able to provide information about any low-income communities they may assist. Keep in mind that it's very important to maintain a record of all sources you contact, as well as the input each source provides to you.

Possible additional information sources include, but are not limited to:

- homeowner/community associations
- community action agencies
- religious organizations (churches, etc.)
- civil rights organizations
- Maryland Department of Planning (GIS and other data)
- state and local tax and financing agencies
- minority business associations
- Chambers of Commerce
- business and trade organizations (e.g., Washington Board of Trade)
- environmental and environmental justice organizations
- rural/agricultural organizations
- economic and job development agencies (e.g., Welfare to Work)

- ethnic stores/shops
- universities, colleges, vocational and local schools
- fraternities/sororities
- senior citizen groups (e.g., senior centers, county Office of Aging)
- community/recreational centers

NOTE: For purposes of a secondary and cumulative effects analysis (SCEA), census data only will be used to identify minority or low-income populations since this data is existing and readily available. Each census tract which overlaps with the SCEA geographic boundary should be identified. Then the individual minority and low-income percentages for each tract are to be compared to the average study area percentages as determined in Section V.A.1.d (you do not need to calculate the average percentages for the entire SCEA boundary). Those individual tracts with percentages meaningfully greater than the study area average percentage will be considered to have minority or low-income populations.

C. Documentation

In the "Affected Environment" section of the environmental document, you will need to carefully discuss your findings regarding minority and low-income populations. While the project files should include all details of your efforts to identify minority or low-income populations in the study area (letters written to agencies/organizations, phone memos, responses or non-responses, etc.), the environmental document should only provide a summary.

1. Clearly state whether minority or low-income populations have been identified in the project study area.

2. Describe how you concluded whether or not there are minority or low-income populations.

   a. describe the results of the census data assessment

   b. list all of the agencies, organizations and/or other groups which were contacted and describe how they were contacted (letter, phone call, meeting, etc.),

   c. summarize the responses received and/or issues identified

   The most effective way to display this information is in a matrix format.

3. If minority or low-income populations are identified, characterize them by describing their make-up, size, general location, age, etc. It's recommended that study area mapping showing all locations of EJ populations not be included in the environmental document.

VI. ASSESSMENT OF DISPROPORTIONATELY HIGH AND ADVERSE IMPACTS

The definition of adverse effects (see Section II) encompasses a wide variety of potential impacts, including those to human health, the natural and social environment, the economy, community function, etc. It also includes the denial, reduction or delay in receiving benefits, which should be addressed like any other impact. For an EJ analysis, you'll need to consider all of these.

There is no magic formula for determining if a minority or low-income community will experience disproportionately high and adverse impacts due to your project. Since each project – and each minority or low-income community – is different, the team will have to carefully consider many factors in making its determination. You will need to use an approach that combines both qualitative and quantitative information to support your conclusion.

Keep in mind that the EJ analysis must be done for each alternative, including the No-Build. The No-Build alternative is defined as no other improvements being done except maintenance to the existing road. Even under the No-Build, minority or low-income populations may be affected. Impacts such as increased noise, air pollution, congestion, travel times, etc. must be considered and documented appropriately.

One of the most important factors to consider is whether and how the community itself believes it will be impacted. What one community perceives as an impact, another may perceive as a benefit. It's also possible that, within the same community, the same action may be perceived by various segments as both an impact and a benefit. Therefore, it's imperative that you work with the EJ community to see how they feel about the project.

A. Analysis of Disproportionately High and Adverse Effects

Since a one-size-fits-all approach won't work, the team will need to address a variety of questions and considerations in order to conclude if the project will have disproportionately high and adverse impacts (including denial, reduction or delay in receiving benefits) on an EJ population. You will, in essence, be assessing the context and intensity of effects on EJ populations as compared to non-EJ populations.

You will need to carefully consider all of the items below, since no single item will lead to a supportable conclusion:

1. Is the adverse effect <u>predominantly borne by</u> the EJ population? For example, are more minority or low-income people impacted than non-minority or non-low-income people? Is the percentage of minority or low-

income people impacted greater than the percentage of minority or low-income people in the study area? Be very cautious when using numbers like this, since numbers alone can be misleading.

2. Will the adverse effect on the EJ population be appreciably more severe or greater in magnitude than the adverse effect on the non-minority or low-income population? In other words, will the EJ population carry an unfair share of the impact? For example, if ten EJ residences and ten non-EJ residences will each experience noise levels above the federal standard, but noise at the EJ residences will increase by 20 decibels and noise at the non-EJ residences will increase by 10 decibels, there may be a disproportionate impact.

3. Does the project impact a resource that is especially important to an EJ populations? Does it serve an especially important social, religious or cultural function for the EJ community? For example, is a park which is used regularly for cultural festivals being impacted by the project?

4. Are there mitigation, enhancement measures or offsetting project benefits (see Section VI) to the affected EJ population? These should be taken into account when assessing if there are disproportionately high and adverse effects.

5. Have you assessed the type and severity of adverse effects on non-EJ populations? In order to determine if there are disproportionately high and adverse effects on EJ populations, you will have to take into consideration the comparative impacts in non-EJ areas.

Keep in mind that, while the identification of a disproportionately high and adverse effect on a low-income or minority population does not preclude the project from going forward, it should heighten our attention to alternatives (including alternative sites), mitigation strategies, monitoring needs and preferences expressed by the affected community or population.

Note: In the SCEA, you will need to consider the same questions and considerations listed above in order to determine if there are disproportionately high and adverse effects on EJ populations within the SCEA boundary.

B. Documentation

Your conclusions regarding impacts on minority or low-income populations must be thoroughly explained in the "Environmental Consequences" section of the environmental document.

1. The final environmental document should clearly conclude whether or not a disproportionately high and adverse impact on any minority or low-income population is likely to result. This conclusion must be reached for each alternative, including the No-Build. Remember to take into account mitigation, enhancement measures or offsetting project benefits (see Section VI) to the affected EJ population.

2. Whether or not an alternative results in disproportionately high and adverse impact on minority or low-income populations, you need to supply supporting information to document how you reached that conclusion for each alternative – you have to "make your case".

   a. Present the analysis you completed and the issues you considered in order to reach your conclusions as concisely as possible. Include a description of impacts (type and severity), any offsetting benefits and mitigation/enhancements, comparison of impacts on EJ and non-EJ populations, etc.

   b. Document the efforts made to interact with the affected communities, the issues/concerns they identified, results of the interaction, etc. Examples of interaction could include meetings to determine whether a community considers a project's effects to be impacts or benefits, correspondence discussing potential mitigation or enhancement measures, etc. A helpful way to present this information would be in a matrix format, which should be included in the appendix of the environmental document. The information in the matrix could include meeting dates, correspondence dates, responses received, issues/concerns identified by the community, etc. You may also want to include copies of important minutes in the appendix.

   c. When mapping is necessary in order to clearly illustrate the effect of a project on an EJ population, mapping may be included in the environmental document; otherwise, document the impacts textually. If possible, you should refer to existing alternatives mapping rather than develop special mapping. Remember to be sensitive to the concerns of the affected communities when determining what type of mapping, if any, will be provided.

VII. AVOIDANCE, MINIMIZATION, MITIGATION AND ENHANCEMENT

If you determine that your project appears to have a disproportionately high and adverse impact on a minority or low-income population, you will then need to consider how the magnitude and severity of the impact can be prevented or reduced. The

approach is first to avoid impacts if possible, then minimize impacts, then mitigate unavoidable impacts. Enhancements should also be considered. The definitions of these terms and examples (from the Federal Highway Administration's "Community Impact Assessment" booklet) are provided below:

A. Definitions

1. avoid – to alter a project so an impact does not occur (i.e., shift an alignment to avoid displacements, redesign a road segment as an underpass to avoid cutting off access to a community facility, etc.)

2. minimize – to modify the project to reduce the severity of an impact (i.e., shift an alignment to reduce displacements, alter an alignment to increase the distance between the facility and residences to decrease noise impacts, phase the project to minimize impedance to business access during peak shopping periods, limit interchanges to minimize incompatible land use development, etc.)

3. mitigate – to take an action to alleviate or offset an impact or to replace an appropriated resource (i.e., set aside land for a park or add to public recreation areas to replace lost facilities, erect sound barriers to mitigate noise impacts, provide a bicycle/pedestrian overpass or underpass to provide access to public facilities, etc.)

4. enhance – to add a desirable or attractive feature to the project to make it fit more harmoniously into the community; this will <u>not</u> replace lost resources or alleviate project impacts (i.e., provide signing to recognize specific cultural or historic resources, develop bicycle trails or pathways adjacent to roadways, plant trees and add park benches, add public artwork or a façade to a transportation facility to match the aesthetic design goals of the community, etc.)

B. Considerations in Determining Appropriate Avoidance, Minimization, Mitigation and Enhancement Measures

1. Remember to take mitigation, enhancements and project benefits into account when you are assessing if there will ultimately be a disproportionately high and adverse impact on an EJ population.

2. Another important consideration is the fairness in distribution of avoidance, minimization, mitigation and enhancement measures between EJ and non-EJ communities. When considering these measures for an EJ community vs. the entire project area, keep in mind that the measures should be proportional to the level of impact on each.

3. A disproportionately high and adverse effect on an EJ population can only be carried out if further avoidance, minimization and mitigation measures are not practicable. In determining whether a measure is 'practicable', the social, economic (including costs) and environmental effects of avoiding, minimizing or mitigating the adverse effects can be taken into account.

   You can use experience on other projects to determine what measures may be considered practicable. You should also take into account the nature and severity of the disproportionate impacts when determining what is practicable. For example, it may be appropriate to go beyond 'the norm' depending on how disproportionate the impact is.

   Throughout this effort, keep in mind that you may be able to eliminate, reduce or mitigate the initial disproportionate impacts to such a degree that the impacts to the EJ population are now proportional.

C. Coordination with the Impacted EJ Community

The most important consideration in developing avoidance, minimization, mitigation and enhancement measures is how the impacted EJ community feels about them. Throughout the process, you must consult with and elicit the views of the affected populations. Otherwise, you might unknowingly propose a mitigation measure which impacts the community in a different way. Also, if the same community is composed of various minority groups or income levels, each component may have separate (and possibly conflicting) issues or concerns to be considered by the project team.

You should be encouraging the members of the EJ communities that may suffer a disproportionately high and adverse impact to help develop and comment on possible avoidance/minimization alternatives as early as possible in the process.

In addition to community meetings and correspondence, you may want to consider using community questionnaires to solicit input on proposed mitigation and enhancement strategies and to suggest their own strategies, based on the EJ community's perception of impacts. Any questionnaire would have to be developed and distributed early, so that ample time would be available to compile, analyze and use the data.

Once you have worked with the affected EJ communities to determine the appropriate avoidance, minimization, mitigation and enhancement measures, you should continue to keep them informed about the project status and progress throughout the design and construction phases.

D. Possible Mitigation Strategies (to be coordinated with the affected community):

- Keep the impacted minority or low-income population informed (status, progress, design changes, etc.) during final design and construction of the project; this could be accomplished by posting/mailing notices, meeting with the community, having a community representative serve a liaison role and attend construction partnering meetings, etc.
- Provide noise walls (appropriateness to be discussed with Noise Committee)
- Provide landscaping/visual screening
- Provide lighting
- Provide sidewalk improvements
- Provide multi-modal improvements (i.e., bus shelters, bicycle/pedestrian facilities)
- Build or rehabilitate community parks or recreation centers
- If relocations are required, attempt to relocate to the same area if possible to preserve community cohesiveness

Even when SHA has no responsibility to mitigate impacts not caused by the project, we may encourage other public/private groups to partner together to improve the quality of life in EJ communities.

E. Documentation

For each alternative, you will need to clearly explain in the "Environmental Consequences" section of the environmental document any avoidance, minimization, mitigation and enhancement measures which have been adopted.

1. Document the strategies taken to reduce, avoid or mitigate impacts to EJ communities. The discussion of these strategies should be clearly 'linked' to the associated community impacts. If appropriate, include a discussion of how these strategies helped turn a disproportionate adverse impact into a proportionate adverse impact.

2. Include a summary of the public interaction used to develop and/or review the various strategies.

3. If necessary in order to clearly illustrate the strategies and results, mapping may be included in the environmental document; otherwise, document the information textually.

Once the mitigation commitments have been made in the final environmental document, they are to be recorded in the Environmental Compliance and Considerations Checklists and discussed at the project transition meeting between the planning and design divisions. Planning staff will continue to be involved in the project during final design to ensure that the commitments are incorporated into the construction documents.

EXISTING LAWS AND REGULATIONS

- Environmental Justice Executive Order 12898
- US DOT EJ Order, April 1997
- FHWA EJ Order, December 1998
- Title VI Act of 1964
- 23 USC 109(h)
- US DOT Title VI Regulations [49 CFR 21.5 (b)(2)(3)] - addresses contracts and site selections
- Civil Rights Restoration Act of 1987
- National Environmental Policy Act of 1969
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- 23 USC 324 – addresses discrimination on the basis of sex
- Section 504 of the Rehabilitation Act of 1973 (29 USC 790) – addresses discrimination of the basis of disability
- Age Discrimination Act of 1975 (42 USC 6101) – addresses discrimination on the basis of age
- Fair Housing Act of 1988 - addresses discrimination on the basis of religion
- Religious Freedom Restoration Act of 1993 - addresses discrimination on the basis of religion
- 23 CFR 450 - FHWA Planning Regulations
- 23 CFR 771 - FHWA Environmental Regulations

ADDITIONAL SOURCES OF INFORMATION

"Community Impact Assessment: A Quick Reference for Transportation" (FHWA, 9/96)

"Community Impact Mitigation Case Studies" (FHWA, 5/98)

"Transportation & Environmental Justice Case Studies" (FHWA, 12/00)

"Assistance for Reviewing the Application of Title VI and Environmental Justice in the Transportation Planning Process" (FHWA, 2001)

"Environmental Justice Guidance Under the National Environmental Policy Act" (CEQ, 12/97)

"Environmental Policy Statement" (FHWA, 1994)

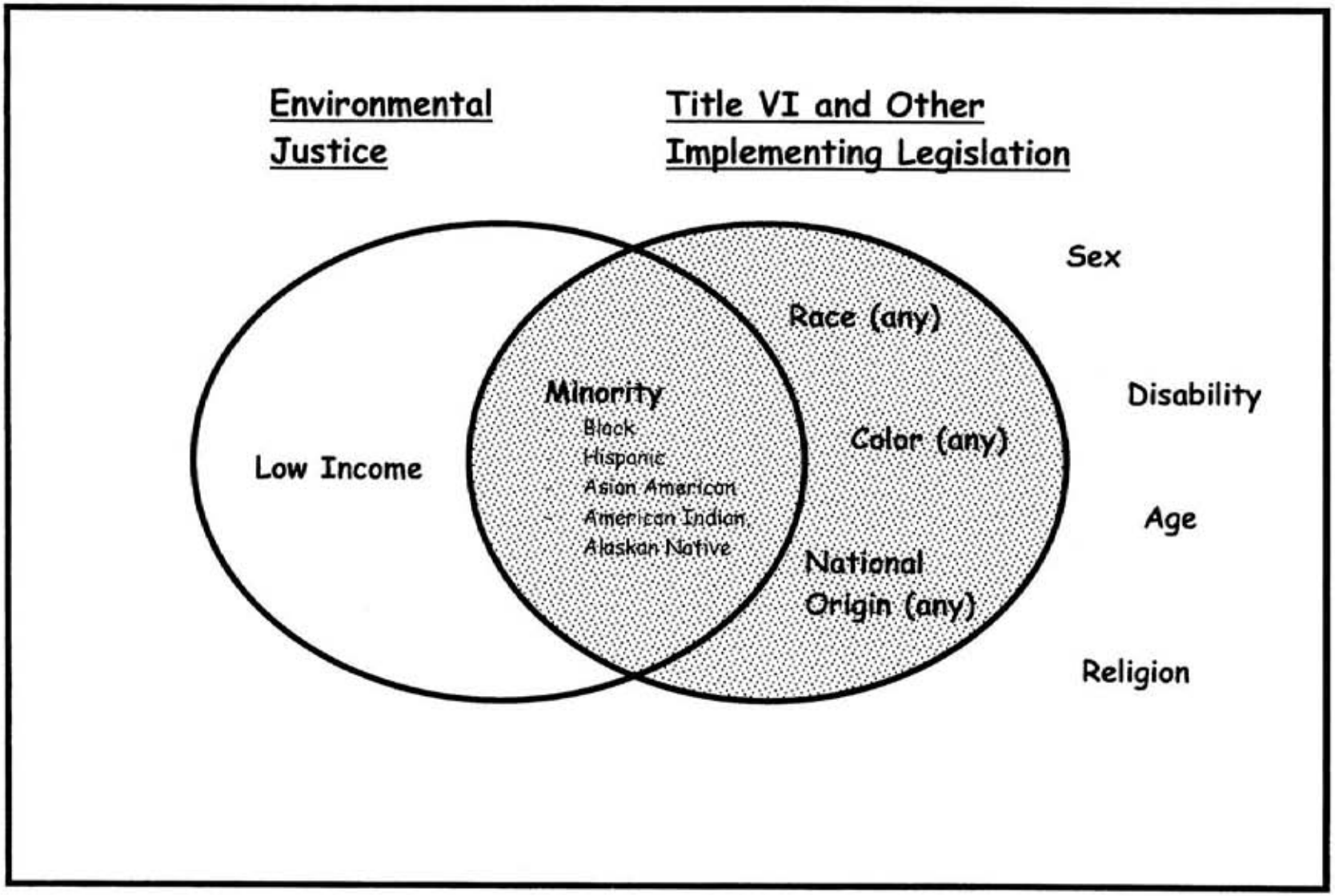
"EPA Guidance for Consideration of Environmental Justice in Clean Air Act Section 309 Review" (EPA, 4/98)

OMB Bulletin 00-02, "Guidance on Aggregation and Allocation of Data on Race for Use in Civil Rights Monitoring and Enforcement" (OMB, 3/00)

Technical Advisory 6640.8A "Guidance for Preparing and Processing Environmental and 4(f) Documents" (FHWA, 10/87)

FHWA Environmental Justice web site: www.fhwa.dot.gov/environment/ej2.htm

INTEGRATION OF ENVIRONMENTAL JUSTICE AND TITLE VI COVERAGE



F. Farmland Conversion Rating Form

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART 1 *(To be completed by Federal Agency)*	Date of Land Evaluation Request April 24, 2002	Sheet __1__ of __1___
Name of Project I-270/US 15 Multi-Modal Corridor Study	Federal Agency Involved Federal Highway Administration (FHWA) and Federal Transit Administration (FTA)	
Proposed Land Use Transportation Uses (Highway and Transitway Alignments)	County and State Montgomery County, Maryland	Type of Project Corridor ■ Other ☐
PART II ***(To be completed by NRCS)***	Date Request Received by NRCS 4/29/02	
Does the site or corridor contain prime, unique, statewide or local important farmland? Yes ■ No ☐ *(If no, the FPPA does not apply - Do not complete additional parts of this form)*	Acres Irrigated 0	Average Farm Size 157 ac
Major Crop(s) Corn, small grains, soybeans, hay	Farmable Land in Government Jurisdiction Acres: 167,100 ac % 52	Amount of Farmland As Defined in FPPA Acres: 113,800 ac % 35
Name of Land Evaluation System Used Montgomery County Land Evaluation Analysis	Name of Local Site Assessment System None	Date Land Evaluation Returned by NRCS 5/7/02

PART III *(To be completed by Federal Agency)*	**Alternative Site Rating**			
	Site A Alt. 3A/B & 4A/B	**Site B Alt. 5A/B**	**Site C Alt. 5C**	**Site D**
A. Total Acres To Be Converted Directly	341.80	350.50	194.70	N/A
B. Total Acres To Be Converted Indirectly, Or To Receive Services	8.20	8.20	0	N/A
C. Total Acres in Site	350.00	358.70	194.70	N/A
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime and Unique Farmland	64.5	64.5	14.5	N/A
B. Total Acres Statewide and Local Important Farmland	146.0	149.8	88.4	N/A
C. Percentage of Farmland in County or Local Govt. Unit to be Converted	0.0007	0.0007	0.0003	N/A
D. Percentage of Farmland in Govt. Jurisdiction with Same or Higher Relative Value	60.3	60.3	63.3	N/A
PART V ***(To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland to be Serviced or Converted (Scale of 0 - 100 Points)***	64	64	56	
PART VI ***(To be completed by Federal Agency)*** Corridor or Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5 (b & c))* — **Max. Points Corridor Other**				
1. Area in Nonurban Use — 15 15	2	2	2	N/A
2. Perimeter in Nonurban Use — 10 10	1	1	1	N/A
3. Percent of Site Being Farmed — 20 20	4	4	4	N/A
4. Protection Provided by State and Local Government — 20 20	2	2	2	N/A
5. Distance from Urban Built-up area — 0 15	0	0	0	N/A
6. Distance to Urban Support Services — 0 15	0	0	0	N/A
7. Size of Present Farm Unit Compared to Average — 10 10	2	2	2	N/A
8. Creation of Non-Farmable Farmland — 25 10	0	0	0	N/A
9. Availability of Farm Support Services — 5 5	5	5	5	N/A
10. On-Farm Investments — 20 20	14	14	14	N/A
11. Effects of Conversion on Farm Support Services — 25 10	0	0	0	N/A
12. Compatibility with Existing Agricultural Use — 10 10	2	2	2	N/A
TOTAL CORRIDOR OR SITE ASSESSMENT POINTS — 160	32	32	32	N/A
PART VII *(To be completed by Federal Agency)*				
Relative Value of Farmland *(from Part V above)* — 100	64	64	56	N/A
Total Corridor or Site Assessment *(From Part VI above or a local site assessment)* — 160	32	32	32	N/A
TOTAL POINTS *(Total of above 2 lines)* — 260	96	96	96	N/A

PART VIII *(To be completed by Federal Agency after final alternative is chosen)*

Corridor or Site Selected:	Date of Selection:	Was A Local Site Assessment Used? Yes ☐ No ■

Reason For Selection:

Signature of person completing the Federal Agency parts of this form:	Date

Form AD-1006 (10-83)

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART 1 *(To be completed by Federal Agency)*	Date of Land Evaluation Request April 24, 2002	Sheet __1__ of __1___
Name of Project I-270/US 15 Multi-Modal Corridor Study	Federal Agency Involved Federal Highway Administration (FHWA) and Federal Transit Administration (FTA)	
Proposed Land Use Transportation Uses (Highway and Transitway Alignments)	County and State Frederick County, Maryland	Type of Project Corridor ■ Other ☐
PART II *(To be completed by NRCS)*	Date Request Received by NRCS	
Does the site or corridor contain prime, unique, statewide or local important farmland? Yes ☐ No ☐ *(If no, the FPPA does not apply - Do not complete additional parts of this form)*	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land in Government Jurisdiction Acres: %	Amount of Farmland As Defined in FPPA Acres: %
Name of Land Evaluation System Used	Name of Local Site Assessment System	Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*		**Alternative Site Rating**			
		Site A Alt. 3A/B & 4A/B	**Site B Alt. 5A/B**	**Site C Alt. 5C**	**Site D**
A. Total Acres To Be Converted Directly		220.10	241.60	250.50	N/A
B. Total Acres To Be Converted Indirectly, Or To Receive Services		0.60	0.60	0.60	N/A
C. Total Acres in Site		220.70	242.20	251.10	N/A
PART IV *(To be completed by NRCS)* Land Evaluation Information					
A. Total Acres Prime and Unique Farmland					N/A
B. Total Acres Statewide and Local Important Farmland					N/A
C. Percentage of Farmland in County or Local Govt. Unit to be Converted					N/A
D. Percentage of Farmland in Govt. Jurisdiction with Same or Higher Relative Value					N/A
PART V *(To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland to be Serviced or Converted (Scale of 0 - 100 Points)*					
PART VI *(To be completed by Federal Agency)* Corridor or Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5 (b & c))*	**Max. Points Corridor Other**				
1. Area in Nonurban Use	15 15				N/A
2. Perimeter in Nonurban Use	10 10				N/A
3. Percent of Site Being Farmed	20 20				N/A
4. Protection Provided by State and Local Government	20 20				N/A
5. Distance from Urban Built-up area	0 15				N/A
6. Distance to Urban Support Services	0 15				N/A
7. Size of Present Farm Unit Compared to Average	10 10				N/A
8. Creation of Non-Farmable Farmland	25 10				N/A
9. Availability of Farm Support Services	5 5				N/A
10. On-Farm Investments	20 20				N/A
11. Effects of Conversion on Farm Support Services	25 10				N/A
12. Compatibility with Existing Agricultural Use	10 10				N/A
TOTAL CORRIDOR OR SITE ASSESSMENT POINTS	160				N/A
PART VII *(To be completed by Federal Agency)*					
Relative Value of Farmland *(from Part V above)*	100				N/A
Total Corridor or Site Assessment *(From Part VI above or a local site assessment)*	160				N/A
TOTAL POINTS *(Total of above 2 lines)*	260				N/A

PART VIII *(To be completed by Federal Agency after final alternative is chosen)*

Corridor or Site Selected:	Date of Selection:	Was A Local Site Assessment Used? Yes ☐ No ■

Reason For Selection:

Signature of person completing the Federal Agency parts of this form:	Date

Form AD-1006 (10-83)

Farmland Conversion Impact Rating Form

A Farmland Conversion Impact Rating Form (Form AD1006) was completed for the I-270/US 15 Multi-Modal Corridor study. The form was forwarded to the Montgomery County and Frederick County Natural Resources Conservation Service (NRCS) offices for evaluation on April 24, 2002 (see attached transmittal letter).

The form was prepared for the "Build" alternatives under consideration (Alternatives 3A/B, 4A/B and 5A/B/C). The "No-build" and Transportation System Management/Transportation Demand Management (TSM/TDM) alternatives will not involve the acquisition of any additional right-of-way (R/W); therefore they will not be included in the farmland conversion evaluation. The amount of land to be converted varies depending on the design alternative selected. Alternatives 3A/B and 4A/B will require the same amount of additional R/W and land conversion. Alternatives 5A/B will require a larger R/W than 3A/B and 4A/B. Alternative 5C requires the least amount of R/W and will result in the conversion of the fewest number of acres of all the build alternatives. The various site alternatives have been grouped by the amount of additional R/W impacted for the purposes of this evaluation, as follows:

Site A: Alternatives 3A/B – Master Plan, HOV LRT/BRT Alternatives and Alternatives 4A/B – Master Plan, General-Purpose LRT/BRT Alternatives

Includes TSM/TDM strategies, additional general-purpose, C-D, HOV, and auxiliary lanes *(with one additional HOV lane in each direction along I-270 between MD 121 and I-70 for 3A/B and one additional general-purpose lane in each direction along I-270 between MD 121 and I-70 for 4A/B),* interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 3A/4A) or BRT (Alternate 3B/4B).

Site B: Alternatives 5A/B – Master Plan, HOV, General-Purpose LRT/BRT Alternatives

Includes TSM/TDM strategies, additional general-purpose, C-D, HOV, and auxiliary lanes *(with one additional HOV lane and general-purpose lane in each direction along I-270 between MD 121 and I-70),* interchange improvements, and a separate transitway alignment to be evaluated as either LRT (Alternate 5A) or BRT (Alternate 5B).

Site C: Alternative 5C – Master Plan, HOV, General-Purpose/Premium Bus Alternative

Includes TSM/TDM strategies, additional general-purpose, C-D, HOV, and auxiliary lanes *(with one additional HOV lane and general-purpose lane in each direction along I-270 between MD 121 and I-70),* interchange improvements, and a 'Premium' express busway along I-270 HOV lanes (Alternate 5C).

Two copies of Form AD-1006 have been completed; one for the portion of the I-270/US 15 Corridor that is in Montgomery County and one for the portion of the corridor that is in Frederick County. A copy of Form AD-1006 for each county and rationale for the alternatives that would impact farmland is included in this appendix.

Farmland Conversion Impact Rating Form (Form AD-1006)
Part III
I-270/US 15 Multi-Modal Corridor

In completing Part III, include all acres in the project site to be converted, farmland and non-farmland. If the project plans include more than one design alternative, each alternative should be considered as an alternative site.

A. Total Acres to be Converted Directly

Include all acres within the project right-of-way that would be converted.

B. Total Acres to be Converted Indirectly

Indirect conversion includes:

- All acres that are not being directly converted, but that would no longer be capable of being farmed, because the conversion would restrict access to them.
- All acres planned to receive services from an infrastructure project (e.g., highways, utilities), as indicated in the project justification, and that are likely to be directly converted as a result of the availability of the new infrastructure services.

C. Total Acres in the Site

Total acres should equal the sum of parts A and B – all acres to be converted.

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
A. Acres to be Directly Converted			
Montgomery County	341.8	350.5	194.7
Frederick County	220.1	241.6	250.5
B. Acres to be Converted Indirectly			
Montgomery County	8.2	8.2	0.0
Frederick County	0.6	0.6	0.6
C. Total Acres in Site			
Montgomery County	350.0	358.7	194.7
Frederick County	220.7	242.2	251.1

NOTE: Stormwater management facilities have been excluded from the areas impacted by the proposed alternatives.

Soils Impacted by the Project

Summary: All Sites (Alternatives)

	MONTGOMERY COUNTY				FREDERICK COUNTY				
	Highway ROW	Transit ROW	Indirect Impacts	County Total	Highway ROW	Park & Ride Lot ROW	Indirect Impacts	County Total	Project Total
Alternates 3A/B - 4A/B	171.1	170.7	8.2	350.0	202.8	17.3	0.6	220.7	**570.7**
Alternates 5A/B	179.7	170.7	8.2	358.7	224.3	17.3	0.6	242.2	**600.8**
Alternate 5C	194.7			194.7	233.2	17.3	0.6	251.1	**445.8**

Note: Stormwater management ponds have been excluded from the impact assessment. Indirect impacts are associated with the transit ROW. There is no transit ROW associated with Alternative 5C.

Site A, Alternatives 3A/B and 4A/B

MONTGOMERY COUNTY								
Map Symbol	Soil Name	Highway ROW		Transit ROW		Indirect Impacts		Total Acres
		Count	Acres	Count	Acres	Count	Acres	
109D	Hyattstown channery silt loam, 15 to 25 percent slopes, very rocky	12	2.209					2.209
116D	Blocktown channery silt loam, 15 to 25 percent slopes, very rocky	14	7.124	4	3.637	1	1.964	12.724
116E	Blocktown channery silt loam, 25 to 45 percent slopes, very rocky	6	3.823	3	2.008	1	0.075	5.906
16B	Brinklow-Blocktown channery silt loams, 3 to 8 percent slopes	11	4.647					4.647
16C	Brinklow-Blocktown channery silt loams, 8 to 15 percent slopes	22	12.782	4	1.754	2	0.243	14.779
16D	Brinklow-Blocktown channery silt loams, 15 to 25 percent slopes	21	24.082	21	11.072	7	1.181	36.335
17B	Occoquan loam, 3 to 8 percent slopes	26	35.970	15	36.868	3	2.243	75.081
17C	Occoquan loam, 8 to 15 percent slopes	27	18.504	8	14.440	4	0.147	33.091
1B	Gaila silt loam, 3 to 8 percent slopes			3	1.603	1	0.022	1.625
1C	Gaila silt loam, 8 to 15 percent slopes	3	1.590	13	10.385	2	0.313	12.288
27B	Neshaminy silt loam, 3 to 8 percent slopes			1	1.742			1.742
2A	Glenelg silt loam, 0 to 3 percent slopes			1	0.209			0.209
2B	Glenelg silt loam, 3 to 8 percent slopes	12	12.435	33	48.340	2	0.227	61.002

Site A, Alternatives 3A/B and 4A/B

MONTGOMERY COUNTY								
		Highway ROW		Transit ROW		Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Count	Acres	Count	Acres	Total Acres
2C	Glenelg silt loam, 8 to 15 percent slopes	4	1.453	1	0.241			1.694
35B	Chrome and Conowingo soils, 3 to 8 percent slopes			4	7.341			7.341
35C	Chrome silt loam, 8 to 15 percent slopes			1	2.971			2.971
400	Urban Land			5	2.939			2.939
4B	Elioak silt loam, 3 to 8 percent slopes	1	0.010					0.010
54A	Hatboro silt loam, 0 to 3 percent slopes, frequently flooded	24	17.110	9	2.977	2	0.935	21.022
5A	Glenville silt loam, 0 to 3 percent slopes	2	0.364	4	3.806	1	0.248	4.419
5B	Glenville silt loam, 3 to 8 percent slopes	7	4.092	2	1.694	1	0.314	6.100
66UB	Wheaton-urban land complex, 0 to 8 percent slopes	5	7.700	9	7.750			15.450
66UC	Wheaton-urban land complex, 8 to 15 percent slopes	7	5.290	2	2.443			7.734
6A	Baile silt loam, 0 to 3 percent slopes	13	7.169	15	5.036	4	0.267	12.473
7UB	Gaila- urban land complex, 0 to 8 percent slopes			1	1.488			1.488
9B	Linganore-Hyattstown channery silt loams, 3 to 8 percent slopes	7	0.837					0.837
9C	Linganore-Hyattstown channery silt loams, 8 to 15 percent slopes	19	3.863					3.863
Total Montgomery County (Highway & Transit Alts. 3A/B & 4A/B)			**171.1**		**170.7**		**8.2**	**350.0**

Site A, Alternatives 3A/B and 4A/B

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
AdB	Adamstown silt loam, 3 to 8 percent slopes	5	2.56				2.6
AfB	Adamstown-Funkstown complex, 0 to 8 percent slopes	31	13.96	4.003			18.0
BfA	Bermudian silt loam, 0 to 3 percent slopes	4	2.57				2.6
BhE	Blocktown gravelly loam, 25 to 45 percent slopes	4	0.99				1.0
BkD	Brinklow-Blocktown channery loams, 15 to 25 percent slopes	6	1.17				1.2
BtB	Buckeystown loam, 3 to 8 percent slopes	12	4.13				4.1
BtC	Buckeystown loam, 8 to 15 percent slopes	2	0.25				0.2
BuB	Buckeystown sandy loam, 3 to 8 percent slopes, rocky	4	0.75				0.8
CaD	Cardiff channery loams, 15 to 25 percent slopes	4	0.45				0.5
CgA	Codorus and Hatboro silt loams, 0 to 3 percent slopes	2	0.06				0.1
DtA	Duffield-Ryder silt loams, 0 to 3 percent slopes	5	5.04				5.0
DtB	Duffield-Ryder silt loams, 3 to 8 percent slopes	23	49.22	8.879			58.1
DtC	Duffield-Ryder silt loams, 8 to 15 percent slopes	5	1.70				1.7
DuB	Duffield and Ryder channery silt loams, 3 to 8 percent slopes	3	0.36				0.4
DwB	Duffield-Hagerstown-Urban land complex, 3 to 8 percent slopes	15	10.60				10.6
ErC	Edgemont-Rock outcrop complex, 8 to 15 percent slopes	2	0.17				0.2
ErE	Edgemont-Rock outcrop complex, 25 to 45 percent slopes	1	1.05				1.1
GhC	Glenelg-Blocktown gravelly loams, 8 to 15 percent slopes	2	1.01				1.0
GmB	Glenelg-Mt. Airy channery loams, 3 to 8 percent slopes	11	27.81				27.8
GoB	Glenville silt loam, 3 to 8 percent slopes	1	0.00				0.0
GoC	Glenville silt loam, 8 to 15 percent slopes	2	0.50				0.5
GuB	Glenville-Baile silt loams, 3 to 8 percent slopes	7	1.92				1.9

Site A, Alternatives 3A/B and 4A/B

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
GvB	Glenville - Codorus complex, 3 to 8 percent slopes	5	0.48				0.5
HaB	Hagerstown loam, 3 to 8 percent slopes	2	0.27				0.3
HaC	Hagerstown loam, 8 to 15 percent slopes	4	1.18				1.2
HbB	Hagerstown silt loam, 3 to 8 percent slopes	1	0.00				0.0
HcB	Hagerstown-Opequon silty clay loams, 3 to 8 percent slopes, rocky	3	0.30	1.909			2.2
HdA	Hatboro-Codorus silt loams, 0 to 3 percent slopes	9	0.67				0.7
HyD	Hyattstown-Linganore channery silt Loams, 15 to 25 percent slopes	14	3.36				3.4
LnB	Legore-Montalto gravelly silt loams, 3 to 8 percent slopes, bould	2	0.28				0.3
LsA	Lindside silt loam, 0 to 3 percent slopes	9	2.85				2.8
LyB	Linganore-Hyattstown channery silt loams, 3 to 8 percent slopes	18	5.07				5.1
LyC	Linganore-Hyattstown channery silt loams, 8 to 15 percent slopes	29	14.79		1	0.427	15.2
MaA	Melvin-Lindside silt loams, 0 to 3 percent slopes	2	0.70	0.839			1.5
MeC	Mt. Airy channery loam, 8 to 15 percent slopes	25	14.14				14.1
MuB	Myersville gravelly silt loam, 3 to 8 percent slopes	7	4.40				4.4
MvA	Myersville silt loam, 0 to 3 percent slopes	13	1.15				1.1
MvB	Myersville silt loam, 3 to 8 percent slopes	14	6.51		1	0.137	6.6
RmA	Reaville silt loam, 0 to 3 percent slopes	1	0.11				0.1
RoB	Rohrersville-Lantz silt loams, 0 to 8 percent slopes	7	1.79				1.8
SdC	Spoolsville-Catoctin complex, 8 to 15 percent slopes	3	0.04				0.0
SpA	Springwood gravelly loam, 0 to 3 percent slopes	7	2.69				2.7
SpB	Springwood gravelly loam, 3 to 8 percent slopes	5	6.32	1.558			7.9

Site A, Alternatives 3A/B and 4A/B

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
SpC	Springwood gravelly loam, 8 to 15 percent slopes	1	0.16				0.2
UdB	Udorthents, smooth, 0 to 8 percent slopes	14	2.09	0.102			2.2
UrA	Urban land, 0 to 3 percent slopes	5	1.41				1.4
UrC	Urban land, 3 to 15 percent slopes	5	0.91				0.9
W	Water	5	0.15				0.1
WrB	Whiteford-Cardiff channery loams, 3 to 8 percent slopes	17	4.06				4.1
WrC	Whiteford-Cardiff channery loams, 8 to 15 percent slopes	7	0.71				0.7
Total Frederick County (Highway Alts. 3A/B & 4A/B)			**202.8**	**17.3**		**0.6**	**220.7**

Note: Montgomery County soils acreage calculated from 1998 soil survey. Frederick County soils acreage calculated from 2002 soil survey.

Site B, Alternative 5A/B

MONTGOMERY COUNTY								
		Highway ROW		Transit ROW		Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Count	Acres	Count	Acres	Total Acres
109D	Hyattstown channery silt loam, 15 to 25 percent slopes, very rocky	12	2.774					2.8
116D	Blocktown channery silt loam, 15 to 25 percent slopes, very rocky	16	7.529	4	3.637	1	1.964	13.1
116E	Blocktown channery silt loam, 25 to 45 percent slopes, very rocky	10	4.244	3	2.008	1	0.075	6.3
16B	Brinklow-Blocktown Channery Silt Loams, 3 to 8 percent slopes	11	4.779					4.8
16C	Brinklow-Blocktown Channery Silt Loams, 8 to 15 percent slopes	19	14.213	4	1.754	2	0.243	16.2
16D	Brinklow-Blocktown channery silt loams, 15 to 25 percent slopes	20	27.331	21	11.072	7	1.181	39.6
17B	Occoquan loam, 3 to 8 percent slopes	25	36.148	15	36.868	3	2.243	75.3
17C	Occoquan loam, 8 to 15 percent slopes	27	18.504	8	14.440	4	0.147	33.1
1B	Gaila silt loam, 3 to 8 percent slopes			3	1.603	1	0.022	1.6
1C	Gaila silt loam, 8 to 15 percent slopes	3	1.590	13	10.385	2	0.313	12.3
27B	Neshaminy silt loam, 3 to 8 percent slopes			1	1.742			1.7
2A	Glenelg silt loam, 0 to 3 percent slopes			1	0.209			0.2
2B	Glenelg silt loam, 3 to 8 percent slopes	12	12.435	33	48.340	2	0.227	61.0
2C	Glenelg silt loam, 8 to 15 percent slopes	4	1.453	1	0.241			1.7
35B	Chrome and Conowingo soils, 3 to 8 percent slopes			4	7.341			7.3
35C	Chrome silt loam, 8 to 15 percent slopes			1	2.971			3.0
400	Urban Land			5	2.939			2.9
4B	Elioak silt loam, 3 to 8 percent slopes	1	0.010					0.0
54A	Hatboro silt loam, 0 to 3 percent slopes, frequently flooded	27	17.433	9	2.977	2	0.935	21.3
5A	Glenville silt loam, 0 to 3 percent slopes	2	0.364	4	3.806	1	0.248	4.4
5B	Glenville silt loam, 3 to 8 percent slopes	8	4.372	2	1.694	1	0.314	6.4
66UB	Wheaton-urban land complex, 0 to 8 percent slopes	5	7.700	9	7.750			15.4
66UC	Wheaton-urban land complex, 8 to 15 percent slopes	7	5.290	2	2.443			7.7

Site B, Alternative 5A/B

MONTGOMERY COUNTY								
		Highway ROW		Transit ROW		Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Count	Acres	Count	Acres	Total Acres
6A	Baile silt loam, 0 to 3 percent slopes	13	7.169	15	5.036	4	0.267	12.5
7UB	Gaila- urban land complex, 0 to 8 percent slopes			1	1.488			1.5
9B	Linganore-Hyattstown channery silt Loams, 3 to 8 percent slopes	6	1.282					1.3
9C	Linganore-Hyattstown channery silt Loams, 8 to 15 percent slopes	15	5.121					5.1
Total Montgomery County (Highway & Transit Alts. 5A/B)			**179.7**		**170.7**		**8.2**	**358.7**

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
AdB	Adamstown silt loam, 3 to 8 percent slopes	5	2.565				2.6
AfB	Adamstown-Funkstown complex, 0 to 8 percent slopes	34	14.065	4.003			18.1
BfA	Bermudian silt loam, 0 to 3 percent slopes	4	2.976				3.0
BhE	Blocktown gravelly loam, 25 to 45 percent slopes	3	1.238				1.2
BkD	Brinklow-Blocktown channery loams, 15 to 25 percent slopes	6	1.339				1.3
BtB	Buckeystown loam, 3 to 8 percent slopes	13	5.012				5.0
BtC	Buckeystown loam, 8 to 15 percent slopes	2	0.303				0.3
BuB	Buckeystown sandy loam, 3 to 8 percent slopes, rocky	4	0.899				0.9
CaD	Cardiff channery loams, 15 to 25 percent slopes	4	0.865				0.9
CgA	Codorus and Hatboro silt loams, 0 to 3 percent slopes	2	0.139				0.1
DtA	Duffield-Ryder silt loams, 0 to 3 percent slopes	5	5.035				5.0
DtB	Duffield-Ryder silt loams, 3 to 8 percent slopes	23	49.221	8.879			58.1
DtC	Duffield-Ryder silt loams, 8 to 15 percent slopes	5	1.705				1.7

Site B, Alternative 5A/B

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
DuB	Duffield and Ryder channery silt loams, 3 to 8 percent slopes	2	0.665				0.7
DwB	Duffield-Hagerstown-Urban land complex, 3 to 8 percent slopes	16	11.466				11.5
ErC	Edgemont-Rock outcrop complex, 8 to 15 percent slopes	2	0.262				0.3
ErE	Edgemont-Rock outcrop complex, 25 to 45 percent slopes	2	1.288				1.3
GhC	Glenelg-Blocktown gravelly loams, 8 to 15 percent slopes	2	1.010				1.0
GmB	Glenelg-Mt. Airy channery loams, 3 to 8 percent slopes	10	28.209				28.2
GoB	Glenville silt loam, 3 to 8 percent slopes	1	0.000				0.0
GoC	Glenville silt loam, 8 to 15 percent slopes	2	0.639				0.6
GuB	Glenville-Baile silt loams, 3 to 8 percent slopes	8	2.190				2.2
GvB	Glenville - Codorus complex, 3 to 8 percent slopes	4	0.620				0.6
HaB	Hagerstown loam, 3 to 8 percent slopes	2	0.326				0.3
HaC	Hagerstown loam, 8 to 15 percent slopes	4	1.425				1.4
HbB	Hagerstown silt loam, 3 to 8 percent slopes	1	0.023				0.0
HcB	Hagerstown-Opequon silty clay loams, 3 to 8 percent slopes, rocky	3	0.302	1.909			2.2
HdA	Hatboro-Codorus silt loams, 0 to 3 percent slopes	7	1.557				1.6
HyD	Hyattstown-Linganore channery silt Loams, 15 to 25 percent slopes	15	4.918				4.9
LgB	Legore gravelly silt loam, 3 to 8 percent slopes	1	0.089				0.1
LnB	Legore-Montalto gravelly silt loams, 3 to 8 percent slopes, bould	2	0.459				0.5
LsA	Lindside silt loam, 0 to 3 percent slopes	9	3.229				3.2
LyB	Linganore-Hyattstown channery silt loams, 3 to 8 percent slopes	14	7.650				7.6
LyC	Linganore-Hyattstown channery silt loams, 8 to 15 percent slopes	22	16.745		1	0.427	17.2
MaA	Melvin-Lindside silt loams, 0 to 3 percent slopes	2	0.696	0.839			1.5
MeC	Mt. Airy channery loam, 8 to 15 percent slopes	18	15.780				15.8

Site B, Alternative 5A/B

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
MuB	Myersville gravelly silt loam, 3 to 8 percent slopes	6	5.330				5.3
MvA	Myersville silt loam, 0 to 3 percent slopes	14	2.157				2.2
MvB	Myersville silt loam, 3 to 8 percent slopes	10	8.266		1	0.137	8.4
RmA	Reaville silt loam, 0 to 3 percent slopes	1	0.108				0.1
RoB	Rohrersville-Lantz silt loams, 0 to 8 percent slopes	9	2.826				2.8
SdC	Spoolsville-Catoctin complex, 8 to 15 percent slopes	3	0.154				0.2
SpA	Springwood gravelly loam, 0 to 3 percent slopes	7	2.692				2.7
SpB	Springwood gravelly loam, 3 to 8 percent slopes	5	6.320	1.558			7.9
SpC	Springwood gravelly loam, 8 to 15 percent slopes	1	0.157				0.2
UdB	Udorthents, smooth, 0 to 8 percent slopes	12	2.347	0.102			2.4
UrA	Urban land, 0 to 3 percent slopes	4	1.369				1.4
UrC	Urban land, 3 to 15 percent slopes	5	0.902				0.9
W	Water	7	0.183				0.2
WrB	Whiteford-Cardiff channery loams, 3 to 8 percent slopes	8	5.558				5.6
WrC	Whiteford-Cardiff channery loams, 8 to 15 percent slopes	6	1.027				1.0
Total Frederick County (Highway Alts. 5 A/B)			**224.3**	**17.3**		**0.6**	**242.2**

Note: Montgomery County soils acreage calculated from 1998 soil survey. Frederick County soils acreage calculated from 2002 soil survey.

Site C, Alternative 5C

MONTGOMERY COUNTY			
		Highway ROW	
Map Symbol	Soil Name	Count	Acres
109D	Hyattstown channery silt loam, 15 to 25 percent slopes, very rocky	12	2.774
116D	Blocktown channery silt loam, 15 to 25 percent slopes, very rocky	18	8.891
116E	Blocktown channery silt loam, 25 to 45 percent slopes, very rocky	10	4.058
16B	Brinklow-Blocktown Channery Silt Loams, 3 to 8 percent slopes	11	4.925
16C	Brinklow-Blocktown Channery Silt Loams, 8 to 15 percent slopes	19	14.213
16D	Brinklow-Blocktown channery silt loams, 15 to 25 percent slopes	21	27.484
17B	Occoquan loam, 3 to 8 percent slopes	26	37.943
17C	Occoquan loam, 8 to 15 percent slopes	27	19.024
1B	Gaila silt loam, 3 to 8 percent slopes	1	0.493
1C	Gaila silt loam, 8 to 15 percent slopes	8	4.529
2B	Glenelg silt loam, 3 to 8 percent slopes	14	13.990
2C	Glenelg silt loam, 8 to 15 percent slopes	4	1.451
4B	Elioak silt loam, 3 to 8 percent slopes	1	0.014
54A	Hatboro silt loam, 0 to 3 percent slopes, frequently flooded	28	17.654
5A	Glenville silt loam, 0 to 3 percent slopes	2	0.364
5B	Glenville silt loam, 3 to 8 percent slopes	10	4.379
66UB	Wheaton-urban land complex, 0 to 8 percent slopes	10	13.038
66UC	Wheaton-urban land complex, 8 to 15 percent slopes	7	4.631
6A	Baile silt loam, 0 to 3 percent slopes	15	8.407
9B	Linganore-Hyattstown channery silt Loams, 3 to 8 percent slopes	6	1.282
9C	Linganore-Hyattstown channery silt Loams, 8 to 15 percent slopes	15	5.121
Total Montgomery County (Highway Alt. 5C)			**194.7**

Site C, Alternative 5C

FREDERICK COUNTY							
		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
AdB	Adamstown silt loam, 3 to 8 percent slopes	5	2.565				2.6
AfB	Adamstown-Funkstown complex, 0 to 8 percent slopes	31	14.284	4.003			18.3
BfA	Bermudian silt loam, 0 to 3 percent slopes	4	3.944				3.9
BhE	Blocktown gravelly loam, 25 to 45 percent slopes	3	1.238				1.2
BkD	Brinklow-Blocktown channery loams, 15 to 25 percent slopes	6	1.339				1.3
BtB	Buckeystown loam, 3 to 8 percent slopes	15	5.745				5.7
BtC	Buckeystown loam, 8 to 15 percent slopes	2	0.318				0.3
BuB	Buckeystown sandy loam, 3 to 8 percent slopes, rocky	4	0.947				0.9
CaD	Cardiff channery loams, 15 to 25 percent slopes	5	1.058				1.1
CgA	Codorus and Hatboro silt loams, 0 to 3 percent slopes	2	0.280				0.3
DtA	Duffield-Ryder silt loams, 0 to 3 percent slopes	5	5.035				5.0
DtB	Duffield-Ryder silt loams, 3 to 8 percent slopes	24	49.699	8.879			58.6
DtC	Duffield-Ryder silt loams, 8 to 15 percent slopes	5	1.705				1.7
DuB	Duffield and Ryder channery silt loams, 3 to 8 percent slopes	2	0.689				0.7
DwB	Duffield-Hagerstown-Urban land complex, 3 to 8 percent slopes	17	14.042				14.0
ErC	Edgemont-Rock outcrop complex, 8 to 15 percent slopes	2	0.262				0.3
ErE	Edgemont-Rock outcrop complex, 25 to 45 percent slopes	2	1.288				1.3
GhC	Glenelg-Blocktown gravelly loams, 8 to 15 percent slopes	2	1.010				1.0
GmB	Glenelg-Mt. Airy channery loams, 3 to 8 percent slopes	10	28.209				28.2
GoB	Glenville silt loam, 3 to 8 percent slopes	1	0.000				0.0
GoC	Glenville silt loam, 8 to 15 percent slopes	2	0.639				0.6

Site C, Alternative 5C

		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
GuB	Glenville-Baile silt loams, 3 to 8 percent slopes	8	2.190				2.2
GvB	Glenville - Codorus complex, 3 to 8 percent slopes	4	0.624				0.6
HaB	Hagerstown loam, 3 to 8 percent slopes	2	0.617				0.6
HaC	Hagerstown loam, 8 to 15 percent slopes	4	2.161				2.2
HbB	Hagerstown silt loam, 3 to 8 percent slopes	1	0.012				0.0
HcB	Hagerstown-Opequon silty clay loams, 3 to 8 percent slopes, rocky	3	0.302	1.909			2.2
HdA	Hatboro-Codorus silt loams, 0 to 3 percent slopes	7	1.557				1.6
HyD	Hyattstown-Linganore channery silt Loams, 15 to 25 percent slopes	15	4.918				4.9
LgB	Legore gravelly silt loam, 3 to 8 percent slopes	1	0.089				0.1
LnB	Legore-Montalto gravelly silt loams, 3 to 8 percent slopes, bould	2	0.459				0.5
LsA	Lindside silt loam, 0 to 3 percent slopes	9	4.359				4.4
LyB	Linganore-Hyattstown channery silt loams, 3 to 8 percent slopes	14	7.626				7.6
LyC	Linganore-Hyattstown channery silt loams, 8 to 15 percent slopes	22	16.745		1	0.427	17.2
MaA	Melvin-Lindside silt loams, 0 to 3 percent slopes	2	0.696	0.839			1.5
MeC	Mt. Airy channery loam, 8 to 15 percent slopes	18	15.796				15.8
MuB	Myersville gravelly silt loam, 3 to 8 percent slopes	6	5.330				5.3
MvA	Myersville silt loam, 0 to 3 percent slopes	14	2.155				2.2
MvB	Myersville silt loam, 3 to 8 percent slopes	10	8.266		1	0.137	8.4
RmA	Reaville silt loam, 0 to 3 percent slopes	1	0.108				0.1
RoB	Rohrersville-Lantz silt loams, 0 to 8 percent slopes	9	2.826				2.8
SdC	Spoolsville-Catoctin complex, 8 to 15 percent slopes	3	0.154				0.2

Site C, Alternative 5C

		Highway ROW		Park & Ride Lot ROW	Indirect Impacts		
Map Symbol	Soil Name	Count	Acres	Acres	Count	Acres	Total Acres
SpA	Springwood gravelly loam, 0 to 3 percent slopes	7	2.692				2.7
SpB	Springwood gravelly loam, 3 to 8 percent slopes	5	6.320	1.558			7.9
SpC	Springwood gravelly loam, 8 to 15 percent slopes	1	0.157				0.2
UdB	Udorthents, smooth, 0 to 8 percent slopes	14	2.421	0.102			2.5
UrA	Urban land, 0 to 3 percent slopes	4	2.248				2.2
UrC	Urban land, 3 to 15 percent slopes	5	0.906				0.9
W	Water	8	0.413				0.4
WrB	Whiteford-Cardiff channery loams, 3 to 8 percent slopes	8	5.746				5.7
WrC	Whiteford-Cardiff channery loams, 8 to 15 percent slopes	6	1.034				1.0
Total Frederick County (Highway Alt. 5C)			**233.2**	**17.3**		**0.6**	**251.1**

Note: Montgomery County soils acreage calculated from 1998 soil survey. Frederick County soils acreage calculated from 2002 soil survey.

Farmland Conversion Impact Rating Form (Form AD-1006)
Rationale for Evaluation of CORRIDOR/SITE Assessment Criteria (Part VI)
7 CFR 658.5 (b)
I-270/US 15 Multi-Modal Corridor

1. How much land is in non-urban use within a distance of one mile from the outer boundary of the project? Do not include the project area itself in this evaluation.

Non-urban land includes agricultural land, forest land, golf courses, parks and recreational areas, surface mining sites, farm storage areas, water bodies and rural roads.

More than 90 percent:	15 points
90 to 20 percent:	14 to 1 point(s)
19 percent or less:	0 points

Aerial photographs and land use maps of the study area were reviewed to determine non-urban land use within a one-mile radius of the project area. The NRCS Soil Conservationist for Montgomery County, Mr. J.G. Warfield, was consulted regarding the evaluation of sites within Montgomery County (December 11, 2001 telephone conversation). He indicated that lands south of the I-270/Father Hurley Blvd. interchange should be considered urban land for the purposes of completing Form AD-1006 and the Farmland Protection Policy Act (FPPA).

It is estimated that 25% of the land in Montgomery County is in non-urban use for all of the alternatives.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	2 points	2 points	2 points

2. How much of the perimeter of the site borders on land in non-urban use? If a road is next to the perimeter, classify the area according to the use on the other side of the road. Use the same definitions of *non-urban* and *urban* as in factor number 1:

More than 90 percent:	10 points
90 to 20 percent:	9 to 1 point(s)
19 percent or less:	0 points

Aerial photographs and land use maps were reviewed to determine non-urban land use bordering on the sites. It is estimated that 25%of the perimeter of the sites in Montgomery County border on land in non-urban use.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	1 points	1 points	1 points

3. How much of the site has been farmed for more than 5 of the last 10 years? *Farming* as used here means any management for a scheduled harvest or timber activity. Products include row crops, hay, timber products, fruit, nuts, grapes, grain, forage, oilseed, fish & meat, poultry, and dairy products:

More than 90 percent: 20 points
90 to 20 percent: 19 to 1 point(s)
Less than 20 percent: 0 points

While urban/suburban development characterizes the majority of Montgomery County, the northwestern third of the county is still basically rural, agricultural and open space, including the segment of the I-270/US 15 highway and transit corridor between the I-270/Father Hurley Blvd. interchange and the Frederick County line. Based upon a review of aerial photographs and land use maps, it is estimated 30% of the site area located in Montgomery County for each alternative has been farmed more than five of the last 10 years.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	4 points	4 points	4 points

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site if protected: 20 points
Part of site is protected: 19 to 1 points
Site is not protected : 0 points

Policies & programs to protect farmland include:

Montgomery County

Montgomery County policies and programs to protect farmland include:

- Restrictive zoning intended to promote agriculture as the primary land use
- Agricultural land preservation programs that place an easement on the property, which prevents future commercial, residential or industrial development of the land.
  - Montgomery County Agricultural Easement Program (AEP)
  - Maryland Agricultural Land Preservation Foundation (MALPF)
  - Maryland Environmental Trust (MET)
  - Montgomery County Transfer of Development Rights Program (TDR)
  - Montgomery County Rural Legacy Program (RLP)
- The *Functional Master Plan for the Preservation of Agriculture and Rural Open Space in Montgomery County* that designated this upper one-third of the county as the Agricultural Reserve and zoned it the "Rural Density Transfer (RDT) Zone."

In Montgomery County, the upper portion of the highway corridor, from Comus Road to the Frederick County line, is designated as part of the county's Agricultural Reserve (RDT Zone). Approximately 15% of the proposed improvement corridor located in Montgomery County is protected as part of the Agricultural Reserve.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	3 points	3 points	3 points

5. This factor is not used for corridor-type projects.

6. This factor is not used for corridor-type projects.

7. How large is the farm unit containing the site compared to the average size farm unit in the county? Use the latest figure for average farm unit size, in acres, for each county.

Farm unit, as used here, means any operation averaging $1,000 or more in gross agricultural sales each year. Each farm unit includes all parcels of land, whether rented or owned, that are part of the same farming operation.

As large or larger: 10 point
Below average: Deduct 1 point for each 5 percentage points below average, down to 0 points if 50 percent or more below average – 9 to 0 points

The average size farm unit is 157 acres in Montgomery County as reported by the Natural Resource Conservation Service.

There is more than one farm unit within the project area, in both Montgomery County and Frederick County. Points were assigned to each farm unit and an average score calculated for all of the alternatives under consideration.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	2 points	2 points	2 points

8. If this site is chosen for the project, how much of the remaining land on the farm unit (as defined in item 7) will not be directly converted, but will become non-farmable because of interference with land patterns? Fields may become non-farmable when access is restricted or they are divided into very small or irregularly shaped parcels.

Acreage equal to more than 25 percent of acres directly converted by the project: 25 points
Acreage equal to between 25 and 5 percent of acres directly converted by the project: 14 to 1 point(s)
Acreage equal to less than 5 percent of acres directly converted by the project: 0 points

The highway build alternatives (i.e., Alternatives 3A/B, 4A/B and 5A/B/C) are designed to parallel the existing I-270 right-of-way. Farm units adjacent to I-270 and proposed new or expanded interchanges will be impacted in each alternative. However, accessibility to the remaining land on the farm unit is expected to remain intact for all of the highway improvement alternatives. None of the remaining farmlands would become non-farmable because of interference with land patterns.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	0 points	0 points	0 points

9. Does the site have available an adequate supply of farm support services and markets. Support services include farm suppliers, equipment dealers, processing & storage facilities, and markets for farm produce.

This factor is intended to assess whether there are adequate support services within a reasonable distance to keep the farms in business. Use judgment in assessing what services are required and whether they are within a reasonably convenient distance. If the site itself or nearby areas are farmed, 5 points are usually scored for this factor.

All required services available: 5 points
Some required services available: 4 to 1 points
No required services available: 0 points

It is estimated all required services are available to the farms in the area for each alternative, in both Montgomery and Frederick counties.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	5 points	5 points	5 points

10. Does the site have substantial and well-maintained on-farm investments such as barns, other storage buildings, fruit trees & vines, field terraces, drainage, irrigation, waterways, or other soil & water conservation measures? *On farm investments* include improvements on the site itself, and also off-site farm buildings and other investments that support the farming operation on the site.

This factor is intended to assess the amount and quality of on-farm investments, which support the farming operation on the land to be converted. Use judgment in assigning points. If the site is not part of a farming operation, score 0 points. Score about 10-18 points if the site is part of an average farming operation for the area.

High amount of on-farm investment: 20 points
Moderate amount of on-farm investment: 19 to 1 point(s)
No on-farm investment: 0 points

Most of the farms in the study area appear to have a moderate amount of on-farm investment in the form of barns, fencing, and other outbuildings.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	14 points	14 points	14 points

11. Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand: 25 points
Some reduction in demand: 24 to 1 points
No significant reduction in demand: 0 points

None of the alternatives being considered would reduce the demand for farmland support services.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	0 points	0 points	0 points

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural use? Use judgment in assigning points.

Examples of **highly incompatible projects** include high-density housing, city streets, sewer & water lines, supermarkets, auto dealerships, and hospitals.
Examples of **somewhat incompatible projects** include some highway or telephone and electric line construction, airports, low-density housing, and lakes.
Examples of **fully compatible projects** include some highway improvements, most telephone and electric line improvements, and construction of farm support service businesses.

Highly incompatible: 10 points
Somewhat incompatible: 9 to 1 points
Fully compatible: 0 points

The proposed project is mostly compatible with existing agricultural use of surrounding farmland. The build alternatives include full access control thereby inhibiting potential secondary development along the corridor itself. New and expanded interchanges with I-270 and supporting facilities, such as park-and-ride lots, may spur some secondary development. The majority of the non-urban portions of the study corridor(s), however, are zoned for agricultural or other preservation uses (e.g., resource conservation). In addition, both Montgomery and Frederick Counties are committed to preserving existing farmland in their respective jurisdictions and encouraging new development to locate in or near existing urbanized and developed areas.

Rating:

	Site A Alternatives 3A/B and 4A/B	Site B Alternatives 5A/B	Site C Alternative 5C
Land in Montgomery County	2 points	2 points	2 points

Parsons Brinckerhoff
Spring Park Technology Center
465 Spring Park Place
Herndon, Virginia 20170-5227
703-742-5700
Fax: 703-742-5800

April 24, 2002

Natural Resource Conservation Service – Montgomery County
18410 Muncaster Rd.
Derwood, MD 20855
Attn: Mr. J.G. Warfield

Dear Mr. Warfield:

Attached is a revised copy of Farmland Conversion Impact Rating form AD-1006 and supporting documentation, including a calculation of soils impacted by the proposed highway and transit corridor alternatives, broken down by soil map symbol. Please note that stormwater management ponds have been excluded from the impacts assessment, consistent with the impacts assessment used in the I-270/US 15 Multi-Modal Corridor Draft Environmental Impact Statement (DEIS). In general, the soil types have not changed from the previously submitted form AD-1006 (e.g., one less soil type in Alternatives 3A/B and 4A/B was impacted and two less soil types in the transitway corridor were impacted); however, the calculation of total project area impacted has decreased.

The revised form AD-1006 has been transmitted to you via fax and by regular mail. Should you have additional questions regarding the project sites or form, please contact me at: voice 703-742-5873 or email hoeffner@pbworld.com.

Sincerely,
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

Christine Hoeffner
Lead Planner

Enclosures

cc: Allyson Reynolds
Derick Hallahan

United States Department of Agriculture
NRCS Natural Resources Conservation Service

18410 Muncaster Road
Derwood, MD 20855
Phone 301-590-2855

May 7, 2002

Ms. Christine Hoeffner, Lead Planner
Parsons, Brinckerhoff, Quade & Douglas, Inc.
Spring Park Technology Center
465 Spring Park Place
Herndon, VA 20170-5227

Dear Ms. Hoeffner:

Enclosed please find the Farmland Conversion Impacting Rating, Form AD-1006 for the I-270/US 15 Multi-Modal Corridor Study, with parts II, IV, and V completed by NRCS. Thank you for providing the soils and acreage breakdown for the project. That information made my job simpler and therefore shortened the time to complete the Form AD-1006.

If you have any questions, please call me at 301-590-2855.

Sincerely,

J.G. Warfield
District Conservationist

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date of Land Evaluation Request: April 24, 2002	Sheet 1 of 1
Name of Project: I-270/US 15 Multi-Modal Corridor Study	Federal Agency Involved: Federal Highway Administration (FHWA) and Federal Transit Administration (FTA)	
Proposed Land Use: Transportation Uses (Highway and Transitway Alignments)	County and State: Montgomery County, Maryland	Type of Project: Corridor ■ Other □
PART II *(To be completed by NRCS)*	Date Request Received by NRCS: 4/29/02	
Does the site or corridor contain prime, unique, statewide or local important farmland? Yes ☒ No □ *(If no, the FPPA does not apply - Do not complete additional parts of this form)*	Acres Irrigated: 0	Average Farm Size: 157
Major Crop(s): CORN, SMALL GRAINS, SOYBEANS, HAY	Farmable Land in Government Jurisdiction: Acres: 167100 % 52	Amount of Farmland As Defined in FPPA: Acres: 113800 % 35
Name of Land Evaluation System Used: MONTGOMERY COUNTY LAND EVALUATION ANALYSIS	Name of Local Site Assessment System: NONE	Date Land Evaluation Returned by NRCS: 5/07/02

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: SiteA Alt. 3A/B & 4A/B	Site B Alt. 5A/B	Site C Alt. 5C	Site D
A. Total Acres To Be Converted Directly	341.80	350.50	194.70	N/A
B. Total Acres To Be Converted Indirectly, Or To Receive Services	8.20	8.20	0	N/A
C. Total Acres in Site	350.00	358.70	194.70	N/A
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime and Unique Farmland	64.5	64.5	14.5	N/A
B. Total Acres Statewide and Local Important Farmland	146.0	149.8	88.4	N/A
C. Percentage of Farmland in County or Local Govt. Unit to be Converted	0.0007	0.0007	0.0003	N/A
D. Percentage of Farmland in Govt. Jurisdiction with Same or Higher Relative Value	60.3	60.3	63.3	N/A
PART V *(To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland to be Serviced or Converted (Scale of 0 - 100 Points)*	64	64	56	
PART VI *(To be completed by Federal Agency)* Corridor or Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5 (b & c))* — Max. Points: Corridor / Other				
1. Area in Nonurban Use: 15 / 15				N/A
2. Perimeter in Nonurban Use: 10 / 10				N/A
3. Percent of Site Being Farmed: 20 / 20				N/A
4. Protection Provided by State and Local Government: 20 / 20				N/A
5. Distance from Urban Built-up area: 0 / 15				N/A
6. Distance to Urban Support Services: 0 / 15				N/A
7. Size of Present Farm Unit Compared to Average: 10 / 10				N/A
8. Creation of Non-Farmable Farmland: 25 / 10				N/A
9. Availability of Farm Support Services: 5 / 5				N/A
10. On-Farm Investments: 20 / 20				N/A
11. Effects of Conversion on Farm Support Services: 25 / 10				N/A
12. Compatibility with Existing Agricultural Use: 10 / 10				N/A
TOTAL CORRIDOR OR SITE ASSESSMENT POINTS: 160				N/A
PART VII *(To be completed by Federal Agency)*				
Relative Value of Farmland *(from Part V above)*: 100				N/A
Total Corridor or Site Assessment *(From Part VI above or a local site assessment)*: 160				N/A
TOTAL POINTS *(Total of above 2 lines)*: 260				N/A

PART VIII *(To be completed by Federal Agency after final alternative is chosen)*

Corridor or Site Selected:	Date of Selection:	Was A Local Site Assessment Used? Yes □ No ■

Reason For Selection:

Signature of person completing the Federal Agency parts of this form:	Date

Form AD-1006 (10-83)

Parsons Brinckerhoff
Spring Park Technology Center
465 Spring Park Place
Herndon, Virginia 20170-5227
703-742-5700
Fax: 703-742-5800

April 24, 2002

Natural Resource Conservation Service – Frederick County
92 Thomas Johnson Dr.
Suite 230 North Amber
Frederick, MD 21702
Attn: Mr. Mark Seibert

Dear Mr. Seibert:

Attached is a revised copy of Farmland Conversion Impact Rating form AD-1006 and supporting documentation, including a calculation of soils impacted by the proposed highway and transit corridor alternatives, broken down by soil map symbol. Please note that stormwater management ponds have been excluded from the impacts assessment, consistent with the impacts assessment used in the I-270/US 15 Multi-Modal Corridor Draft Environmental Impact Statement (DEIS). In general, the soil types have not changed from the previously submitted form AD-1006 (e.g., one less soil type in Alternatives 3A/B and 4A/B was impacted and two less soil types in the transitway corridor were impacted); however, the calculation of total project area impacted has decreased.

The revised form AD-1006 has been transmitted to you via fax and by regular mail. Should you have additional questions regarding the project sites or form, please contact me at: voice 703-742-5873 or email hoeffner@pbworld.com.

Sincerely,
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

Christine Hoeffner
Lead Planner

Enclosures

cc: Allyson Reynolds
Derick Hallahan

G. Land Use Expert Panel Summary of Activities and Findings

I-270/US 15 Expert Panel
Land Use Impact Analysis
Summary of Panel Activities and Panel Findings

August 29, 2001

Prepared for

Maryland State Highway Administration

Prepared by

Parsons Brinckerhoff

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COMBINED PHASE I – PHASE II SUMMARY

The expert panel analysis described in this report is part of the I-270/US 15 Multimodal Corridor Study being conducted by the Maryland Department of Transportation (MDOT). MDOT has received a Federal Transportation, Community, and System Preservation (TCSP) grant to carry out this expert panel process, the result of which will be part of the Environmental Impact Statement's Secondary and Cumulative Effects Study (SCEA). In addition, the I-270/US 15 expert panel will be included as one of several case studies for a National Cooperative Highway Research Program (NCHRP) report on expert panels.

The panel for this study was composed of knowledgeable local and national experts who used their expertise as well as a comprehensive set of background materials to evaluate the changes that could result from alternative highway and transit improvements proposed along the I-270 corridor in Montgomery and Frederick counties. The analysis involved two phases:

- During Phase I, the expert panel carried out a qualitative analysis of the likely population and employment development impacts that could result from three general transportation scenarios described for the I-270 corridor in Upper Montgomery and Frederick counties. This phase was intended to provide a "warm-up" exercise for the panel, as well as highlight the general differences between different transportation options. Phase I concluded with a panel discussion and public meeting that was held April 6, 2001.
- During Phase II, the expert panel was asked to allocate future employment and population growth (for the year 2025) to 19 Forecast Zones for three transportation alternatives based on those that have been developed as part of the NEPA Corridor Study. Phase II was carried out in two rounds. The panel allocated future growth to the forecast zones during the first round. During the second, the panel reviewed their fellow panelists' allocations and were asked to revise their own if they so desired. Phase II concluded with a panel discussion and public meeting that was held May 30, 2001.

Phase I

In this phase, the panel was asked to consider the following question and respond with a brief memo:

> *What broad differences in the location of households and employment might occur under the three generalized transportation scenarios described below?*

The panel was given the following description of transportation scenarios, which were intended to encourage them to think in general terms of the differences in impacts between broad transportation alternatives.

Scenario 1) **No-build**: the corridor stays mostly as it is today with minor funded and programmed improvements, consistent with the Washington Region's constrained long range plan.

Scenario 2) **Highway**: no new transit capacity is added and the entire corridor receives additional highway capacity – 12 lanes from I-370 to MD 121, eight lanes from MD 121 to I-70, and six lanes from I-70 to Biggs Ford Road.

Scenario 3) **Rail**: no new highway capacity is constructed and a rail transit line is constructed from Shady Grove Metrorail Station to downtown Frederick.

Phase I Findings

The panelists' findings focused on three issues which had been identified from their memos:

1) *What is the impact of transportation on growth?* In their memos, many panelists stated that transportation is not the key determinant of regional development.

2) *What is the impact of the different transportation scenarios on Frederick and Montgomery Counties?* In their memos, some panelists felt that increased congestion on I-270 would make Frederick more attractive to growth, while others felt that increased congestion would make Frederick less attractive.

3) *How will the different modes affect the distribution of growth?* The influence of rail would depend on its operating characteristics (as discussed below). The panelists felt that the highway scenario would lead to more dispersed residential growth than the rail scenario.

Impact of Transportation on Growth

- Panel members agreed that transportation improvements are one of many factors that will influence future growth in the corridor. Transportation capacity and accessibility within the study area influence the rate and location of growth, particularly employment.
- However, the effects of I-270 transportation improvements are not the major determinant. The panel foresees that growth will continue under all scenarios including the base case. Congestion on other roads, particularly east-west arterials in both counties, will also play a role.
- The location of households will be influenced as well by the price and availability of housing (which in turn is affected by accessibility), the quality of schools, perceptions about crime, safety and the quality of life.
- The growth of employment will continue to be influenced by trends in the high technology sectors present in the region, and by the corridor's proximity to Washington DC.
- Local plans and policies also will influence the rate, location and timing of growth. The panel members gave substantial credit to these policies in influencing growth and felt that they would not be changed easily. Key influential policies included Adequate Public Facilities Ordinances in both counties, and the Transfer of Development Rights programs in Montgomery County.

Influence by Mode of Travel

- The characteristics of the transit investment would influence the panel's conclusions. Specifically, the travel speed, alignment, station locations and fare structure would influence land use outcomes.
- Rapid rail transit would influence location decisions throughout the study area; light rail impacts would be more evident at or near stations.
- The impacts of transit on land use would take longer to be evident than would the impacts of highways.
- Vacant land at likely locations for transit stations in Montgomery County has already been purchased and development plans are being prepared.

Phase II

Under Phase I, the panel considered the land use impacts of very generalized transportation scenarios. The transportation alternatives for Phase II, on the other hand, were based on those developed as part of the I-270/US 15 Multimodal NEPA Corridor Study As such, the alternatives are real-world choices developed by transportation planners and policy makers. The panel's task for Phase II was to consider how each of these alternatives would affect the location of future development and translate these effects into population and employment allocations for each of 19 Forecast Zones. They were provided with data for the Base Case Master Plan (BCMP)[1] as part of their briefing material.

Briefly, the three transportation alternatives are as follows. A more detailed description may be found in Appendix 6.

Alternative 1: No Build: This alternative envisions no new construction beyond minor improvements already programmed. An example of a minor improvement is the extension of Shockley Drive to Spectrum Drive in the I-270 Technology Park. The extension would provide a more direct connection between two office parks located on either side of I-270 and would relieve traffic congestion in the vicinity of the MD 85/I-270 interchange.

Alternative 2: LRT and Highway: This alternative calls for highway improvements in both counties and the construction of LRT in Montgomery County from the southern end of the corridor north to Maryland Route 121.

Alternative 3: Bus, HOV, and Highway: Under this alternative, additional bus service on the HOV lanes is proposed in both counties. The highway improvements will be the same as those in Alternative 2.

Phase II Findings

In the discussion that follows, the findings are phrased in terms of the "Panel Allocation." The Panel Allocation is our way of expressing the "average" of the panel's response. The derivation of the Panel Allocation is described in Appendix 7.

In discussing the differences between the alternatives, we look at the BCMP versus the three transportation alternatives; the No-build compared to the two build alternatives; and, the differences between the two build alternatives themselves (LRT & Highway and Bus, HOV, & Highway).

Study Area

Looking at the Study Area in general, employment and population allocations follow the same trends:

- The No-build allocation is virtually the same as the BCMP forecast.
- The build alternatives have higher Panel Allocations than the No-build. For population, the build alternatives have about 24,000 people more than the No-build alternative, an increase of about four percent. For employment, the build alternatives represent an increase over the No-build of about 12,000 jobs, or an increase of three percent.
- The differences between the two build alternatives themselves are negligible

[1] The BCMP is based on the transportation improvements described in the Montgomery and Frederick County Master Plans. It includes some additional road construction and transit which is not included in the No-Build.

Population

For population, we discuss measurable differences between alternatives and as compared to the Base Case Master Plan.[2] Please see maps in Appendix 10 for visual representation of some of the points below.

- The **Seneca Creek zone (#18)** is the only one in which the BCMP forecast is measurably greater than the Panel Allocation for both build alternatives. In this zone, the BCMP has about 1,500 to 1,700 more people than both build alternatives (or differences of about 8 percent). This zone is located in upper Montgomery County, to the southwest of the corridor, and has no major access to the corridor.
- The greatest absolute increase over the BCMP is in the **Frederick City zone (#5)**. This zone has Panel Allocations that assign an increase in population of about 4,000 (LRT & Highway), 5,400 (No-build), and almost 7,000 (Bus, HOV & Highway) over the BCMP forecast. These are increases of about four to six percent. The **Damascus-Brookeville zone (#10)** has the next greatest increase over the BCMP in which the Panel Allocation represents increases of about 1,100 (No-build) and about 2,000 for the two build alternatives, or four to seven percent.
- The greatest absolute increases in population from the No-build to both build alternatives are in the **Clarksburg zone (#15),** which has a 4,500 to 5,000 increase, followed by the **Germantown zone (#17)** with about a 4,400 increase for the LRT & Highway alternative.[3] These zones are contiguous and straddle the I-270 corridor in Montgomery County. Following these two zones, the **Lewistown zone (#3)**, the **Urbana zone (#8),** and the **Seneca Creek zone (#18)** have the next greatest increases for both build alternatives over the No-build, with about 2,000 to 3,000 more people. The Lewistown zone is located just north of the Frederick City zone.[4] The Urbana zone, which I-270 divides, is located in Frederick County, just north of the Montgomery County line. The Seneca Creek zone is located just to the southwest of the Germantown zone. The **Myersville zone (#2)** and the **Woodsboro-Walkersville zone (#4)** are borderline cases, with increases of almost 2,000 to around 3,000. These zones are located on either side of the Lewistown zone.
- In terms of differences between the two build alternatives, the **Germantown zone (#17)** and the **Gaithersburg zone (#19)** each had Panel Allocations that assign about 2,400 to 3,500 more people for the LRT & Highway alternative over the Bus, HOV & Highway alternative. These differences are on the order of about 2 to 3 percent. The **Frederick City zone (#5)** and the **Woodsboro-Walkersville zone (#4)** show the reverse. That is, the Panel Allocation for these two zones have about 2,000 to almost 4,000 more people, respectively, for the Bus, HOV & Highway alternative than the LRT & Highway alternative. These are differences of about 2 to 5 percent.

Employment

As with population, we discuss the zones in which there are measurable differences between alternatives for employment. Please see maps in Appendix 10 for visual representation of some of the points below.

- Although there were several zones for which the BCMP forecast was greater than the Panel Allocation, the differences were small enough to be considered negligible.
- The greatest absolute increases over the BCMP are in the **Frederick City zone (#5),** as was the case for population as well. The Panel Allocation represents an increase in employment by about 8,300

[2] We define measurable as differences of over 2,000.

[3] Note that for the Clarksburg zone, the BCMP forecast is quite similar to the allocation for the two build alternatives.

[4] During the May 30 meeting, several panelists noted that their allocations to the Lewistown zone represented growth that was associated with Frederick City.

(Bus, HOV & Highway), 8,600 (LRT & Highway), and over 11,000 (No-build) jobs over the BCMP forecast. These are increases of eight to 11 percent.

- The **Frederick City zone (#5)** also had the greatest number of jobs allocated for the No-build alternative relative to both build alternatives. In this zone, the No-build alternative has about 3,000 more jobs than the two build alternatives (about a three percent difference).
- The greatest increases from the No-build to both build alternatives are in the **Gaithersburg (#19)** and **Germantown (#17) zones**. In the Germantown zone, which straddles I-270 in Montgomery County, the build alternatives have about 5,600 to 5,700 more jobs than the No-build alternative (a 15 percent difference). In the Gaithersburg zone, which is located just south of the Germantown zone, the build alternatives have 5,000 to almost 6,000 more jobs than in the No-build (representing three to four percent differences). Following these two zones, the **Urbana zone (#8)** and the **Clarksburg zone (#15)** have the next greatest increases for both build alternatives over the No-build, on the order of 2,000 to 3,000. Percentage-wise, these are also large increases (15 to 20 percent in Urbana and almost 50 percent in Clarksburg).
- Although there were several zones for which the LRT & Highway alternative had a greater Panel Allocation than the Bus, HOV & Highway alternative, the differences were small enough to be considered negligible.

General Comments and the Priority Funding Areas

The panel predicted that the two build alternatives would have the greatest impact relative to the No-build alternative in zones which straddle I-270. The Germantown zone (#17), the Clarksburg zone (#15) and the Urbana zone (#8) each straddle I-270 and have the greatest absolute increases in population and employment in the two build alternatives. In addition, the Gaithersburg zone (#19) and the Lewistown zone (#3) join this group for population only.

Within Montgomery County, most of the area within the Germantown zone (#17) and the Gaithersburg zone (#19) are certified PFAs. Certified PFAs within the Clarksburg zone (#15) include most of the area east of I-270 as well as a small certified PFA located west of and adjacent to I-270.

Within Frederick County, the Urbana zone (#8) has five certified PFAs located east of I-270, the primary location of which is in the area of MD 355 and MD 80. With the exception of two small rural villages, nearly all of the area in the Urbana Zone west of the I-270 does not contain certified PFAs.

The Lewistown zone is an interesting case. During the May 30th panel discussion, several panel members commented that allocations to the Lewistown zone should be associated with growth anticipated for Frederick City (the Lewistown zone being directly to the north of Frederick City). However, the only PFA-designated land in the Lewistown zone is relatively distant from Frederick City.

The majority of the area located within the Frederick Zone (#5) is designated as certified PFA. The Frederick zone (#5) stood out among the other Forecast Zones in that it was assigned the largest absolute increases over the BCMP, in population and employment. It was also the only zone in which employment growth in the No-build alternative was meaningfully greater than the two build alternatives.

PHASE I: INTRODUCTION

This section describes Phase I of the expert panel analysis which was performed as part of the I-270/US 15 Multimodal Corridor Study being conducted by the Maryland Department of Transportation (MDOT). A description of the entire process may be found in Appendix 1 and a listing of the expert panel members in Appendix 2.

During Phase I, the expert panel carried out a qualitative analysis of the likely population and employment development impacts that could result from three general transportation scenarios described for the I-270 corridor in Upper Montgomery and Frederick counties. This phase was intended to provide a "warm-up" exercise for the panel, as well as highlight the general differences between different transportation options. Phase I concluded with a panel discussion and public meeting that was held April 6, 2001.

The Phase I portion of this report contains the following sections:

- Panel Assignment for Phase I;
- Phase I Summary;
- A synthesis of the Panel's written analysis for Phase I;
- Appendix 1 describes the entire Expert Panel process;
- Appendix 3 provides a list of attendees at the first meeting, held January 25;
- Appendix 4 presents each panelists' written analysis for Phase I; and,
- Appendix 5 provides a list of the attendees at the April 6 meeting.

Panel Assignment for Phase I

For Phase I, the panel was asked to consider the following question:

> *What broad differences in the location of households and employment might occur under the three generalized transportation scenarios described below?*

The panel was given the following description of transportation scenarios, which were intended to encourage the panel to think in general terms of the differences in impacts between broad transportation alternatives.

Scenario 1) **No-build**: the corridor stays mostly as it is today with minor funded and programmed improvements, consistent with the Washington Region's constrained long range plan.

Scenario 2) **Highway**: no new transit capacity is added and the entire corridor receives additional highway capacity – 12 lanes from I-370 to MD 121, eight lanes from MD 121 to I-70, and six lanes from I-70 to Biggs Ford Road.

Scenario 3) **Rail**: no new highway capacity is constructed and a rail transit line is constructed from Shady Grove Metrorail Station to downtown Frederick.

PHASE I: SUMMARY

This section summarizes the findings of the expert panel for Phase I. They were originally discussed at the April 6 meeting and were agreed upon at the third and final panel meeting which took place May 30, 2001.

The discussion focused on three issues which had been identified from the panelists' memos. These are stated below, with a generalized summary for each statement.

1) *What is the impact of transportation on growth?* In their memos, many panelists stated that transportation is not the key determinant of regional development.

2) *What is the impact of the different transportation scenarios on Frederick and Montgomery Counties?* In their memos, some panelists felt that increased congestion on I-270 would make Frederick more attractive to growth, while others felt that increased congestion would make Frederick less attractive.

3) *How will the different modes affect the distribution of growth?* The influence of rail would depend on its operating characteristics (as discussed below). The panelists felt that the highway scenario would lead to more dispersed residential growth than the rail scenario.

There was no attempt to poll panelists on these individual points. However, the following statements reflect a synthesis of the general opinions that emerged during the discussion. They are organized according to the three topic areas listed above.

Impact of Transportation on Growth

- Panel members agreed that transportation improvements are one of many factors that will influence future growth in the corridor. Transportation capacity and accessibility within the study area influence the rate and location of growth, particularly employment.
- However, the effects of I-270 transportation improvements are not the major determinant. The panel foresees that growth will continue under all scenarios including the base case. Congestion on other roads, particularly east-west arterials in both counties, will also play a role.
- The location of households will be influenced as well by the price and availability of housing (which in turn is affected by accessibility), the quality of schools, perceptions about crime, safety and the quality of life.
- The growth of employment will continue to be influenced by trends in the high technology sectors present in the region, and by the corridor's proximity to Washington DC.
- Local plans and policies also will influence the rate, location and timing of growth. The panel members gave substantial credit to these policies in influencing growth and felt that they would not be changed easily. Key influential policies included Adequate Public Facilities Ordinances in both counties, and the Transfer of Development Rights programs in Montgomery County.

Further discussion on this topic focused on the role of highway capacity improvements in particular. Acknowledging that some of the following points conflict, panelists offered the following:

- With I-270 highway capacity increases, there will be greater potential for employment growth in the study area than would have been the case otherwise.

- With I-270 capacity increases, there would be some increase in relatively more affluent households moving into Frederick County, taking advantage of proximity to higher paying jobs, principally in the technology sector.
- Without I-270 capacity increases, employment growth would be more likely to shift to the I-70 corridor, east of Frederick City.
- With I-270 capacity increases, employment growth would continue to increase in Montgomery County; without capacity increases, more employment growth would instead occur both in Frederick County and south of the study area, in lower Montgomery County, in the District of Columbia (due to a constrained ability of commuters to reach these jobs, employment would relocate to be closer to residents and/or core suppliers).

Location of Growth

Several of the conclusions above bear directly on the location of growth. In addition individual panel members noted the following.

- Frederick County will be more influenced by improvements than will Montgomery County.
- Growth will occur principally in southern Frederick County and Frederick City, and subsequently east and west in other counties, regardless of scenario.
- In Montgomery County, Clarksburg is an area where substantial growth will occur, regardless of scenario.

Influence by Mode of Travel

The discussion of rail transit was affected by confusion about the transit mode that was implied by the rail transit scenario in Phase I. Some panel members thought it to be commuter rail, some light rail, and some rapid rail. Nevertheless, the following opinions emerged.

- The characteristics of the transit investment would influence the panel's conclusions. Specifically, the travel speed, alignment, station locations and fare structure would influence land use outcomes.
- Rapid rail transit would influence location decisions throughout the study area; light rail impacts would be more evident at or near stations.
- The impacts of transit on land use would take longer to be evident than would the impacts of highways.
- Vacant land at likely locations for transit stations in Montgomery County has already been purchased and development plans are being prepared.

PHASE I: SYNTHESIS OF PANEL'S WRITTEN ANALYSIS

This section provides a synthesis of the panelists' written analysis for Phase I, which was carried out prior to the April 6 meeting. The full text, organized by panelist, may be found in Appendix 4.

Panelists approached this assignment from numerous perspectives, emphasizing a wide variety of concerns. However, many organized their analyses according to three specific issues: the effect of the three scenarios on the two counties, the direction or type of growth (dispersed versus clustered), and, to a lesser extent, the differing effects on employment versus population locations. Their analyses are summarized, according to the transportation alternatives, below.

General Comments

Table 1, below, provides a summary of points made by two or more panelists on any given topic. The two columns with numbers in them indicate the number of panelists who at least mentioned the issue and the number of panelists whose comments expressed a strongly-felt opinion on the issue. Note that, because not every panelist commented on a given topic, the level of agreement among panelists may be even greater.

Table 1: Summary, General Comments

Issue	Number of Panelists Identifying	Strongly Identified
Transportation not as important as other factors	6	5
Land use regulations can/will be revised	6	3
Land use regulations cannot/will not be revised	2	1
Growth and development will require sewer/water infrastructure investment	4	4
Transportation alternatives would mainly affect timing	2	2

A key point made by a majority of the panelists is that, to one extent or another, the transportation scenarios will not play the key role in determining land use development through 2025. Several noted that Master Plans, market forces, overall economic growth, consumer preferences, as well as the area's proximity to Washington, D.C. will be much more important in determining land uses. Two indicated that the main effect of the alternatives would be only to alter the timing of development. Also, two specifically noted that land use is already determined by master plans such that transportation would not be able to alter things much. Representative of this opinion is the following observation:

> The question given to the panel appears to presume that alternative modes of transportation (highways versus transit) could or will significantly alter future land use patterns, as opposed to land use patterns being driven by market forces and personal/consumers preferences within the confines of the County Master Plans, which then determine the appropriate transportation network. My belief is that the land use pattern of the corridor is largely set at this point or

> certainly will be by the time any of the alternatives under study can be actually approved and constructed.

Four panelists indicated that investments in sewer and water would need to be made before additional levels of development could take place.

Finally, there is a difference of opinion regarding the extent to which land use plans and zoning will alter in response to different conditions and pressures. Six panelists indicated that plan and zoning changes would be made in order to allow higher density uses at specific locations (primarily station areas). However, two panelists specifically indicated that development patterns could not be altered appreciably due to the fact that the plans are in place and, in one case, public opposition would keep them from changing.

No-Build Scenario

Table 2, below, summarizes points made by two or more panelists regarding the no-build scenario. Remember, not every panelist commented on a given topic, meaning that the level of agreement among panelists may be even greater.

Table 2: Summary, No-Build Scenario

Issue	Number of Panelists Identifying	Strongly Identified
Development will disperse	2	1
Some development will disperse and some will cluster at key locations	6	4
Development encouraged in Frederick County	7	4
Overall growth will slow	5	4
Pressure for development in open space/rural/wedge areas	4	3
Frederick County's ties to the larger metro area will weaken	3	2

The first two rows address the panelists' views on the shape that development would take in the case that no transportation improvements are made along the I-270 corridor. While two panelists felt that this scenario would lead, to one extent or another, to dispersed development patterns (i.e., any new development will spread outward), numerous panelists believe that additional development would both disperse *and* cluster, according to a variety of factors.[5] Of the panelists in this second category, three indicated that some development will tend to cluster at key access points along I-270, as represented by this comment:

> As congestion becomes worse, employers will increasingly desire to co-locate with or near residential areas. This will result in increasingly dense agglomerations of interdependent land uses and economic activities located at or close to access points to I-270.

[5] Factors noted most frequently include the increasing levels of congestion, as well as limits imposed by the Adequate Public Facilities Ordinance (APFO).

Another noted that population would seek to locate closer to employment centers:

> The countervailing trend would drive a significant share of the population to seek to overcome congestion by congregating near employment centers, and some industries or some components of industries to relocating to employment clusters around which those types of households are located.

However, there would also be a concomitant movement outward. That is, congestion will "stimulate continued outward movement of households and jobs, as people and industries seek less congested (more accessible) locations."

Alternatively, another panelist who indicated that growth would both spread and cluster differentiated between employment and population growth. That is, lower density employment uses will be converted to higher densities but increased housing costs will push low and moderate-income families farther out.

Several panelists mentioned locations where growth (population and/or employment) would be pushed. Such locations include the "upcountry" area of Montgomery County; Howard, Washington and Carroll Counties; west, north, and east from Frederick along major transportation routes; and into Southern Pennsylvania (as a bedroom community for Frederick). In addition to the locations just mentioned, several panelists believe that the no-build scenario would lead to pressure for growth in sensitive areas, particularly in Montgomery County's "open space reserves," and wedge areas.

Many panelists feel that one result of a no-build scenario would be to further increase development in Frederick County, and, some believe, at the expense of Montgomery County. One panelist noted that

> as land is relatively cheap and there are developable land parcels available that can support extensive residential projects as well as higher density uses, Frederick and its surrounding area become the urban focus of development going forward, as it already becoming.

Along similar lines, three panelists believe that Frederick City would become more isolated under this scenario and would "lessen it's ties to Montgomery County and D.C." That is, Frederick would become a place where people live and work, which would serve as "a more important regional, cultural, and service community center."

Finally, five panelists indicated that the no-build scenario would decrease overall growth. Two specifically commented that employment investment activities would slow, while the remaining panelists imply that it is overall growth that is slowed.

Highway Scenario

As in the previous tables, the table below indicates major themes addressed by the panelists for the highway scenario, as well as the number of panelists commenting.

Table 3: Summary, Highway Scenario

Issue	Number of Panelists Identifying	Strongly Identified
To one extent or another:		
Development will disperse	5	5
Development will cluster at key locations	2	1
Development encouraged in Frederick County	4	3
Development encouraged in Montgomery County	2	2
Pressure for development in open space/rural/wedge areas	3	3
A cycle of congestion will start over again	2	2

As in the no-build scenario, there is a wide range of opinions regarding the form of development. Five panelists indicated that this scenario would foster, to one extent or another, increasingly dispersed patterns of growth in the study area. For example, one noted that residential development would spread out north and south of the corridor as well as "extend westward without the concomitant commercial development." Another noted that "Damascus, Urbana, North Potomac and Darnestown are already fast becoming large bedroom communities of northwestern Montgomery County and adding capacity to I-270 would hasten this trend." Yet another panelist commented that this scenario "would encourage scattered siting of commercial facilities and a less efficient land use pattern." On the other hand, one panelist felt strongly that this scenario would *not* lead to sprawl and instead would "permit the market to add density within closer growth areas."

If the no-build scenario analysis implied that growth would be encouraged in Frederick County, four panelists feel that this scenario will also lead to increased growth in Frederick County. Only two panelists indicated that they believe the highway scenario would foster additional growth in Montgomery County. In particular, it was felt that areas to the north of Frederick will be attractive due to the increased access provided by increased capacity. One panelist commented that,

> should water and sewer capacity be available and financially feasible (which is not at all certain), a massive highway upgrade program would provide strong incentives for businesses to locate or relocate within the corridor.

Another commented on specific industries that would be drawn to Frederick in this scenario, including distribution, light industrial, operation centers, and service retail.

As in the no-build scenario, several panelists felt that the highway scenario would lead to pressure to develop in protected areas – Montgomery County's agricultural preserves were noted as an example by one panelist.

Finally, two panelists indicated that, while congestion would initially ease due to expanded capacity, increased development would eventually outstrip highway capacity again, leading to the need for capacity additions once again. As put by one panel member,

> From a traffic standpoint, this would leave us right back where we are today...looking for additional alternatives. But from a development standpoint, the very fact of the expansion would have been a vigorous incentive for development of all kinds within the corridor.

Rail Scenario

Table 4, below, provides summary information on key topics for the rail scenario.

Table 4: Summary, Rail Scenario

Issue	Number of Panelists Identifying	Strongly Identified
Effects of this scenario are very much like those of the no-build	6	4
Some development will disperse and some will cluster at key locations	4	3
Development will cluster (especially at stations	4	3
Development encouraged in Frederick County	3	2
Development impacts of light rail decrease with distance	2	2
Market issues will be a development problem	2	1

Again, the opinions are mixed regarding this scenario's effect on development patterns. However, many panelists commented that this scenario would have outcomes similar to the no-build scenario. This was primarily due to a belief that congestion levels would remain high.

As in the no-build scenario, several panelists feel that there would be a tendency for new development to be both dispersed *and* clustered. In this instance, the dispersal would be caused by congestion levels that these panelists felt would not be alleviated by the rail line. However, these panelists also felt that rail stations would be likely to draw development – mainly commercial, although some indicated residential as well. A comment by one panelist illustrates this view:

> Light rail from Shady Grove to Frederick should act to concentrate nodes of high density development at the rail stations. This development is likely to be primarily office uses surrounded by ever lessening density of residential uses.

However, two noted that any impact on development would decrease with distance from the D. C. area. For example, one panelist mentioned that

> bringing LRT into Frederick County over-extends LRT as a mode (LRT being "limited stop" rather than "express") and diminishes it's effectiveness in the outer reaches.

There was skepticism regarding the readiness of residential markets for the kinds of density needed to support rail. One panelist put it this way:

> The addition of rail transit service could encourage or permit some higher densities at transit stop/stations, but I am not convinced that developers would build at significantly higher densities even if zoning/development standards permitted such increases.

Similar to the previous scenarios, Frederick was again seen as the probable location of growth from this scenario. One panelist saw this in terms of the mobility options that rail would provide:

> The rail alternative makes Frederick even more attractive as a residential choice than the no-build alternative. For employers, the rail alternative allows them greater location options. If they remain in Montgomery County, they will still have access to a work force residing in Frederick County.

PHASE II: INTRODUCTION

This section describes Phase II of the expert panel analysis which was performed as part of the I-270/US 15 Multimodal Corridor Study being conducted by the Maryland Department of Transportation (MDOT). A description of the entire process may be found in Appendix 1 and a listing of the expert panel members in Appendix 2.

During Phase II, the expert panel was asked to allocate future employment and population growth (for the year 2025) to 19 Forecast Zones for three different transportation alternatives (the zones and alternatives are described below). They were provided with data for the Base Case Master Plan (BCMP). The BCMP is based on the transportation improvements described in the Montgomery and Frederick County Master Plans. It includes some additional road construction and transit which is not included in the No-Build. The last three columns show the Panel Allocation for the three transportation alternatives.

This phase was carried out in two rounds. During Round 1, the panel allocated population and employment growth. These results were summarized and sent back to the panel. Round 2 consisted of asking the panelists to review the summary results and revise their allocations, if they desired to, based on the other panelists' work. Eight panelists participated in Round 1, with two additional panelists joining in Round 2. Two panelists (out of the eight Round 1 participants) elected to revise his or her allocations. The third and final meeting of the expert panel was held May 6, 2001.

The Phase II portion of this report contains the following sections:

- Panel Assignment for Phase II;
- Phase II Summary;
- Study Area: a comparison of the allocations by alternative for the Study Area as a whole;
- Forecast Zones: a closer look at zone-by-zone allocations;
- Large Zones: a closer look at the allocation for the Frederick City, Germantown, and Gaithersburg zones;
- Variation: a description of the variation present in the panelist's analysis.
- Appendix 1 describes the entire Expert Panel process;
- Appendix 6 provides a detailed description of the three transportation alternatives for Phase II;
- Appendix 7 describes the derivation of the Panel Allocation;
- Appendix 8 describes the amount of variation present in the panelists' analyses; and,
- Appendix 9 provides a list of the attendees at the May 30 meeting.
- Appendix 10 contains several maps which highlight comparisons between the locations of population and employment according to alternative.

Panel Assignment for Phase II

Under Phase I, the panel considered the land use impacts of very generalized transportation scenarios. The transportation alternatives for Phase II, on the other hand, were developed as part of the I-270/US 15 Multimodal Corridor Study and are being evaluated in a NEPA study for the corridor. As such, the alternatives are real-world choices developed by transportation planners and policy makers. The panel's task for Phase II was to consider how each of these alternatives would affect the location of future

development and translate these effects into population and employment allocations for each of 19 Forecast Zones.

The Forecast Zones were created by the project team and are built upon the Metropolitan Washington Council of Governments' (MWCOG) Transportation Analysis Zones (TAZs). They are shown in Figure 3, below.

Briefly, the three transportation alternatives are as follows. A more detailed description may be found in Appendix 6.

Alternative 1: No Build: This alternative envisions no new construction beyond minor improvements already programmed. An example of a minor improvement is the extension of Shockley Drive to Spectrum Drive in the I-270 Technology Park. The extension would provide a more direct connection between two office parks located on either side of I-270 and would relieve traffic congestion in the vicinity of the MD 85/I-270 interchange.

Alternative 2: LRT and Highway: This alternative calls for highway improvements in both counties and the construction of LRT in Montgomery County from the southern end of the corridor north to Maryland Route 121.

Alternative 3: Bus, HOV, and Highway: Under this alternative, additional bus service on the HOV lanes is proposed in both counties. The highway improvements will be the same as those in Alternative 2.

PHASE II: SUMMARY

This section summarizes the expert panel findings for Phase II, which were presented and discussed at the third and final panel meeting which took place May 30, 2001. The key numbers that follow are phrased in terms of the "Panel Allocation." The Panel Allocation is our way of expressing the "average" of the panel's response. The derivation of the Panel Allocation is described in Appendix 7.

In discussing the differences between the alternatives, we look at the BCMP versus the three transportation alternatives; the No-build compared to the two build alternatives; and, the differences between the two build alternatives themselves (LRT & Highway and Bus, HOV, & Highway).

Study Area

Looking at the Study Area in general, employment and population allocations follow the same trends:

- The No-build allocation is virtually the same as the BCMP forecast.
- The build alternatives have higher Panel Allocations than the No-build. For population, the build alternatives have about 24,000 people more than the No-build alternative, an increase of about four percent. For employment, the build alternatives represent an increase over the No-build of about 12,000 jobs, or an increase of three percent.
- The differences between the two build alternatives themselves is negligible

Population

For population, we discuss measurable differences between alternatives and as compared to the Base Case Master Plan.[6] Please see maps in Appendix 10 for visual representation of some of the points below.

[6] We define measurable as differences of over 2,000.

- The **Seneca Creek zone (#18)** is the only one in which the BCMP forecast is measurably greater than the Panel Allocation for both build alternatives. In this zone, the BCMP has about 1,500 to 1,700 more people than both build alternatives (or differences of about 8 percent). This zone is located in upper Montgomery County, to the southwest of the corridor, and has no major access to the corridor.
- The greatest absolute increase over the BCMP is in the **Frederick City zone (#5)**. This zone has Panel Allocations that assign an increase in population of about 4,000 (LRT & Highway), 5,400 (No-build), and almost 7,000 (Bus, HOV & Highway) over the BCMP forecast. These are increases of about four to six percent. The **Damascus-Brookeville zone (#10)** has the next greatest increase over the BCMP in which the Panel Allocation represents increases of about 1,100 (No-build) and about 2,000 for the two build alternatives, or four to seven percent.
- The greatest absolute increases in population from the No-build to both build alternatives are in the **Clarksburg zone (#15),** which has a 4,500 to 5,000 increase, followed by the **Germantown zone (#17)** with about a 4,400 increase for the LRT & Highway alternative.[7] These zones are contiguous and straddle the I-270 corridor in Montgomery County. Following these two zones, the **Lewistown zone (#3)**, the **Urbana zone (#8),** and the **Seneca Creek zone (#18)** have the next greatest increases for both build alternatives over the No-build, with about 2,000 to 3,000 more people. The Lewistown zone is located just north of the Frederick City zone.[8] The Urbana zone, which I-270 divides, is located in Frederick County, just north of the Montgomery County line. The Seneca Creek zone is located just to the southwest of the Germantown zone. The **Myersville zone (#2)** and the **Woodsboro-Walkersville zone (#4)** are borderline cases, with increases of almost 2,000 to around 3,000. These zones are located on either side of the Lewistown zone.
- In terms of differences between the two build alternatives, the **Germantown zone (#17)** and the **Gaithersburg zone (#19)** each had Panel Allocations that assign about 2,400 to 3,500 more people for the LRT & Highway alternative over the Bus, HOV & Highway alternative. These differences are on the order of about 2 to 3 percent. The **Frederick City zone (#5)** and the **Woodsboro-Walkersville zone (#4)** show the reverse. That is, the Panel Allocation for these two zones have about 2,000 to almost 4,000 more people, respectively, for the Bus, HOV & Highway alternative than the LRT & Highway alternative. These are differences of about 2 to 5 percent.

Employment

As with population, we discuss the zones in which there are measurable differences between alternatives for employment. Please see maps in Appendix 10 for visual representation of some of the points below.

- Although there were several zones for which the BCMP forecast was greater than the Panel Allocation, the differences were small enough to be considered negligible.
- The greatest absolute increases over the BCMP are in the **Frederick City zone (#5),** as was the case for population as well. The Panel Allocation represents an increase in employment by about 8,300 (Bus, HOV & Highway), 8,600 (LRT & Highway), and over 11,000 (No-build) jobs over the BCMP forecast. These are increases of eight to 11 percent.

[7] Note that for the Clarksburg zone, the BCMP forecast is quite similar to the allocation for the two build alternatives.

[8] During the May 30 meeting, several panelists noted that their allocations to the Lewistown zone represented growth that was associated with Frederick City.

- The **Frederick City zone (#5)** also had the greatest number of jobs allocated for the No-build alternative relative to both build alternatives. In this zone, the No-build alternative has about 3,000 more jobs than the two build alternatives (about a three percent difference).
- The greatest increases from the No-build to both build alternatives are in the **Gaithersburg (#19)** and **Germantown (#17) zones**. In the Germantown zone, which straddles I-270 in Montgomery County, the build alternatives have about 5,600 to 5,700 more jobs than the No-build alternative (a 15 percent difference). In the Gaithersburg zone, which is located just south of the Germantown zone, the build alternatives have 5,000 to almost 6,000 more jobs than in the No-build (representing three to four percent differences). Following these two zones, the **Urbana zone (#8)** and the **Clarksburg zone (#15)** have the next greatest increases for both build alternatives over the No-build, on the order of 2,000 to 3,000. Percentage-wise, these are also large increases (15 to 20 percent in Urbana and almost 50 percent in Clarksburg).
- Although there were several zones for which the LRT & Highway alternative had a greater Panel Allocation than the Bus, HOV & Highway alternative, the differences were small enough to be considered negligible.

General Comments and the Priority Funding Areas

The panel predicted that the two build alternatives would have the greatest impact relative to the No-build alternative in zones which straddle I-270. The Germantown zone (#17), the Clarksburg zone (#15) and the Urbana zone (#8) each straddle I-270 and have the greatest absolute increases in population and employment in the two build alternatives. In addition, the Gaithersburg zone (#19) and the Lewistown zone (#3) join this group for population only.

Within Montgomery County, most of the area within the Germantown zone (#17) and the Gaithersburg zone (#19) are certified PFAs. Certified PFAs within the Clarksburg zone (#15) include most of the area east of I-270 as well as a small certified PFA located west of and adjacent to I-270.

Within Frederick County, the Urbana zone (#8) has five certified PFAs located east of I-270, the primary location of which is in the area of MD 355 and MD 80. With the exception of two small rural villages, nearly all of the area in the Urbana Zone west of the I-270 does not contain certified PFAs.

The Lewistown zone is an interesting case. During the May 30th panel discussion, several panel members commented that allocations to the Lewistown zone should be associated with growth anticipated for Frederick City (the Lewistown zone being directly to the north of Frederick City). However, the only PFA-designated land in the Lewistown zone is relatively distant from Frederick City.

The majority of the area located within the Frederick Zone (#5) is designated as certified PFA. The Frederick zone (#5) stood out among the other Forecast Zones in that it was assigned the largest absolute increases over the BCMP, in population and employment. It was also the only zone in which employment growth in the No-build alternative was meaningfully greater than the two build alternatives.

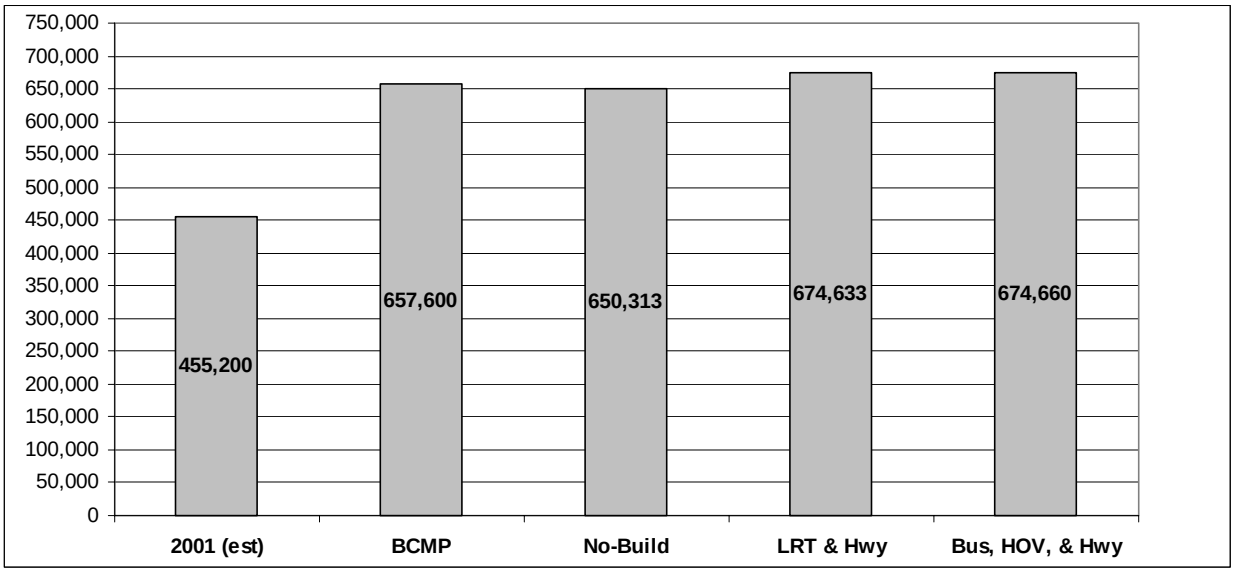
PHASE II: PANEL ANALYSIS

As described above, Phase II of the panel's analysis consisted of allocating future population and employment to 19 forecast zones. The key numbers in the pages and charts that follow are phrased in terms of the "Panel Allocation." The Panel Allocation is our way of expressing the "average" of the panel's response. Appendix 7 contains a description of how the Panel Allocation was derived. We begin with a look at the allocation for the Study Area as a whole according to the three transportation alternatives. This is followed by a detailed description of the allocation for each of the 19 Forecast Zones.

Study Area Allocation

Figures 1 and 2, below show the Panel Allocation for the three transportation alternatives for the entire Study Area.

Figure 1: Study Area Population Allocations



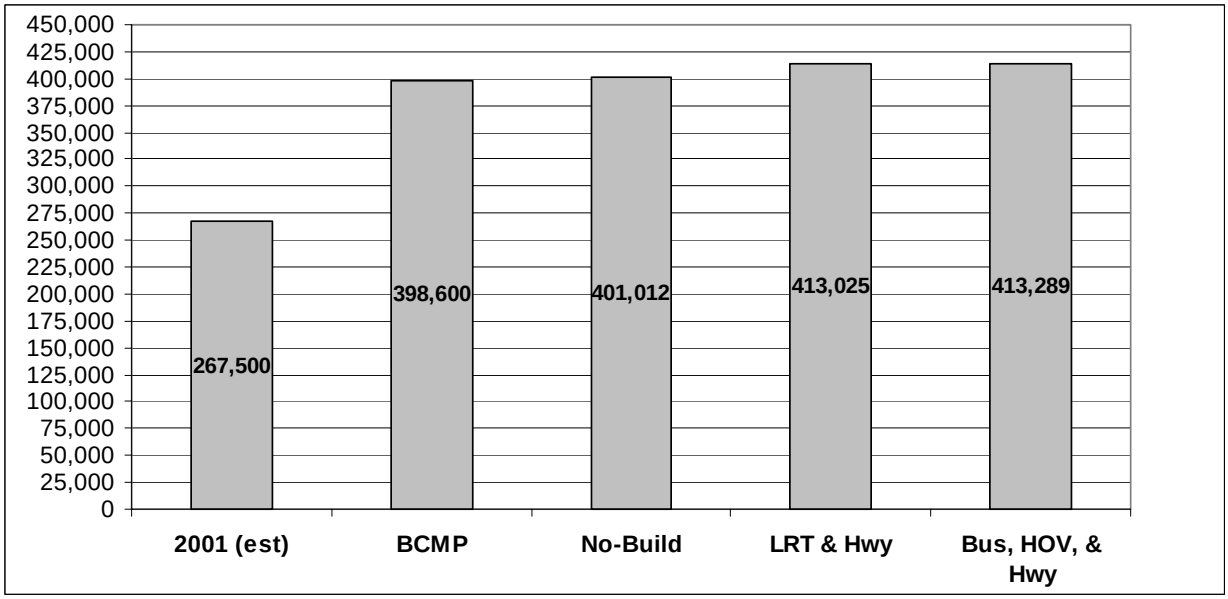
The first column provides an estimate of the current population in the study area.[9] The second column shows the Base Case Master Plan (BCMP) forecast. The BCMP is based on the transportation improvements described in the Montgomery and Frederick County Master Plans. It includes some additional road construction and transit which is not included in the No-Build. The last three columns show the Panel Allocation for the three transportation alternatives.

The current population estimate is provided as a point of comparison.

Looking at the Study Area as a whole, the difference between the two build alternatives is negligible. Both build alternatives have about 24,000 people more than the No-build alternative, an increase of about four percent. Similarly, the No-build allocation is virtually the same as the BCMP forecast.

[9] The 2001 estimates are from the Metropolitan Washington Council of Governments Cooperative Forecast (Round 6.2, Socioeconomic Data).

Figure 2: Study Area Employment Allocations



The first column provides an estimate of the current population in the study area. The second column shows the Base Case Master Plan (BCMP) forecast.[10] The last three columns show the Panel Allocation for the three transportation alternatives.

As with population, there is little difference between the two build alternatives for employment growth, looking at the entire Study Area. Both of these alternatives represent an increase over the No-build of about 12,000 jobs, or an increase of three percent. Also, the No-build allocation for employment is virtually the same as the BCMP forecast.

Forecast Zone Allocations

The next section provides charts for each of the 19 forecast zones in the Study Area.[11] Each chart shows the estimate for 2001, the Base Case Master Plan (BCMP) forecast for 2025, and the three transportation alternatives. The zones are ordered according to size (based on the BCMP forecast), smallest zones to largest, beginning with the population allocations and followed by employment.

Figure 3, below, shows a map of the Forecast Zones.

[10] The 2001 estimate and the BCMP were described in the previous section.

[11] The Forecast Zones were created by the project team and are built upon the Metropolitan Washington Council of Governments' (MWCOG) Transportation Analysis Zones (TAZs). They are shown in Figure 3, below.

Figure 3: Forecast Zones

Population

Figure 4: Population – Barnesville, Boyds, and Hyattstown Zones

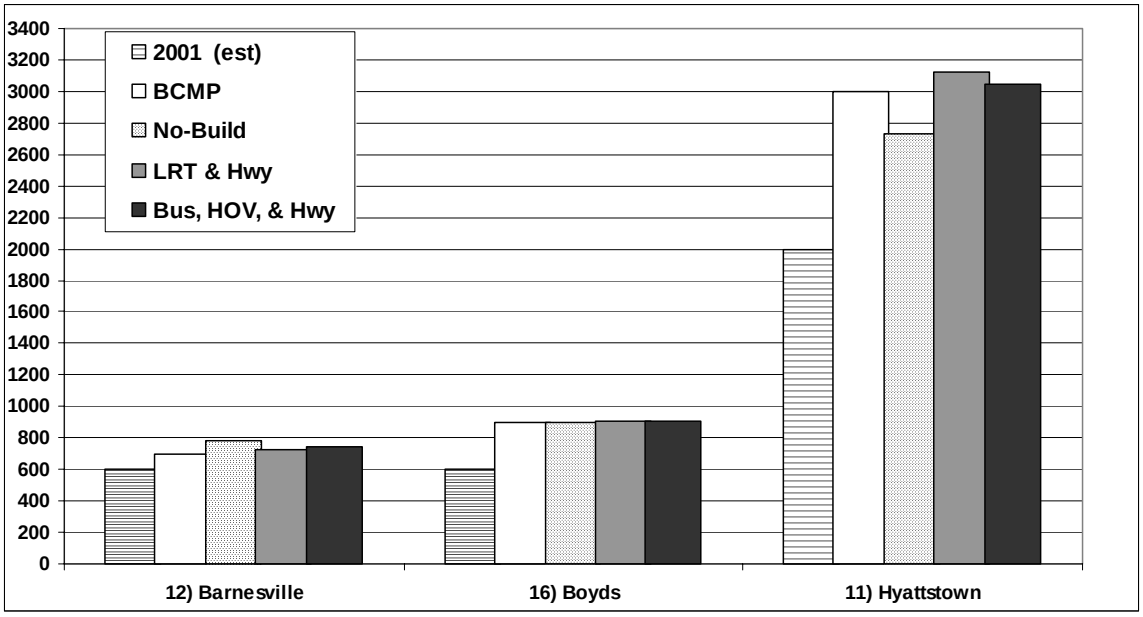


Figure 5: Population – Poolesville-Darnestown, Laytonsville, Lewistown, and Point of Rocks Zones

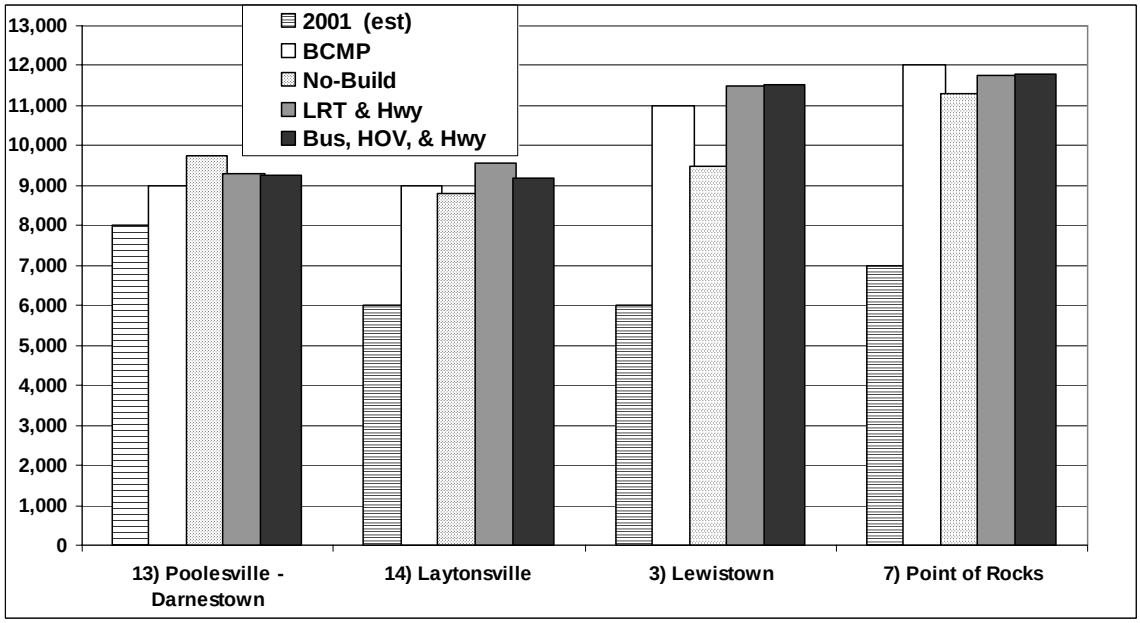


Figure 6: Population – Seneca Creek, Urbana, Brunswick, Thurmont, and Myersville Zones

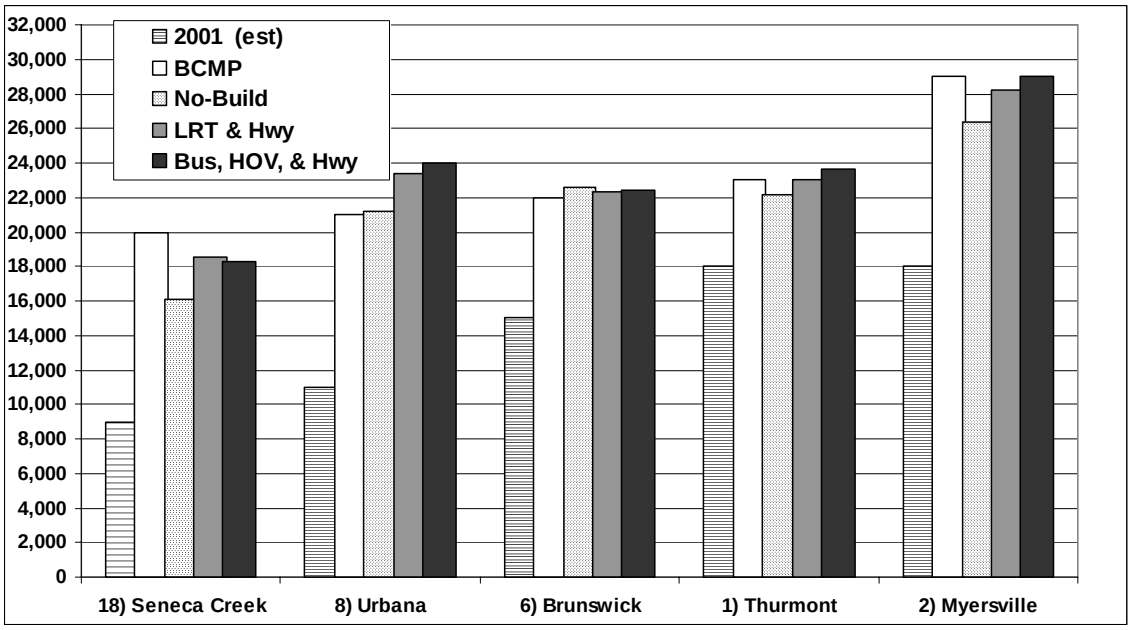


Figure 7: Population – Damascus-Brookeville, Clarksburg, New Market, and Woodsboro-Walkersville Zones

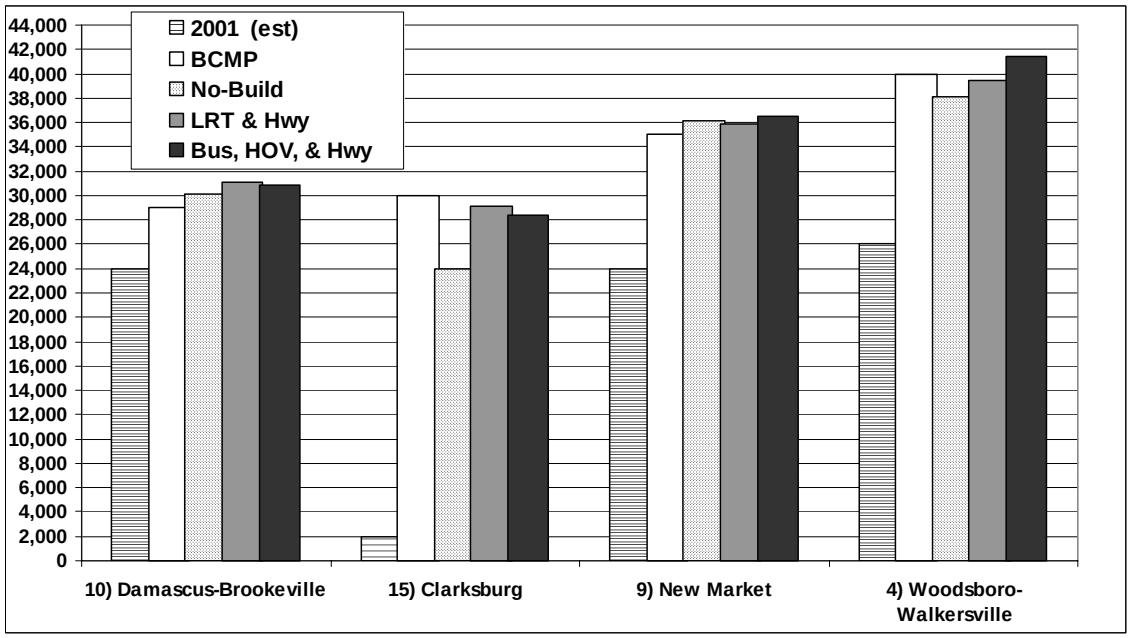
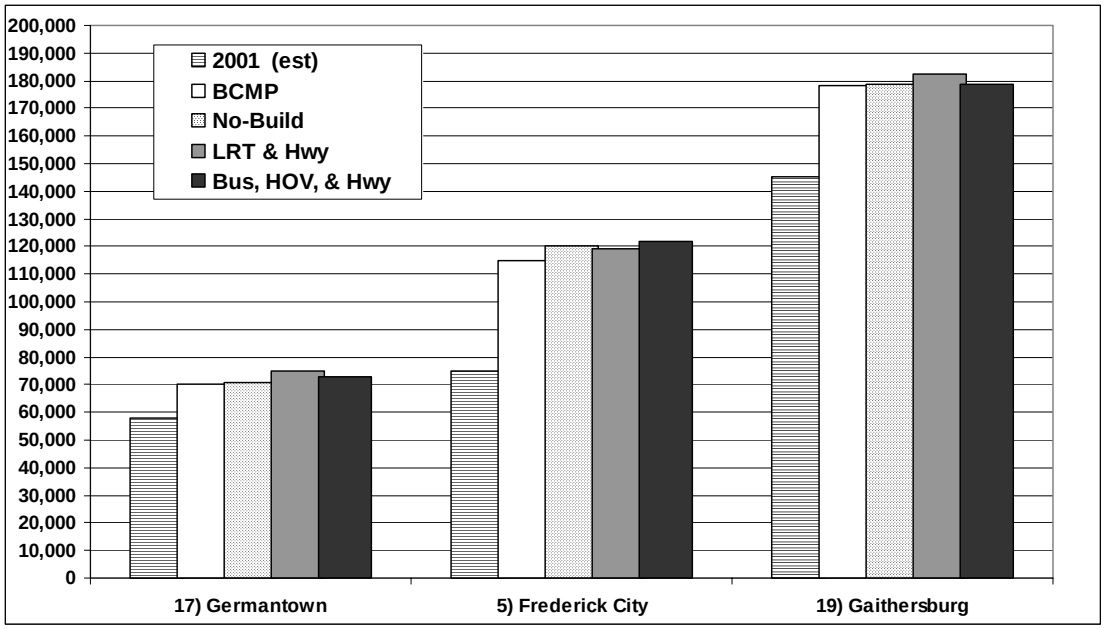


Figure 8: Population – Germantown, Frederick City, and Gaithersburg Zones



Comments: Population

Most of the zones conform to the patterns that we saw in the totals for the Study Area as a whole. That is, the differences between the two build alternatives are negligible, the two build alternatives tend to have greater population allocations than the No-build alternative, and the No-build is quite similar to the BCMP. We note the zones below in which the differences between allocations can be considered measurable in terms of absolute numbers.[12] Please see maps in Appendix 10 for visual representation of some of the points below.

- The **Seneca Creek zone (#18)** is the only one in which the BCMP forecast is measurably greater than the Panel Allocation for both build alternatives. In this zone, the BCMP has about 1,500 to 1,700 more people than both build alternatives (or differences of about 8 percent). This zone is located in upper Montgomery County, to the southwest of the corridor, and has no major access to the corridor.
- The greatest absolute increase over the BCMP is in the **Frederick City zone (#5)**. This zone has Panel Allocations that assign an increase in population of about 4,000 (LRT & Highway), 5,400 (No-build), and almost 7,000 (Bus, HOV & Highway) over the BCMP forecast. These are increases of about four to six percent. The **Damascus-Brookeville zone (#10)** has the next greatest increase over the BCMP in which the Panel Allocation represents increases of about 1,100 (No-build) and about 2,000 for the two build alternatives, or four to seven percent.
- The greatest absolute increases in population from the No-build to both build alternatives are in the **Clarksburg zone (#15),** which has a 4,500 to 5,000 increase, followed by the **Germantown zone (#17)** with about a 4,400 increase for the LRT & Highway alternative.[13] These zones are contiguous and straddle the I-270 corridor in Montgomery County. Following these two zones, the **Lewistown zone (#3)**, the **Urbana zone (#8),** and the **Seneca Creek zone (#18)** have the next greatest increases

[12] We consider measurable differences to be those over 2,000.

[13] Note that for the Clarksburg zone, the BCMP forecast is quite similar to the allocation for the two build alternatives.

for both build alternatives over the No-build, with about 2,000 to 3,000 more people. The Lewistown zone is located just north of the Frederick City zone.[14] The Urbana zone, which I-270 divides, is located in Frederick County, just north of the Montgomery County line. The Seneca Creek zone is located just to the southwest of the Germantown zone. The **Myersville zone (#2)** and the **Woodsboro-Walkersville zone (#4)** are borderline cases, with increases of almost 2,000 to around 3,000. These zones are located on either side of the Lewistown zone.

- In terms of differences between the two build alternatives, the **Germantown zone (#17)** and the **Gaithersburg zone (#19)** each had Panel Allocations that assign about 2,400 to 3,500 more people for the LRT & Highway alternative over the Bus, HOV & Highway alternative. These differences are on the order of about 2 to 3 percent. The **Frederick City zone (#5)** and the **Woodsboro-Walkersville zone (#4)** show the reverse. That is, the Panel Allocation for these two zones have about 2,000 to almost 4,000 more people, respectively, for the Bus, HOV & Highway alternative than the LRT & Highway alternative. These are differences of about 2 to 5 percent.

[14] During the May 30 meeting, several panelists noted that their allocations to the Lewistown zone represented growth that was associated with Frederick City.

Employment

Figure 9: Employment – Boyds, Barnesville, Hyattstown, and Laytonsville Zones

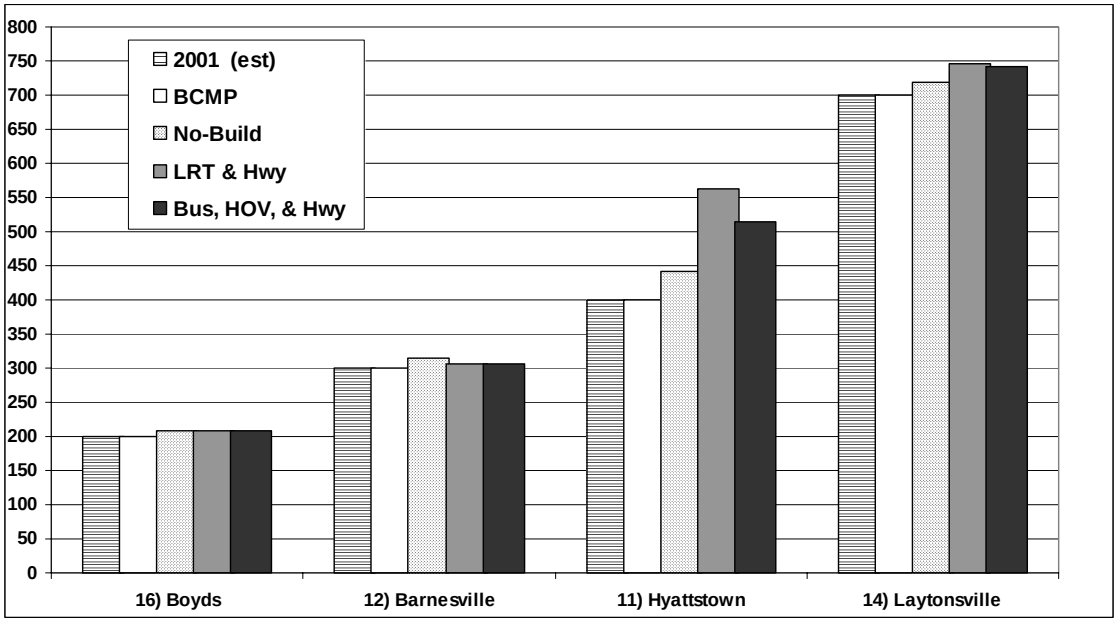


Figure 10: Employment – Seneca Creek, Poolesville-Darnestown, Lewistown, and Myersville Zones

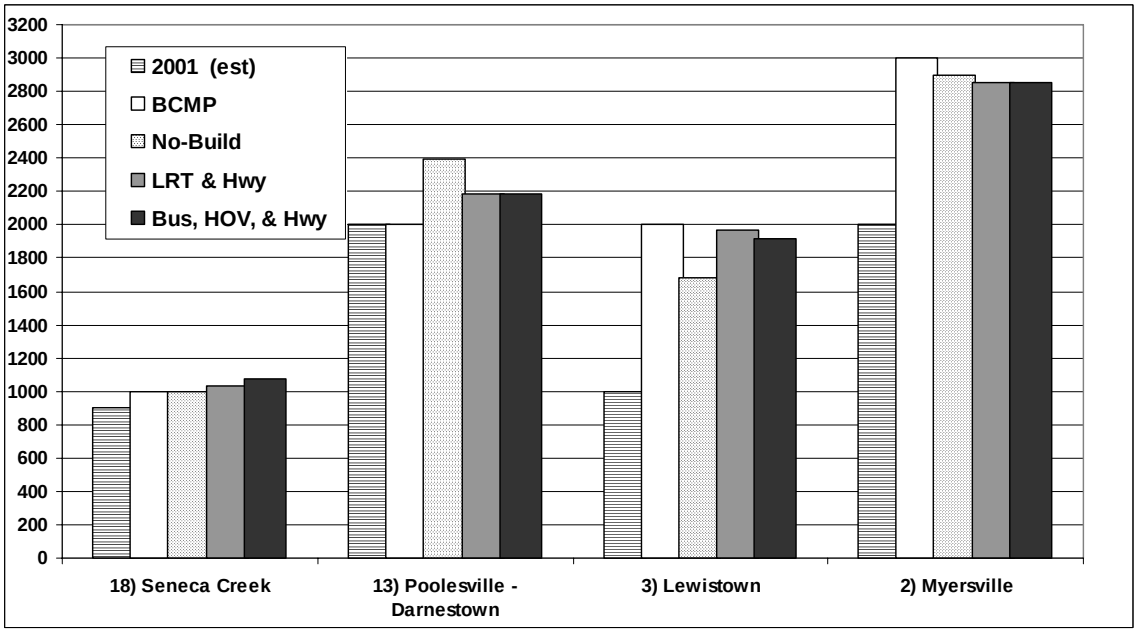


Figure 11: Employment – Brunswick, Thurmont, New Market, and Damascus-Brookville Zones

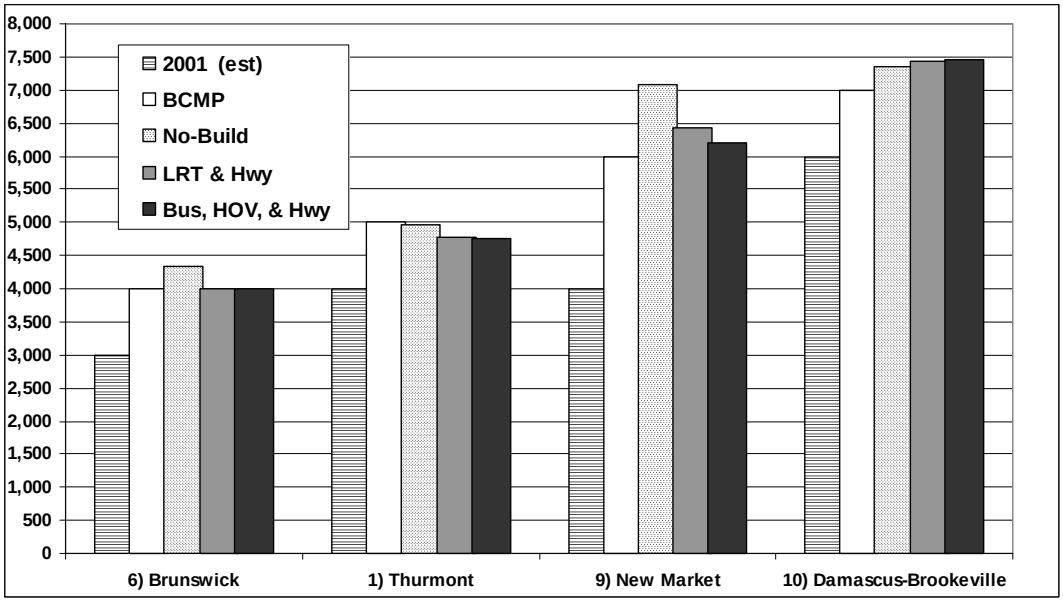


Figure 12: Employment – Clarksburg, Woodsboro-Walkersville, Point of Rocks, and Urbana Zones

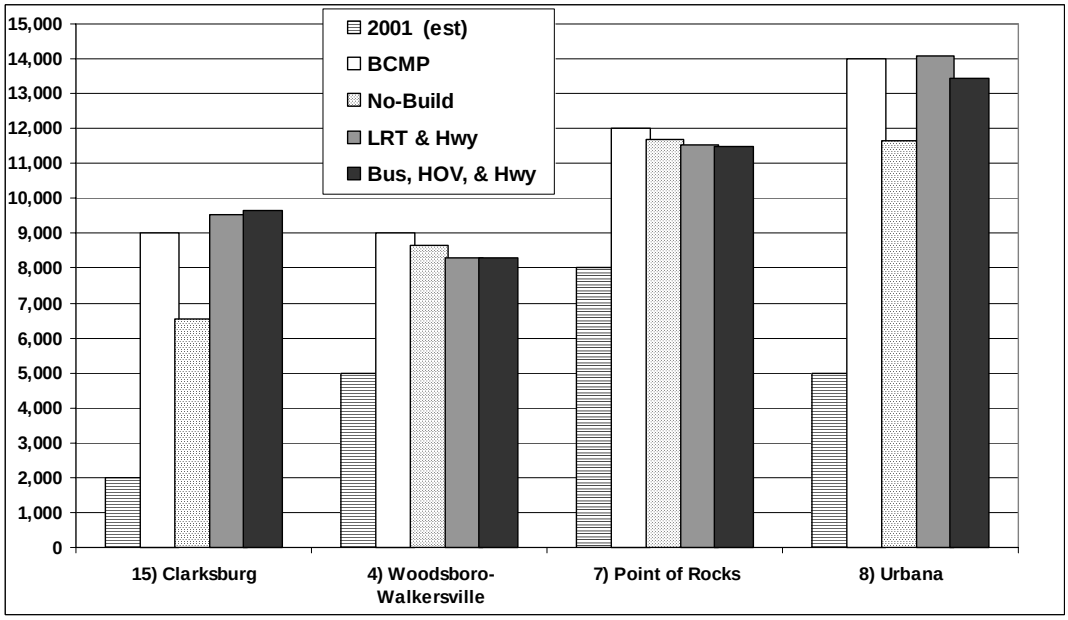
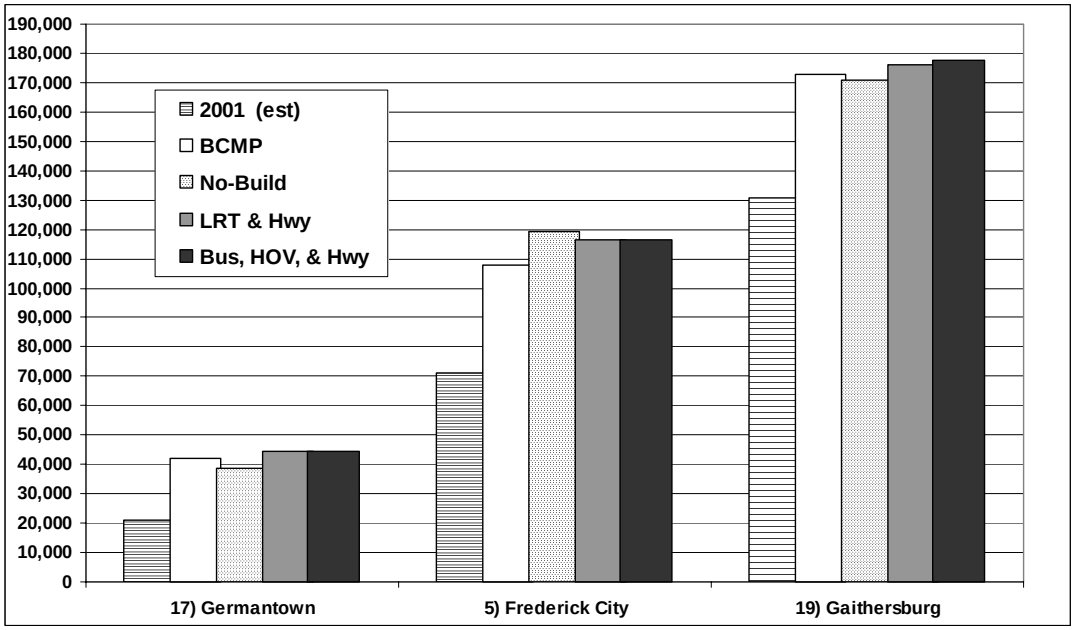


Figure 13: Employment – Germantown, Frederick City, and Gaithersburg Zones



Comments: Employment

As with population, most of the zones conform to the patterns that we saw in the totals that we saw for the Study Area as a whole. That is, the differences between the two build alternatives are negligible, the two build alternatives tend to have greater population allocations than the No-build alternative, and the No-build is quite similar to the BCMP. We note the zones below in which the differences between allocations can be considered measurable in terms of absolute numbers.[15] Please see maps in Appendix 10 for visual representation of some of the points below.

- Although there were several zones for which the BCMP forecast was greater than the Panel Allocation, the differences were small enough to be considered negligible.
- The greatest absolute increases over the BCMP are in the **Frederick City zone (#5),** as was the case for population as well. The Panel Allocation represents an increase in employment by about 8,300 (Bus, HOV & Highway), 8,600 (LRT & Highway), and over 11,000 (No-build) jobs over the BCMP forecast. These are increases of eight to 11 percent.
- The **Frederick City zone (#5)** also had the greatest number of jobs allocated for the No-build alternative relative to both build alternatives. In this zone, the No-build alternative has about 3,000 more jobs than the two build alternatives (about a three percent difference).
- The greatest increases from the No-build to both build alternatives are in the **Gaithersburg (#19)** and **Germantown (#17) zones**. In the Germantown zone, which straddles I-270 in Montgomery County, the build alternatives have about 5,600 to 5,700 more jobs than the No-build alternative (a 15 percent difference). In the Gaithersburg zone, which is located just south of the Germantown zone, the build alternatives have 5,000 to almost 6,000 more jobs than in the No-build (representing three to four percent differences). Following these two zones, the **Urbana zone (#8)** and the **Clarksburg zone (#15)** have the next greatest increases for both build alternatives over the No-build, on the order of

[15] We consider measurable differences to be those over 2,000.

2,000 to 3,000. Percentage-wise, these are also large increases (15 to 20 percent in Urbana and almost 50 percent in Clarksburg).

- Although there were several zones for which the LRT & Highway alternative had a greater Panel Allocation than the Bus, HOV & Highway alternative, the differences were small enough to be considered negligible.

The Largest Zones

Table 5, below, shows the Panel Allocation for the largest zones in the study area (in terms of population and employment). The estimate of current population and employment as well as the BCMP forecast are shown as well. Together, these three zones comprise 50 percent of the population and 75 percent of the employment in the Study Area.

Table 5: Panel Allocation for Largest Zones

	2001 (est)	BCMP	No-build	LRT & Highway	Bus, HOV & Highway
Population					
Frederick City	75,000	115,000	120,380	119,200	121,925
Germantown	58,000	70,000	70,790	75,225	72,775
Gaithersburg	145,000	178,000	178,663	182,300	178,800
Total	278,000	363,000	369,833	376,725	373,500
Employment					
Frederick City	71,000	108,000	119,490	116,595	116,295
Germantown	21,000	42,000	38,550	44,250	44,175
Gaithersburg	131,000	173,000	171,060	176,225	177,775
Total	223,000	323,000	329,100	337,070	338,245

For most cases, the allocation for the No-build scenario is larger than the BCMP forecast. This implies that, even though the BCMP represents greater transportation investments for the corridor, the panel foresees (on "average") greater population and employment levels than are forecast. The exceptions to this are for employment in the Germantown and Gaithersburg forecast zones. For Gaithersburg, this represents a decrease from the BCMP of about 1,900 jobs or only a one percent difference. For the Germantown zone, the decrease from the BCMP is about 3,400 jobs, or eight percent.

The population allocation for Frederick City is highest for the Bus, HOV & Highway alternative (about 1,500 more people than for the No-build and 2,700 more than the LRT & Highway) while the employment allocation is highest for the No-build (an increase of about 3,000 more relative to the two build alternatives).

In Germantown and Gaithersburg, the population allocation is highest for the LRT & Highway alternative, which has anywhere from about 2,500 to 4,400 more people than the other two alternatives in each zone. These were the only two zones for which this was the case. In Germantown the employment allocation is virtually the same for the LRT & Highway and Bus, HOV & Highway alternatives (which have about 5,600 to 5,700 more jobs than the No-build), while in Gaithersburg the employment allocation

peaks in the Bus, HOV & Highway alternative (with 6,700 more jobs than the No-build and about 1,500 more jobs than the LRT & Highway).

In terms of percents, most of these differences are on the order of one to three percent, with several exceptions. For population in Germantown, the increase from the No-build to the LRT & Highway alternative is on the order of six percent. More notable, for employment in this zone, the increase from the No-build to the two build alternatives is 15 percent.

General Comments and the Priority Funding Areas

In this section, we briefly discuss the Panel Allocation and its relationship to Priority Funding Areas (PFAs) as well as make some general observations. The PFAs are mapped in Figure 14, below.

The panel predicted that the two build alternatives would have the greatest impact relative to the No-build alternative in zones which straddle I-270. The Germantown zone (#17), the Clarksburg zone (#15) and the Urbana zone (#8) each straddle I-270 and have the greatest absolute increases in population and employment in the two build alternatives. In addition, the Gaithersburg zone (#19) and the Lewistown zone (#3) join this group for population only.

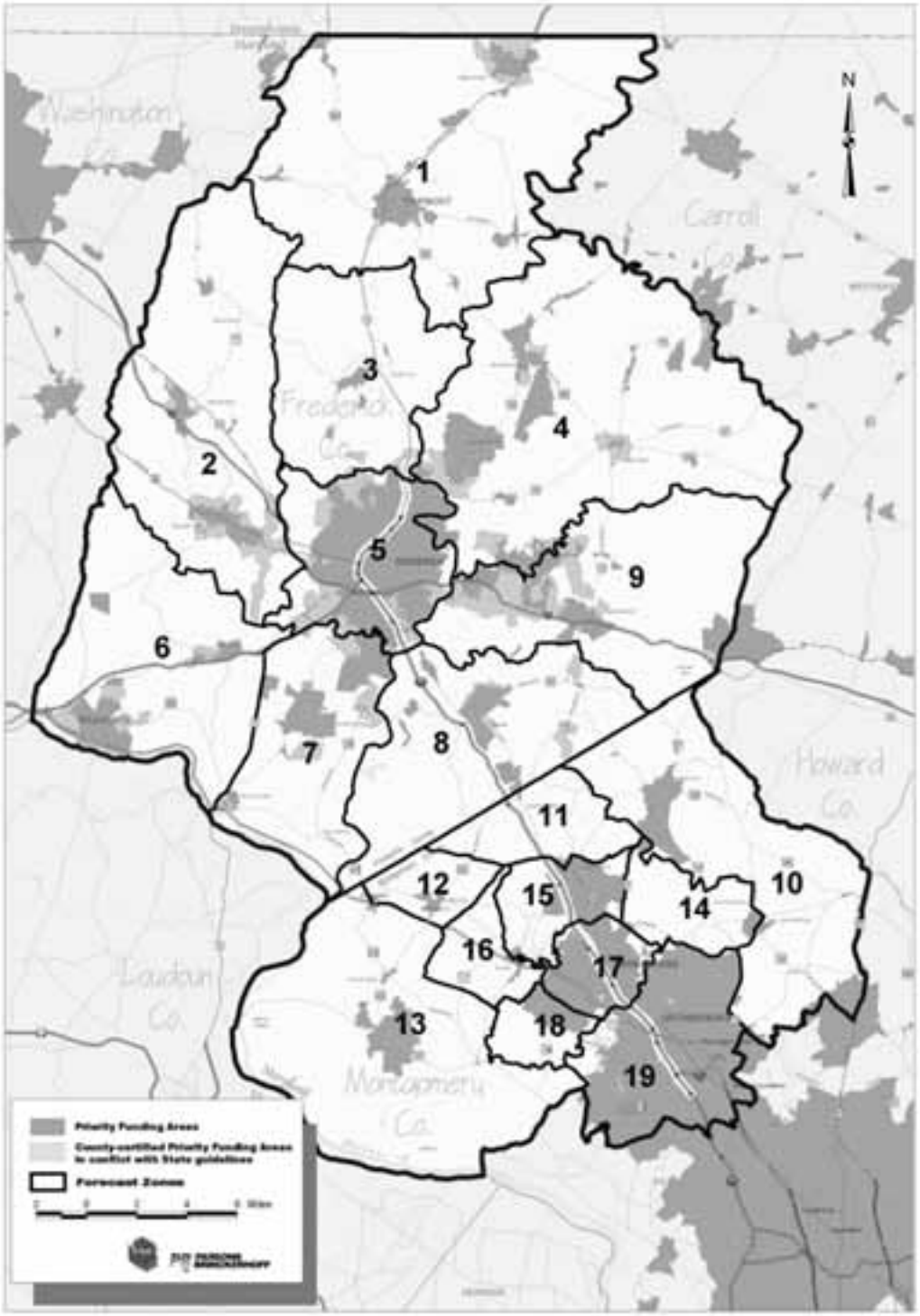
Within Montgomery County, most of the area within the Germantown zone (#17) and the Gaithersburg zone (#19) are certified PFAs. Certified PFAs within the Clarksburg zone (#15) include most of the area east of I-270 as well as a small certified PFA located west of and adjacent to I-270.

Within Frederick County, the Urbana zone (#8) has five certified PFAs located east of I-270, the primary location of which is in the area of MD 355 and MD 80. With the exception of two small rural villages, nearly all of the area in the Urbana Zone west of the I-270 does not contain certified PFAs.

The Lewistown zone is an interesting case. During the May 30th panel discussion, several panel members commented that allocations to the Lewistown zone should be associated with growth anticipated for Frederick City (the Lewistown zone being directly to the north of Frederick City). However, the only PFA-designated land in the Lewistown zone is relatively distant from Frederick City.

The majority of the area located within the Frederick Zone (#5) is designated as certified PFA. The Frederick zone (#5) stood out among the other Forecast Zones in that it was assigned the largest absolute increases over the BCMP, in population and employment. It was also the only zone in which employment growth in the No-build alternative was meaningfully greater than the two build alternatives.

Figure 14: Priority Funding Areas and Forecast Zones for the Study Area



APPENDIX 1: I-270/US 15 EXPERT PANEL PROCESS

The work carried out by the expert panel was based on a Delphi process. A Delphi is a highly structured technique in which participants provide their assessment of likely future events, or the impacts of potential transportation investments, by responding to several rounds of questionnaires. Rounds of questioning are conducted by a moderator, who tallies and summarizes the results of each round and provides these results back to the participants. The Delphi is considered complete when the responses in repeated rounds of questioning do not markedly change. Participants are selected according to their expertise in the relevant field and should represent a variety of disciplines (i.e., developers, planners, public officials, academics). Participants and/or responses remain anonymous during the analysis period so that individual personalities do not dominate the process.

For this project, a list of prospective panel members was developed by the Oversight Committee in conjunction with the project consultants. A total of eleven individuals agreed to participate; ten were able to complete the entire analysis (a list of the panelists may be found in Appendix 2). Although they were able to meet their fellow panelists, each participant conducted his or her analysis in private.

The primary basis for the panelists' analysis was each individual's expertise and knowledge of development issues in the study area. To support this, and to provide a common foundation, each panel member was provided with a briefing book which contained instructions and detailed information about the study area itself (e.g., socio-demographic, development, and transportation data and maps).

The process involved two phases, as described below.

Phase I

Phase I was a qualitative exercise in which the panel considered the land use impacts of three generalized transportation scenarios. For this phase, the panel was asked to:

- Fill out a brief worksheet that helped panelists think through population and employment growth issues;
- Write a brief memo that described anticipated land use impacts of the three generalized transportation scenarios; and,
- Attend an open meeting during which the panel discussed its Phase I findings.

Phase II

Phase II was a quantitative exercise in which the panel allocated population and employment estimates to 19 Forecast Zones according to three transportation alternatives. During this phase, the panel was asked to:

- Allocate population and employment forecasts to 19 Forecast Zones for each transportation alternative;
- Write a brief memo describing the reasoning behind the allocations;
- Review fellow panelists' allocations and update their initial allocations, if desired; and,
- Attend a final panel meeting to discuss findings.

APPENDIX 2: MEMBERS OF THE EXPERT PANEL

Duc Duong	Technology Council of Maryland
Mark Friis	Rogers and Associates
Steve Fuller	Professor, George Mason University
Rick Miller	President, Woodsboro Savings Bank
Doug Porter	Director, Growth Management Institute
Steve Poteat	Former Director, Upcounty Regional Services Center
Richard Pratt	Richard H. Pratt, Inc.
Brian Quinlan	Vice President and Chief Appraiser, Chevy Chase Bank
J. Anita Stup	Retired Delegate District 3 and former Frederick County Commissioner
Bob White	Former Planning Commissioner, Frederick County

APPENDIX 3: ATTENDEES, JANUARY 25 PANEL MEETING

The following individuals attended the January 25, 2001 panel meeting, the first of three that were held for this study. The meeting was held at the Upcounty Regional Services Center in Germantown, Maryland.

Expert Panel Members in Attendance

Duc Duong	Rick Miller	Anita Stup
Mark Friis	Doug Porter	Richard Tustian[16]
Steve Fuller	Steve Poteat	Bob White

Participants

Doug Simmons, State Highway Administration (SHA)

Sam Seskin, Parsons, Brinckerhoff, Quade and Douglas (PBQD)

Cathy Rice, SHA

David Whittaker, Maryland Department of Planning (MDP)

Karl Moritz, Maryland-National Capital Park and Planning Commission (M-NCPPC)

Jim Gugel, Frederick County Planning

Individuals Involved with the I-270/US 15 Expert Panel Process

Holiday Collins, PBQD

Helen German, RK&K

Bob Griffiths, Metropolitan Washington Council of Governments (MWCOG)

David Moss, Montgomery County Department of Public Works and Transportation

Steve Plano, PBQD

Bihui Xu, MDP

Lisa Zeimer, RK&K

Members of the Public

Lon Anderson, AAA	James Augustine
Polly Bolhofer	Jim Clark, Action Committee for Transit
Hugh Davis, Frederick TSCD	Neal Fitzpatrick, Audubon Naturalist Society
Tom Lynch, Committee for Frederick County	Luis Martinez, Upcounty Regional Services Center
Justin McNaull, AAA	Tom Reinheimer, Marylanders for a Second Crossing

[16] Subsequently withdrew from panel.

APPENDIX 4: FULL TEXTS OF PANELIST'S PHASE I ANALYSES

The following pages contain the full texts of each panelist's written analysis, which were carried out prior to the April 6 meeting.. Each panel member has been assigned a number in order to preserve some level of anonymity, so that the analyses are highlighted rather than the person carrying them out. In a few cases, information has been deleted that would directly identify a panelist.[17]

Panelist #1

Prior to addressing the land use impacts from the three general transportation scenarios, I would like to briefly note the following comments relative to the I-270 corridor in a regional context.

First, the question given to the panel appears to presume that alternative modes of transportation (highways versus transit) could or will significantly alter future land use patterns, as opposed to land use patterns being driven by market forces and personal/consumers preferences within the confines of the County Master Plans, which then determine the appropriate transportation network. My belief is that the land use pattern of the corridor is largely set at this point or certainly will be by the time any of the alternatives understudy can be actually approved and constructed. Undeveloped properties within currently planned growth areas northwest of Shady Grove/Gaithersburg, with a few exceptions, are largely committed to relatively low densities, and growth boundaries in both Montgomery and Frederick counties are considered sacred. The horse may well already be out of the barn in my opinion. The more appropriate question may in fact be, "which mode or mix of transportation modal improvements can best serve the adopted land use plans and projected growth in the study area?"

Second, the I-270 serves as a conduit for the outward expansion of the tremendous economic forces ("center of the free world with an evolving world economy") which drive the growth of this region, and will continue to place substantial demand for both employment and housing throughout the corridor and beyond. While the aging demographic characteristics of our region and associated lifestyle choices are beginning to support smart growth planning principles for infill and redevelopment of our urban and inner suburban communities (Bethesda, Silver Spring, etc), these regional growth forces are presently pushing development into Washington County, Maryland, the panhandle of West Virginia, and southern Pennsylvania. Should local land use and growth management policies (APFOs & AGP) in the corridor continue to be used to further constrain the current tight supply (particularly housing), we will simply see greater pressure for this outward expansion of both jobs and residents, regardless of what transportation improvements are undertaken in the 270 corridor.

Finally, only time will tell, but it very well could be that whatever transportation solution or mix of solutions ultimately are selected and hopefully implemented, the future land use patterns within the corridor may be more influenced by other public policy issues, incentives, and decisions. MDOT obviously does not control or even influence many of such issues, such as growth management policies, housing affordability, public safety, and quality of schools. However, transportation pricing policies, including free transit versus substantial higher gas pricing ($4 or $5/gallon), could ultimately have significant implications on commuting patterns and land use in the long-term.

Having stated all of the above, my opinion of the land use implications for the three scenarios requested are as follows:

[17] Obviously, during the April 6 panel meeting, each panelist knew who was making what comment, so that we do not attempt to cover the identities of panelists in the Appendix 2 summary. We preserve the numbering system in this section however, as that is how the material was presented to panelists prior to the meeting.

Scenario 1 – No-Build: Based upon the regional growth pressures that I discussed previously, I believe that the no-build scenario would likely prove to be the most detrimental to the corridor study area from a smart growth land use perspective. While perhaps a contrarian view, I firmly believe that if we do not improve mobility within the corridor, we will simply push employment development further and further outward, as employers follow their workers.

This opinion is in part based upon the experience of my firm in our never-ending effort to attract and retain employees. Most often our potential employees reside to the north in Frederick County and beyond. All too often, we are informed that prospective employees from the northern end of the corridor are not willing to "make the commute" down I-270, even for significantly higher compensation. At some point, my firm may be forced to relocate further out from the corridor or elsewhere.

But this opinion is not based solely upon the experience of my individual firm. Major employers, such as Bechtel Power, have relocated from Montgomery to Frederick Counties, not simply because their facilities are less expensive to operate, but rather because over 70% of their employees resided north of Montgomery County. Homes may be "where the jobs go to sleep," but jobs tend to follow the housing.

If we do not improve mobility within the corridor, this outward push on employment development will only place greater demand for housing on the outer reaches of the study area. Contrary to the concept of induced demand, failure to expand capacity and improve mobility within the corridor will only lead to "hypersprawl" through induced departure of the employment base.

Scenario 2 – Highway: Consistent with my observations heretofore, the land use impacts that I would foresee resulting from the addition of highway capacity would simply be buildout of current Master Plan proposals. Being quite familiar with the land use plans for both Montgomery and Frederick Counties, I do not foresee added highway capacity promoting sprawl outside of designated growth/priority funding areas, but rather, facilitating development consistent with such plans. I do believe that the addition of highway capacity will permit the market to add density within closer growth areas, as opposed to the no-build scenario which will eventually push employment further out.

I do not offer these opinions as a highway advocate. I simply do not believe the market forces exist today, or into the foreseeable future, which will provide sufficient density to support transit in the study area. I would, in fact, support the addition of light rail, at least to Clarksburg, but question the economic viability of doing so.

Scenario 3 – Rail: Having stated my concern that market forces will not likely support sufficient density for viable transit, if one were to nonetheless assume the construction of rail, without new highway capacity, I believe the resulting land use impacts would lie somewhere between the first two scenarios. The addition of rail transit service could encourage or permit some higher densities at transit stop/stations, but I am not convinced that developers would build at significantly higher densities even if zoning/development standards permitted such increases. Employment development north of Gaithersburg today tends to be more of a low density R&D flex space product (1-2 stories) as opposed to higher density office development (above 2 stories). This pattern will likely continue, and should not be viewed as a negative, because such space is needed to support the biotechnology industrial expansion critical to the corridor.

Perhaps more telling is the existing and planned residential land use pattern, particularly north of Clarksburg. Not only are the growth areas of relatively lower densities, but the growth centers are far more spread out. Again, as with employment development, even if master plan proposals were radically changed to promote transit-oriented development, I am not sure the market would accept such a product, perhaps with the exception of downtown Frederick.

Panelist #2

In this discussion of "general land use impacts" the major underlying premise is that growth in the Washington metropolitan area will continue for the foreseeable future. Two major assumptions are made which will lead to continued pressure for growth of employment and population in the region. The Washington metropolitan area is the seat of the last remaining super-power in the world. As the world becomes more complex the federal government presence in either the form of direct employment or out-sourcing, of work will continue to grow and create tremendous economic pressure, irrespective of local, and to a certain degree, state actions. Upper Montgomery County (UMC) and the Frederick County (FC) are a part of that economic region.

Related to this, and to a certain degree, as a result of it, the region has one of the highest concentrations of high-technology employment in the country especially in telecommunications and biotechnology. Telecommunications has been and will continue to be one of the main engines of the current expansion of the national economy; rapid advances in biotechnology will be a driving force of the future. Growth will happen.

Critical elements to this inexorable economic growth are the needs for a highly trained workforce, land to accommodate the additional employment and housing for employees and transportation facilities to move the employees and residents between home and employment. In particular, the high technology employment base requires easy access to international airports to allow the efficient regional, national and international utilization of the workforce. In each of these areas, the ability to grow the economy is currently challenged. Employers have to reach farther into the region and elsewhere to supply the high-tech workforce, the supply of convenient, developable land is growing smaller quickly and lack of expansion of the transportation system, especially roads, is creating unacceptable congestion which is compounding the problems of access to our main international airport, Dulles.

It is with these assumptions and implications in mind that differences in the shape, form, and location of employment and households could occur under three generalized transportation scenarios described below over the next 25 years. At the same time, many of these impacts will take place as a result of *all the scenarios* due to the expected economic growth. The natural forces of the market place will always exert tremendous pressure to exact the highest and best uses of all land in a continuous struggle with the political and social forces as exercised through the planning and zoning processes. In the long run, the major differences may be matters of timing.

Scenario # 1: No-build.

The corridor stays mostly as it is today with minor funded and programmed improvements, consistent with the Washington region's constrained long-range system. The net effect of this scenario is to have the I-270 Corridor severely constrained north of Clarksburg all the way to the southern boundary of Frederick City where the transportation system again expands with the additional capacity of I-70 and US 15.

Implications for Montgomery County:

1. All vacant land in the I-270 corridor is absorbed in the development process with the exception of the set-aside open space reserve in northern UMC.
2. Lower density employment and commercial uses (mainly one story) are converted to higher density such as is being seen in the Shady Grove area already.
3. Land values, commercial rents, and housing costs continue to climb as more employment and residents compete for existing land.
4. Telecommuting continues to grow as employees and employers seek to avoid the congestion on I-270.

5. Most residential density remains the same due to resident opposition to community change thus driving up housing costs as the increased number of employees competes for available housing.
6. Pressure increases to develop in the open space reserve. Maximum advantage of existing minimal development potential is realized resulting in large expanses of very large lot subdivisions for the wealthy.
7. Pressure continues to grow for expansion of east-west transportation in the form of the Inter-County Connector and additional bridge access to northern Virginia to facilitate movement east and west since movement north and south is so constrained.
8. Higher housing costs push low and moderate-income families farther and farther from employment; service sector jobs are harder and harder to fill.
9. Pressure grows to expand commuter-rail and especially the need for expansion of local feeder bus service to deliver commuters to their jobs from the train stations.
10. Pressure builds to maximize commuter rail by development around existing stations in the rural areas of Boyds, Barnesville, and Dickerson and to add new stops thus slowing the service.
11. Alternative transportation uses are seriously considered such as helicopter transport between major employment centers and area airports; addition ferries between western UMC and Northern Virginia are pursued.

Implications for Frederick County:

1. I-270 acts like a very constricted funnel just south of Frederick City; movement south is very constrained during rush periods.
2. Regional growth pressure jumps the I-270 constraint as jobs move to areas around Frederick City such as the recent experience of "back-office" moves of Bechtel and Life Technologies.
3. Employers seeking campus-like settings gravitate to large parcels in Frederick County.
4. Intense pressure grows in Frederick County around communities with public water and sewer systems to accommodate residential development resulting in a new wave of infrastructure requirements.
5. Due to the increased and accelerated growth in Frederick City, the City begins to out-pace other medium-size cities in Maryland to become a major political force in the State.
6. Frederick becomes a more important regional, cultural, and service community center; the University of Maryland establishes a new campus in Frederick to service the expanded education, training, and cultural needs.
7. Due to the existing Point of Rocks US 15 connection to Northern Virginia, pressure builds improve that corridor as access to Dulles Airport to support the high-tech employment.
8. Frederick Municipal Airport experiences growth pressures to act as a commuter line to Dulles and BWI airports.
9. Existing commuter rail stations in Brunswick and Point of Rocks experience additional employment and residential growth pressure. The future station area in downtown Frederick experiences the same; pressure builds for new stations.
10. Use of commuter bus grows only slowly since it represents only a modest improvement in commuter time due to congestion in I-270 corridor.
11. Southern Pennsylvania grows as a bedroom community for Frederick due to the expanded employment opportunities in Frederick.
12. Telecommuting continues to grow as employees and employers seek means of avoiding the I-270 congestion.

Scenario # 2: Highway.

No new transit capacity is added and the entire corridor receives additional highway capacity – 12 lanes from I-370 to MD 121, eight lanes from MD 121 to I-70, and six lanes from I-70 to Biggs Ford Road. This scenario makes transportation along the I-270 corridor between UMC and FC more efficient and exacerbates the "bedroom" community function that FC performs for Montgomery County.

Implications for Montgomery and Frederick Counties:

1. Easier travel along the corridor as compared to Scenario #1 leads to faster absorption of employment land in UMC and a slower pace of land consumption in FC.
2. Pressure for development of the open space reserve in UMC lessens due to access to comparable development opportunities in FC.
3. Pressure lessens for conversion of lower density employment and commercial uses (mainly one story) in MC to convert to higher density with greater availability and accessibility of land in FC.
4. Land values, commercial rents, and housing costs moderate in MC as compared to Scenario #1 with greater availability of land in FC.
5. Residential density remains the same in MC due to resident opposition to community change. Housing costs increases moderately as employees have more choices in accessible FC although greater number of employees seeking housing may continue the upward spiral of housing costs in UMC.
6. Pressure continues to increase for expansion of east-west transportation in the form of the Inter-County Connector and additional bridge access to northern Virginia in MC as employment opportunities increase in the I-270 corridor.
7. Greater transportation capacity in the corridor makes it easier to fill service sector jobs in UMC with residents from FC.
8. Pressure declines to expand commuter-rail and especially the need for expansion of local bus service in UMC to deliver commuters to their jobs from the train stations.
9. Movement of "back-office" uses to FC continues as employers seek cheaper space to carry-on operations, like data processing, away from headquarters functions.
10. Employers seeking campus-like settings continue to gravitate to large parcels in FC or elsewhere in the region due to lack of signature sites in MC.
11. Demand for more moderate cost housing in FC as a result of its greater accessibility increases pressure for residential development around communities with public water and sewer systems creating a new wave of infrastructure requirements.
12. Due to the increased accessibility in the I-270 corridor, Frederick City is not as isolated as under Scenario #1 and retains ties to the Washington metropolitan area for educational and cultural opportunities.

Scenario # 3: Rail.

No new highway capacity is constructed and a rail transit line is constructed from Shady Grove Metrorail Station to downtown Frederick Road.

Implications for Montgomery County:

All of the development densities in MC have been established through master plans from Shady Grove to Clarksburg. Little of that density would economically support a rail transit system by means of ride-ship without heavy public subsidy. It is unlikely that densities around potential transit stops can be changed significantly to provide economic support for a rail system in of community opposition to increased

density. Communities today argue for density reductions, not increases in density in UMC suburban areas. Also, any rail system would require a heavy additional public investment in a feeder bus system that would bring riders directly from neighborhoods to the transit stations and from the stations to places of employment. Overall, most of the implications of Scenario # 1 would apply for Scenario #3 since employee usage of the rail system would be minimal and congestion would remain in the I-270 corridor.

Implications for Frederick County:

Since current development densities in FC are even lower than those in UMC all of the difficulties anticipated in moving employees and residents listed for UMC apply for FC. It is unlikely the FC would change development patterns sufficiently or expand a feeder bus system to the extent needed to make a rail system successful. The rail system is in contrast to a commuter rail system that carries a modest number of dedicated commuters as a supplement to the main road system. This proposed rail system is intended to become the major means of moving future commuter traffic along the I-270 corridor. The development densities and feeder bus system are not there and will not be there in the foreseeable future to economically support a rail transit system. As noted above, most of the implications of Scenario # 1 would apply for Scenario #3 since employee usage of the rail system would be minimal and congestion would remain in the I-270 corridor.

Panelist #3

The purpose of this memorandum is to analyze the potential impacts of alternative transportation scenarios on the population and employment growth patterns in the I-270/US 15 Study Area. Three transportation scenarios have been established as independent actions. This analysis reflects the current context and dynamics of the region's growth given its evolving economic conditions and structure, the historic land use and development patterns upon which future development will build, and the patterns of infrastructure in the study area that establish its holding capacity. While zoning and other land use regulations and controls will ultimately shape the patterns of development assuming that the demand for development materializes and carries through the study period, it will be assumed here that these land use regulations will be revised to reflect changes in accessibility and more efficient land use patterns with changes in transportation services and other macro-trends that may emerge during the next 25 years.

The Development Context

The development trends and patterns that exist today are the accumulation of annual changes dating back over an extended period. Over the past two decades, the Washington area economy has undergone a major transformation that resulted in both structural and geographic changes. In its most simple form, this transformation resulted in a shift of jobs to the private sector and to the suburbs. This economic change was accelerated by the downsizing of the federal workforce beginning in July 1993. All job growth in the Washington metropolitan area during the nineties was in the private sector and all was in the suburbs. This shift of jobs to the suburbs had an important impact of residential development. As the job base moved west, land values increases and residential development moved further west both to take advantage of lower land costs and the increased accessibility to the emerging suburban employment centers.

As a result of these regional economic dynamics during the nineties, the third-tier counties, such as Frederick, became the focus of rapid development. During the nineties, the population of Frederick County increased 29.5 percent while in Montgomery County, population grew 13.3 percent. Independent projections for the 2000-2010 period is for this population growth to slow, but for Frederick County to continue growing faster (18.8%) than Montgomery County (10.7%).

Driving this population growth was the counties' expanding economies. From 1990-2000, the Montgomery County economy generated 73,890 new jobs (inclusive of self-employed workers), for a gain of 14.5 percent. This job growth supported a disproportional gain in income as its favored higher productivity activities. The result was an increase in the County's total economic activity from $31.9 billion to $41.9 billion, a 31.3 percent increase. In Frederick County, the employment base increased from 70,280 to 101,070 (inclusive of self-employed persons) during the nineties, for a gain of 43.8 percent, while the County's total value of goods and services produced increased from $3.3 billion to $5.3 billion, representing a gain of 61.0 percent.

While the Montgomery County economic remains substantially larger than the Frederick County economy, these differential growth patterns provide the framework for future growth. It should be noted that while the quality of transportation influenced these economic and residential development patterns other forces were operating, too. These included the movement of jobs towards the outlying population centers to take advantage of the easy availability of labor resources, lower operating costs, and reduced commutation costs and loss of time.

The types of jobs that the area's economy has generated, with technology, management and engineering services and other knowledge-based work predominating, has facilitated this movement of jobs away from the central city to the suburbs and beyond. Also, as the population has moved west, residentially dependent commercial development has followed, most notably the retail, health and other services for which the resident population comprises the market.

This footloose nature of the emerge economy and its movement towards suburban-style qualities of life and work and the amenities associated with peripheral locations is not likely to change greatly in the next several decades. The very low levels of unemployment and tight labor markets, increasing traffic congestion not only during rush-hour periods but at all hours and on all days, will reinforce the movement of employers to the edge of the residentially developed portions of the metropolitan area. This means that Frederick County will be less and less dependent on Montgomery County as an employment area for its residents and the I-270 link will become less critical to the growth of Frederick County's economy. Rather, residents of Frederick County will increasingly work in Frederick County and growing numbers of commuters will flow into the County from surrounding counties. These in-commuters will not exceed the out-commuters during the planning period, but the flow into the County will become a transportation planning issue.

The net effect of these trends, irrespective of the I-270/US 15 solution, will be greater concentrations of residential and economic growth centered around Frederick as it solidifies its growth center status. Other smaller clusters (agglomerations) will develop for the same reasons at or near the existing I-270 intersections. As these intersections are widely separated in western Montgomery County, the tendency for sprawl to take hold is dampened. Of course, this lower density development pattern is further established in the prevailing zoning and other land use controls in effect for this area.

No-Build Alternative

The "no-build" alternative for the corridor would result in reinforcing the development patterns that are now becoming evident. As congestion becomes worse, employers will increasingly desire to co-locate with or near residential areas. This will result in increasingly dense agglomerations of interdependent land uses and economic activities located at, or close to, access points to I-270. The "no-build" alternative would increase the development pressure on Frederick as the western anchor of the corridor. As land is relatively cheap and there are developable land parcels available that can support extensive residential projects as well as higher density uses, Frederick and its surrounding area become the urban focus of development going forward, as it already becoming, with intermediate clusters forming between Frederick and Rockville.

In the resulting land use pattern, the role of I-270 as a link between growth centers and as a conduit for growth is diminished as the growth forces extend beyond Frederick to the north and west and tied back to the central functions of the City. This alternative would likely accelerate the development of the County beyond current projections at the expense of Montgomery County; this would be a transfer of development and not an increment of development beyond current projections. I would not suggest that the magnitude of development forecast for the study area would be significantly affected by the no-build alternative; rather it is the distribution of this development (jobs and housing) that would be different.

Highway Alternative

Increasing the highway capacity as proposed in this alternative scenario would reinforce the development pattern that exists today. Rather than pushing the potential development to the west at an accelerating rate, as would result from the no-build alternative, the highway alternative would enable the employment base to remain more centralized and continue to have relatively easy access to the suburban and exurban labor force to the west as well as have cost-effective access to transportation services necessary to support their business needs.

The resultant development pattern would encourage residential development to spread out north and south of the corridor as well as extend westward without the concomitant commercial development. This would remain more clustered closer-in in Montgomery County with access to Northern Virginia, which is playing an increasing role in the economy of Suburban Maryland and particularly Montgomery County. As there would be less need for co-location of employment and residential development than under the no-build alternative, employers would be free to make location decisions based on other criteria (other than labor force access). This would encourage scattered siting of commercial facilities and a less efficient land use pattern. Strong zoning controls and other land use regulations would have to be enforced to counter the locational flexibility created under the highway alternative.

Rail Alternative

This alternative would result in a land use pattern very similar to the no-build alternative. With highway mobility reduced, and private vehicles continuing to be the dominant mode of work trips, the rail alternative would encourage mixed use, higher density, and the location of new jobs in and around Frederick to be close to the emerging residential communities. The rail alternative would reinforce the growth of Frederick as it would enable residents of the County not working locally to have easier access (than in the absence of the rail option) to jobs inside the Beltway or in Rockville.

As access to labor resources will become the primary non-market factor impacting location decisions by new employers and employers considering relocation from closer-in locations, Frederick is positioned to provide all the services available closer-in plus easy access to the labor force either resident in the County or commuting into the County from the north and west. Reverse commuting by highway and rail would also favor a Frederick location and increase its rate of economic development.

In summary, the rail alternative is not a substitute for the highway alternative; the development consequences are different. The rail alternative provides Frederick and Frederick County additional comparative advantages relative to Montgomery County while the highway alternative would reduce Frederick's advantages to businesses considering locations in the corridor and enable Montgomery to continue dominating the area's new economic activities.

Comparative Analysis of Land Use Impacts

Neither of these alternatives will materially affect the magnitudes of development (residences, jobs) in the corridor over the planning period. External conditions – the health of the region's and nation's economy, the performance of the suburban Maryland economy compared to the Northern Virginia economy, the sub-economy's sectoral structure, and the performance of its core industries – will determine these magnitudes. So, if the current forecasts reflect these externalities, then the question becomes, "where will this growth locate in the coming two decades?"

With the "no-build" alternative, increasing congestion on I-270 reduces its ability to carry commuters. With residential development already establishing a growing pool of labor resources in Frederick County, the choice is simple and already evident (this pattern of development is repeated in Northern Virginia): employers are moving west to be closer to their labor force. So, the no-build alternative accelerates the development pattern that is already emerging, shifting a larger share of the corridor's future growth to the west at Montgomery County's expense. Both population and jobs flow west because of the inability and high cost of moving traffic up and down the corridor.

The "highway" alternative counters, at least temporarily, the traffic friction factor effect that is pushing development into Frederick County. The highway alternative permits the jobs to stay in Montgomery County and the labor force to spread out wherever it wants and still have access at acceptable cost (dollars and time) to job opportunities closer in. In the absence of strong zoning controls, the highway option would support increased residential sprawl.

The "rail" alternative is likely to result in a blend of the other two land use outcomes although Frederick County would continue to be the location of choice for residential development with employers not far behind. With the rail option, residents in Frederick County have two choices to get to work; drive their cars to work alternatives in and around Frederick and possibly fight the traffic flowing into Montgomery County, or ride the train to Rockville or even DC.

The rail alternative makes Frederick even more attractive as a residential choice than the no-build alternative that makes Frederick County residents almost captive of local employers. For employers, the rail alternative allows them greater location options. If they remain in Montgomery County, they will still have access to a work force residing in Frederick County. But, if they relocate to Frederick County, their access to this future work force could be even better. Clearly, only a few locations would benefit developmentally from the rail option: primarily its terminal points and secondarily its other station locations.

The land use implications of these three alternatives can be summarized as follows:

Alternative	Population	Employment
No-build	Shifts growth to Frederick	Shifts growth to Frederick
Highway	Encourages more sprawl	Favors Montgomery
Rail	Favors Frederick County	Rockville and Frederick both gain advantages

Panelist #4

Note: The following response to the Phase I scenarios was developed based on the assumption that the rail alternative was typical LRT, making relatively frequent stops, achieving a 20 $^{+}$/- mph average operating speed in Montgomery County; perhaps 25 $^{+}$/- mph average in Frederick County. If a more Metrorail-like service were to be assumed, the rail alternative would have a modest amount of additional

impact, but only modest. Certain statements, like the one about the rail mode being “overextended,” would need to be tempered, but not eliminated. The overall impact of this difference in modal definition on land development would not be large, and would in general not effect the ordering of impact (greatest, medium, least) among alternatives.

This memo postulating land use impacts from three general transportation scenarios — No-build, Highway, and Rail — emphasizes relative impacts among the three scenarios. Guesstimates of absolute population and employment change relative to the baseline demographic estimates are provided, but with less value attached to them. A constant study-area-wide population and employment has been assumed among alternatives, which may not be realistic, and tends to require occasionally awkward counterbalancing of absolute increases and decreases relative to the baseline estimates. The primary focus should thus be directed at the differences among scenarios.

Small areas — grouping of one to four Forecast Zones — are addressed first. This is followed by a summary by county.

Inner Montgomery County along I-270 (North Rockville through Germantown, Zones 19 and 17). Under the No-build Scenario, existing midcounty transportation facilities such as the fully developed I-270 south of I-370, and Metrorail to Shady Grove, "look good" relatively speaking and attract further population and employment. Shady Grove Metro station is a major attraction for development to the extent that holding capacity allows. In contrast, with the Highway Scenario, even though highway access is improved, there is more congestion south of I-370 and the net effect is either neutral or perhaps negative. In any case, there is certainly more development competition with areas further out that are well-served by expanded highways. With the rail Scenario, there is no highway improvement and the effect is similar to the No-Build Scenario, with the addition of development of moderately dense population and employment nodes at LRT stations in response to public policy emphasizing station area growth. The Rail Scenario attracts the most growth to this area by a small margin, and focuses it more into nodular development.

I've quantified these postulates for Inner Montgomery County along I-270 as follows (expressed as 2025 population and employment differences relative to the baseline forecast): No Build, +5,000 population and +5,000 employment; Highway -2,000 population and -2,000 employment; Rail +6,000 population and +5,500 employment.

Outer Montgomery County along I-270 (Clarksburg through Hyattstown, Zones 15 and 11). Under the No-build Scenario, development in this area will be affected negatively not just by degraded access as congestion increases, but also by limits imposed by the Montgomery County Adequate Public Facilities Ordinance (APFO). Lacking any transportation-related development focus, and with APFO limits most likely to affect development "hot spots," growth will tend to be more spread out. With the Highway Scenario, added highway capacity will have a positive effect on both population and employment growth in general, but will not promote focused development. The rail Scenario and its LRT stations will provide a focus for nodular development, but the effect is likely to be largely negated by highway capacity deficiencies working in combination with APFO-imposed development limits.

I've quantified these postulates for Outer Montgomery County along I-270 as follows: No Build, -3,000 population and -2,000 employment; Highway +3,000 population and +2,000 employment; Rail -3,000 population and -2,000 employment.

Montgomery County Study Area East (Ashton through Damascus, Zones 10 and 14). Under the No-build Scenario, highway congestion in combination with APFO limits along the I-270 Corridor are likely to drive some development away from I-270 and into the eastern part of the Up-County area. Conversely, the Highway Scenario will have no such effect, producing a neutral or slightly negative effect on development in the Montgomery County Study Area East. The Rail Scenario, lacking highway

improvements, will tend to have somewhat the same development-spreading effect as the No-build Scenario, but to a lesser extent because of policy-driven impetus for development at the LRT stations.

I've quantified these postulates for Montgomery County Study Area East as follows: No Build, +2,000 population and +500 employment; Highway -500 population and no change in employment relative to the baseline forecast; Rail +500 population and +250 employment.

Montgomery County Study Area West (North Potomac through Dickerson, Zones 18, 16, 13 and 12). Under the No-build Scenario, highway congestion in combination with APFO limits along the I-270 Corridor are also likely to drive some development away from I-270 into the western part of the Up-County area. The Highway Scenario will have no such effect, producing a neutral or slightly negative effect on development in the Montgomery County Study Area East. The Rail Scenario, lacking highway improvements, will tend to have somewhat the same development-spreading effect as the No-build Scenario, but to a lesser extent because of policy-driven impetus for development at the LRT stations.

I've quantified these postulates for Montgomery County Study Area West as follows: No Build, +2,000 population and +500 employment; Highway -500 population and no change in employment relative to the baseline forecast; Rail +500 population and +250 employment.

Inner Frederick County along I-270 (Urbana, Zone 8). This area is highly dependent on I-270 for access. With the No-build Scenario, development in this area along the 4-lane section of I-270 will be severely negatively affected. In contrast, with the Highway Scenario, the added highway capacity will have a strong positive effect on both population and employment growth in general, although focused development will not be promoted. The Rail Scenario and its LRT station or stations will probably not provide much of a focus for nodular development unless the alignment is pulled off of the highway into a transit-oriented environment, and even then it must be recognized that bringing LRT into Frederick County over-extends LRT as a mode (LRT being "limited stop" rather than "express") and diminishes it's effectiveness in the outer reaches. Any positive development effect the Rail Scenario provides is likely to be largely negated by highway capacity deficiencies, and to apply almost exclusively to residential development.

I've quantified these postulates for Inner Frederick County along I-270 as follows: No Build, -5,500 population and -5,500 employment; Highway, +1,000 population and +2,000 employment; Rail -3,750 population and -5,500 employment.

Mid Frederick County along I-270/US 15 (Frederick, Zone 5). Imposition of the No-build Scenario is likely to have little effect on development in this area — Frederick may lessen it's ties to Montgomery County and D.C., and development in the north side along US 15 may be negatively affected slightly. The Highway Scenario is likely to have a correspondingly moderate positive effect on the north side, but overall, Frederick is likely to lose out relative to areas north and south made much more accessible by the new highway capacity. Under the Rail Scenario, development of housing may be very slightly enhanced except in the north side, but not much, given over-extension of the LRT mode (see above).

I've quantified these postulates for Mid Frederick County along I-270/US 15 as follows: No Build, -500 population and no change in employment relative to the baseline forecast; Highway, no change in population relative to the baseline forecast and -500 employment; Rail, no measurable change in either population or employment.

Upper Frederick County along US 15 (Lewiston north, Zones 3 and 1). The No-build Scenario may be expected to have little development effect in this area except for a slight adverse impact on development of housing. (Since the Frederick County APFO focuses on local traffic conditions only, it will play almost no role in development differences among scenarios in areas not directly on the highway links in question.) The Highway Scenario is likely to improve access enough to enhance both population and employment growth. The Rail Scenario is in this area effectively a No-build option, and thus may have little development effect except for a slight adverse impact on housing.

I've quantified these postulates for Upper Frederick County along US 15 as follows: No Build, -500 population and no change in employment relative to the baseline forecast; Highway, +1,000 population and +250 employment; Rail, -500 population and no change in employment.

Frederick County Study Area East (New Market through Woodsboro, Zones 9 and 4). The No-build Scenario will have no direct effect, but this area may pick up some employment that Urbana doesn't. Under the Highway Scenario, some growth may be lost to areas along I-270/US 15 afforded vastly increased highway capacity. The Rail Scenario effect is likely to be the same as for the No-build Scenario.

I've quantified these postulates for Frederick County Study Area East as follows: No Build, no change in population relative to the baseline forecast and +500 employment; Highway, -1,000 population and -1,000 employment; Rail, no change in population and +500 employment.

Frederick County Study Area Southwest (Point of Rocks — Brunswick, Zones 7 and 6). The No-build Scenario will have no direct effect, but this area may pick up some employment that Urbana doesn't — and population too, given the availability of commuter rail. Under the Highway Scenario, some growth may be lost to areas along I-270/US 15 afforded vastly increased highway capacity. The Rail Scenario effect is likely to be the same as for the No-build Scenario, but less so in the case of population.

I've quantified these postulates for Frederick County Study Area Southwest as follows: No Build, +500 population and +500 employment; Highway, -500 population and -500 employment; Rail, +250 population and +500 employment.

Frederick County Study Area Northwest (Middletown — Meyersville, Zone 2). Again the No-build Scenario will have no direct effect, but this area may pick up some employment that Urbana doesn't. Under the Highway Scenario, some growth may be lost to areas along I-270/US 15 afforded vastly increased highway capacity. The Rail Scenario effect is likely to be the same as for the No-build Scenario.

I've quantified these postulates for Frederick County Study Area Northwest as follows: No Build, no change in population relative to the baseline forecast and +500 employment; Highway, -500 population and -250 employment; Rail, no change in population and +500 employment.

MONTGOMERY COUNTY OVERALL. Under the No-build Scenario, Montgomery County is seen as gaining net population and employment growth overall, primarily along existing transportation facilities such as the fully developed I-270 south of I-370, and Metrorail to Shady Grove, but also in "wedge" areas where development is not desired. This effect will more than counterbalance reduced attractiveness of areas north of I-370. Full details are provided above. In contrast, with the Highway Scenario, additional attractiveness of developing in the Clarksburg, Germantown and upper Gaithersburg area will be offset by competition with Frederick County, afforded the most extensive gain in highway capacity. With the rail Scenario, the overall effects will be similar to the No-build Scenario, dampened slightly in the case of population by the LRT extension into Frederick County. Attractiveness of nodular development will be enhanced by the LRT stations and associated public policy, but APFO constraints will limit this effect.

Summing the more detailed estimates provided above quantifies these postulates for Montgomery County Overall as follows: No Build, +6,000 population and +4,000 employment relative to the baseline forecast; Highway, no change in population or employment; Rail, +4,000 population and +4,000 employment.

FREDERICK COUNTY OVERALL. Given the No-build Scenario, Frederick County is seen as losing population and employment growth overall relative to the baseline forecast, lacking the highway capacity for the anticipated development. Again, full details are provided above. With the Highway Scenario, the planned population and employment growth can presumably take place and is likely to be attracted.

Under the rail Scenario, the overall effects will be similar to the No-build Scenario, dampened slightly in the case of population by the LRT extension into Frederick County.

Summing the more detailed guesstimates provided above quantifies these postulates for Frederick County Overall as follows: No Build, -6,000 population and -4,000 employment relative to the baseline forecast; Highway, no change in population or employment; Rail, -4,000 population and -4,000 employment. Note that these figures are rendered somewhat artificial by staying within fixed population and employment estimates for the study area as a whole (see discussion at outset of memo). Frederick County is actually likely to achieve an absolute gain in population and employment relative to the baseline forecast under the Highway Scenario, and probably not fully at the expense of Montgomery County.

Panelist #5

These are my opinions of the broad differences in the location of households and employment that might occur over the next 25 years based on the three scenarios outlined in this study. Clearly, there are some areas that will experience more growth than others given these development alternatives. If the area does nothing (Scenario I), the factors that control development are left to the constraints of the existing infrastructure in the study area, namely I-270 and I-70. With the current preference of employment centers locating along the I-270 corridor, continuing and radially expanding growth occurs as site availability and zoning dictate. Residential development will mirror this pattern, developing around the employment centers, taking advantage of the least restrictive transportation alternatives, until overlapping development creates nodes of density that spawn ideal locations for further employment centers covenant to the newly created residential developments. Likely areas that will see further employment center growth would be Gaithersburg, Germantown, Urbana, Frederick, Damascus, and New Market.

The additional highway capacity as envisioned in Scenario 2 calls for added capacity to I-270 west of Germantown and added lanes east of Frederick on I-70. As Germantown and Gaithersburg are likely to see the most rapid growth in the next 25 years in Montgomery County, no matter what scenario is considered, the added highway capacity should act as a catalyst for this growth. The feeder corridors would work to concentrate the bulk of the new residential and employment centers along their exits and termini. Damascus, Urbana, North Potomac, and Darnestown are already fast becoming large bedroom communities of northwestern Montgomery County and adding capacity to I-270 would hasten this trend. However, the lack of service amenities in the Poolesville area (i.e., water/sewer) would act to limit this growth. The situation in Frederick, with additional lanes on I-70 to Biggs Ford Rd., I believe would do more to effect the commercial development in the area with little affect to the existing residential. Presently, the concentration of employment activity in Frederick is south and east of the city. Road improvements north and east of the city would encourage employment development there. The type of employment center would continue to represent the type of activity currently found along Rt. 85, namely distribution, light industrial, operation centers, and service retail. As affordable skilled workers continue to remain scarce in Montgomery County over the next 25 years, Frederick should see a sift to more traditional office demand in its employment centers. Residential development has already established a radial edge city pattern in Frederick and this new transit enhancement would do nothing to alter it over the next 25 years.

When we look at the types of existing development in the Washington D.C. MSA, a quick contrast can be made between the edge cities that have metro stations and those that lack them. Tysons, Reston, Laural, and Columbia being examples of edge cities with no light rail; Bethesda, Balston, Rockville, and Alexandria as cities served by metro. The biggest difference is the concentration of development that has taken place – not only commercial, but also the high density residential. I like to think of this (adaptation) as analogous with the impact rail had on the economy here in the U.S. in the early nineteen hundreds, where the industrial revolution was fueled by the efficient transportation of goods and materials over rail. The efficiency of rail over the historical method of relying on waterborne modes of transportation shaped

the very face of the industrial revolution. Here, in the twenty-first century, the economy is having another revolution, but the goods and material currently are people and ideas. It is still more efficient to move this commerce over rail, only now the resource (i.e., people) can choose to use rail or not. When in their individual circumstances personal use of a vehicle becomes prohibitive, then and only then does the rail option make sense. Here in the Washington D.C. MSA, traffic, the cost of parking, and commuting distances have created a demand for rail. This demand for rail and the positive growth in the economy has worked to create in the edge cities served by rail an impressive concentration of both residential and commercial activity. In the edge cities unserved by rail we have still seen development, but the concentration has been limited and the result has been added suburban sprawl.

The light rail scenario given the enormous forecast of growth for the study area should act to concentrate development in areas served by this rail. As rail can efficiently deliver workers anywhere a rail station is built, a concentration of employment should be encouraged at these stations. As people currently like to live next to where they work, residential development would also be encouraged in these locations. A concentration of development allows for the cost efficient providing of services to this development. Efficiency lowers costs and allows this development to compete effectively with other areas of the country on a affordable basis in housing, office rents, quality of life, and cost of living. As rail is primarily concerned with moving people, the types of employment encouraged by its development is high-end service industries. I feel that light rail from Shady Grove metro to Frederick would enhance the development of this type of employment uses along that corridor.

How upper Montgomery County and Frederick County model their already stressed transportation patterns and prepare for new highway expansion and/or light rail development will have a steadily increasing impact on where new household and employment development is likely to occur within the next 25 years.

In Scenario 2, additional capacity to I-270 and I-70, a continuation of the current trends in housing development, and employment should be encouraged. There has been a recent trend toward the development of PUDs (Planned Unit Developments). These PUDs usually average between 2,000 - 5,000 residential units of various types. They also contain a blend of retail, commercial, and sometimes industrial structures. The recent PUD activity in Maryland has been along the I-270 corridor with the ongoing development of King Farm, Kentlands, Milestone, and Montgomery Village. In all instances commercial construction and retail development has followed close by.

This I-270 corridor is what some people call the I-270 Technological Corridor. The business and technology corridor is most likely to follow this corridor from Rockville to Frederick as residential development moves further north due to a lack of land in southern Montgomery County. Sewer water systems would need to be extended for development to occur on a grand scale. Growth within the PFAs will occur at a more rapid pace as zoning changes occur, sewer systems are put in place, roadways with off ramps are built, and jobs are created.

Regarding the Light Rail proposal, it is my opinion that rail development acts to encourage the concentration of development of housing and employment centers. Light rail from Shady Grove to Frederick should act to concentrate nodes of high-density development at the rail stations. This development is likely to be primarily office uses surrounded by ever lessening density of residential uses. Currently, in Montgomery County and Frederick, employment centers in the suburbs are too spread out except for a few CBD areas (i.e., Silver Spring and Bethesda) for light rail to be considered an efficient and viable alternative to driving for most people.

The No Build Scenario would not encourage any specific development. It would only create gridlock and drive growth away from the study plan area. This loss of growth might sound promising on the surface, but when losing growth, an area can not select which jobs are retained and which ones are lost. The net result is usually the loss of the high paying positions and what might be considered urban decay.

When considering the differences in growth between the counties depending on the different scenarios, the no-build option would put increasing pressure on the widening of connector and secondary roads. In fact, MD Route 85 (Buckeystown Pike) is currently under study for extensive improvements and widening. Pressure could also be exerted for widening of MD Route 355, which runs parallel to I-270,as well as upgrades to roads that have interchanges with I-270, such as MD Route 109 and MD Route 121. Also, increased pressure could be brought for more at-place employment in Frederick County, due to the never-ending congestion associated with traveling south on I-270 into Montgomery County. However, large employers have no incentive to locate in Frederick County.

Additional Highway Capacity: Expansion to 12 lanes from I-370 to Route 121 would alleviate congestion initially. However, within two to three years at most, this section would in all likelihood be congested again. History has proved this to be true. Despite the widening of I-270 from the Spur to Montgomery Village within the last decade, that section of the highway is choked with traffic during peak hours. The back-ups at the I-270 Spur during morning rush hour would extend for additional miles, assuming no additional widening there.

The expansion to 8 lanes from Route 121 to I-70 (Frederick County) could result in more growth in Frederick County and the possibility of more at-place employment. However, this would also be heavily dependent on the health of the national and regional economy, to include the housing market.

The expansion to six lanes from I-70 to Biggs Ford Road would exert pressure for annexation of additional land into the City of Frederick, as well as rezoning to more intensive land uses and extension of public utilities (water and sewer).

Light Rail: This could be time-prohibitive and involve a costly condemnation/eminent domain process, unless the necessary land area is already reserved. If implemented, high-density housing would probably be clustered around rail stations. But the experience with Metrorail has demonstrated that usage would be predominantly by those who reside in closest proximity to the stations. If light rail was scattered both east and west of I-270, rather than running immediately parallel to it, this could provide relief from the current total reliance on automobile transportation. However, if light rail is implemented as it appears to be – immediately adjacent to I-270 and ending in downtown Frederick, ridership would be rather limited, and this clearly would not be the solution for the transportation issues affecting the I-270 corridor.

The future growth of Frederick County is dependent on implementation of an intelligent transportation plan. None of the three scenarios, taken independently, provide an adequate solution. A mixture of light rail, with stops located well off I-270, plus some road widening of I-270 in Frederick County, would be the optimal solution. Although Upper Montgomery County, particularly the densely populated Germantown area, would benefit from these transportation improvements, the continuation of growth and economic health of Frederick County will be most impacted.

There would be differences in growth at certain highly accessible locations depending on the scenario. Under all three scenarios the most accessible locations would have enhanced desirability. As previously stated, it is believed that the "no-build" scenario would make those locations nearest existing interchanges even more desirable, particularly if improvements to connecting roads were implemented. This is also true of the "additional highway capacity" assumption. The "light rail" scenario would encourage clustered development around the transit stations, particularly in the form of medium-density residential. Supporting community retail uses would follow, if sufficient population base generates such demand.

As indicated in a recent edition of the Frederick Area Planning & Development News, the average price of housing in Frederick County is substantially less than comparable units in Loudoun County. Specifically, condominiums ($87,123 vs. $117,686), townhomes ($116,658 vs. $165,590), and single-family detached homes ($224,164 vs. $290,851) are all significantly lower. This spread has long been an attractive feature of Frederick County, and also infers that there is opportunity for a higher-priced

residential product there. However, residential demand can be maintained in the future only if the transportation needs of the community are intelligently addressed.

Panelist #6

Traffic in the US 15/I-270 corridor increases dramatically each year, and is most noticeable (and measurable) the first weeks after school has begun. The traffic increases are not linear, but occur in sort of "quantum packets" at and between certain interchanges.

Most recently, the heaviest observable changes have occurred in Frederick County, with the next heaviest increases in the farthest upper Montgomery County area.

The Washington D.C. metropolitan region is unique because of the federal government. The federal government remains the determinant kernel of the region. This means that, even with expansion of some federal agencies into suburban locations, the focus of the entire region remains Washington, D.C. While some decentralization can continue to occur, key jobs and traffic will continue to be focused on this hub. No matter how much industrial growth expands outward along the I-270 corridor, Frederick and Montgomery Counties will continue to be attractive bedroom communities and transit-ways for even farther outlying groups of commuters focused on the Washington, D.C. hub – commuters who seek to balance quality of life, living costs, and the length and frustration of the commute.

Land-use in this corridor, however, is not inextricably tied to traffic or the federal hub. In point of fact, land use in the corridor is more tied to each county's long-term view of itself as expressed in its overall master plan for growth. Both counties seem strongly vested in these long-term plans. And, while Frederick County seems to be given to electoral "mood wings" between unrestricted-growth and controlled-growth Boards of County Commissioners, the overall shape of the counties' plans have not changed dramatically over the years.

Montgomery County has maintained a steady outward development along the corridor, with Washington, D.C. as the de-facto hub and outward waves of residential growth leading the way for increased commercial and then increasingly dense industrial development.

Frederick County has planned most of its growth centered on its municipalities – especially Frederick City. However, the I-270 corridor has received special consideration, with much of the land planned for eventual industrial development in the county situated between I-270 and Md. Rte 355. Availability of water and sewer connections to this land is a factor with great impact on its eventual development timetable.

With land use pretty well pre-determined by master plans, the scenarios given really would have more of an impact on the timing of elements of each county's master plan than on the plan itself.

Scenario 1 - No-build

If there are no substantial transportation improvements in the corridor, the average time for a Frederick – Shady Grove commute can be expected to increase. On average, the increase amounts 10 to 15 minutes per year...but may increase more than that as absolute transportation limits are reached. As traffic grows, driver tempers become shorter, road civility decreases, aggressive driving increases and the potential for extended delays from accidents increases dramatically – leading to near-complete gridlock.

A no-build scenario would lead to postulates of a multi-hour commute and even near-gridlock on I-270/U.S. 15 and adjacent parallel routes such as Rte 355 and even Md. 28. Such gridlock would make continued economic expansion along the corridor – outward from Clarksburg in Montgomery County and southward from Urbana in Frederick County less palatable to businesses which would ordinarily look to

the corridor for access by employees and for other transportation needs. Particularly in Frederick County, economic development might become even more centered on the municipalities. Growth northward, eastward along I-70 and westward along I-70 and US 15/340 with Frederick City as the hub would be more emphasized. However, the pace of development across the board would probably slow.

When a development corridor is based on transportation but offers gridlock, its primary attraction becomes, instead, a detriment to its growth. A no-growth scenario significantly slows industrial, office, and commercial development in the corridor segments under study.

Scenario 2 - Highway

If the entire corridor were to receive concentrated highway expansion, it would dramatically increase near-term economic development potential within the corridor. In Frederick County, should water and sewer capacity be available and financially feasible (which is not at all certain), a massive highway upgrade program would provide strong incentives for businesses to locate or relocate within the corridor. It would also increase pressures for additional residential growth in the area and for development of areas now designated for perpetual conservation or agricultural uses.

In the short term, the very fact of the construction in the corridor would bring about greater traffic congestion and gridlock. However, this would not dampen the outlook of businesses looking to locate in the corridor. The projected expansion would probably take at least a decade to complete, and at the end of that time, optimistic development probably would still have outstripped the expanded capacity of the road to carry the volume of traffic for which it was designed. In the process, however, economic development in the corridor would have developed much more rapidly than it would have without the upgrade.

From a traffic standpoint, this would leave us right back where we are today...looking for additional alternatives. But from a development standpoint, the very fact of the expansion would have been a vigorous incentive for development of all kinds within the corridor. Whether such development would be considered advantageous depends on the viewpoint of the impact of the development on the individual or organization doing the assessment.

Scenario 3 – Rail

This scenario is the most problematic. Figuring that Washington D.C. is the area hub, the advantage of rail transit decreases geometrically each unit of distance one moves outward from the hub. In other words, to an individual in Mt. Airy, who now travels south through Damascus to join up with I-270 at the Father Hurley Blvd. Interchange, the advantage of a rail line to Frederick is far less obvious than to an individual living in Frederick or Urbana. Even to people living in Walkersville or others using US 15 segment of the corridor, the advantage of a light rail connection becomes an individual assessment.

What does it take to get people out of cars and into public transportation. This is a flexible yardstick applied by the individual, and including personally-weighted values of:

- Cost (actual out-of-pocket costs...theoretical costs such as "wear and tear on personal vehicle" do not enter the equation for most people.)
- Convenience (how easy is it to get to the station; is there adequate and convenient parking; is point of embarkation close or at a substantial distance; how close does it get me to my destination?)
- Time (how long is the total elapsed time for the commute compared to using a car...door to desk?)
- Flexibility / ease of use (is use of rail consistent with the type of job to be performed; are commuting schedules compatible with personal schedule variations; is it comfortable, clean, non-threatening, and more relaxing than driving?)

Optimists and experts philosophically biased in favor of mass transportation historically have overestimated the value and acceptance of mass transit. On the other hand, it does not take a huge percentage of drivers forsaking a single-driver commute for mass transit to have a significant impact on the traffic congestion in the corridor. (This is demonstrated by the decrease in congestion on days when some schools are closed, when there is a religious holiday or when a federal agency may be shut down.)

Regardless of the impact on traffic congestion, light rail construction would have a positive impact on economic development in the corridor. Commercial, office and industrial development would be concentrated at planned rail stops. County government or large employers could anticipated a demand that they provide busing to and from parking and other collection points.

The potential negative impact of related development on rural, conservation, and agricultural areas would be somewhat mitigated by its concentration at rail stations. Residential development would be less strongly encouraged than by a highway development scheme, but would be stimulated nonetheless.

Summary

A "no-build" scenario would result in long-term decreased residential and commercial/ industrial/office development in the corridor.

A "rail" scenario would provide stimulation for strong and focused commercial/industrial/office growth concentrated at embarkation nodes, and for immediately adjacent multi-family residential growth as well as pressures for a moderate increase in general residential development.

A "highway" scenario would provide strong stimulation for broad commercial/industrial/office growth along the entire corridor and well as for strong commensurate pressure for broad residential growth in adjacent areas. Such pressure and build-out would lead to yet another eventual immoveable traffic bottleneck, where the premise of a "transportation" corridor once again becomes an oxymoron.

Panelist #7

SCENARIO 1) NO-BUILD

Employment Growth.

The 2025 job forecast will not be realized. Job growth would be stronger than forecasted during the first half of the forecast period, but by year 2013 the growth would be slower and would stop. The south part of the Corridor (Montgomery County) would even experience a loss of jobs, while Frederick would continue to see growth but at a much lower rate. Traffic congestion would deter major employers to expand, and some in Montgomery County may relocate out of the area. This forecast assumes the national economy continues to experience steady annual growth of 2-4% per year.

The technology industry continues to be the growth engine, commanding development of new office and industrial space. The employment growth in the tech sector will fuel the growth of the retail and business support service industries.

Continuing the recent trend, the biotechnology industry will be the fastest growing industry in the Corridor. While office development for large corporations such as Marriott, Manugistics as well as for the corporate headquarters of biotech companies, will continue, the Corridor will see more developments of lab and production facilities for biotech companies. The biotech industry has matured and more and more companies will move from R&D to production. Undeveloped sites zoned for industrial development in Gaithersburg, Germantown, Clarksburg, and greater Frederick will be developed to meet

the demand of the biotech industry. This will be the dominant development trend in the Corridor during the first half of the forecast period.

By year 2013, traffic congestion on the I-270 will slow down the development in the Corridor. While corporate headquarters operations and Information Technology companies will rely more on telecommuting and the utilization of "virtual offices," demand for office development will be much curtailed. The biotechnology industry that cannot rely on telecommuting will continue its growth trend and generate a strong demand for production facilities. By this time Gaithersburg, Germantown would almost be built-out and could only accommodate modest growth. Clarksburg would not have adequate public facilities to support development. The North part of the Corridor around Frederick City would attract more employment developments.

Residential Growth.

Population growth would most likely meet the forecast projection. The rate of growth will be higher in the first half of the forecast period. Increased traffic congestion will reduce the growth rate during the second half, but will not stop housing construction.

Although birth rate will be on the increase, most of the population growth will be attributed to net immigration. The quality of public education and quality of life in the Corridor, as well as employment opportunities in the greater Washington area, will continue attracting people into the Corridor.

During the next twelve years, Gaithersburg, Germantown and the greater Frederick areas will experience the highest population growth rate. As these areas will be well developed by year 2015, Urbana and Clarksburg will experience development pressures. Assuming that by this time public water and sewer are available in these areas, housing developments would occur to cope with increased demand.

SCENARIO 2) HIGHWAY

Employment Growth.

The Corridor would experience the same rate of growth as in Scenario One during the first ten years. Afterwards, the growth rate would differ, and the degree of difference would depend on several different assumptions.

1. New highway construction is limited only to widening lanes of I-270. This major improvement would not be completed until around year 2011. It would relieve traffic congestion somewhat, and alleviate the impediment to employment growth discussed in Scenario One. As a result, we will see higher employment growth than in Scenario One during the second half of the forecast period. However, by the end of 2025, the growth would still be short of the current forecast. Even with the widening of I-270 from I-370 to Frederick, traffic would remain congested to the extent of discouraging corporations to expand in the area. Congestion would not be alleviated until improvements could be made South of I-370, Capital Beltway and highways running parallel to I-270.

2. More comprehensive highway improvements. It is inconceivable that the Governments would invest only in widening I-270 without making any other highway improvements. In this sub-scenario, we assume that the I-270 widening is done as part of comprehensive transportation improvements that include East-West connections, widening of the Beltway and the I-270 fork, as well as improvements to Great Seneca Highway and Route 355. This would bring real relief to traffic congestion and remove the impediment to employment growth. In this case, the Corridor would remain an attractive location for technology development and corporate location. Employment growth would likely exceed the forecast projection. Frederick County would experience a higher rate of growth than Montgomery County, due to lack of development sites in Gaithersburg and Germantown.

3. Comprehensive highway improvements plus land use changes. In this sub-scenario we assume that Montgomery County will make drastic changes to the Wedge & Corridor plan and amend master plans to create additional employment zoned land, and Clarksburg and Urbana will have adequate public facilities. This additional assumption is possible due to the economic development pressure of meeting the corporate demand for development sites. In this scenario, employment growth would exceed the forecast projection; traffic congestion would stay at a tolerable level; and the Corridor would retain its reputation as the Technology Corridor.

Residential Growth.

Population growth would most likely exceed the forecast projection. The rate of growth would be steady throughout the forecast period. Highway improvements projected to be done around year 2010 would alleviate traffic congestion somewhat and provide for a higher rate of housing development than in Scenario One.

Population growth would be even stronger with each of the sub-scenarios discussed above under the employment growth section.

SCENARIO 3) RAIL

Employment Growth.

Adding a light rail transit system into the Corridor would not have much impact on employment growth. Technology companies and corporate headquarter operations do not attach much value to the proposed transit system along I-270 Corridor. It has never been much of a factor in corporate location decisions. The only tangible benefit of the system would be its impact on the APFO application in Montgomery County. The system would add transportation capacity and open development opportunity to policy areas

that would otherwise be in moratorium. This would allow developments of office and industrial projects in Gaithersburg, and Germantown. However the system would have minimum impact on relieving traffic congestion. As a result, employment growth would fall short of the forecast projection as in Scenario One.

Residential Growth.

The rail system would have a stronger impact on residential development. In addition to the APFO benefit, the system would provide an attractive commuting alternative to residents working along the Corridor and urban areas of Montgomery County. Housing developments along the transit way would be well received by the market. As a result we expect population growth to beat the forecast projection.

Panelist #8

Curiously the I-270/US15 Multi-Modal Corridor Study suggests "Thinking Beyond the Pavement Circulation" much as our charge is to "think outside the box" and "what do you THINK will happen". Route 15 was built as the Frederick By Pass. Of course, Route 15 now bisects Frederick. In order to allow one's mind to reach from political reality to the "what will happen" it is important to recognize the real players who will decide, "what will happen." To name just a few: Different forms of county government; Frederick County's commissioner form of government and Montgomery County's charter government. In Frederick County, the Board of County Commissioners only has those powers expressly given to it from the State and the President of the Board of County Commissioners does not have the power to act as a county executive. The Maryland General Assembly, The Governor, State planning commissions, Maryland National Capital Park and Planning Commission, two county planning commissions, Congress, MDOT, MTA, WMATA, Smart Growth, BPW'S, TDR's, MPDU'S, MDE, Clean Water, Clean Air, environmental groups, and the Corp. of Engineers, Republicans and Democrats. Each of these has separate constituencies. Of course, the overriding hurdle in anything is money.

Parenthetically it could be pointed out that we would not have this problem called "270" if our forefathers would have adhered to some hard and fast planning rules and regulations. For example: keeping Washington, D.C. a viable city, ensuring employment opportunities, housing and recreational facilities in all of the long standing separate and identifiable municipalities and unincorporated areas, not allowing anyone to move to Frederick County unless by marriage to a person who has at least three generations buried in Mt. Olivet Cemetery, had recognized the changes in population, had embraced different forms of transportation early on before development impeded good planning and most importantly had built alternatives to now 270 – which was built to be an interstate and not a local road.

It should be noted that this is not the first study of the I-270 corridor. This was also studied in the 80's. Of course, nothing happened and we are still in 2001 studying the same corridor. Since the initial study, we have seen out migration in Frederick county for employment increase from about 25% to 40%, peak times for all roads in the study area are now F's and E's, except US 15 at Hayward Rd. which is a D but has a high accident rate. Not exactly progress. We will soon see the opening of a MARC station in downtown Frederick and right outside the city limits. While that could be considered noteworthy it will do little for the 270 corridor because the tracks run from Frederick, to Point of Rocks and Washington, D.C. According to the Multi Modal Corridor Study 980 riders use Frederick Transit's bus system. MTA transports 182 people from Hagerstown to Shady Grove and 23,000 people ride the Ride-on buses in Gaithersburg. Obviously we have not been able to entice the vast majority of people to leave their cars. Why? Amusingly the inter modal study under its discussion of variable pricing and the imposition of fees or tolls would encourage people to select a "less contested route(s)." Name one.

I accept the growth projections that have been articulated. They are probably as close as one can get at this time. Of particular challenge to government will be balancing the needs of children and the elderly. In my opinion, in the next twenty years one will see housing and employment stretch in one long and

boring route from Gaithersburg to Frederick and will then march over the mountain to Hagerstown. Much like the out migration after World War II from Washington, D.C. to Silver Spring/Bethesda, Rockville, Wheaton, Rockville and Gaithersburg. Completely gone will be the separate and identifiable communities with their own personality. I have witnessed much of this change. [In the past,] I always told people I was from Washington, D.C. because by the time you tried to tell them where Gaithersburg was you watched their eyes glaze over. There are many long time people from Gaithersburg who saw the building of Montgomery Village as the beginning of the end. The forefathers at that time refused to have the Village become part of Gaithersburg. I am not well versed enough to discuss Montgomery County's growth plans in except to acknowledge that they have still not built the Inter County Connector which was talked about when I was a child. The Montgomery Bureau Chief from the Frederick New Post reported today that because of the gridlock "Montgomery County is looking north toward Frederick for 'regional cooperation' " including another bridge crossing over the Potomac. I can assure you that Frederick County is marching toward a disaster. While there are areas identified in Frederick County's plan and while I think it is a fair plan, the fact that the current Board of County Commissioners has virtually imposed a moratorium on new growth excluding the twelve municipalities that is not already in the pipeline is frightening. Many speculate what devastation this will mean for the county and the local economy. Currently there are 10,000 – 11,000 residential lots available in the county and some of them are in a development known as Lake Linganore, which means they may or may not ever be developed. But that's another long story. Frederick County has by and large strictly adhered to its comprehensive plan and has moved forward with the water appropriation from the Potomac. Road construction has lagged far behind any construction. A part of that is because of the need for Federal and State money but not all of it. Currently there is gridlock in and around Frederick City and in Southern Frederick County.

For our assignment in Phase 1, sadly I see more of the same. Gridlock in and around Frederick City, Southern Frederick County and Montgomery County, a long line of monotonous and boring development along the 270 corridor from Gaithersburg to Frederick unless we move aggressively and I mean aggressively to light rail. We cannot build enough roads and until we change direction we will not get people out of their cars.

In today's Frederick Post is an article entitled "Beltway biography" about Jeremy Korr's dissertation on "Washington's Main Street". A quote from it "Paul Foer of Annapolis described watching bulldozers dig in preparation for the highway when he was 4 years old. He was amazed when several houses were uprooted and moved in his neighborhood in North Chevy Chase. Worse, he told Mr. Korr, he and his friends lost "Indian Rock," a boulder in the woods where they played." This is very similar to my story of long Sunday walks in the woods with friends and cousins and Clayton K. Watkins, Clerk of the Circuit Court, as our guide to find bear tracks and the DeSellum's graves as we gazed upon all of this earth which had been move to build a road going somewhere. We had no clue. I wonder if anyone did.

Panelist #9

The question is, "What broad differences in the location of households and employment might occur under the three transportation scenarios?"

General Trends Affecting Corridor Development

The two forces of de-concentration and re-concentration can be expected to continue tugging at the locational preferences of households and jobs. On the one hand, many families will continue to seek quiet semi-rural living environments where mobility, streetlife, and the school system seem unthreatening; some footloose industries and many commercial establishments will follow them on their outward trek. On the other hand, the increasing proportion of non-family households will step up their tendency to congregate in busy and interesting places, where travel congestion is relatively unimportant to getting around, where streetlife

abounds, and school systems are not central concerns. Industries and commercial establishments dependent on these types of people will cluster nearby.

Along the corridor, as congestion increases, the first group will use the corridor to escape to less congested places; the second group will tend to cluster around existing centers of activity, either existing places of distinction such as Frederick and Rockville or evolving places such as Gaithersburg, Germantown, and the crossroads small towns sprinkled around in southern Frederick County.

These movements could be constrained or encouraged by public policy regimes. Retention of Montgomery County's agricultural preserve and Frederick County's agricultural and conservation areas, and continued aggressive acquisition of open space through county and state programs, could significantly reduce (or increase the price of) lands available for development near the corridor, potentially deflecting some proportion of growth to western and northern counties. At the same time, continued attention to enhancing the place-making qualities of existing urban centers could encourage clustering – although it is difficult to see how today's rural suburbs can evolve into tomorrow's urban clusters.

1. No-build Scenario:

This scenario creates no major additional traffic capacity and therefore will generate increasing congestion on the existing system. Past experience suggests that this would stimulate continued outward movement of households and jobs, as people and industries seek less congested (more accessible) locations. The countervailing trend would drive a significant share of the population to seek to overcome congestion by congregating near employment centers, and some industries or some components of industries to relocating to employment clusters around which those types of households are located. In this corridor, the former trend might generate movements northward to central Frederick County, westward to Washington County, and eastward to Howard and Carroll counties. The latter trend might mitigate that outward movement by pulling some types of households (young singles and couples, retirees) closer in to existing centers (Bethesda, Frederick) and retaining, and even enhancing, the vitality of existing employment centers along I-270 near Gaithersburg and Germantown.

Outward movement, which is likely to be considerably stronger than inward movement, would tax the capacity of existing rural roads and highways. It also would generate more east-west cross-movements from county to county. The resulting growing traffic congestion on these routes would tend to stimulate even greater outward movement to bordering counties – the leapfrog effect.

Specific outcomes would include:

- Widespread sharing of traffic misery – and therefore increasing pressures to add highway capacity at whatever expense, in all probability leading to major breaks in the no-build dam;
- Continued major migration to rural areas, with attendant needs for funding new infrastructure systems (and falling short of capacity needs);
- Adding to growth pressures and political consternation in Washington and Carroll counties;
- Discouraging investments in employment-generating activities and weakening the clustering of mutually reinforcing businesses;
- With the lack of rapid transit in developing areas, guaranteeing continued low-density development oriented completely to automobile travel and unsuitable for transit retrofitting;
- Strengthening the attraction of certain special places as urban enclaves, which become expensive places in which to live and work;
- With these settlement patterns, further differentiating areas according to affordability, race, and class.

2. Highway Scenario:

This scenario proposes to continue the highway-widening process already followed in the corridor south of the study area. In general, as has been experienced since the recent I-270 widening phase, it would stimulate easier and faster outward household movement by making outer areas more accessible to existing employment. Frederick County would experience even more rapid growth. This scenario would tend to build up the importance of existing employment locations, much as Tyson's Corner has experienced. Still, the presence of low-cost sites near the improved highway would stimulate some outward movement of industries and businesses, especially those requiring low-cost labor. These movements would have relatively less influence on developing employment-associated high-density residential development, thus reducing opportunities for creating special 24-7 urbane places in the study area and potentially generating more of that type of development in existing urban centers south of the study area or in Frederick.

Specific outcomes would include:

- Stepping up growth pressures in southern and northern Frederick County and probably those in Washington and Carroll counties as well, including needs for keeping up with infrastructure demands;
- Increasing VMT and therefore threats to air quality throughout the Washington region;
- Nothing is said about intersecting roads and highways, which would become the arteries into the growth areas. Large-scale expansion of the I-270 capacity would sooner or later require large-scale improvements in the intersecting road network.
- Drawing a certain amount of employment development up from lower Montgomery County, past currently congested sections of I-270, to locate closer to the labor force;
- Adding to pressures to reconsider development in Montgomery County's agricultural preserve;
- Increasing the cost of the Rural Legacy program (and decreasing its expansion) in counties affected by outward growth.

3. Transit Scenario:

Convenient and accessible transit service up the corridor to Frederick would add an important dimension to the travel mobility of workers, primarily. But its impact on journey to work would be highly dependent on large park-and-ride facilities at stations, since high-density residential clusters could not be expected to develop very quickly at station areas. In addition, at the other end of the ride, transit travel will depend on shuttle or bus transit arrangements to access the rather individualized job centers strung out along the road. Over time, both these conditions could be expected to respond to the presence of transit with greater infill, even redevelopment (a la Rockville), and higher densities near the stations – but that is a 20-year scenario not likely to be realized soon, especially since a transit line would not be in place for up to 10 years. In other words, transit's effect on land use will be long-term and in the short term is likely to be small – say a share of 5 or at most 10 percent of work-related travel.

That being the case, the availability of the transit option will generate greater clustering around stations over time, assuming that higher densities and infill activities will be allowed by the body politic. Montgomery County's experience in this regard is that a strong policy framework backed by elected leaders who see and enforce the big picture can largely overcome obstacles to reaching transit-based land use policy objectives, but it's a struggle that Frederick County may not be ready to take part in. If not, the land use response to the transit option would extend over a longer period and be less effective in the short term.

Specific outcomes would include:

- Some immediate effect to begin clustering activities around potential and new transit stations, especially with strong public policy support;

- Longer-range, a stronger effect on residential and employment clustering around stations, especially where public place-making activities assist the process;
- For the most part, a continuation of the no-build scenario, since most people would continue to travel by automobile and the transit scenario envisions no major road improvements;
- Further, the outward movement generated by the no-build scenario would be enhanced by the opportunity for residents to locate 5 to 10 miles away from transit stations and still use transit, as a commuter-rail option, requiring large park-and-ride facilities at the stations but perhaps not generating much interest in station-area development for some time. In effect, the transit line would expand opportunities for more remote residential development.
- The counter-effect of the lack of highway construction, however, would be to enhance the choice of using transit to overcome the major traffic congestion likely to occur. Again, increasing traffic congestion also is likely to push development further outward.
- The transit line would do little to affect cross-county travel, which appears to be becoming more important in the total regional travel picture.

Final Note:

I can't resist the obvious conclusions from the above – that both highway and transit investments will be needed to handle travel needs in the corridor, and that strong public policies influencing land use locational choices will be necessary to effect much change in travel behavior.

Panelist #10

I do not feel that there will be significant differences in the locations of households and employment centers whether I-270/US 15 is widened or light rail is extended in the proposed area. Or maybe I should say, with developmental circumstances as they are in Montgomery County and Frederick County, I don't believe that choices proposed in the three scenarios will be a significant determining factor in the location of households and employment. I agree that transportation issues do play a role in the decisions of people choosing where to live and of businesses choosing where to locate, however, I believe other factors are more determining factors.

A major reason Frederick County has experienced strong growth over the past twenty-five years was due to people moving into the County to find more affordable housing and a more open space. Many of these continue to travel the I-270 corridor to their employment in spite of the increasing congestion of the corridor.

Some businesses have chosen to relocate to Frederick to escape the congestion only to be immersed in newly created congestion in the Frederick marketplace. An example of this is Bechtel Corporation, which recently moved hundreds of its employees to Frederick in newly constructed office buildings off of US 85, and while many Bechtel employees are able to avoid the congestion on I-270, they and others are now in gridlock on US 85 at peak traffic periods. Many other Bechtel employees make the "reverse" commute on I-270 because the transaction cost is too high to sell their homes in Montgomery County and buy in Frederick County.

Both counties have taken aggressive positions in limiting and directing growth. Builders and developers, not to mention businesses looking to build new facilities, are finding it extremely difficult to find properties which have the kind of zoning they need, and difficulty finding properties which can be rezoned to accommodate their needs. When they are able to find properties which are zoned, and have

adequate utilities, it takes forever to go through the permitting process, not to mention fees upon fees that have to be paid to develop and build.

In Frederick County, and I would believe it to be so in Montgomery County, development and building are being taken over by large developers and builders. The traditional small developers and builders are moving farther out of Frederick County, with the exception of residual lots in Thurmont, etc. Many small home builders have abandoned building in Frederick County due to rising land costs and the difficulty working with the County to obtain approval for developing and building. Many have started building in Southern Pennsylvania, Washington County, West Virginia, and Carroll County.

Building/moving to these areas farther away from I-270 will not necessarily bring along jobs in these locales; this will have the effect of increasing the number of vehicles on I-270/US 15 and these people travel farther distances to go to their place of work.

As housing is forced to move farther out of existing developed area, traffic will continue to congest I-270/US 15. An unscientific traffic study of just watching traffic on US 15 South in morning and US 15 in evenings, shows a real significant increase in traffic, resulting in slowed traffic movement and an increase in aggressive driving.

Frederick County adopted an Adequate Public Facilities Ordinance in 1991, and amended it in 1998. The Board Of County Commissioners recently appointed an Ad Hoc Committee to study ways to further control building through a Concurrency proposal. And while there are a significant number of lots in the pipeline, some of these do not have adequate utilities available, and therefore cannot be built on, so the supply of buildable lots is somewhat less than this pipeline figure.

The State's Smart Growth initiative has directed growth in areas of the County where there is existing development, where utilities are available, and away from sensitive areas such as wet plains, etc.

Frederick County, following the Smart Growth concept, has directed growth to the Urbana area, the southernmost part of the county adjacent to Montgomery County. There is sewer availability, and the developer has paid a significant amount of the utility infrastructure through a bond issuance.

The City of Frederick has been more acceptable of growth than the County; it has annexed numerous properties over the past couple of years which will provide building lots for the next decade.

Areas around incorporated towns in the County that are receptive to growth, and areas directed for growth will continue to grow in spite of what happens to I-270/US 15.

For all these reasons, I see housing and employment patterns not being materially changed by the proposed scenarios.

Secondly, I believe there will continue to be significant pressure on growth in both counties over the next twenty-five years which will make it difficult for these jurisdictions to control growth they as would like.

Frederick County's proximity to the nation's capitol and the port city of Baltimore make it not only a convenient place for business to locate and for people to live, it also places it in the path of major north/south and east/west travel. A significant amount of traffic on I-270/US 15 is truck traffic hauling freight and passenger vehicles taking its occupants to their non-occupational destinations. Thus, much of the traffic which is found on US Route 15 and Interstate 270 cannot be influenced by local municipalities and governmental bodies.

Montgomery County's location, just north of Washington, D.C., is in a similar position as traffic feeds through I-270 to and around the Washington Beltway.

Baby-boom growth is slowing; however, increase in immigration, primarily peoples from Mexico, Latin and South America, move seasonally and permanently to area. Landscapers, orchards, and dairy farmers have found the only available labor pool are these people, who (while there are significant cultural and language barriers) are very hard workers and fill a real void. Also, we are starting to see a number of

retirement villages and elder care facilities being built in Frederick County. So I believe to some extent, these two factors will sustain high levels of demand for housing and stress on the transportation infrastructure.

I have seen a very significant change in lifestyle and expectations of people living and working in the County. There is real change in the concept of community. What will happen if I-270/US 15 are not expanded is that the quality of life will further erode for the residents in Frederick and Montgomery Counties.

APPENDIX 5: ATTENDEES, APRIL 6 PANEL MEETING

The following individuals attended the April 6, 2001 panel meeting. The meeting was held at the Upcounty Regional Services Center in Germantown, Maryland.

Expert Panel Members in Attendance

Duc Duong	Steve Poteat
Mark Friis	Dick Pratt
Steve Fuller	Brian Quinlan
Rick Miller	Anita Stup
Doug Porter	Bob White

Participants

Derick Hallahan, RK&K, presenter

Steve Plano, Parsons Brinckerhoff (PB), presenter

Sam Seskin, PB, facilitator

Individuals Involved with the I-270/US 15 Expert Panel Process

Holiday Collins, PB

Sue Edwards, Maryland-National Capital Park and Planning Commission

Jim Gugel, Frederick County Planning

Mark Rawlings, Metropolitan Washington Council of Governments

Cathy Rice, Maryland State Highway Administration

David Whittaker, Maryland Department of Planning

Members of the Public

Jim Clark, Action Committee for Transit

Hugh Davis, Frederick TSCD

David Hondowicz, for County Council member Phil Andrews

Pamela Lindstrom

Catherine Mathews, Upcounty Regional Services Center

Michele Floam, RK&K

Helen German, RK&K

APPENDIX 6: TRANSPORTATION ALTERNATIVES, PHASE II

Table A-1: Transportation Alternatives

	Master Plan Base Case		**Alternative 1: No Build**		**Alternative 2: LRT & Highway**		**Alternative 3: Bus, HOV, & Highway**	
Segment Limits	*Highway*	*Transit*	*Highway*	*Transit*	*Highway*	*Transit*	*Highway*	*Transit*
Biggs Ford Road to MD 26	3 GP lanes in each direction New interchanges at Biggs Ford Rd./ US 15 and Trading Lane/US 15	None	2 GP lanes in each direction	None	3 GP lanes in each direction New interchanges at Biggs Ford Rd./US 15 and Trading Lane/US 15	None*	3 GP lanes in each direction New interchanges at Biggs Ford Rd./ US 15 and Trading Lane/US 15	None*
MD 26 to Jefferson Street	3 GP lanes in each direction 1 auxiliary lane in each direction	None	2 GP lanes in each direction	None	3 GP lanes in each direction 1 auxiliary lane in each direction	None*	3 GP lanes in each direction 1 auxiliary lane in each direction	None*
Jefferson Street to I-70	3 GP lanes in each direction	None	2 GP lanes in each direction	None	3 GP lanes in each direction	None*	3 GP lanes in each direction	None*
I-70 to MD 121	2 GP lanes in each direction 1 HOV lane in each direction New interchange at extended MD 75	None	2 GP lanes in each direction	None	3 GP lanes in each direction 1 HOV lane in each direction New interchange at extended MD 75	None*	3 GP lanes in each direction 1 HOV lane in each direction New interchange at extended MD 75	Premium Bus on HOV lanes Direct Ramp Connection to park and ride/ MARC lots at MD 85 and MD 75/MD 80

* No new fixed rail capacity, but does assume enhanced bus services.

Table A-1: Transportation Alternatives – continued

	Master Plan Base Case		**Alternative 1: No Build**		**Alternative 2: LRT & Highway**		**Alternative 3: Bus, HOV, & Highway**	
Segment Limits	*Highway*	*Transit*	*Highway*	*Transit*	*Highway*	*Transit*	*Highway*	*Transit*
MD 121 to Father Hurley Boulevard	3 GP lanes in each direction 1 HOV lane in each direction New interchange at New Cut Road	Light Rail Transit on New Alignment (CCT) Direct Ramp Connection to park and ride lot at New Cut Road	3 SB GP lanes 2 NB GP lanes 1 NB HOV lane	None	3 GP lanes in each direction 1 HOV lane in each direction New interchange at New Cut Road	Light Rail Transit on New Alignment (CCT) Direct Ramp Connection to park and ride lot at New Cut Road	3 GP lanes in each direction 1 HOV lane in each direction New interchange at New Cut Road	Premium Bus on HOV Lanes Direct Ramp Connection to park and ride lot at New Cut Road
Father Hurley Boulevard to MD 118	3 GP lanes in each direction 1 HOV lane in each direction	Light Rail Transit on New Alignment (CCT)	3 SB GP lanes 2 NB GP lanes 1 NB HOV lane	None	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction	Light Rail Transit on New Alignment (CCT)	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction	Premium Bus on HOV Lanes Direct Ramp Connection to park and ride lot at MD 118
MD 118 to Middlebrook Road	3 GP lanes in each direction 1 HOV lane in each direction	Light Rail Transit on New Alignment (CCT)	3 SB GP lanes 2 NB GP lanes 1 NB HOV lane 1 NB Auxiliary lane	None	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction	Light Rail Transit on New Alignment (CCT)	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction	Premium Bus on HOV Lanes

Table A-1: Transportation Alternatives – continued

	Master Plan Base Case		**Alternative 1: No Build**		**Alternative 2: LRT & Highway**		**Alternative 3: Bus, HOV, & Highway**	
Segment Limits	*Highway*	*Transit*	*Highway*	*Transit*	*Highway*	*Transit*	*Highway*	*Transit*
Middlebrook Road to MD 124	3 GP lanes in each direction 1 HOV lane in each direction New interchange at Watkins Mill Road (by others)	Light Rail Transit on New Alignment (CCT) Direct Ramp Connection to park and ride lot at Watkins Mill Road	4 SB GP lanes 3 NB GP lanes 1 NB HOV lane	None	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction New interchange at Watkins Mill Road (by others)	Light Rail Transit on New Alignment (CCT) Direct Ramp Connection to park and ride lot at Watkins Mill Road	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction New interchange at Watkins Mill Road (by others)	Premium Bus on HOV Lanes Direct Ramp Connection to park and ride lot at Watkins Mill Road
MD 124 to Shady Grove Road	4 SB GP lanes 3 NB GP lanes 1 HOV lane in each direction 2 NB CD lanes	Light Rail Transit on New Alignment (CSX Corridor)	4 SB GP lanes 3 NB GP lanes 1 NB HOV lane 2 NB CD lanes	None	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction	Light Rail Transit on New Alignment (CCT)	3 GP lanes in each direction 1 HOV lane in each direction 2 CD lanes in each direction	Premium Bus on HOV Lanes Direct Ramp Connection to I-370

APPENDIX 7: CREATION OF THE PANEL ALLOCATION, PHASE II

We have created what we call the Panel Allocation in order to express one number that is representative of the entire panel's allocation for each zone, for each alternative and growth measure. Rather than use the average (the mean) across responses or the median across responses, we created what can be considered a "blended measure of central tendency."

This blended measure is equal to:

(Mean + Median)/2

This measure allows extreme values to be given some weight (unlike a median) but not as much weight as they are given with the mean. It is used by the Longview, Texas MPO, which carries out regular expert panels for its land use forecasts within the transportation planning process.

The table below compares the mean, median, and the "blended measure." The "blended measure" being what we use for the Panel Allocation.

Table A-2: Measures of Central Tendency

Sample Allocations	2
	2
	2
	3
	3
	3
	4
	25
mean	5.5
median	3.0
blended measure	4.3

APPENDIX 8: VARIATION IN PANEL RESPONSE, PHASE II

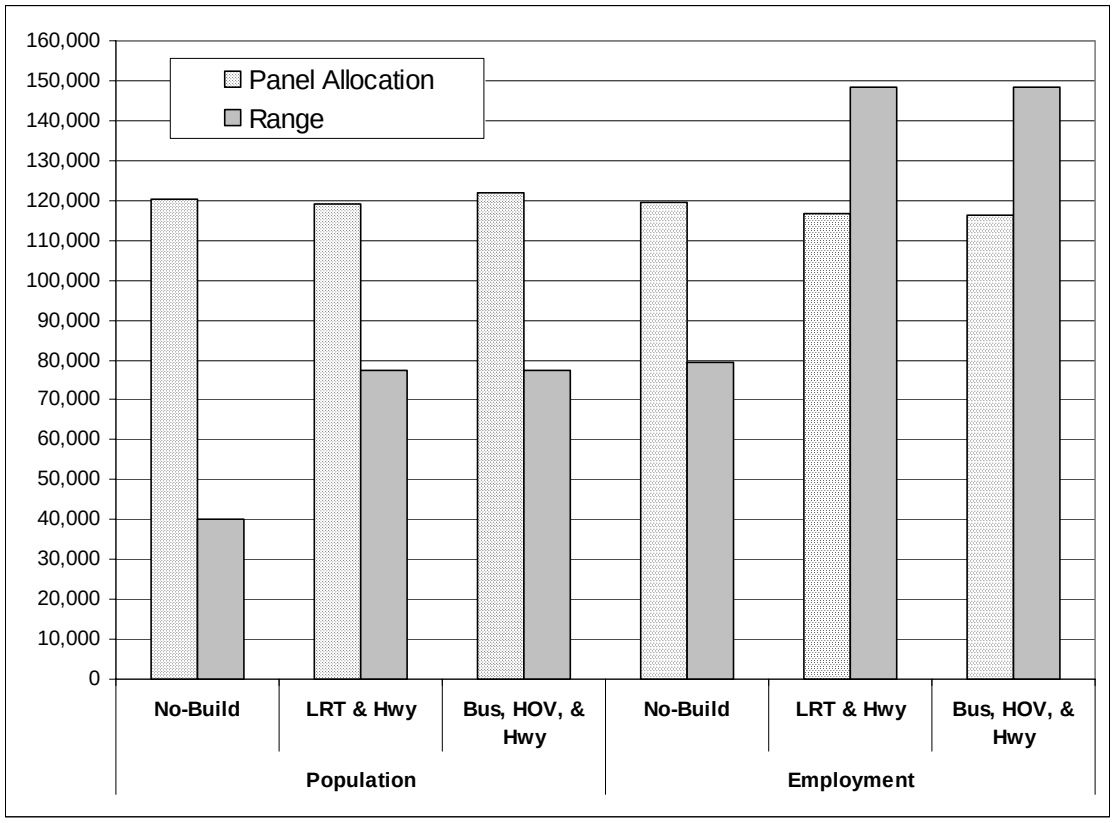
As described in detail in Appendix 7, the Panel Allocation was derived by adding the mean to the median (by zone and by alternative) and dividing by two. This section provides information about the range, or variation, between panelists in their individual allocations. We used a number of methods to explore this variation, and settled on the "range" as being most informative.[18] Range equals the high response minus the low response. For example, if the high response for Zone X was 1,000 and the low response was 600, the range would equal 400. Thus, range provides a snapshot of the extent of the variation present in the panel's allocations.

The figures below provide a graphic idea of the panel's range for the three largest forecast zones. Table A-3, which follows, lists each zone's Panel Allocation and range for population. For reference purposes, we have included the current and Base Case Master Plan population figures. Table A-4 shows the Panel Allocation, range, current and BCMP figures for employment.

In general we found that there was significantly greater variation in responses for employment than for population, across all zones and alternatives. There was greater variation for population in Montgomery County than in Frederick, across all alternatives, while Frederick County had greater variation than Montgomery for employment.

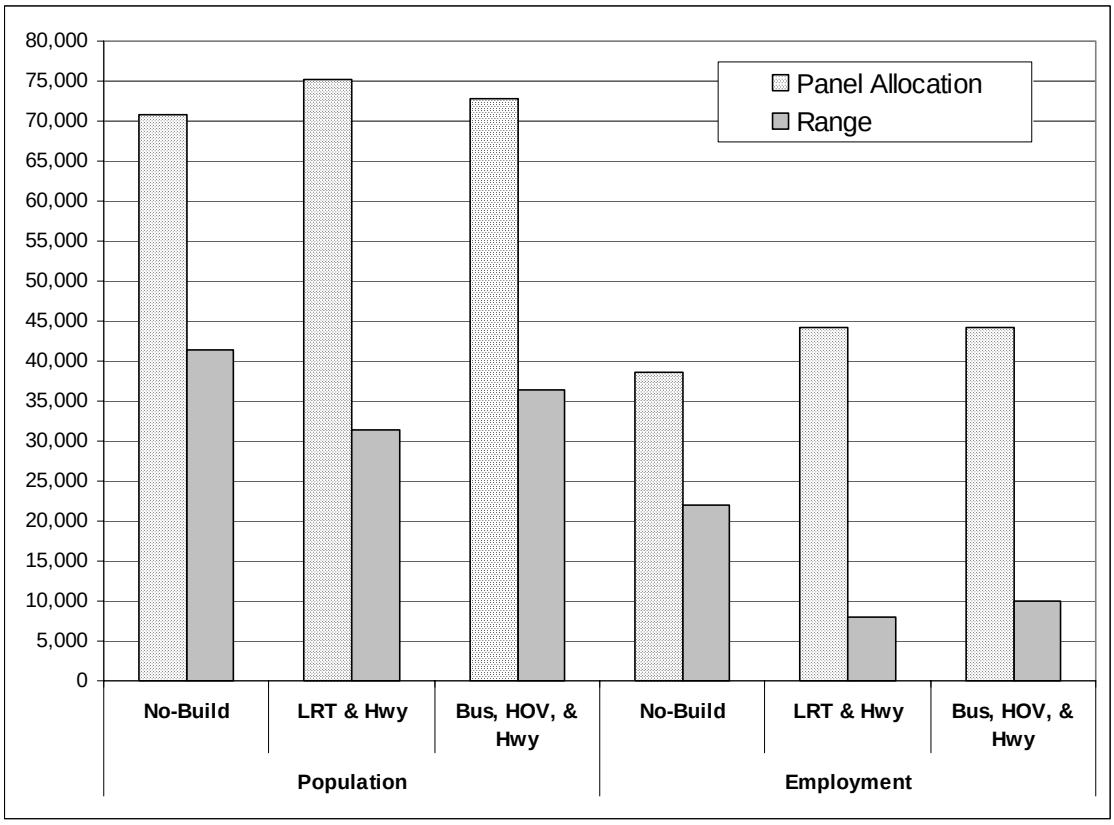
[18] The concept of standard deviation is best applied to larger sets of responses.

Figure A-1: Frederick City, Panel Allocation and Range



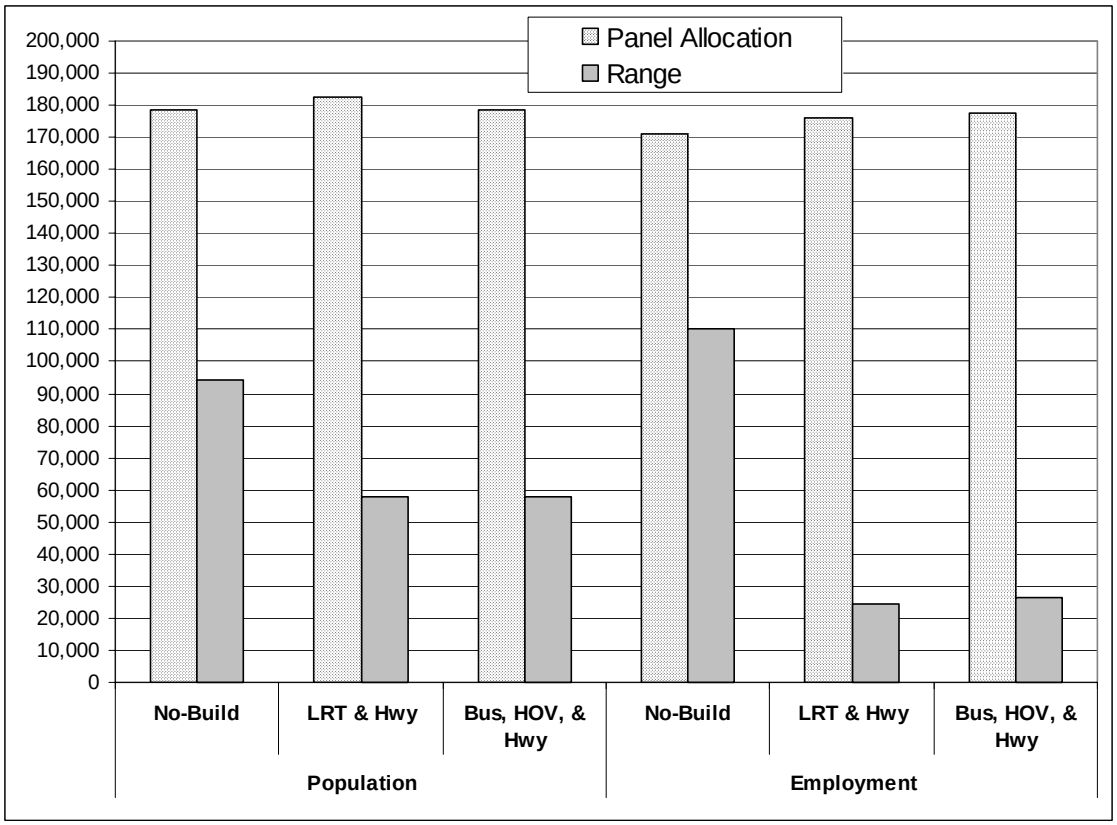
Frederick City is the largest zone in Frederick County and is the third largest in the study area, in terms of population and employment This figure shows that the range of panel responses for Frederick City were relatively minor for population growth in the No-build alternative, but are quite large for the two build scenarios for employment, where the ranges are over 100 percent of the Panel Allocation itself. In other words, the Panel Allocation for LRT & Highway was around 117,000, while the range of responses runs from a low of 100,000 to a high of 248,500 (which equals a range of 148,500)

Figure A-2: Germantown, Panel Allocation and Range



Germantown is the second largest zone in Montgomery County and the third largest in the study area. This figure shows that the range of responses was not as extensive as for Frederick City. As a percent of the Panel Allocation, the ranges are greatest for the No-build alternative for both population and employment, in which the range represents almost 60 percent of the allocation.

Figure A-3: Gaithersburg, Panel Allocation and Range



Gaithersburg is the largest zone in the study area. The ranges for Gaithersburg were, in general, lower than the other zones in the Study Area. As in Germantown, the ranges are highest for the No-build alternative.

Largest and Smallest Ranges

Looking across all alternatives, the zones with the largest ranges (as a percent of the Panel Allocation) for population were, in descending order, Clarksburg, Laytonsville, and Seneca Creek. For employment these were Damascus-Brookeville, Point of Rocks, and Frederick City.

The zone with the smallest range for Population (as a percentage of the Panel Allocation), averaging across alternatives, was Boyds, followed by Thurmont and Barnesville. For Employment, the zone with the lowest average range was also Boyds, followed by Gaithersburg and Germantown.

We did not find any pattern according to Alternative.

Table A-3, below, provides the *population* numbers by zone and by alternative for the Panel Allocation and the Range as well as the current and projected (BCMP) estimates for population and employment for reference purposes. These are from the Metropolitan Washington Council of Governments Cooperative Forecast (Round 6.2) Socioeconomic Data: TAZ Level.

Table A-4, also below, provides the same information for employment.

Table A-3: Panel Allocations and Ranges, by Zone – Population

	Population – Panel Allocation			*Population – Current and BCMP*	
	No-build	**LRT & Highway**	**Bus, HOV & Highway**	**2001 Estimates***	**Base Case Master Plan***
1) Thurmont				18,000	23,000
Panel Allocation	22,170	23,015	23,690		
Range	8,000	7,200	7,200		
2) Myersville				18,000	29,000
Panel Allocation	26,385	28,240	29,040		
Range	11,200	11,200	25,200		
3) Lewiston				6,000	11,000
Panel Allocation	9,470	11,500	11,530		
Range	7,400	6,000	8,400		
4) Woodsboro-Walkersville				26,000	40,000
Panel Allocation	38,115	39,430	41,480		
Range	14,100	13,400	23,400		
5) Frederick City				75,000	115,000
Panel Allocation	120,380	119,200	121,925		
Range	40,000	77,500	77,500		
6) Brunswick				15,000	22,000
Panel Allocation	22,590	22,300	22,400		
Range	13,000	10,000	9,000		
7) Point of Rocks				7,000	12,000
Panel Allocation	11,315	11,750	11,800		
Range	7,000	7,000	7,000		
8) Urbana				11,000	21,000
Panel Allocation	21,145	23,400	24,025		
Range	10,000	18,500	8,500		
9) New Market				24,000	35,000
Panel Allocation	36,175	35,900	36,500		
Range	18,000	13,000	13,000		
10) Damascus-Brookeville				24,000	29,000
Panel Allocation	30,065	31,050	30,800		
Range	21,000	21,000	21,000		

Table A-3: Panel Allocations and Ranges, by Zone – Population, *continued*

	Population – Panel Allocation			***Population – Current and BCMP***	
	No-build	**LRT & Highway**	**Bus, HOV & Highway**	**2001 Estimates***	**Base Case Master Plan***
11) Hyattstown				2,000	3,000
Panel Allocation	2,730	3,125	3,050		
Range	1,000	3,000	2,000		
12) Barnesville				600	700
Panel Allocation	785	725	743		
Range	400	200	200		
13) Poolesville – Darnestown				8,000	9,000
Panel Allocation	9,765	9,305	9,255		
Range	4,000	4,000	4,000		
14) Laytonsville				6,000	9,000
Panel Allocation	8,800	9,575	9,200		
Range	4,000	15,000	9,000		
15) Clarksburg				2,000	30,000
Panel Allocation	23,965	29,150	28,450		
Range	27,000	28,000	28,000		
16) Boyds				600	900
Panel Allocation	895	905	910		
Range	600	100	100		
17) Germantown				58,000	70,000
Panel Allocation	70,790	75,225	72,775		
Range	41,500	31,500	36,500		
18) Seneca Creek				9,000	20,000
Panel Allocation	16,110	18,538	18,288		
Range	12,500	15,000	10,000		
19) Gaithersburg				145,000	178,000
Panel Allocation	178,663	182,300	178,800		
Range	94,250	58,000	58,000		
Total	**650,313**	**674,633**	**674,661**	**455,200**	**657,600**

* Current and Forecast Estimates (last two columns) are rounded to nearest 1000 (or 100 if appropriate) and are from Metropolitan Washington Council of Governments Cooperative Forecast (Round 6.2) Socioeconomic Data: TAZ Level
Note: "Total" for the first three columns is the total for the Panel Allocation.

Table A-4: Panel Allocations and Ranges, by Zone – Employment

	Employment – *Panel Allocation*			Employment – *Current and BCMP*	
	No-build	**LRT & Highway**	**Bus, HOV & Highway**	**2001 Estimates***	**Base Case Master Plan***
1) Thurmont				4,000	5,000
Panel Allocation	4,955	4,785	4,760		
Range	2,000	5,500	5,500		
2) Myersville				2,000	3,000
Panel Allocation	2,900	2,850	2,850		
Range	1,300	1,300	1,300		
3) Lewiston				1,000	2,000
Panel Allocation	1,685	1,970	1,920		
Range	2,000	1,500	1,500		
4) Woodsboro-Walkersville				5,000	9,000
Panel Allocation	8,670	8,280	8,280		
Range	6,500	6,000	6,000		
5) Frederick City				71,000	108,000
Panel Allocation	119,490	116,595	116,295		
Range	79,500	148,500	148,500		
6) Brunswick				3,000	4,000
Panel Allocation	4,325	3,990	3,995		
Range	2,700	1,000	1,000		
7) Point of Rocks				8,000	12,000
Panel Allocation	11,690	11,525	11,475		
Range	15,000	12,000	12,000		
8) Urbana				5,000	14,000
Panel Allocation	11,650	14,095	13,445		
Range	9,000	11,500	11,500		
9) New Market				4,000	6,000
Panel Allocation	7,075	6,428	6,190		
Range	6,000	6,000	6,000		
10) Damascus-Brookeville				6,000	7,000
Panel Allocation	7,360	7,443	7,460		
Range	9,500	8,250	8,000		

Table A-4: Panel Allocations and Ranges, by Zone – Employment, *continued*

	Employment – *Panel Allocation*			Employment – *Current and BCMP*	
	No-build	**LRT & Highway**	**Bus, HOV & Highway**	**2001 Estimates***	**Base Case Master Plan***
11) Hyattstown				400	400
Panel Allocation	442	562	515		
Range	200	700	600		
12) Barnesville				300	300
Panel Allocation	314	306	306		
Range	250	250	250		
13) Poolesville - Darnestown				2,000	2,000
Panel Allocation	2,395	2,185	2,185		
Range	1,200	1,000	1,000		
14) Laytonsville				700	700
Panel Allocation	719	745	743		
Range	450	800	800		
15) Clarksburg				2,000	9,000
Panel Allocation	6,525	9,550	9,635		
Range	8,000	8,000	8,000		
16) Boyds				200	200
Panel Allocation	208	208	208		
Range	50	50	50		
17) Germantown				21,000	42,000
Panel Allocation	38,550	44,250	44,175		
Range	22,000	8,000	10,000		
18) Seneca Creek				900	1,000
Panel Allocation	1,000	1,035	1,079		
Range	1,075	775	1,200		
19) Gaithersburg				131,000	173,000
Panel Allocation	171,060	176,225	177,775		
Range	110,000	24,500	26,500		
Total	**401,013**	**413,027**	**413,291**	**267,500**	**398,600**

* Current and Forecast Estimates (last two columns) are rounded to nearest 1000 (or 100 if appropriate) and are from Metropolitan Washington Council of Governments Cooperative Forecast (Round 6.2) Socioeconomic Data: TAZ Level.
Note: "Total" for the first three columns is the total for the Panel Allocation.

APPENDIX 9: ATTENDEES, MAY 30, PANEL MEETING

The following individuals attended the May 30, 2001 panel meeting. The meeting was held at the Upcounty Regional Services Center in Germantown, Maryland.

Expert Panel Members in Attendance

Duc Duong	Mark Friis
Rick Miller	Doug Porter
Steve Poteat	Dick Pratt
Brian Quinlan	Anita Stup

Participants

Cathy Rice, State Highway Administration, Facilitator

Sam Seskin, Parsons, Brinckerhoff, Quade and Douglas (PBQD), Facilitator

Individuals Involved with the I-270/US 15 Expert Panel Process

Holiday Collins, PBQD

Sue Edwards, Maryland-National Capital Park and Planning Commission

Bob Griffiths, Metropolitan Washington Council of Governments (MWCOG)

Jim Gugel, Frederick County Planning

David Moss, Montgomery County Department of Public Works and Transportation

Steve Plano, PBQD

Steve Rapley, FHWA

David Whittaker, Maryland Department of Planning (MDP)

Bihui Xu, MDP

Members of the Public

Jim Clark, Action Committee for Transit

Mark Frederikson, Mburst, Inc.

Louise Gallun, Chief of Staff, Delegate Stern

Catherine Mathews, Upcounty Regional Services Center

Bob Smary, Frederick Chamber of Commerce

Unidentified person, MDP

APPENDIX 10: PHASE II MAPS, COMPARISON OF ALTERNATIVES

Figure A-4: All Scenarios Versus Base Case Master Plan

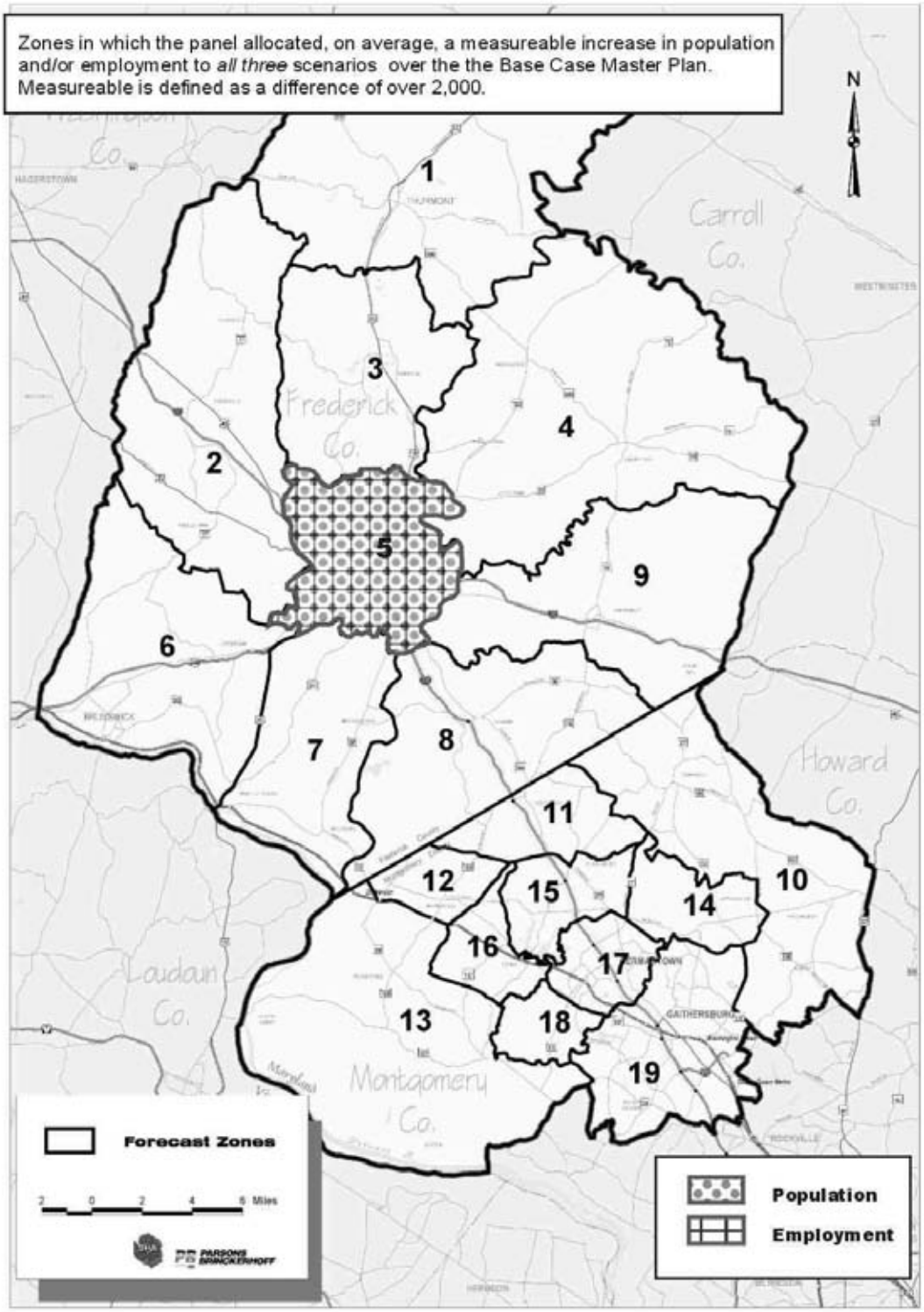


Figure A-5: Build Scenarios Versus No-build

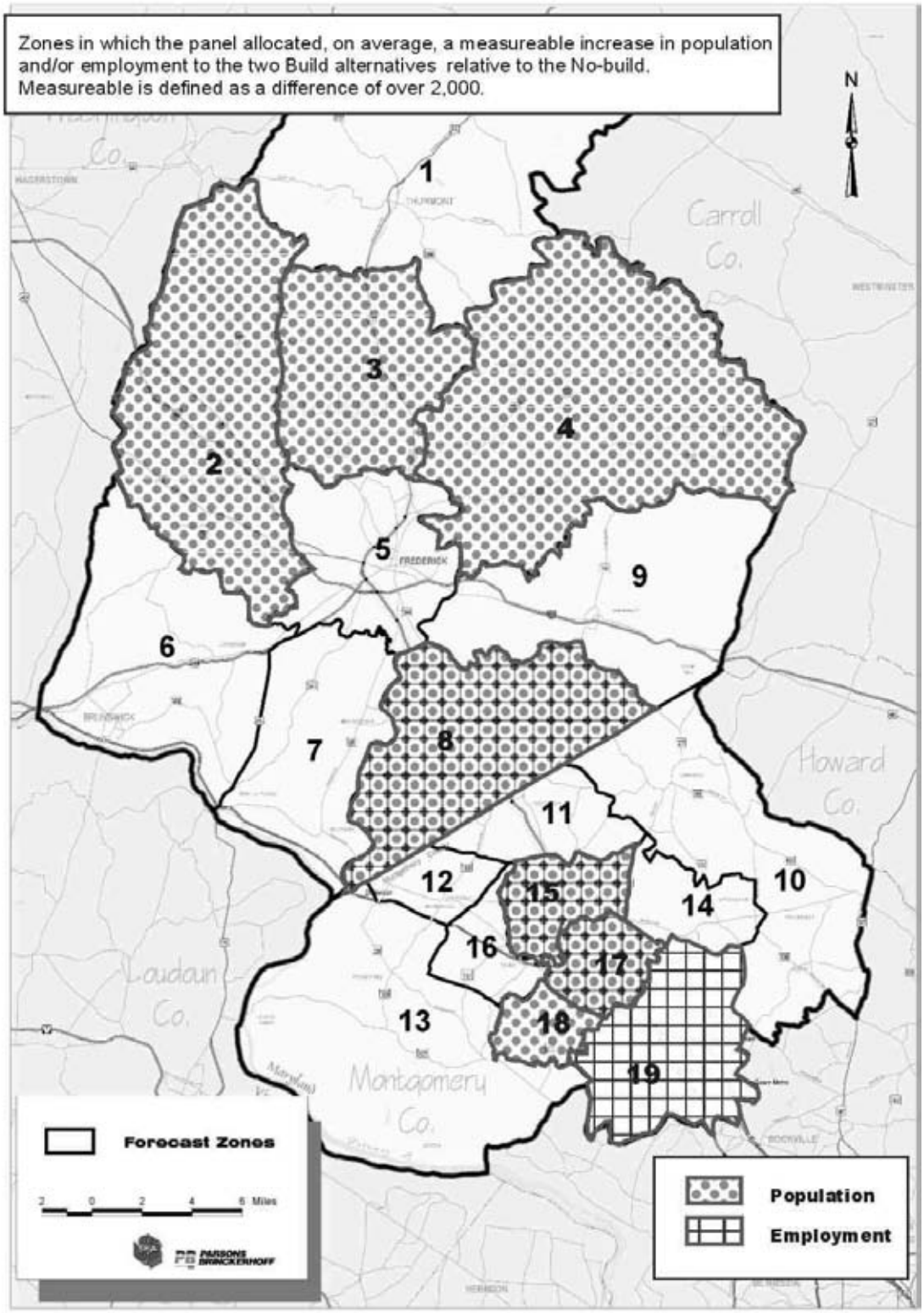
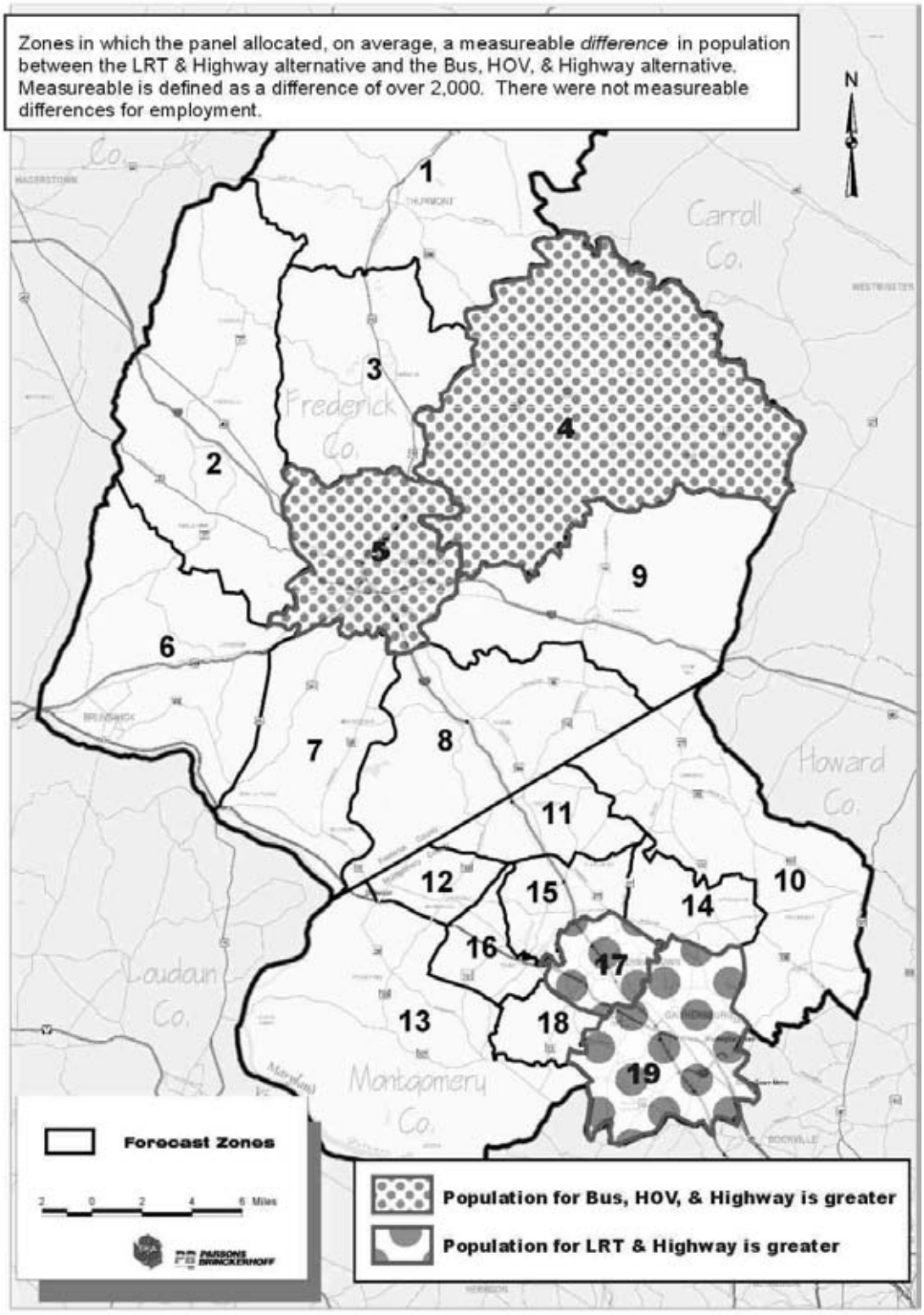


Figure A-6: LRT & Highway Alternative Versus Bus, HOV, & Highway Alternative



H. Congestion Management Strategies

I-270/US 15 Multi-Modal Corridor Study

Shady Grove Metrorail Station to Biggs Ford Road

Congestion Management Strategies Table

Proposed Congestion Mitigation Strategy	Strategy Relieve Congestion?	Part of Combination Alternates?
TSM Strategies • Traffic Operational Improvements The SHA District 3 (Montgomery County) office has made recommendations for safety and operational improvements for the I-270/US 15 Corridor. The following sections of I-270 will undergo roadway improvements as part of the implementation of HOV lanes from I-495 to MD 121: • I-270 at MD 121 • I-270 at Father Hurley Boulevard • I-270 at MD 118 • I-270 Y-Split Connection • I-270 X-Bridge The SHA District 7 (Frederick County) office has recently completed a safety improvement project for I-270 from near the scenic overlook north to I-70. The pavement milling/resurfacing project was completed in 1994 and included new raised pavement markings for improved visibility during adverse weather conditions. No roadway resurfacing projects are proposed nor have any safety deficiencies been identified for US 15 within the Project Area. Additional operational improvements which are under construction, final design or completing special project studies include: • I-70 Reconstruction: MD 144 to Mt. Phillip Road (Phase I) Improvements to US 15/US 340 Access - improve traffic flow for US 40 (Golden Mile) by redirecting SB US 15 traffic through the I-70/270/US 40 interchange to WB I-70. • District 7 Special Project: I-270/MD 85 Interchange - close the northwest and southeast quadrant loop ramps to improve I-270 mainline roadway traffic operations/LOS, improve local traffic access patterns and improve safety.	No	Yes (Additional Intersections and Interchanges)
TDM Strategies • Proposed Park and Ride Lots: Montgomery County has three new park and ride lots either ready for construction, in the final design stage, or in the planning stage within the Germantown area. Bus service would be provided by Ride-On for a new 150-space lot ready for construction on the west side of MD 355 at Shakespeare Boulevard. The Germantown Transit Center lot, consisting of approximately 200 spaces, is in the final design stage and would be located in the vicinity of the Century Boulevard/Crystal Rock Drive area. An additional park and ride lot is in the planning stages for location along Clopper Road north of Great Seneca Highway. In addition to the park and ride lots proposed by Montgomery County, MTA is proposing to expand the MARC Germantown Station parking facilities by 300 spaces. Frederick County has not proposed any park and ride lots within their long range plans. MTA and SHA have park and ride lots either in the final design or early planning phases. MTA is preparing final design plans for an 850-space park and ride lot for the MARC Frederick Suburban Station to be located along MD 355 just east of Francis Scott Key Mall. The lot would be serviced by three AM and PM MARC trains to/from the Washington-Union Station via the Brunswick Line. Meanwhile, SHA's I-270 HOV Support Facilities Committee, as part of the current I-270 HOV Implementation Plan, has been actively researching the park and ride facilities in the Corridor. Among the committee's goals are: expanding existing lots, providing new lots, and identifying	No	Yes (Several Park and Ride Lots will be included)

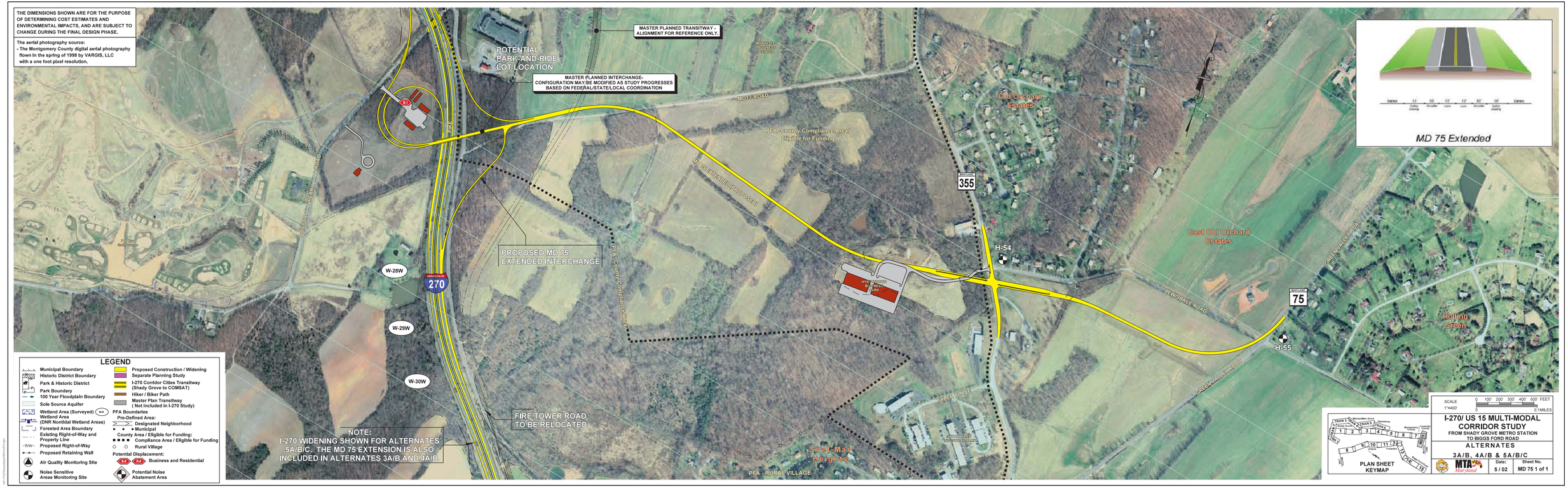
Proposed Congestion Mitigation Strategy	Strategy Relieve Congestion?	Part of Combination Alternates?
shared use lots. This identification includes the expansion of the existing I-270/MD 80 interchange from a 194-space park and ride lot. In the long term, the committee would like to provide HOV parking incentives as well as a more efficient carpool matching system.		
• Telecommuting: A relatively new TDM measure includes providing employees with the opportunity to work at home or at a centralized telecommuting facility which can support the electronic needs of today's computer-based work force. Today, there are no telecommuting facilities/centers in either Montgomery or Frederick counties. Montgomery County planning staff are seeking capital budget appropriations approval to begin planning a telecommuting center. Frederick County planning staff have submitted and received approval from MDOT to utilize funds from the TERP for a telecommuting facility. The Frederick Telework Center (FTC) has been operating in the Omega Center Office Park located on MD 85 south of Frederick since 1997. The FTC provides 15 work stations and teleconferencing facilities. In addition to telecommuting in the Project Area, an existing telecommuting facility is located in Hagerstown (Washington County). Utilization of the facility varies according to the day of the week. The number of study area employees/commuters who take advantage of individual work-at-home, computer-modem telecommuting within the study area is unknown.	No	Yes (A few sites have been identified in the Activity Centers)
• Alternative Work Hours: In Montgomery County, the largest employers along the I-270/US 15 Corridor include IBM/Loral Systems, the National Institute of Standards & Technology (NIST), COMSAT, the DOE, Orbital Sciences, Bechtel, Vitro, Marriott, Hughes, and the Shady Grove Hospital. At this time, there are no known major employers who encourage flex-time. Alternative work hours determined by the employer mainly consist of employees having days off in alternate weeks. Frederick County does not operate or administer an Alternative Work Hours program.	No	Yes (Encouragement through the Counties)
• Congestion Pricing Congestion pricing proposes to control demand on a facility by imposing a premium toll for travel during peak periods. Currently, there are no roadway facilities within the State of Maryland that use congestion pricing as a way to control capacity and increase roadway LOS. *Given the fact that this portion of the I-270/US 15 Corridor is not a new facility, is not currently tolled throughout its limits, and the fact that Maryland has not conducted any demonstration projects on some of the more congested facilities within the State. The I-270/US 15 Corridor should not be viewed as a candidate for congestion pricing at this time.*	No	No
• Vanpool Program: Montgomery County currently operates and administers a vanpool commuter service. This service includes 135± vans which operate daily in addition to 16± vans currently being organized. Frederick County does not currently operate or administer a vanpool commuter service. Frederick County planning staff are aware of a few privately-coordinated commuter vanpools, however do not have an exact number available. A vanpool incentive program application to MTA has been approved to fund 24 vanpools for Frederick County commuters traveling to either the Washington or Baltimore Areas. The program, funded by a $150,000 grant from the Transportation Emissions Reduction Pilot Program (TERP), would provide up to 24 new-short vanpools with a minimum of eight commuters, yielding an average monthly vanpool subsidy of $300 over an 18-month period. The Vanpool Incentive Program that has been administered by Frederick County TransIT will be funded through FY 1999. Unless another source of funding is found, this program will stop in June, 1999.	No	Yes

Proposed Congestion Mitigation Strategy	Strategy Relieve Congestion?	Part of Combination Alternates?
• Employee Transportation Coordinator: Montgomery County encourages major employers to have an Employee Transportation Coordinator (ETC) to monitor employee commuting patterns and to market alternative travel modes. Montgomery County's program has been very successful and is one of the largest in the nation. At this time, Frederick County does not operate an ETC program. The Montgomery County program involves an ETC for each employer in the area to serve as a liaison between the county, the company, and the employees. The ETC presents a menu of selective transportation options that employees can choose from. In addition, employees enrolled in the ETC program must dedicate 25% of an employee's time per week to coordinating rides/carpools within the company. There are between 500 and 600 Employee Transportation Coordinators in Montgomery County.	No	Yes
• Ride Finder Network: Both Frederick and Montgomery counties are members of the Ride Finder Network, which is managed by MWCOG in the Washington area. MWCOG has established a data base network of commuters organized by trip origin and destination. Informational signs promoting the Ride Finder Network and its phone number can be found along the roadways within the Project Area. Montgomery County participates in the MWCOG and MTA Ride Finder Network, which has the following characteristics: • The program started as a commuter club in 1974 and became a network in 1983. • There were 15,000 applications for the Ride Finder Network in 1983 when the program became a network. The formation rate doubled when the program became a network. • Applications can be taken over the phone or can be picked up at the Montgomery County Rideshare Offices. • The cost of the service is free. • The most often requested origin/destination areas are Fairfax, the Potomac Rappahannock Transportation Commission in Prince William County, and Montgomery County. • The Ride Finder Network currently receives 25,000 applications annually. • The Network forms rides for 30% of the applicants. Frederick County also participates in the MWCOG and MTA Ride Finder Networks and until recently did not actively participate via an on-line computer with the network database. Frederick County is now connected (after receipt of their TERP application grant funds) to on-line databases with the Ride Finder Network. In addition, Frederick County provides information regarding regional transit services through Frederick County TransIT, MARC, Montgomery County Ride-On, MTA and WMATA.	No	Yes
• Guaranteed Ride Home Program: Within Montgomery County, the only program that is exclusively for Montgomery County government employees has been initiated. Frederick County TransIT also plans to implement their inaugural Guaranteed Ride Home Program upon receipt of the TERP application grant funds from MTA. The "limited" program would reimburse registered commuters using the 24 new-start for documented costs in case of an unforeseen emergency that would not allow the commuter to return home from work by their vanpool. Emergencies would include personal illness, immediate family illness or mandatory overtime. Reimbursement would be limited to a maximum of $30 per occurrence and up to 3 times per year per registered commuter.	No	Yes
Growth Management Strategies The I-270/US 15 Corridor Study is consistent with the approved and adopted master plans for the Shady Grove, Gaithersburg, Germantown, Clarksburg and Hyattstown master plans for Montgomery County and the Urbana and Frederick Region master plans for Frederick County.	No	Yes (Several land use shifts have been recommended

Proposed Congestion Mitigation Strategy	Strategy Relieve Congestion?	Part of Combination Alternates?
Growth management is achieved in Montgomery and Frederick Counties by the County Planning Board which administers and enforces the respective Adequate Public Facilities Ordinances (APFO) in each county. The APFO requires each subdivision application be evaluated for its impact on public facilities including: transportation, schools, water and sewer, and police, fire, and health services. If the review reveals that the public facilities are not adequate, the subdivision is denied by the respective planning board. *Montgomery County* In general, for the past 10 years, adequate transportation in Montgomery County has been the limiting factor for development. When the ordinance was first passed in 1973, only the proposed development's impact on local intersections was reviewed. In 1986, however, Montgomery County was divided into 26 policy areas plus rural areas. A proposed subdivision's impact to the regional facilities within the policy area must also be examined. Any subdivision generating five or more trips per day is subject to a policy area review. Subdivisions generating 50 or more trips per day are subject to both a policy area review and a local area review and require traffic studies to determine the impact on local intersections. A staging ceiling, which is the maximum number of transportation trips that can be handled by the system, has been set for each policy area. This staging ceiling is equal to the roadway LOS weighted by the percentage of auto users within the policy area multiplied by the transit LOS weighted by the percentage of transit riders within the policy area. Montgomery County also helps organize a commuting solutions program called "Smart Moves 2000!" Smart Moves 2000! is a program generally initiated by employers to achieve smart transportation alternatives that will benefit both the employers (with recognition, grants or matching funds) and the employees (with subsidies and alternative transportation options). The employer defines an Action Plan with the following items: a Transportation Benefits Coordinator (TBC), preferred parking for carpools/vanpools, free/reduced parking rates for carpoolers/vanpoolers, transportation presentations to employees, free carpool/vanpool matching, promote Guaranteed Ride Home Program for registered alternative transportation users, information on commuting in New Employee Orientation Package and on bulletin boards or in company newsletters, company participation in Annual Transportation Survey, transit/pedestrian amenities (such as sidewalk connections, benches, etc.), biking amenities (such as racks, showers, lockers, etc.), tax free (matching) commuter subsidy, fare media available at cost at the worksite, compressed work week, flex time, telecommuting/teleworking, jobsharing, ADA information, current bus schedules on display, live near your work and other. In addition, Montgomery County manages growth through their annual growth policy, through low intensity zoning in the wedges with generally little or not extended public water and sewer service to the wedge areas. *Frederick County* Frederick County adopted APFO controls in 1991 and the requirements became effective on December 1, 1991. Similar to the APFO for Montgomery County, Frederick County adopted a roads impact threshold based on a minimum of twenty-five peak hour, peak direction vehicle trips for which developments must be reviewed according to APFO requirements. The County's APFO has recently been revised. The road test has raised the threshold to 100 peak hour trips. Frederick County has adopted the Community Concept strategy which calls for growth to be directed into municipalities and designated regional centers. Each of the County'' eight planning regions have designated communities where new development will be focused to maintain compact, identifiable communities. Public facilities would then be targeted to these designated growth areas. Each of the regional plans is updated every 6-7 years and includes the development of a land use plan and the undertaking of a comprehensive re-zoning process. The land use plan looks at a 20		to promote higher densities in and around the existing and proposed transit stations)

Proposed Congestion Mitigation Strategy	Strategy Relieve Congestion?	Part of Combination Alternates?
year timeframe in identifying residential, commercial, and employment areas along with the necessary public facilities. The comprehensive re-zoning process considers the development needs for the next 5 year period which helps to stage the proposed development over the entire 20 year time frame of the land use plan. Frederick County has two mixed use development zones, which allow for the integration of residential, commercial and employment uses within a single development. The PUD zone is primarily residential and allows for a mix of housing types. The mixed use density (MXD) zone is primarily for employment uses though allows for commercial and some residential. Both of these zones would bring residences and jobs in closer proximity to one another in an effort to reduce automobile use and commuting times.		
Transit Improvements • Operational and Capital Improvements MTA plans to make operational changes to MARC service in support of the new commuter rail service being extended to Frederick. The service will include three AM Washington-bound trains and three PM Frederick-bound trains operating from two Frederick area rail stations (one with park and ride facilities). In addition to making stops in the Frederick area, these trains would make stops at the Germantown, Metropolitan Grove, Rockville and Silver Spring stations as well as Washington Union Station. WMATA is not planning any operational or capital changes to the existing Metrorail system. The current routes and services are expected to remain the same with the northwestern terminus at the Shady Grove Metro Station. Montgomery County does not currently have any funded operational or capital changes proposed for the Ride-On bus system. Frederick County's TransIT plans to provide service to the proposed downtown Frederick and suburban Frederick MARC stations once opened for commuter rail passengers in December, 2000. In addition, TransIT's capital budget request would provide additional buses to reduce the current 45 minute headways and expand its current fixed routes from three to four. Three new flex routes have been started to serve Frederick City to supplement the existing three fixed routes. Commuter shuttles have also been established to serve Walkersville and the MD 85 employment corridor.	No	Yes
Highway Capacity Improvement • General Use Lanes Because of the travel demand forecast model of potential development of the I-270/US 15 Corridor and its associated traffic growth the main roadway, interchanges and peripheral roadway network with the Project Area is expected to fail in both the AM and PM peak hours by the 2020. Traffic forecasts show an increase in the LOS if general purpose lanes are constructed. Several alternates will be considered. As part of the I-270/US 15 Multi-Modal Corridor Study, the Study Team will evaluate feasible options to improve the safety and capacity of the Corridor by the addition of general purpose lanes, in conjunction with the prudent and feasible CMS strategies contained within this report. Due to the projected growth in both employment and population within the Project Area, as well as throughout the Corridor, the associated increase in corridor traffic volumes and congestion will result in the failure of many of the corridor's main segments, interchanges and peripheral roadways. • High Occupancy Vehicle (HOV) Lanes High Occupancy Vehicle (HOV) lanes, also known as carpool, commuter, and express lanes, are reserved for carpools, vanpools and buses. HOV lanes move more people in fewer vehicles because they encourage higher vehicle occupancies. Measures to encourage High Occupancy Vehicles include expanding park and ride facilities, studying the extension of HOV lanes and coordinating with Montgomery and Frederick Counties to encourage employer based ridesharing. The I-270 HOV implementation team has worked to ensure a smooth transition to the new HOV system. The team is educating the Corridor's	Yes Yes	Yes Yes

Proposed Congestion Mitigation Strategy	Strategy Relieve Congestion?	Part of Combination Alternates?
employers, and their respective employees, by means of Employer's Packets which contain information on what HOV lanes are, what the construction schedule is and who to call if interested in joining a carpool/vanpool. The planning study will evaluate HOV lanes as a separate improvement scenario.		
Intelligent Transportation System (ITS) Strategies • Chesapeake Highway Advisories Routing Traffic (CHART) Program I-270 is included in the Chesapeake Highway Advisories Routing Traffic (CHART) program which encompasses the following goals: • Surveillance of Interstate Roads • Incident Response • Traveler Information • Traffic Management The CHART program utilizes technologies such as TV cameras, road sensors, advanced communications, variable message signs, and tow trucks to provide incident management along the interstates within the Baltimore, Washington, Annapolis, and Frederick metropolitan areas. • Variable message signs • Reports of HAZMAT events • # of events coordinated through CHART • Incident Management Traffic incidents on I-270 and US 15 are handled on a case by case basis by SHA district personnel in cooperation with local and state police and local fire departments. In the event of a major emergency, district personnel can request assistance from the SHA CHART program.	No No	Yes Yes
Measures to Encourage Nontraditional Modes and Access Management • Encourage Nontraditional Modes I-270 and US 15 are restricted to bicyclists and pedestrians within the limits of the study and will remain so as controlled access facilities. Cyclists and pedestrians can and will continue to travel east and west, or parallel to I-270 and US 15, on adjacent roadways and parks along existing bicycle paths and sidewalks or the future Corridor Cities Transitway. Additional bicycle paths and full width sidewalks may be provided to further promote nontraditional modes. The north/south movements along arterials across I-270 and US 15 currently provide access for both cyclists and pedestrians to residential communities, commercial areas, educational centers and business parks. These north/south movements need to be maintained as part of this project. Because of the way the existing local roadway network is designed, any restrictions across I-270 on the above noted roadways would completely deny access to bicyclists and pedestrian traffic. • Access Management I-270 through the Project Area is a fully controlled access facility. From I-70 to MD 26, US 15 is a fully controlled access facility. From MD 26 to Biggs Ford Road, US 15 is a partially controlled access facility. Access management strategies are being applied through SHA on US 15 north of MD 26 to Biggs Ford Road where partial control of access exists. SHA is working through the Frederick County and Montgomery County site plan review processes to restrict proposed commercial and private development to public road access only. In situations where the Counties cannot restrict access, the option to purchase controls of the development itself is being considered.	No No	Yes Yes


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown In the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY
POTENTIAL PARK-AND-RIDE LOT LOCATION
MASTER PLANNED INTERCHANGE- CONFIGURATION MAY,BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION
MOTT ROAD
PFA - County Compliance Area - Eligible for Funding
MD 355 EXTENDED (PROPOSED)
PROPOSED MD 75 EXTENDED INTERCHANGE
PFA - County Compliance Area
FIRE TOWER ROAD TO BE RELOCATED
NOTE: I-270 WIDENING SHOWN FOR ALTERNATES 5A/B/C. THE MD 75 EXTENSION IS ALSO INCLUDED IN ALTERNATES 3A/B AND 4A/B.
PFA - RURAL VILLAGE
Old Orchard Estates
East Old Orchard Estates
Rolling Green
Shot-Mar Heights
H-54
H-55
W-28W
W-29W
W-30W
270
355
75
MD 75 Extended
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
PLAN SHEET KEYMAP
SCALE
1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES
3A/B, 4A/B & 5A/B/C
MTA Maryland
Date: 5 / 02
Sheet No. MD 75 1 of 1

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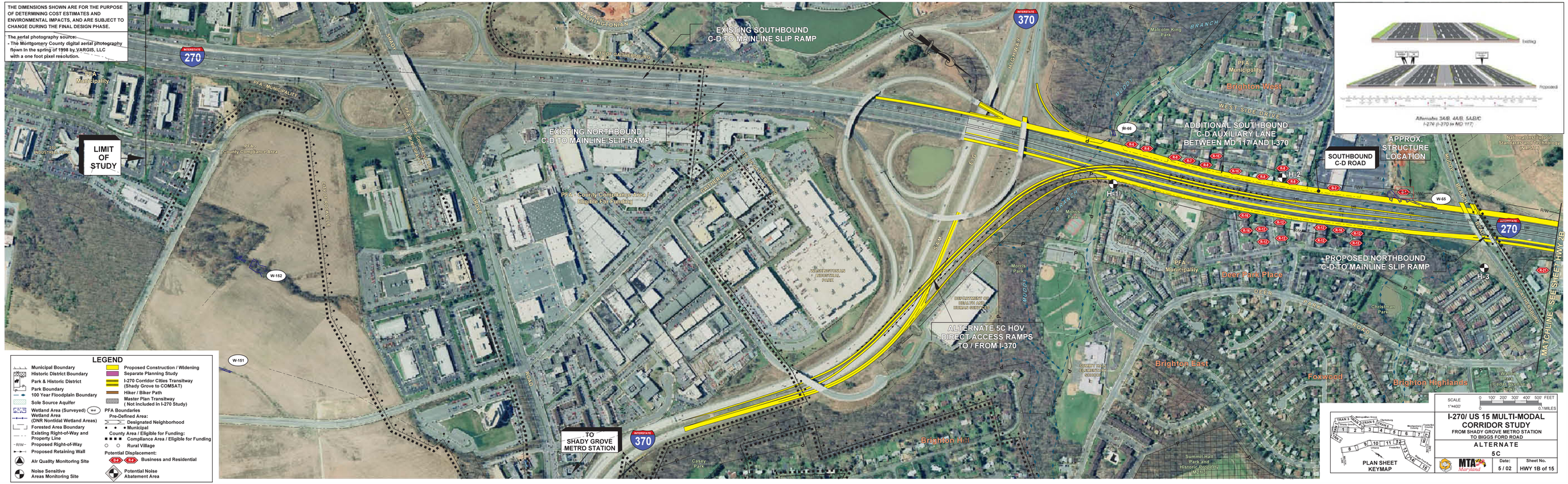

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) W-# / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PFA Boundaries Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- R-5 R-12 Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400' (0 100' 200' 300' 400' 500' FEET; 0 0.1 MILES)

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATE 5C

MTA Maryland

Date: 5 / 02

Sheet No. HWY 1B of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

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LIMIT OF STUDY

WASHINGTONIAN STATION

PFA - County Compliance Area / Eligible For Funding

EXISTING SOUTHBOUND C-D TO MAINLINE SLIP RAMP

EXISTING NORTHBOUND C-D TO MAINLINE SLIP RAMP

ADDITIONAL SOUTHBOUND C-D AUXILIARY LANE BETWEEN MD 117 AND I-370

SOUTHBOUND C-D ROAD

APPROX. STRUCTURE LOCATION

TO SHADY GROVE METRO STATION

Match Line - See Sheet HWY 1A

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included In I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

PLAN SHEET KEYMAP

SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland

Date: 5 / 02

Sheet No. HWY 1A of 15

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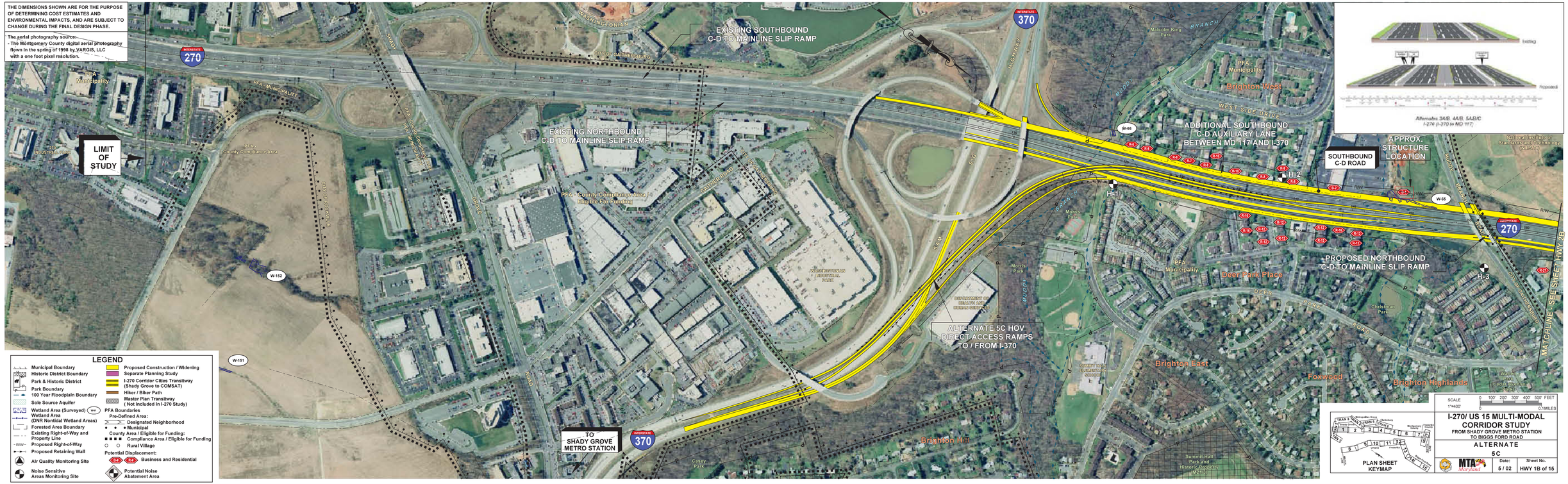

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) W-# / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PFA Boundaries Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- R-5 R-12 Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400' (0 100' 200' 300' 400' 500' FEET; 0 0.1 MILES)

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATE 5C

MTA Maryland

Date: 5 / 02

Sheet No. HWY 1B of 15

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PFA - Municipality

PROPOSED MD 117 INTERCHANGE MODIFICATION TO SUPPLEMENT SOUTHBOUND I-270 TO EASTBOUND MD 124 LEFT TURN MOVEMENT

PROPOSED SOUTHBOUND MAINLINE TO C-D SLIP RAMP

ADDITIONAL SOUTHBOUND C-D AUXILIARY LANE BETWEEN MD 117 AND I-370

PROPOSED SOUTHBOUND C-D TO MAINLINE SLIP RAMP

PROPOSED SOUTHBOUND C-D AUXILIARY LANE BETWEEN MD 124 LOOP RAMP AND SLIP RAMP REQUIRES CSX BRIDGE RECONSTRUCTION

EXISTING NORTHBOUND MAINLINE TO C-D SLIP RAMP

MATCHLINE - SEE SHEET HWY 1A

MATCHLINE - SEE SHEET HWY 3A

Orchard Pond

METROPOLITAN GROVE STATION

GEOMETRIC OPTIONS FOR DIRECT ACCESS RAMPS AT THE WATKINS MILL ROAD INTERCHANGE AREA ARE UNDER STUDY

PROPOSED WATKINS MILL ROAD INTERCHANGE IMPACTS ARE BEING DEVELOPED AS PART OF A SEPARATE STUDY

PROPOSED NORTHBOUND MAINLINE TO C-D SLIP RAMP

TO MD 117

PFA - County Compliance Area / Eligible for Funding

Caulfield

ADDITIONAL SOUTHBOUND C-D AUXILIARY LANE BETWEEN MIDDLEBROOK ROAD AND WATKINS MILL ROAD

SOUTHBOUND C-D ROAD

NORTHBOUND C-D ROAD

ADDITIONAL NORTHBOUND C-D AUXILIARY LANE BETWEEN WATKINS MILL ROAD AND MIDDLEBROOK ROAD

Stratford Mews

London Derry

Brighton Highlands

Alternates 3A/B, 4A/B, 5A/B/C
I-270 (I-370 to MD 117)

Alternates 3A/B, 4A/B, 5A/B/C
I-270 (MD 117 to MD 124)

Alternates 3A/B, 4A/B, 5A/B/C
I-270 (MD 124 to Middlebrook Road)

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) (W#)
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- -R/W- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal

County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland

Date: 5 / 02

Sheet No. HWY 2A of 15

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PFA - Municipality

PROPOSED MD 117 INTERCHANGE MODIFICATION TO SUPPLEMENT SOUTHBOUND I-270 TO EASTBOUND MD 124 LEFT TURN MOVEMENT

PROPOSED SOUTHBOUND MAINLINE TO C-D SLIP RAMP

ADDITIONAL SOUTHBOUND C-D AUXILIARY LANE BETWEEN MD 117 AND I-370

EXISTING NORTHBOUND MAINLINE TO C-D SLIP RAMP

PROPOSED SOUTHBOUND C-D TO MAINLINE SLIP RAMP

PROPOSED SOUTHBOUND C-D AUXILIARY LANE BETWEEN MD 124 LOOP RAMP AND SLIP RAMP REQUIRES CSX BRIDGE RECONSTRUCTION

GEOMETRIC OPTIONS FOR DIRECT ACCESS RAMPS AT THE WATKINS MILL ROAD INTERCHANGE AREA ARE UNDER STUDY

PROPOSED NORTHBOUND MAINLINE TO C-D SLIP RAMP

PROPOSED WATKINS MILL ROAD INTERCHANGE IMPACTS ARE BEING DEVELOPED AS PART OF A SEPARATE STUDY

ADDITIONAL SOUTHBOUND C-D AUXILIARY LANE BETWEEN MIDDLEBROOK ROAD AND WATKINS MILL ROAD

ADDITIONAL NORTHBOUND C-D AUXILIARY LANE BETWEEN WATKINS MILL ROAD AND MIDDLEBROOK ROAD

PFA - County Compliance Area / Eligible for Funding

MATCHLINE - SEE SHEET HWY 1B

MATCHLINE - SEE SHEET HWY 3B

TO MD 117

SOUTHBOUND C-D ROAD

NORTHBOUND C-D ROAD

Orchard Pond

Caulfield

London Derry

Stratford Mews

Brighton Highlands

Alternates 3A/B, 4A/B, 5A/B/C
I-270 (I-370 to MD 117)

Alternates 3A/B, 4A/B, 5A/B/C
I-270 (MD 117 to MD 124)

Alternates 3A/B, 4A/B, 5A/B/C
I-270 (MD 124 to Middlebrook Road)

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding: Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400' — 0 100' 200' 300' 400' 500' FEET — 0 0.1 MILES

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATE 5C

MTA Maryland

Date: 5 / 02

Sheet No. HWY 2B of 15

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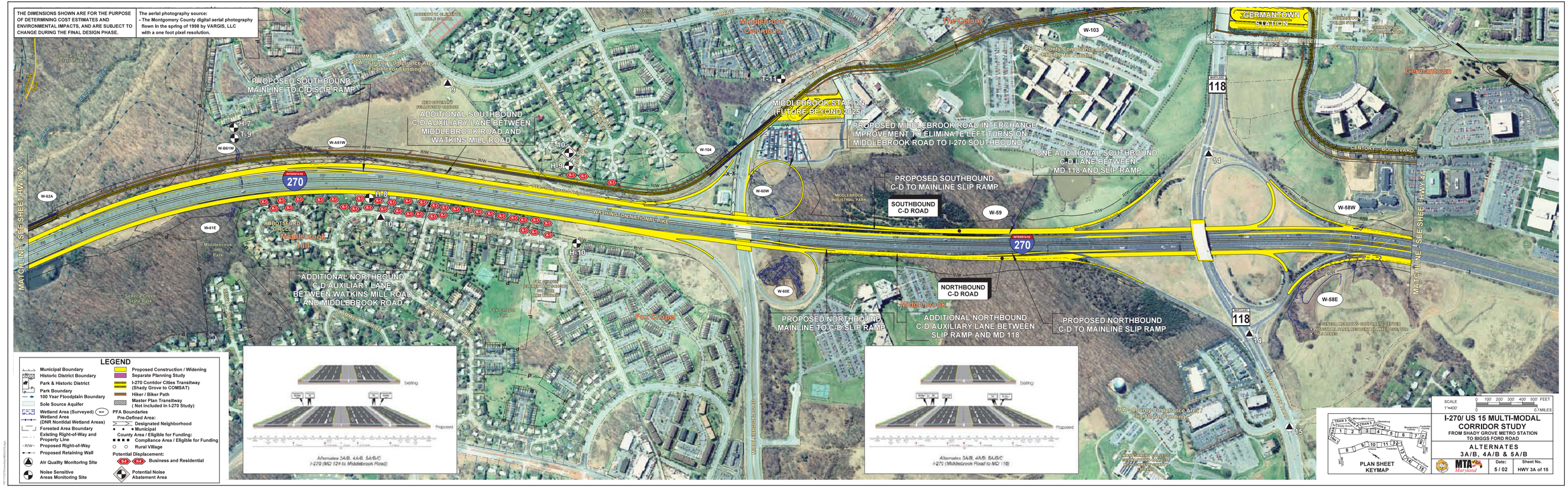

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) (W-#)
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W - Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
- Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding: Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

PLAN SHEET KEYMAP

SCALE 1"=400' — 0 100' 200' 300' 400' 500' FEET — 0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland | Date: 5 / 02 | Sheet No. HWY 3A of 15

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PROPOSED SOUTHBOUND MAINLINE TO C-D SLIP RAMP
ADDITIONAL SOUTHBOUND C-D AUXILIARY LANE BETWEEN MIDDLEBROOK ROAD AND WATKINS MILL ROAD
PFA - County Compliance Area Eligible for Funding
Seneca Creek State Park
Middlebrook Commons
The Colony
PROPOSED MIDDLEBROOK ROAD INTERCHANGE IMPROVEMENT TO ELIMINATE LEFT TURNS ON MIDDLEBROOK ROAD TO I-270 SOUTHBOUND
ONE ADDITIONAL SOUTHBOUND C-D LANE BETWEEN MD 118 AND SLIP RAMP
PROPOSED SOUTHBOUND C-D TO MAINLINE SLIP RAMP
SOUTHBOUND C-D ROAD
Germantown
270
118
Middlebrook Hill
ADDITIONAL NORTHBOUND C-D AUXILIARY LANE BETWEEN WATKINS MILL ROAD AND MIDDLEBROOK ROAD
Fox Chapel
Middlebrook
NORTHBOUND C-D ROAD
PROPOSED NORTHBOUND C-D TO MAINLINE SLIP RAMP
ADDITIONAL NORTHBOUND C-D AUXILIARY LANE BETWEEN SLIP RAMP AND MD 118
PROPOSED NORTHBOUND MAINLINE TO C-D SLIP RAMP
ALTERNATE 5C HOV DIRECT ACCESS RAMPS TO / FROM MD 118
MATCHLINE - SEE SHEET HWY-2B
MATCHLINE - SEE SHEET HWY-4B
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wet and Area (Surveyed)
Wet and Area (DNR Nontidal Wet and Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
Existing
Proposed
Alternates 3A/B, 4A/B, 5A/B/C
I-270 (MD 124 to Middlebrook Road)
I-270 (Middlebrook Road to MD 118)
SCALE 1" 400'
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATE 5C
PLAN SHEET KEYMAP
MTA Maryland
Date: 5 / 02
Sheet No. HWY 3B of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown In the sprfng of 1998 by VARGIS, LLC with a one foot pixel resolution.

MATCHLINE - SEE SHEET HWY 3A

MATCHLINE - SEE SHEET HWY 5

PFA - County Compliance Area / Eligible for Funding

CLOVERLEAF STATION

PROPOSED SOUTHBOUND C-D TO MAINLINE SLIP RAMP

Germantown

I-270 CORPORATE CENTER

SOUTHBOUND C-D ROAD

3 SOUTHBOUND C-D LANES BETWEEN FATHER HURLEY BOULEVARD AND SLIP RAMP

W-57W

W-57E

NORTHBOUND C-D ROAD

FUTURE TRANSITWAY STATION

3 PROPOSED SOUTHBOUND LANES ALONG I-270 MAINLINE (2 GENERAL - PURPOSE + 1 HOV) NORTH OF SLIP RAMP

POTENTIAL PARK-AND-RIDE LOT LOCATION ALONG OBSERVATION DRIVE

Meadowbrook Estates

OBSERVATION DRIVE

Churchill Town Sector

W-101

MANEKIN STATION (FUTURE BEYOND 2025)

FUTURE TRANSITWAY STATION

MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.

PROPOSED CENTURY BOULEVARD

4 GENERAL - PURPOSE + 1 HOV LANES SPLIT TO FORM 2 SOUTHBOUND C-D LANES AND 3 MAINLINE LANES (2 GENERAL - PURPOSE + 1 HOV)

FACILITY WITH AREA
- TOWN CENTER
- MIXED USES
- 1,000,000 SQ. FT.

W-53

W-54

W-52W

W-51

W-52E

W-100

H-13

H-12

H-11

2 NORTHBOUND C-D LANES JOIN 3 MAINLINE LANES (4 GENERAL - PURPOSE + 1 HOV)

DORSEY MILL STATION

T-13

Brookfield

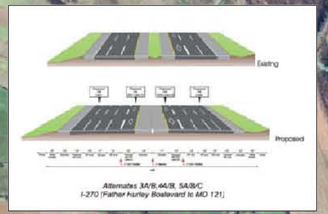
The Vistas At Milestone

Milestone

Black Hill Regional Park

North Germantown Greenway

Little Seneca Creek



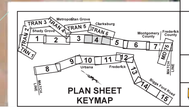
LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) W-57 / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal

County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area



SCALE
1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland

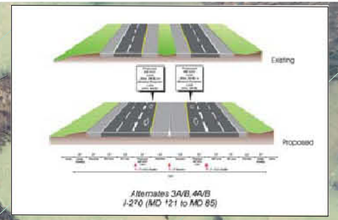
Date:	Sheet No.
5 / 02	HWY 4A of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
Existing
Proposed
Alternates 3A/B, 4A/B, 5A/B/C
I-270 (MD 118 to Father Hurley Boulevard)
MATCHLINE - SEE SHEET HWY 3B
CENTURY BOULEVARD
PROPOSED SOUTHBOUND C-D TO MAINLINE SLIP RAMP
Germantown
SOUTHBOUND C-D ROAD
I-270 CORPORATE CENTER
3 SOUTHBOUND C-D LANES BETWEEN FATHER HURLEY BOULEVARD AND SLIP RAMP
W-57W
W-57E
16
NORTHBOUND C-D ROAD
270
R/W
PFA - County Compliance Area / Eligible for Funding
FATHER
HURLEY
BOULEVARD
W-101
Churchill Town Sector
4 GENERAL - PURPOSE + 1 HOV LANES SPLIT TO FORM 2 SOUTHBOUND C-D LANES AND 3 MAINLINE LANES (2 GENERAL - PURPOSE + 1 HOV)
WASHINGTON NATIONAL PIKE
3 PROPOSED SOUTHBOUND LANES ALONG I-270 MAINLINE (2 GENERAL - PURPOSE + 1 HOV) NORTH OF SLIP RAMP
POTENTIAL PARK-AND-RIDE LOT LOCATION ALONG OBSERVATION DRIVE
OBSERVATION DRIVE
Meadowbrook Estates
H-11
H-12
H-13
2 NORTHBOUND C-D LANES JOIN 3 MAINLINE LANES (4 GENERAL - PURPOSE + 1 HOV)
Milestone
Brookfield
The Vistas At Milestone
W-53
W-52W
W-51
W-54
W-52E
W-100
Black Hill Regional Park
North Germantown Greenway
MATCHLINE - SEE SHEET HWY 5
Existing
Proposed
Alternates 3A/B, 4A/B, 5A/B/C
I-270 (Father Hurley Boulevard to MD 121)
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed) W-#
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
R/W Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
B-# R-# Business and Residential
Potential Noise Abatement Area
197-17\i270\newdisp\IM4BI270.dgn
SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES
TRAN 1 TRAN 2 TRAN 3 TRAN 4 TRAN 5 TRAN 6
Shady Grove
Metropolitan Grove
Clarksburg
Montgomery County
Frederick County
1 2 3 4 5 6 7 MD 75
8 9 10 11 12 13 14 15
Urbana
Frederick
Biggs Ford Road
MATCH LINE
PLAN SHEET KEYMAP
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATE 5C
SHA
MTA Maryland
Date: 5 / 02
Sheet No. HWY 4B of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
Existing
Proposed
Alternates 3A/B, 4A/B, 5A/B/C
I-270 (Father Hurley Boulevard to MD 121)
Alternates 3A/B, 4A/B
I-270 (MD 121 to MD 85)
Alternates 5A/B/C
I-270 (MD 121 to MD 85)
PROPOSED I-270 / NEWCUT ROAD INTERCHANGE HOV DIRECT ACCESS RAMPS TO / FROM NEWCUT ROAD
MASTER PLANNED INTERCHANGE- CONFIGURATION MAY BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION
5 SOUTHBOUND LANES (4 GENERAL - PURPOSE + 1 HOV)
5 NORTHBOUND LANES (4 GENERAL - PURPOSE + 1 HOV)
ADDITIONAL SOUTHBOUND AUXILIARY LANE BETWEEN MD 121 AND NEWCUT ROAD
PFA - County Compliance Area / Eligible for Funding
PFA - County Compliance Area
Clarksburg Triangle (Stage III)
BLACK HILL REGIONAL PARK
MATCHLINE - SEE SHEET HWY 4A, 4B
MATCHLINE - SEE SHEET HWY 6A, 6B
W-51
W-50
W-49
W-48W
W-55
W-48E
W-56
W-47
270
121
18
19
T-15
NEWCUT ROAD (PROPOSED)
WASHINGTON NATIONAL PIKE
COMSAT DRIVE
COMSAT
COMSAT STATION
POTENTIAL RAIL YARD/SHOP FACILITIES
CORRIDOR CITIES TRANSITWAY ALIGNMENT INCLUDED IN ALTERNATES 3 A/B, 4 A/B AND 5 A/B (NOT ALTERNATE 5C)
5 NORTHBOUND LANES (4 GENERAL - PURPOSE + 1 HOV)
PROPOSED I-270 / MD 121 INTERCHANGE IMPROVEMENTS
PROPOSED RELOCATED MD 121 / STRINGTOWN RD BY MONTGOMERY COUNTY
GATEWAY CENTER DRIVE
Clarksburg
R/W
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not Included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES
PLAN SHEET KEYMAP
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES 3A/B, 4A/B & 5A/B/C
MTA Maryland
Date: 5 / 02
Sheet No. HWY 5 of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.



OUTSIDE WIDENING ALONG NORTHBOUND / SOUTHBOUND I-270 TO REDUCE WETLAND IMPACTS IN THIS AREA

MATCHLINE - SEE SHEET HWY 5

MATCHLINE - SEE SHEET HWY 7A

Montgomery County Correctional Facility

W-45W

W-46E

W-A46E

W-45E

H-15

H-14

Clarksburg Road

Milestone Center

Clarksburg

PFA - County Compliance Area Eligible for Funding

MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.

Little Bennett Regional Park

PFA - County Compliance Area

GATEWAY OF REMEMBRANCE CAN STADIUM MEMORIAL PARK

W-39

W-38

W-E35

W-G35

W-H35

W-F35

H-16

355

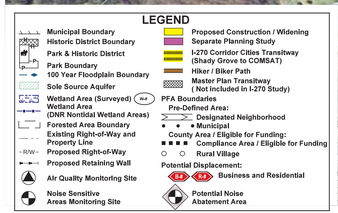
Observation Drive

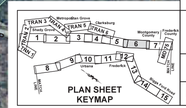
W-41

W-42

Walsh Station

W-36





SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B & 4A/B

MTA Maryland

Date:	Sheet No.
5 / 02	HWY 6A of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.

OUTSIDE WIDENING ALONG NORTHBOUND / SOUTHBOUND I-270 TO REDUCE WETLAND IMPACTS IN THIS AREA

Montgomery County Correctional Facility

MATCHLINE - SEE SHEET HWY 5

MATCHLINE - SEE SHEET HWY 7B

W-46E W-A46E W-45W W-45E W-G35 W-H35 W-F35 W-39W W-38 W-E35 W-36 W-41 W-42

H-15 H-14 H-16

INTERSTATE 270

WASHINGTON NATIONALS PLAYER DEVELOPMENT COMPLEX

GARDEN OF REMEMBRANCE CAL RIPKEN MEMORIAL PARK

Ridge Road

MARYLAND 355

Miles Corner

PFA - County Compliance Area Eligible for Funding

Clarksburg

MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.

PFA - County Compliance Area

Little Bennett Regional Park

Little Bennett Regional Park

Wells Station

Wells Station

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) W-A
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- B-3 Business and Residential
- P-2 Potential Noise Abatement Area

SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATE 5A/B/C

PLAN SHEET KEYMAP

MTA Maryland

Date: 5 / 02

Sheet No. HWY 6B of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
OUTSIDE WIDENING ALONG NORTHBOUND / SOUTHBOUND I-270 TO REDUCE WETLAND IMPACTS IN THIS AREA
PEACH TREE ROAD TO BE RELOCATED
PEACH TREE ROAD
109
355
270
W-33
W-34
W-C35
W-A35
W-D35
W-E35
W-43
W-44
W-31
W-32
W-30
W-29
W-28
H-17
H-18
21
MATCHLINE - SEE SHEET HWY 6A
MATCHLINE - SEE SHEET HWY 8A
MATCHLINE - SEE SHEET MD75
POTENTIAL MD 109 INTERCHANGE CLOSURE UNDER CONSIDERATION
WASHINGTON NATIONAL PIKE
FIRE TOWER ROAD TO BE RELOCATED
PROPOSED MD 75 EXTENDED INTERCHANGE
MASTER PLANNED INTERCHANGE-CONFIGURATION MAY BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.
POTENTIAL PARK-AND-RIDE LOT LOCATION
PFA - County Compliance Area/ Eligible for Funding
MONTECITO BUSINESS CENTER
Hyattstown
MONTGOMERY COUNTY
FREDERICK COUNTY
PFA - RURAL VILLAGE
PFA - Rural Village
Shel-Mar Heights
URBANA PIKE
SAMS LANE
Existing
Proposed
Alternates 3A/B, 4A/B
I-270 (MD 121 to MD 85)
PLAN SHEET KEYMAP
LEGEND
Municipa Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year F oodp ain Boundary
So e Source Aquifer
Wet and Area (Surveyed)
W-#
Wet and Area (DNR Nontida Wet and Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
-R/W-
Proposed Right-of-Way
Proposed Retaining Wa
Air Qua ity Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate P anning Study
-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master P an Transitway (Not inc uded in -270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipa
County Area / E igib e for Funding:
Comp iance Area / E igib e for Funding
Rura Vi age
Potentia Disp acement:
B-#
R-#
Business and Residentia
Potentia Noise Abatement Area
SCALE
1" 400'
0 100' 200' 300' 400' 500' FEET
0 0.1M LES
-270/ US 15 MULT -MODAL CORR DOR STUDY
FROM SHADY GROVE METRO STAT ON TO B GGS FORD ROAD
ALTERNATES 3A/B & 4A/B
SHA
MTA Maryland
Date: 5 / 02
Sheet No. HWY 7A of 15
197-17\i270\newdisp\IM7AI270.dgn

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.

OUTSIDE WIDENING ALONG NORTHBOUND / SOUTHBOUND I-270 TO REDUCE WETLAND IMPACTS IN THIS AREA

PEACH TREE ROAD TO BE RELOCATED

POTENTIAL MD 109 INTERCHANGE CLOSURE UNDER CONSIDERATION

FIRE TOWER ROAD TO BE RELOCATED

PROPOSED MD 75 EXTENDED INTERCHANGE

MASTER PLANNED INTERCHANGE- CONFIGURATION MAY BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION

MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.

POTENTIAL PARK-AND-RIDE LOT LOCATION

MATCHLINE - SEE SHEET HWY 6B

MATCHLINE - SEE SHEET MD75

W-E35 W-43 W-44 W-D35 W-C35 W-A35 W-33 W-34 W-31 W-32 W-30 W-29 W-28 H-17 H-18 21

Little Bennett Regional Park

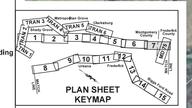
Hyattstown

Shel-Mar Heights

PFA - RURAL VILLAGE

PFA - County Compliance Area! Eligible for Funding

MONTGOMERY COUNTY / FREDERICK COUNTY



LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) (W-#)
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding: Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400' — 0 100' 200' 300' 400' 500' FEET; 0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 5A/B/C

MTA Maryland | Date: 5 / 02 | Sheet No. HWY 7B of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.

Aerial photography source:
- Frederick County DigiAir Mapping flown In October 2000 with a one meter pixel resolution.

MATCHLINE - SEE SHEET HWY 7A

MATCHLINE - SEE SHEET HWY 9A

Urbana Lake Fish Management Area

BENNETT CREEK

W-27W
W-27E
W-26W
W-26E
W-25W
W-25E
W-24
W-24
W-23W
W-23E
W-22W
W-22E
W-6W
W-6E

INTERSTATE 270

H-19

H-20

H-21

WASHINGTON NATIONAL RAILWAY

PFA - County Compliance Area / Eligible For Funding

PROPOSED NORTHBOUND I-270 TO EASTBOUND MD 80 RAMP: SEPARATE DESIGN EFFORT

PAVEMENT TO BE REMOVED IF NORTHWEST QUADRANT RAMP IS CONSTRUCTED

PROPOSED MD 80 INTERCHANGE IMPROVEMENTS

W-18W
W-17
W-19S
W-19N
W-18E
W-20W
W-20E

MD 80

23

26

ROAD

Urbana

PFA - County Compliance Area / Eligible For Funding

MD 355

NORTHBOUND I-270

SOUTHBOUND I-270

OLD URBANA CHURCH

ST. JOHN'S CATHOLIC CHURCH

MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY

Existing

Proposed

Alternates 1A/B, 4A/B
I-270 (MD 121 to MD 55)

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) (W-#)
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE 1"=600'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

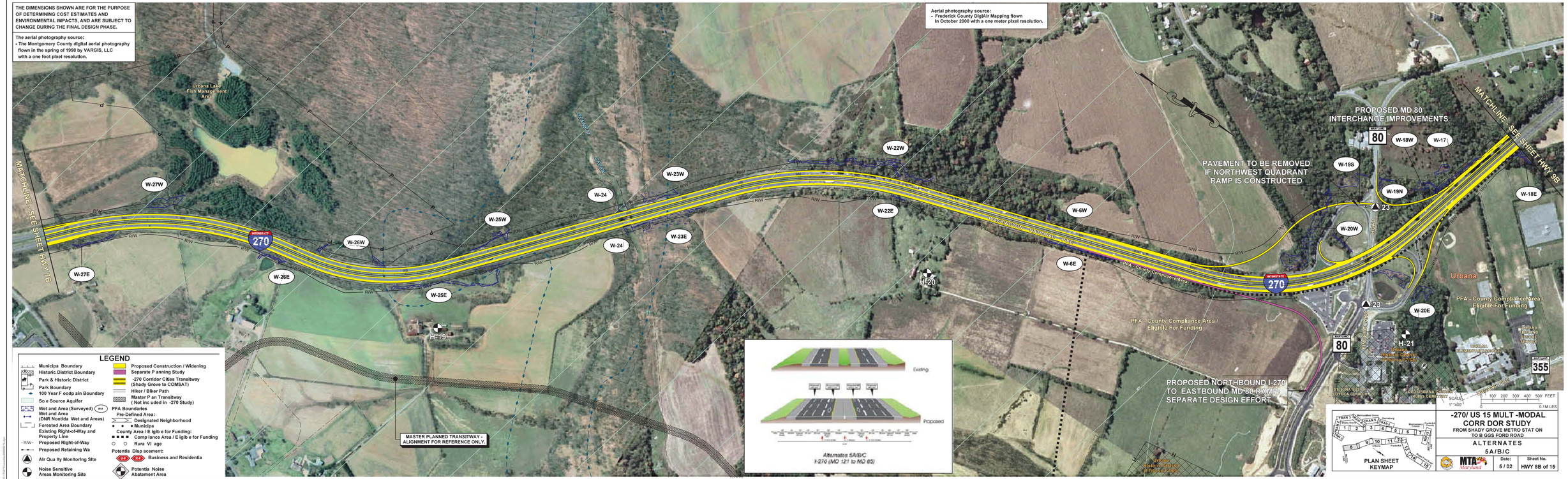
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B & 4A/B

MTA Maryland

Date: 5 / 02

Sheet No. HWY 8A of 15


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
Aerial photography source:
- Frederick County DigiAir Mapping flown In October 2000 with a one meter pixel resolution.
Urbana Lake Fish Management Area
BENNETT CREEK
MATCHLINE - SEE SHEET HWY 7B
MATCHLINE - SEE SHEET HWY 9B
W-27W
W-27E
W-26W
W-26E
W-25W
W-25E
W-24
W-24E
W-23W
W-23E
W-22W
W-22E
W-6W
W-6E
W-17
W-18W
W-18E
W-19S
W-19N
W-20W
W-20E
H-19
H-20
H-21
INTERSTATE 270
WASHINGTON NATIONALS - RACE ROAD
PFA - County Compliance Area / Eligible For Funding
PROPOSED MD 80 INTERCHANGE IMPROVEMENTS
PAVEMENT TO BE REMOVED IF NORTHWEST QUADRANT RAMP IS CONSTRUCTED
PROPOSED NORTHBOUND I-270 TO EASTBOUND MD 80 RAMP; SEPARATE DESIGN EFFORT
Urbana
MARYLAND 80
MARYLAND 355
FREDERICK ROAD
ROUTE 85
Existing
Proposed
Alternates 5A/B/C
I-270 (MD 121 to MD 85)
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.
LEGEND
Municipa Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year F oodp ain Boundary
So e Source Aquifer
Wet and Area (Surveyed) Wet and Area (DNR Nontida Wet and Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wa
Air Qua ity Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate P anning Study
-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master P an Transitway (Not inc uded in -270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipa
County Area / E igib e for Funding:
Comp lance Area / E igib e for Funding
Rura Vi age
Potentia Disp acement:
Business and Residentia
Potentia Noise Abatement Area
SCALE 1" =400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES
-270/ US 15 MULT -MODAL CORR DOR STUDY
FROM SHADY GROVE METRO STAT ON TO B GGS FORD ROAD
ALTERNATES 5A/B/C
PLAN SHEET KEYMAP
MTA Maryland
Date: 5 / 02
Sheet No. HWY 8B of 15

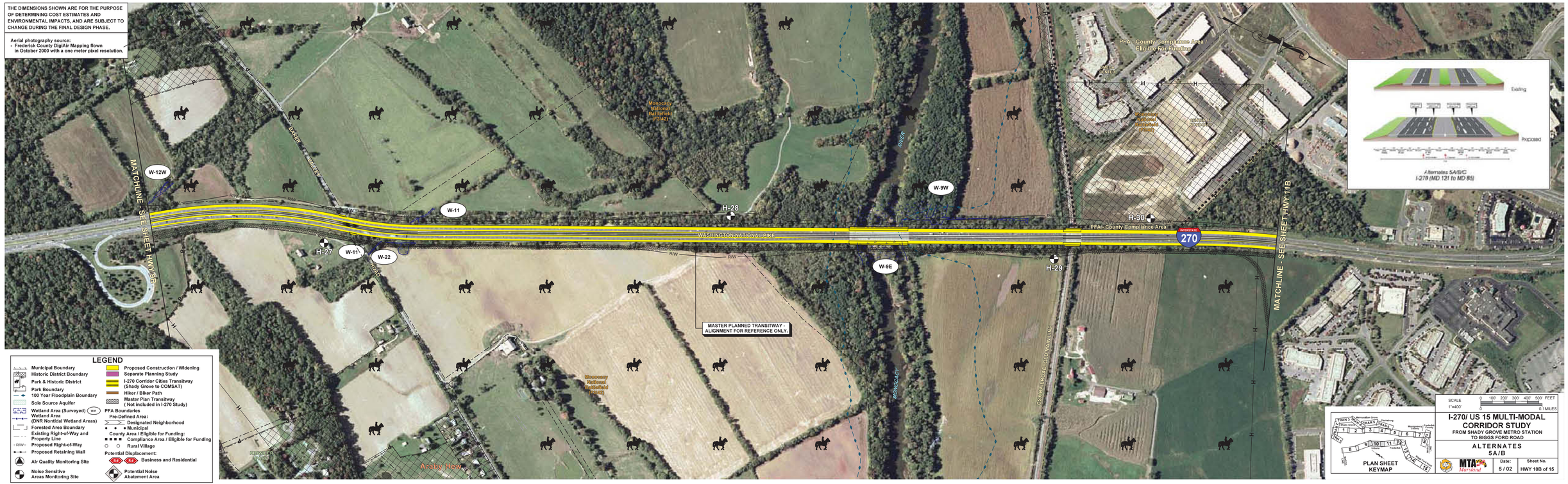

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
Aerial photography source:
- Frederick County DigitAir Mapping flown in October 2000 with a one meter pixel resolution.
Urbana Overlook
INTERSTATE 80
25
H-24
FINGERBOARD ROAD
ROUTE 22
H-23
INTERSTATE 270
PARR MILL ROAD
W-16
W-15W
W-14W
WASHINGTON NATIONAL PIKE
W-21
W-15E
W-13
H-26
W-12W
Monocacy National Battlefield Park
INTERSTATE 270
24
H-22
W-18E
PFA - County Compliance Area
Urbana Community Park
MATCHLINE - SEE SHEET HWY-8A
Urbana
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.
W-14E
H-25
W-12E
Scenic Overlook
MATCHLINE - SEE SHEET HWY-10A
Stone Barn Station
SHILOH COURT
Future Park-and-Ride Facility
PARR MILL ROAD
URBANA PIKE
ROUTE 355
Existing
Proposed
Alternates 3A/B 4A/B
I-270 (MD 121 to MD 35)
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
SCALE
1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES 3A/B & 4A/B
PLAN SHEET KEYMAP
MTA Maryland
Date: 5 / 02
Sheet No. HWY 9A of 15


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
Aerial photography source:
- Frederick County DigiAir Mapping flown In October 2000 with a one meter pixel resolution.
Urbana Overlook
INTERSTATE 80
25
H-24
FINGERBOARD ROAD
BOYD
H-23
22
INTERSTATE 270
PARR MILL ROAD
W-16
W-15W
W-14W
WASHINGTON NATIONAL PIKE
W-21
W-15E
W-13
H-26
W-12W
INTERSTATE 270
Monocacy National Battlefield Park
MATCHLINE - SEE SHEET HWY 10B, 10C
24
H-22
W-18E
PFA - County Compliance Area
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.
Urbana Community Park
Urbana
W-14E
H-25
W-12E
Scenic Overlook
MATCHLINE - SEE SHEET HWY 9B
Stone Barn Station
SHILOH COURT
PARR MILL ROAD
Private Wells Within 1000'
INTERSTATE 355
URBANA PIKE
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
Existing
Proposed
Alternates 5A/B/C
I-270 (MD 121 to MD 85)
PLAN SHEET KEYMAP
SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES 5A/B/C
MTA Maryland
Date: 5 / 02
Sheet No. HWY 9B of 15


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
Aerial photography source:
- Frederick County DigiAir Mapping flown In October 2000 with a one meter pixel resolution.
MATCHLINE - SEE SHEET HWY 9A
MATCHLINE - SEE SHEET HWY 11A
BAKER PARK ROAD
WASHINGTON NATIONAL PIKE
Monocacy National Battlefield (FS/NPS)
PFA - County Compliance Area / Eligible For Funding
PFA - County Compliance Area
W-12W
W-11
W-22
W-9W
W-9E
H-27
H-28
H-29
H-30
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY.
MONOCACY
ASSOCIATED OLD MAIN LINE
KEMPLER
Araby Hwy
Existing
Proposed
Alternates 3A/B, 4A/B
I-270 (MD 121 to MD 85)
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
PLAN SHEET KEYMAP
SCALE
1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD
ALTERNATES
3A/B & 4A/B
MTA Maryland
Date: 5 / 02
Sheet No. HWY 10A of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

Aerial photography source:
- Frederick County DigiAir Mapping flown in October 2000 with a one meter pixel resolution.



LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal

County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 5A/B

MTA Maryland

Date:	Sheet No.
5 / 02	HWY 10B of 15

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

Aerial photography source:
- Frederick County DigiAir Mapping flown in October 2000 with a one meter pixel resolution.

LEGEND

- Municipa Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year F oodp ain Boundary
- So e Source Aquifer
- Wet and Area (Surveyed) and Wet and Area (DNR Nontida Wet and Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wa
- Air Qua ity Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate P anning Study
- -270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master P an Transitway (Not Inc uded in -270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipa
- County Area / E igib e for Funding:
- Comp lance Area / E igib e for Funding
- Rura Vi age

Potentia Disp acement:
- Business and Residentia
- Potentia Noise Abatement Area

SCALE
1" 400'
0 100' 200' 300' 400' 500' FEET
0 0.1M LES

PLAN SHEET KEYMAP

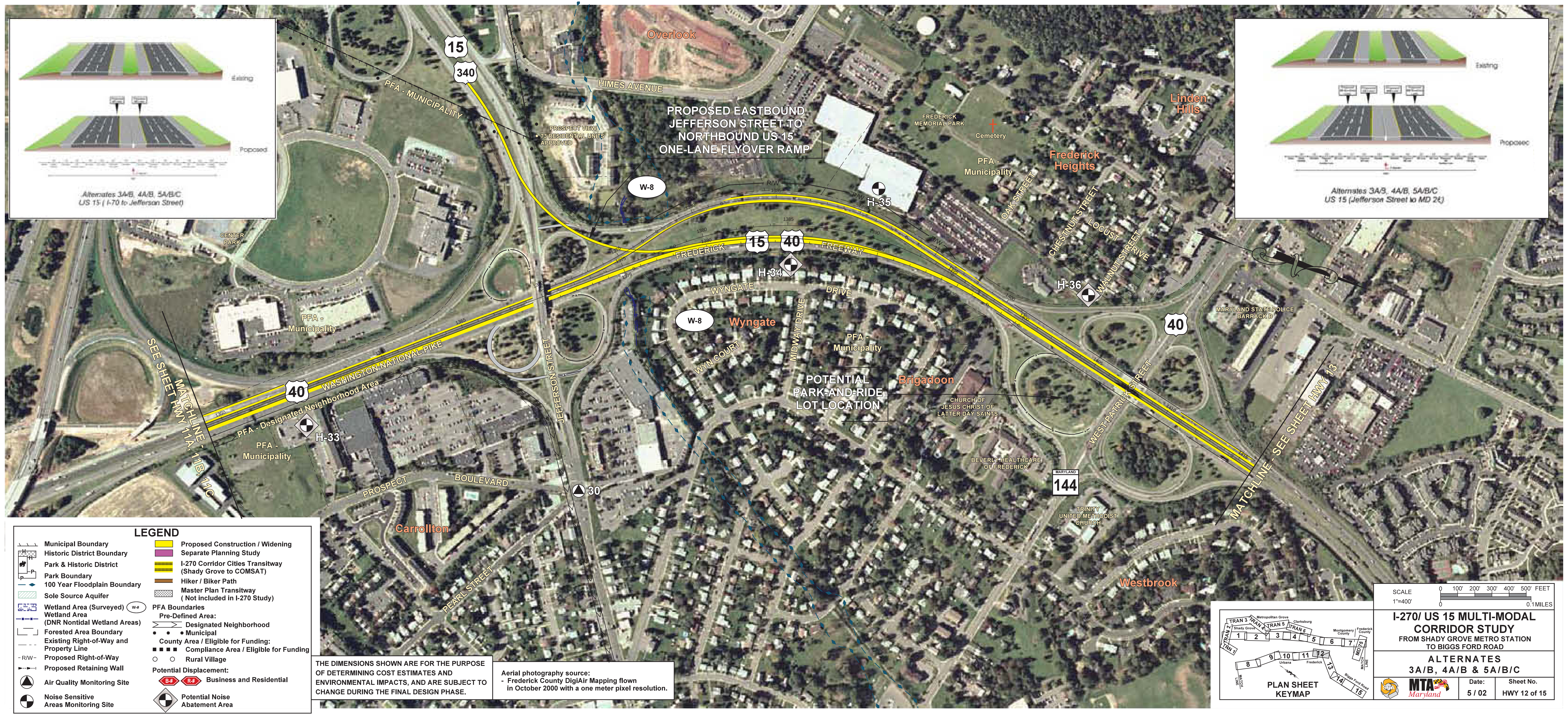
-270/ US 15 MULT -MODAL CORR DOR STUDY
FROM SHADY GROVE METRO STAT ON TO B GGS FORD ROAD

ALTERNATE 5C

MTA Maryland

Date: 5 / 02

Sheet No. HWY 10C of 15



LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) (W-#)
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- R/W – Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)
- PFA Boundaries
  - Pre-Defined Area:
    - Designated Neighborhood
    - Municipal
  - County Area / Eligible for Funding:
    - Compliance Area / Eligible for Funding
    - Rural Village
- Potential Displacement:
  - B-# R-# Business and Residential
- Potential Noise Abatement Area

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

Aerial photography source:
- Frederick County DigiAir Mapping flown in October 2000 with a one meter pixel resolution.

SCALE 1"=400' — 0 100' 200' 300' 400' 500' FEET; 0 0.1 MILES

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

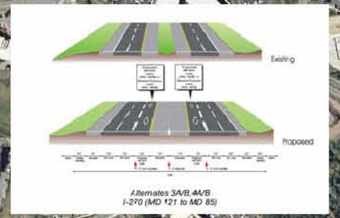
ALTERNATES 3A/B, 4A/B & 5A/B/C

SHA — MTA Maryland

Date: 5 / 02

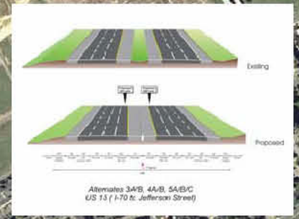
Sheet No. HWY 12 of 15

197-17\i270\newdisp\I12AI270.dgn



Alternates 3A/B, 4A/B
I-270 (MD 121 to MD 85)

Alternates 3A/B, 4A/B
I-270 (MD 85 to I-70)



Alternates 3A/B, 4A/B, 5A/B/C
US 15 (I-70 to Jefferson Street)

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed)
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal

County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE
1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION
TO BIGGS FORD ROAD

MTA Maryland

Date:

Sheet No.
5 / 02

THE D MENS ONS SHOWN ARE FOR THE PURPOSE OF DETERM N NG COST ESTIMATES AND ENV RONMENTAL MPACTS, AND ARE SUBJECT TO CHANGE DUR NG THE FINAL DESIGN PHASE.

Aerial photography source:
- Frederick County DigitalAir Mapping flown in October 2000 with a one meter pixel resolution.

SEPARATE PLANNING STUDY PROPOSED MD 85 WIDENING IMPROVEMENTS

ADDITIONAL SOUTHBOUND AUXILIARY LANE BETWEEN I-70 AND MD 85

TO MD 85 AND I-70

PROPOSED INTERCHANGE IMPROVEMENTS - CONFIGURATION MAY BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION

TO US 15 ONLY

TO I-70 ONLY

RETAINING WALLS TO BE CONSIDERED ALONG I-270 TO AVOID STRUCTURE IMPACTS

PROPOSED MD 85 TO I-70 INTERCHANGE IMPROVEMENTS

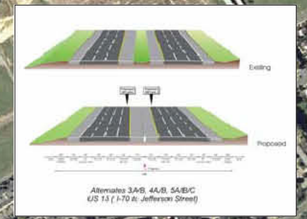
PROPOSED SHOCKLEY DRIVE / SPECTRUM DRIVE OVERPASS (DESIGNATED AS A LOCAL ROADWAY PER DRAFT MASTER PLAN)

REDUCED SHOULDER (4 FEET) AND RETAINING WALL TO BE CONSIDERED TO AVOID STRUCTURE IMPACTS

MASTER PLANNED TRANSITWAY ALIGNMENT FOR REFERENCE ONLY.

TO HAGERSTOWN

I-270 / I-70 INTERCHANGE IMPROVEMENTS (UNDER CONSTRUCTION)



TO BALTIMORE

MATCHLINE - SEE SHEET HWY 10B

MATCHLINE - SEE SHEET HWY 12

PFA - County Compliance Area - Eligible For Funding

PFA - Municipality

PFA - Designated Neighborhood

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not included in I-270 Study)
- PFA Boundaries Pre-Defined Area:
  - Designated Neighborhood
  - Municipal
  - County Area / Eligible for Funding: Compliance Area / Eligible for Funding
  - Rural Village
- Potential Displacement:
  - Business and Residential
  - Potential Noise Abatement Area

SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATE 5A/B

MTA Maryland

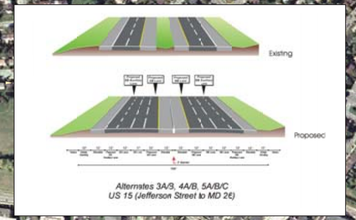
Date: 5 / 02

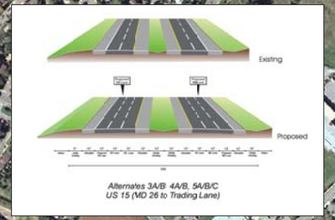
Sheet No. HWY 11B of 15


THE D MENS ONS SHOWN ARE FOR THE PURPOSE OF DETERM N NG COST EST MATES AND ENV RONMENTAL MPACTS, AND ARE SUBJECT TO CHANGE DUR NG THE F NAL DES GN PHASE.
Aeria photography source:
- Frederick County DigiAir Mapping f own in October 2000 with a one meter pixe reso ution.
Rock Creek Estates
Detrick Plaza
Fort Detrick
Antietam Vi age
Waterford
Westbrook
Rosedale
Spring Valley
Applegate
College Estates
15
POTENT AL PARK-AND-R DE LOT LOCAT ON AT FREDER CK SHOPP NG CENTER
FREDERICK FREEWAY
ROSEMONT AVENUE
TANEY AVENUE
GRANT PLACE
BIGGS AVENUE
APPLE AVENUE
FAIRVIEW AVENUE
CULLER AVENUE
WEST 7TH STREET
OPOSSUMTOWN PIKE
MOTTER AVENUE
PINEWOOD DRIVE
MATCHLINE - SEE SHEET HWY 12
MATCHLINE - SEE SHEET HWY 14
PFA - Municipality
W-7W
W-7E
W-5
H-37
H-38
H-39
H-40
H-41
H-42
H-43
H-44
H-45
H-46
31
32
33
34
35
36
Alternates 3A/B, 4A/B, 5A/B/C
US 15 (Jefferson Street to MD 26)
Existing
Proposed
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed) W-#
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
R/W Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
B-# R-# Business and Residential
Potential Noise Abatement Area
SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES
PLAN SHEET KEYMAP
TRAN 1 TRAN 2 TRAN 3 TRAN 4 TRAN 5 TRAN 6
Shady Grove
Metropo itan Grove
C arksburg
Montgomery County
Frederick County
MD 75
Urbana
Frederick
Biggs Ford Road
MATCH LINE
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES 3A/B, 4A/B & 5A/B/C
SHA
MTA Maryland
Date: 5 / 02
Sheet No. HWY 13 of 15
197-17\i270\newdisp\ 13A 270.dgn

THE D MENS ONS SHOWN ARE FOR THE PURPOSE OF DETERM N NG COST EST MATES AND ENV RONMENTAL MPACTS, AND ARE SUBJECT TO CHANGE DUR NG THE F NAL DES GN PHASE.

Aerial photography source:
- Frederick County DigitalAir Mapping f own In October 2000 with a one meter pixe reso ution.





TYPICAL SECTION TRANSITION POINT

PROPOSED US 15 / MD 26 INTERCHANGE IMPROVEMENTS
SEPARATE PLANNING STUDY

POTENTIAL PARK-AND-RIDE LOT LOCATION

MED AN OPEN NG TO BE CLOSED

RIGHT-IN / RIGHT-OUT ONLY AT WILLOW ROAD

RIGHT-IN / RIGHT-OUT ONLY AT DRIVEWAY

PROPOSED US 15 / TRADING LANE INTERCHANGE

MASTER PLANNED INTERCHANGE-CONFIGURATION MAY BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION

MATCHLINE - SEE SHEET HWY 15

MATCHLINE - SEE SHEET HWY 14

PFA - Municipality

PFA - County Compliance Area

PFA - Area Not Meeting Criteria

H-47 H-48 H-49 H-50 H-51

W-2 W-3 W-4E W-4W

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding: Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- Business and Residential
- Potential Noise Abatement Area

SCALE 1"=400' — 0 100' 200' 300' 400' 500' FEET — 0 0.1 MILES

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

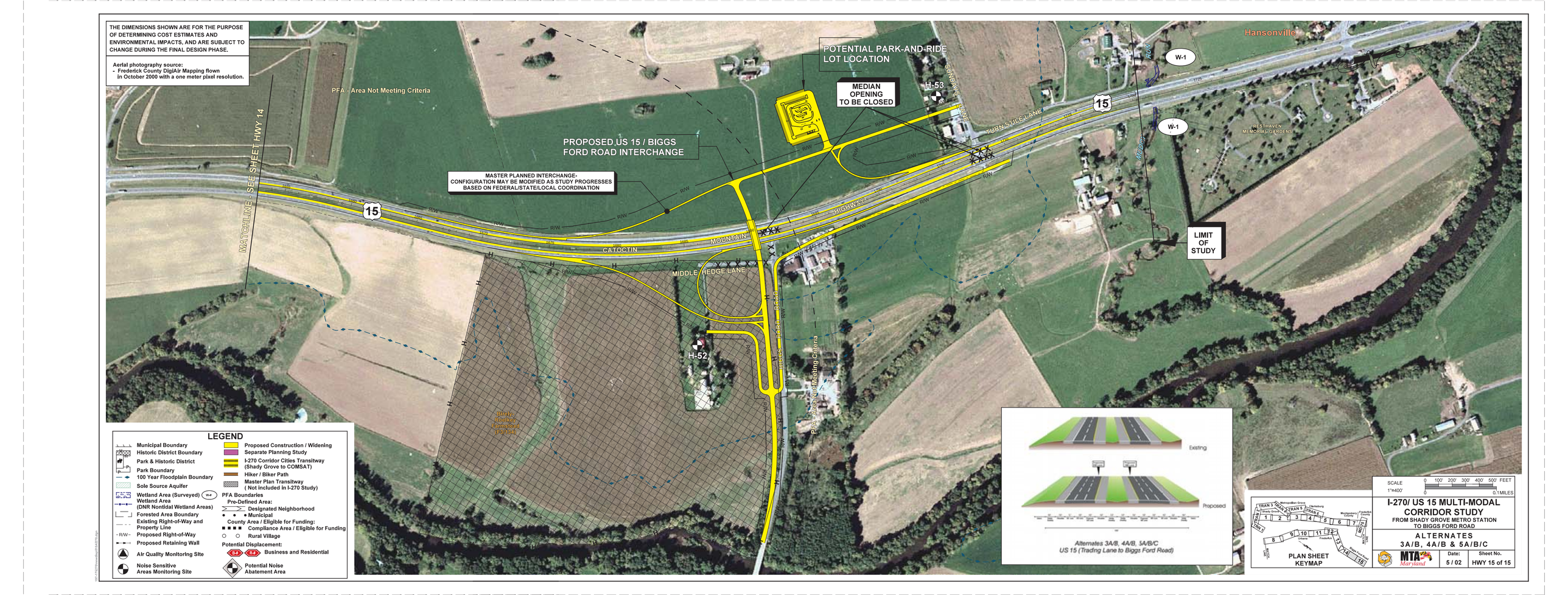
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

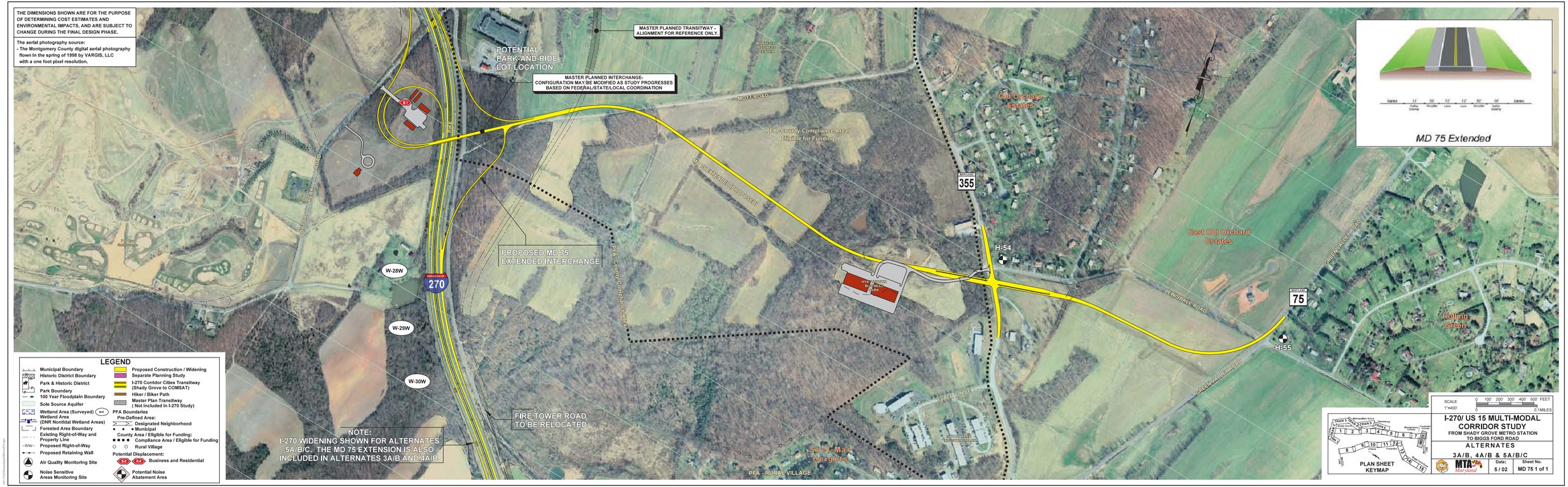
ALTERNATES 3A/B, 4A/B & 5A/B/C

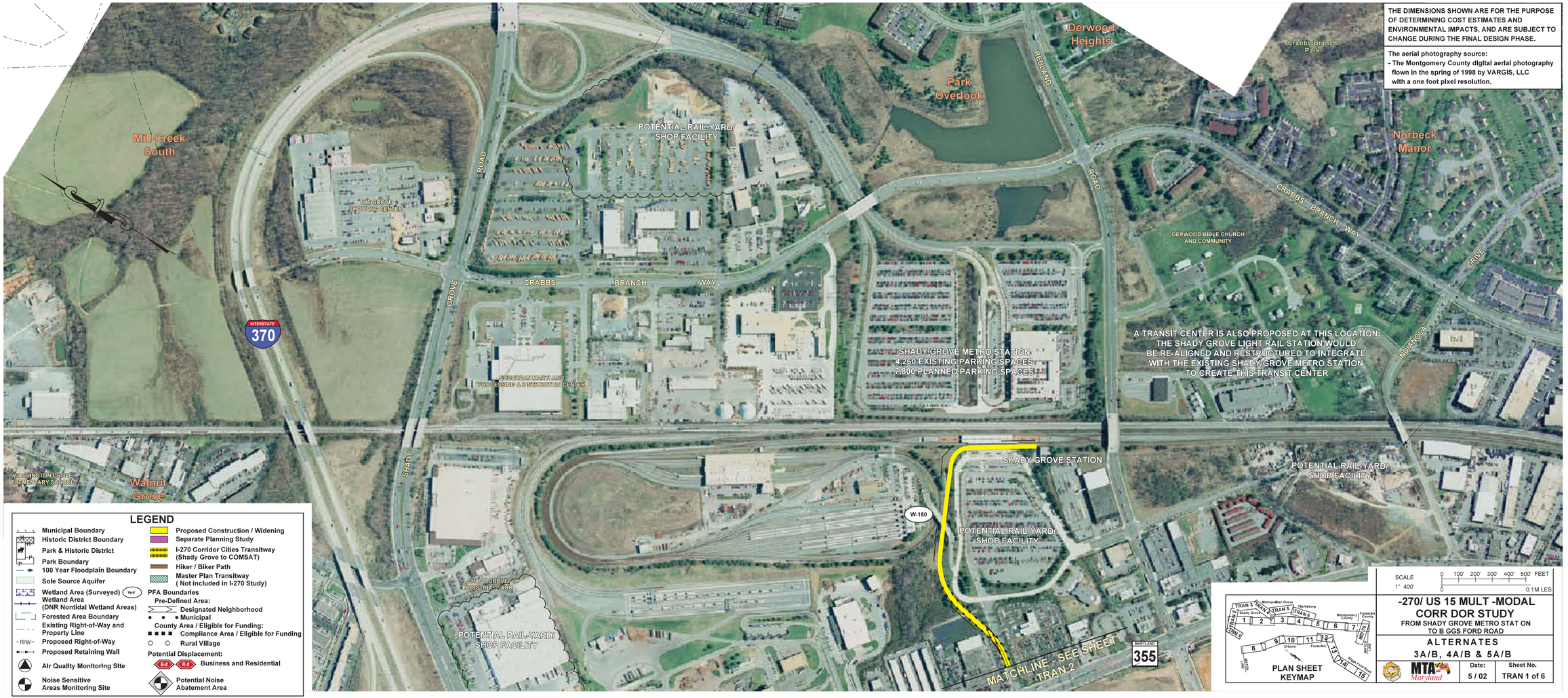
MTA Maryland

Date: 5 / 02

Sheet No. HWY 14 of 15


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
Aerial photography source:
- Frederick County DigiAir Mapping flown in October 2000 with a one meter pixel resolution.
PFA - Area Not Meeting Criteria
POTENTIAL PARK-AND-RIDE LOT LOCATION
MEDIAN OPENING TO BE CLOSED
H-53
SUNDAY'S LANE
TURN STILE LANE
PROPOSED US 15 / BIGGS FORD ROAD INTERCHANGE
MASTER PLANNED INTERCHANGE- CONFIGURATION MAY BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION
MATCHLINE - SEE SHEET HWY 14
15
CATOCTIN MOUNTAIN HIGHWAY
MIDDLE HEDGE LANE
H-52
Biggs Ford Road
PFA - Area Not Meeting Criteria
Hansonville
W-1
RESTHAVEN MEMORIAL GARDENS
LIMIT OF STUDY
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
Existing
Proposed
Alternates 3A/B, 4A/B, 5A/B/C
US 15 (Trading Lane to Biggs Ford Road)
SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES 3A/B, 4A/B & 5A/B/C
PLAN SHEET KEYMAP
MTA Maryland
Date: 5 / 02
Sheet No. HWY 15 of 15


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown In the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
MASTER PLANNED TRANSITWAY - ALIGNMENT FOR REFERENCE ONLY
POTENTIAL PARK-AND-RIDE LOT LOCATION
MASTER PLANNED INTERCHANGE- CONFIGURATION MAY,BE MODIFIED AS STUDY PROGRESSES BASED ON FEDERAL/STATE/LOCAL COORDINATION
MOTT ROAD
PFA - County Compliance Area - Eligible for Funding
MD 355 EXTENDED (PROPOSED)
PROPOSED MD 75 EXTENDED INTERCHANGE
PFA - County Compliance Area
FIRE TOWER ROAD TO BE RELOCATED
NOTE: I-270 WIDENING SHOWN FOR ALTERNATES 5A/B/C. THE MD 75 EXTENSION IS ALSO INCLUDED IN ALTERNATES 3A/B AND 4A/B.
PFA - RURAL VILLAGE
Old Orchard Estates
East Old Orchard Estates
Rolling Green
Shot-Mar Heights
H-54
H-55
W-28W
W-29W
W-30W
270
355
75
MD 75 Extended
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
PLAN SHEET KEYMAP
SCALE
1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES
3A/B, 4A/B & 5A/B/C
MTA Maryland
Date: 5 / 02
Sheet No. MD 75 1 of 1



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The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) W-# / Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- -R/W- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)
- PFA Boundaries
- Pre-Defined Area:
- Designated Neighborhood
- • • • Municipal
- County Area / Eligible for Funding:
- ■ ■ ■ Compliance Area / Eligible for Funding
- ○ ○ Rural Village
- Potential Displacement:
- B-# Business and Residential
- R-# Potential Noise Abatement Area

SCALE 1" 400'

0 100' 200' 300' 400' 500' FEET

0 0.1M LES

PLAN SHEET KEYMAP

-270/ US 15 MULT -MODAL CORR DOR STUDY

FROM SHADY GROVE METRO STAT ON TO B GGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland

Date: 5 / 02

Sheet No. TRAN 1 of 6

THE D MENS ONS SHOWN ARE FOR THE PURPOSE OF DETERM N NG COST EST MATES AND ENV RONMENTAL MPACTS, AND ARE SUBJECT TO CHANGE DUR NG THE F NAL DES GN PHASE.

The aer a photography source:
- The Montgomery County digita aer a photography f own in the spring of 1998 by VARG S, LLC with a one foot pixe reso ution.

Aer a photography source:
- Montgomery County digita aer a photography f own in the spring of 1998 by VARG S, LLC at 1,000', with a one foot pixe reso ution.

Watkin Pond

PFA - County Compl ance Area / E ig b l ty For Funding

REDLAND BOULEVARD

APPROX MATE LOCAT ONS OF K NG FARM ROAD COMPLEX (CONSTRUCTED AFTER MAPPING)

W-151

W-152

WEST GAITHER (KING FARM) STATION

PROPOSED ALIGNMENT TO BE PLACED ENTIRELY WITHIN EXISTING TRANSITWAY RESERVATION SPACE

HIKER / BIKER TRAIL TO BE CARRIED ON STRUCTURE OVER I-270

Derwood

REDLAND ROAD

EAST GAITHER (MID-FARM) STATION

PROPOSED ALIGNMENT TO BE PLACED ENTIRELY WITHIN EXISTING TRANSITWAY RESERVATION SPACE

Y-1

MATCHLINE - SEE SHEET TRAN 1

HIKER / BIKER TRAIL INCORPORATED INTO EXISTING FEATURES ALONG K NG FARM BOULEVARD

GAITHER ROAD

King Farm

PFA - County Compl ance Area / E ig b l ty For Funding

MARYLAND 355

Muddy Branch Forest (MD DNR)

INTERSTATE 270

PFA - Municipal ty

PROPOSED ALTERNATE CROSSING OF I-270

PFA - Municipal ty

PFA - County Compl ance Area

MASTER PLAN ALIGNMENT ACROSS I-270

SHADY GROVE

PFA - Municipal ty

PFA - County Compl ance Area / E ig b l ty For Funding

INTERSTATE 270

PFA - Municipal ty

WASHINGTONIAN STATION

ALIGNMENT STATION PROGRAM AND LOCATION SUBJECT TO CHANGE; TO BE INTEGRATED WITH FUTURE LAND USE DEVELOPMENT

PFA - County Compl ance Area

WASHINGTON SCIENCE PARK

WASHINGTON CENTER

CROWN FARM STATION (FUTURE BEYOND 2025)

W-153

MATCHLINE - SEE SHEET TRAN 3A/3B

Redland Middle School (MCPS)

0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Existing Right-of-Way and Property Line
- -RW- Proposed Right-of-Way
- Proposed Construction / Widening
- Separate Planning Study
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Forested Area Boundary
- Wetland Area (Surveyed)
- Wetland Area (DNR Nontidal Wetland Areas)
- Sole Source Aquifer
- Proposed Retaining Wall
- Proposed Noise Wall
- Proposed Noise and Retaining Wall
- Potential Displacement: Business
- Potential Displacement: Residential
- Potential Noise Abatement Area
- PFA Boundaries Pre-Defined Area: Designated Neighborhood
- Municipal
- County Area / Eligible for Funding: Compliance Area / Eligible for Funding
- Rural Village
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PLAN SHEET KEYMAP

I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

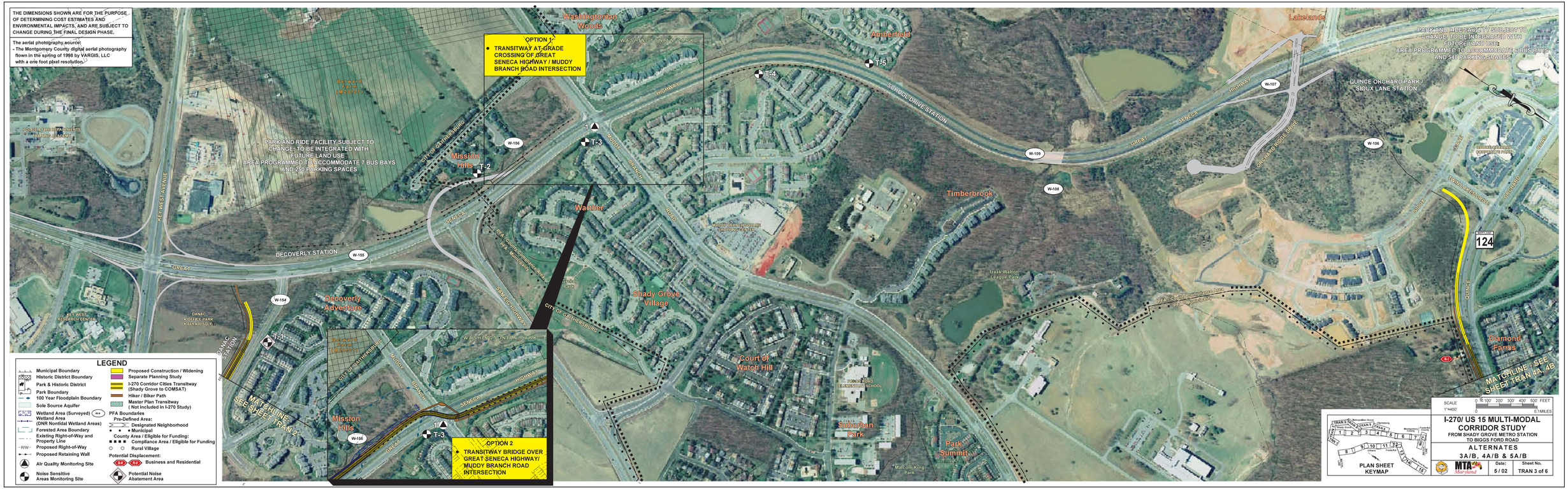
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland

Date: 5 / 02

Sheet No. TRAN 2 of 6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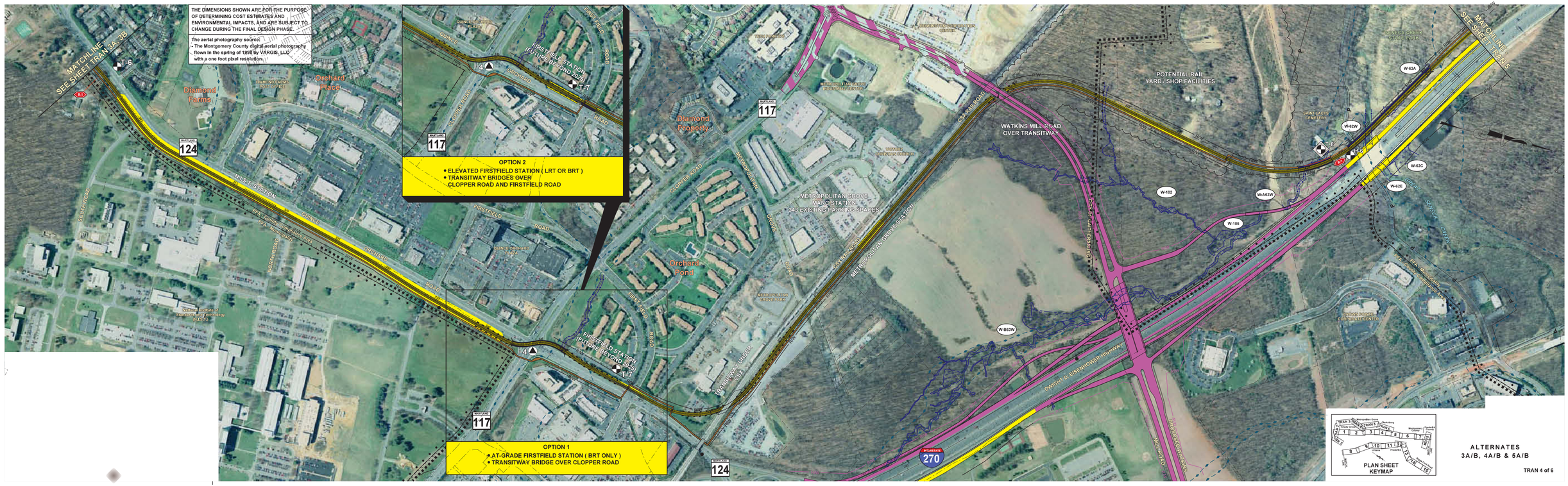
The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.
OPTION 1
TRANSITWAY AT-GRADE CROSSING OF GREAT SENECA HIGHWAY / MUDDY BRANCH ROAD INTERSECTION
OPTION 2
TRANSITWAY BRIDGE OVER GREAT SENECA HIGHWAY/ MUDDY BRANCH ROAD INTERSECTION
PARK AND RIDE FACILITY SUBJECT TO CHANGE. TO BE INTEGRATED WITH FUTURE LAND USE AREA PROGRAMMED TO ACCOMMODATE 7 BUS BAYS AND 250 PARKING SPACES
PARK AND RIDE FACILITY SUBJECT TO CHANGE. TO BE INTEGRATED WITH FUTURE LAND USE AREA PROGRAMMED TO ACCOMMODATE 8 BUS BAYS AND 540 PARKING SPACES
Washingtonian Woods
Amberfield
Lakelands
Mission Hills
Warther
Timberbrook
Decoverly Adventure
Shady Grove Village
Court of Watch Hill
Suburban Park
Park Summit
Diamond Farms
QUINCE ORCHARD PARK / SIOUX LANE STATION
DECOVERLY STATION
SCHOOL DRIVE STATION
DANAC STATION
T-1
T-2
T-3
T-4
T-5
W-154
W-155
W-156
W-106
W-107
W-108
W-109
MATCHLINE SEE SHEET TRAN 4A
MATCHLINE SEE SHEET TRAN 4A, 4B
LEGEND
Municipal Boundary
Historic District Boundary
Park & Historic District
Park Boundary
100 Year Floodplain Boundary
Sole Source Aquifer
Wetland Area (Surveyed)
Wetland Area (DNR Nontidal Wetland Areas)
Forested Area Boundary
Existing Right-of-Way and Property Line
Proposed Right-of-Way
Proposed Retaining Wall
Air Quality Monitoring Site
Noise Sensitive Areas Monitoring Site
Proposed Construction / Widening
Separate Planning Study
I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Hiker / Biker Path
Master Plan Transitway (Not included in I-270 Study)
PFA Boundaries
Pre-Defined Area:
Designated Neighborhood
Municipal
County Area / Eligible for Funding:
Compliance Area / Eligible for Funding
Rural Village
Potential Displacement:
Business and Residential
Potential Noise Abatement Area
SCALE 1"=400'
0 400' 800' 1200' 1600' 2000' FEET
0 0.1 0.2 0.3 0.4 0.5 MILES
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY
FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD
ALTERNATES 3A/B, 4A/B & 5A/B
PLAN SHEET KEYMAP
MTA Maryland
Date: 5 / 02
Sheet No. TRAN 3 of 6


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.
The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1898 by VARGIS, LLC with a one foot pixel resolution.
MATCHLINE SEE SHEET TRAN 3A-3B
MATCHLINE SEE SHEET TRAN 5
T-6
T-7
T-8
T-9
Diamond Farms
Orchard Place
Diamond Property
Orchard Pond
MARYLAND 124
MARYLAND 117
MARYLAND 355
MARYLAND 27
INTERSTATE 270
QUINCE ORCHARD ROAD
FIRSTFIELD ROAD
CLOPPER ROAD
SOUTHBOUND MD 355 CONNECTOR TO I-270 NORTHBOUND
NORTHBOUND MD 355 CONNECTOR TO I-270 SOUTHBOUND
METROPOLITAN GROVE MARC STATION
METROPOLITAN GROVE ROAD
METROPOLITAN GROVE STATION
TRANSITWAY LINE (BRT)
WATKINS MILL ROAD OVER TRANSITWAY
POTENTIAL RAIL YARD / SHOP FACILITIES
DWIGHT D. EISENHOWER HIGHWAY
MUDDY BRANCH
SENECA CREEK
W-62A
W-62W
W-62C
W-62E
W-102
W-A63W
W-105
W-B63W
OPTION 2
• ELEVATED FIRSTFIELD STATION (LRT OR BRT)
• TRANSITWAY BRIDGES OVER CLOPPER ROAD AND FIRSTFIELD ROAD
OPTION 1
• AT-GRADE FIRSTFIELD STATION (BRT ONLY)
• TRANSITWAY BRIDGE OVER CLOPPER ROAD
PLAN SHEET KEYMAP
ALTERNATES 3A/B, 4A/B & 5A/B
TRAN 4 of 6

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.

MATCHLINE SEE SHEET TRAN 4A-4B
Seneca Creek State Park
Gunners View
PFA - County Compliance Area / Eligible For Funding
NEW COVENANT FELLOWSHIP CHURCH
Middlebrook Commons
MIDDLEBROOK TECHNICAL PARK
PFA - County Compliance Area / Eligible For Funding
PFA Designated Neighborhood
MD 118 OVER TRANSITWAY
CRYSTAL ROCK DRIVE
Germantown
GERMANTOWN STATION
PARK AND RIDE FACILITY SUBJECT TO CHANGE - TO BE INTEGRATED WITH FUTURE LAND USE.
AREA PROGRAMMED TO ACCOMMODATE 9 BUS BAYS AND 600 PARKING SPACES
AIRCRAFT DRIVE
TRANSITWAY WITHIN 50 FT MEDIAN RESERVATION
CENTURY BOULEVARD TO BE RECONSTRUCTED TO ACCOMMODATE TRANSITWAY WITHIN MEDIAN TO BE CONSISTENT WITH ADJACENT TRANSIT SECTIONS
ABBOTSFORD CIRCLE
Middlebrook Hill
Middlebrook Park
Seneca Creek State Park
MIDDLEBROOK INDUSTRIAL PARK
AMARANTH DRIVE
GERMANTOWN ROAD
Fox Chapel Park
Fox Chapel
Middlebrook
PFA - County Compliance Area / Eligible For Funding
MONTGOMERY COLLEGE GERMANTOWN CAMPUS / MONTGOMERY COUNTY LIBRARY
MIDDLEBROOK ROAD
HIKER / BIKER TRAIL MAY BE INCORPORATED INTO ADJACENT RECONSTRUCTED ROADWAY FEATURES
PLEASE REFER TO SHEET HWY-4A FOR A COMPLETE VIEW OF THE MASTER PLAN TRANSITWAY EAST OF I-270 AT FATHER HURLEY BOULEVARD
MATCHLINE SEE SHEET TRAN 6
118

LEGEND

Municipal Boundary	Proposed Construction / Widening
Historic District Boundary	Separate Planning Study
Park & Historic District	I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
Park Boundary	Hiker / Biker Path
100 Year Floodplain Boundary	Master Plan Transitway (Not included in I-270 Study)
Sole Source Aquifer	PFA Boundaries
Wetland Area (Surveyed) W-#	Pre-Defined Area:
Wetland Area (DNR Nontidal Wetland Areas)	Designated Neighborhood
Forested Area Boundary	Municipal
Existing Right-of-Way and Property Line	County Area / Eligible for Funding:
R/W Proposed Right-of-Way	Compliance Area / Eligible for Funding
Proposed Retaining Wall	Rural Village
Air Quality Monitoring Site	Potential Displacement: B-# R-# Business and Residential
Noise Sensitive Areas Monitoring Site	Potential Noise Abatement Area

SCALE 1"=400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

PLAN SHEET KEYMAP

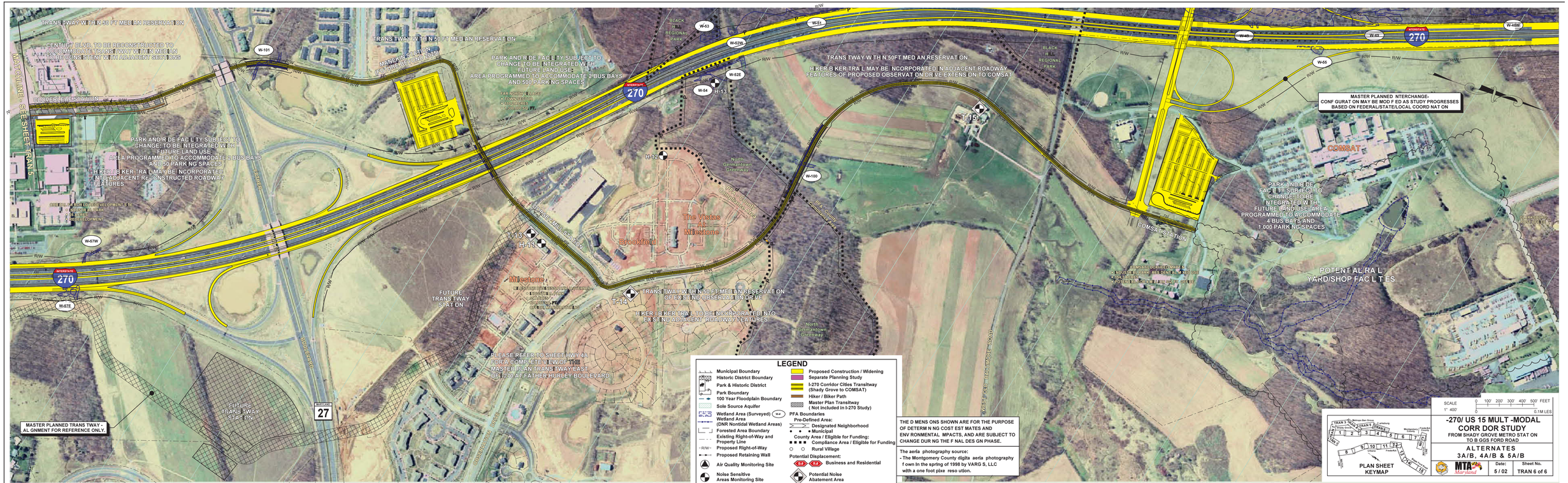
I-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

SHA MTA Maryland

Date:	Sheet No.
5 / 02	TRAN 5 of 6



LEGEND

- Municipal Boundary
- Historic District Boundary
- Park & Historic District
- Park Boundary
- 100 Year Floodplain Boundary
- Sole Source Aquifer
- Wetland Area (Surveyed) W-A
- Wetland Area (DNR Nontidal Wetland Areas)
- Forested Area Boundary
- Existing Right-of-Way and Property Line
- Proposed Right-of-Way
- Proposed Retaining Wall
- Air Quality Monitoring Site
- Noise Sensitive Areas Monitoring Site
- Proposed Construction / Widening
- Separate Planning Study
- I-270 Corridor Cities Transitway (Shady Grove to COMSAT)
- Hiker / Biker Path
- Master Plan Transitway (Not Included in I-270 Study)

PFA Boundaries
Pre-Defined Area:
- Designated Neighborhood
- Municipal
- County Area / Eligible for Funding:
- Compliance Area / Eligible for Funding
- Rural Village

Potential Displacement:
- R-A Business and Residential
- P-A Potential Noise Abatement Area

THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

The aerial photography source:
- The Montgomery County digital aerial photography flown in the spring of 1998 by VARGIS, LLC with a one foot pixel resolution.

SCALE 1" = 400'
0 100' 200' 300' 400' 500' FEET
0 0.1 MILES

PLAN SHEET KEYMAP

-270/ US 15 MULTI-MODAL CORRIDOR STUDY

FROM SHADY GROVE METRO STATION TO BIGGS FORD ROAD

ALTERNATES 3A/B, 4A/B & 5A/B

MTA Maryland

Date: 5 / 02

Sheet No. TRAN 6 of 6