OP•LANES™
MARYLAND

I-495 & I-270 Managed Lanes Study

FINAL NOISE ANALYSIS TECHNICAL REPORT

June 2022

U.S. Department of Transportation
Federal Highway Administration

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

EXECUTIVE SUMMARY

ES.1 Overview

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and the Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, are preparing a Final Environmental Impact Statement (FEIS) in accordance with the National Environmental Policy Act (NEPA) for the I-495 & I-270 Managed Lanes Study (Study). The Study is evaluating potential transportation improvements to portions of the I-495 and I-270 corridors in Montgomery County, Maryland, and Fairfax County, Virginia. The MLS study area overlaps with the Virginia Department of Transportation (VDOT) I-495 Express Lanes Northern Extension Study between the Potomac River and Live Oak Drive. The Virginia portion of the study area is being evaluated in coordination with VDOT.

In the Supplemental Draft Environmental Impact Statement (SDEIS), published on October 1, 2021, FHWA and MDOT SHA identified the Preferred Alternative: Alternative 9 – Phase 1 South to be consistent with the previously determined phased delivery and permitting approach, which focuses on Phase 1 South. As a result, Alternative 9 – Phase 1 South includes the same improvements proposed as part of Alternative 9 in the DEIS but focuses the build improvements within the Phase 1 South limits only. The limits of Phase 1 South are along I-495 from the George Washington Memorial Parkway to east of MD 187 and along I-270 from I-495 to north of I-370 and on the I-270 east and west spurs as shown in **dark blue** in **Figure 1**. The improvements include two new HOT managed lanes in each direction along I-495 and I-270 within the Phase 1 South limits. There is no action, or no improvements, included at this time on I-495 east of the I-270 east spur to MD 5 (shown in **light blue** in **Figure 1**). While the Preferred Alternative does not include improvements to the remaining parts of I-495 within the Study limits, improvements on the remainder of the interstate system may still be needed in the future. Any such improvements would advance separately and would be subject to additional environmental studies and analysis and collaboration with the public, stakeholders and agencies.

The purpose of the Final Noise Analysis Technical Report is to present an assessment of potential direct impacts of the Preferred Alternative to the noise environment and is being prepared to support and inform the FEIS. The proposed improvements are classified as a Type I project, as defined in Title 23 of the Code of Federal Regulations Part 772 (23 CFR 772); therefore, impacted noise sensitive areas are eligible for consideration of noise abatement[1]. The objective of this report is to present the predicted loudest-hour build traffic noise levels, to determine if these noise levels cause a traffic noise impact at adjacent noise sensitive land uses, and, if so, to determine whether noise abatement is feasible and reasonable for the Preferred Alternative within the study area.

ES.2 Land Uses and Methodology

The study area for Phase 1 South was divided into 60 noise sensitive areas (NSAs) in accordance with the MDOT SHA, VDOT, and FHWA noise policies and guidance [VDOT uses the term Common Noise Environment (CNE); however, for this summary, CNEs will be referred to as NSAs]. The NSAs are comprised

[1] Section 772.5 (1 through 8) define the types of projects that are classified as a Type I Project. The I-495 and I-270 Managed Lanes Study proposes the addition of through-traffic lanes, including the addition of HOV and HOT lanes. This qualifies this study as a Type I Project according to 772.5 (3).

of areas of different land use activity categories which share a common noise environment and have been combined into a single NSA. Geographically, four (4) NSAs are located along I-495 in Virginia, 17 NSAs are located along I-495 in Maryland, and 39 NSAs are located along I-270. The study area for Phases 2 and 3 includes an additional 87 NSAs along I-495 in Maryland.

There are several existing noise barriers within the study corridors. Noise barriers that are anticipated to be displaced for roadway improvements or stormwater management conflicts are assumed to be replaced. Replacement barriers have been analyzed to verify that there is no decrease in performance and that the replacement noise barriers meet or exceed the noise abatement performance of the existing noise barriers to be replaced including insertion loss and line of sight. Modifications to existing barriers will be re-evaluated during the final design process.

All prediction modeling was performed using FHWA's Traffic Noise Model (TNM) v2.5. The TNM seeks to simulate the noise environment by considering variable inputs for traffic (including autos, medium trucks, heavy trucks, buses, and motorcycles), variable inputs of traffic speed for each vehicle type, variable inputs for roadway design, (including roadway width, horizontal and vertical alignment), variable inputs for terrain lines and propagation features (such as building rows, ground zones, and tree zones), and inclusion of traffic control measures including stop lights and stop signs. The preliminary direct access locations were included in this noise analysis.

The TNM validation process confirms the model's ability to reproduce the Measured Noise Levels. Measured Noise Levels correspond to ambient measurements taken in conjunction with highway traffic counts. A difference of three (3) decibels [dB(A)] or less between the monitored and modeled levels is considered acceptable, since this is the limit of change detectable by typical human hearing. FHWA guidance specifies that the arithmetic difference between monitored and predicted existing noise levels is a measure of the model's accuracy.

Impact criteria is defined based upon the Noise Abatement Criteria (NAC) for the identified type of activities or land uses present within each noise-sensitive area (NSA). The majority of NSAs that MDOT SHA and VDOT evaluate fall within Activity Categories B and C, which are considered impacted at a noise level of 66 dB(A) or greater. Activity Category B noise-sensitive receptors are defined exclusively as residences. Category C noise-sensitive receptors consist of non-residential land uses where frequent outdoor activity exists such as, sporting areas, campgrounds, parks, picnic areas, playgrounds, schools, places of worship, and other recreational areas.

Federal regulation (23 CFR 772), the MDOT SHA *Highway Noise Abatement Planning and Engineering Guidelines* (April 2020), and VDOT *Highway Traffic Noise Impact Analysis Guidance Manual* (February 2018) require that noise abatement be investigated at all NSAs where the build traffic noise levels approach or exceed the FHWA NAC for the defined land use category, or where there are substantial increases (10 dB(A) per the 2020 MDOT SHA Guidelines and 2018 VDOT Guidance Manual) from existing to build condition noise levels. According to MDOT SHA's Guidelines and VDOT's Guidance Manual, for a Type I project an impact is identified when design year noise levels are predicted to equal or exceed the appropriate NAC for each land use, or when predicted noise levels are anticipated to substantially increase over existing year noise. For the NSAs that do not approach or exceed the NAC (and therefore are not considered impacted under that criterion), the lowest existing noise level was compared to the future build condition noise level to determine where a substantial increase impact would occur. No NSAs will experience a substantial increase as a result of the Preferred Alternative.

Where noise abatement was warranted for consideration, additional criteria were examined to determine if the abatement would be feasible and reasonable. The assessment of noise abatement feasibility, in general, focuses on whether it is physically possible to build an abatement measure (i.e., noise barrier) that achieves a minimally acceptable level of noise reduction. Barrier feasibility considers three primary factors: acoustics (MDOT SHA requires barriers to achieve a 5 dB(A) noise reduction at 70 percent of the impacted residences, VDOT requires barriers to achieve a 5 dB(A) noise reduction at 50 percent of the impacted receptors), safety, and access. Barrier reasonableness considers three primary factors: viewpoints, design goal (MDOT SHA requires barriers to achieve a 7 dB(A) noise reduction at a minimum of three (3)[2] or 50 percent of the impacted residences, VDOT requires barriers to achieve a 7 dB(A) noise reduction at a minimum of one (1) impacted receptor[3]), and cost effectiveness (the MDOT SHA threshold is 700-2,700 square feet per benefited residence depending on the scope of the project, the VDOT threshold is 1,600 square feet per benefitted receptor).

ES.3 Impact Analysis Summary

Table ES-1 presents details on preliminary impacts by NSA. Of the four (4) NSAs along I-495 in Virginia, three (3) are predicted to result in noise impacts from the Preferred Alternative. Two (2) NSAs were identified for consideration of the extension of an existing noise barrier: NSA VA-01 and NSA VA-02 (See *Map 1*).

Of the 17 NSAs along I-495 in Maryland, 15 are predicted to result in noise impacts from the Preferred Alternative; with 10 having levels equal to or exceeding 75 dB(A)[4]. Four (4) NSA locations currently do not have an existing noise barrier system and warrant further consideration of noise abatement due to the construction of the proposed highway improvements: NSAs 1-01, 1-02, 1-04, and 1-05. Nine (9) NSAs were identified for consideration of extensions of existing noise barrier systems: NSAs 1-03, 2-01, 1-06, 3-01, 1-38, 4-01, 2-02, 3-04, and 1-08. (See *Maps 2 through 7*).

Of the 39 NSAs along I-270, 30 are predicted to result in noise impacts from the Preferred Alternative; with 16 having levels equal to or exceeding 75 dB(A). Fifteen (15) NSA locations currently do not have an existing noise barrier system and warrant further consideration of noise abatement due to the construction of the proposed highway improvements: NSAs 5-33A, 5-32C, 5-32B, 5-28, 5-24, 5-22, 5-19, 5-18, 5-14, 5-11, 5-10, 5-09, 5-08, 5-07, and 5-06. Eleven (11) NSAs were identified for consideration of extensions of existing noise barrier systems: NSAs 5-36, 5-37A, 37B, 5-34A, 5-29, 5-21, 5-20, 5-17, 5-15, 5-13, and 5-12 (See *Maps 5, 6, and 8 through 17)*.

[2] NSAs must have a minimum of three (3) impacted receptors in order to be considered for noise abatement in Maryland per MDOT SHA noise policy.

[3] A receptor is a discrete or representative location of a noise sensitive area, typically used for modeling purposes. A residence is one dwelling unit, either one single-family residence or one dwelling unit in a multifamily dwelling. A receptor may represent more than one residence.

[4] In Maryland, higher absolute noise levels, defined by MDOT SHA as at or above 75 dB(A), are factored into the reasonableness determination for the barrier system. Noise levels at or above 75 dB(A) may warrant a higher noise reduction design goal than the minimum of 7 dB(A) identified in the MDOT SHA Highway Noise Policy, and this condition is used in determining the cost effectiveness evaluation threshold.

ES.4 Barrier Analysis Summary

Federal regulation (23 CFR 772), MDOT SHA *Highway Noise Abatement Planning and Engineering Guidelines* (April 2020), and VDOT *Highway Traffic Noise Impact Analysis Guidance Manual* (February 2018) require that noise abatement be investigated at all NSAs where the design year build traffic noise levels approach or exceed the FHWA NAC for the defined land use category. Where noise abatement was warranted for consideration, additional criteria were examined to determine if the abatement is feasible and reasonable.

Several noise barrier scenarios have been analyzed for this study: existing noise barriers to remain in place; existing noise barriers displaced by proposed construction to be replaced by a reconstructed barrier on a new alignment; existing noise barriers that were evaluated for extensions; and new noise barriers on new alignment. The following is a summary of the noise barrier systems that are considered ***feasible and reasonable***:

- Existing noise barrier systems would remain in place as they are currently constructed: NSAs 2-04A, 2-05A, 5-23, 5-02, and 5-01.
    - There are no impacts to noise sensitive land uses behind the barriers associated with NSAs 2-04A, 2-05A, and 5-23; therefore, no additional analysis is required.
    - Although the existing barriers for NSA 5-01 and 5-02 would not be displaced by the current design, noise impacts were predicted at receptors behind the existing noise barriers. The existing noise barriers were evaluated and they both meet the current feasibility and reasonableness criteria. Therefore, the existing barriers will remain in place and no modifications are required at this time.
- Existing noise barrier systems would remain in place but would be extended: Barriers 270-9 and 270-11 protecting NSAs 5-34A and 5-36.
- Existing noise barrier system would be fully or partially displaced by construction and replaced by a reconstructed barrier on new alignment: Barriers 495 VA-3, 495 MD-8, 495 MD-10, 270-7B, and 270-7A, protecting NSAs VA-03, 3-02, 2-03, 5-31, and 5-30.
- Existing noise barrier system would be reconstructed and extended: Barriers 495 VA-1/2, 495 MD-3, 495 MD-5, 495 MD-6/6A/7, 495 MD-11, 270-12, 270-15, 270-14, and 270-5, protecting NSAs VA-01, VA-02, 1-03, 2-01, 1-06, 3-01, 1-38, 4-01, 2-02, 3-04, 1-08, 5-37B, 5-37A, 5-29, 5-21, 5-20, 5-17, 5-15, 5-13, and 5-12.
- New barrier systems would be constructed where there are not current existing barriers: 495 MD-01, 495 MD-02, 495 MD-04, 270-18, 270-8, 270-6, protecting NSAs 1-01, 1-02, 1-04, 1-05, 5-33A, 5-32C, 5-22, 5-19, and 5-18.

The following is a summary of the noise barrier systems that are considered ***<u>not</u> feasible and/or reasonable***.

- Barrier 270-2, designed to protect NSAs 5-09 and 5-08, does not meet feasibility due to failure to meet the noise reduction design goal.

- Barriers 270-10, 270-17, 270-16, 270-4, 270-13, 270-3, and 270-1, designed to protect NSA 5-32B, 5-28, 5-24, 5-14, 5-11, 5-10, 5-07, 5-06, do not meet reasonableness due to failure to meet the cost effectiveness criteria.

ES.5 Statement of Likelihood

Based on the studies performed thus far, MDOT SHA recommends installation of highway traffic noise abatement in the form of a noise barrier for the NSAs as reflected in **Table ES-1**. These preliminary indications of likely abatement measures are based upon preliminary design for barrier square footage equal to or less than the maximum amount allowed per benefited residence by the MDOT SHA *Highway Noise Abatement Planning and Engineering Guideline*s (April 2020) and VDOT *Highway Traffic Noise Impact Analysis Guidance Manual* (February 2018). Concrete is the typical material used for construction of noise barriers and is assumed as part of the barrier analysis; however, a final determination of material will be made in final design, based upon FHWA requirements to achieve a minimum 20 dB(A) Transmission Loss in accordance with ASTM Recommended Practice E413-87. The findings in this analysis are based upon preliminary design information. A preliminary determination of horizontal and vertical alignment for the noise barriers was made based on the latest design concept (**Table ES-1**); however, final determination of noise barrier feasibility, reasonableness, dimensions and locations will be made in final design. Engineering changes reflected in final design could alter the conclusions reached in this analysis, leading to recommendations to add or omit noise barrier locations. A Final Design Noise Analysis will be performed for this Study based on detailed engineering information during the final design phase. The views and opinions of all benefited property owners and residents will be solicited through public involvement and outreach activities during final design.

Table ES-1: Summary of Noise Sensitive Area (NSA) Impacts and Preliminary Noise Barrier System Abatement

<table>
<tr><th rowspan="2">NSA</th><th rowspan="2">Map Number, App D</th><th colspan="2">Impacted [* if => than 75 dB(A)]</th><th rowspan="2">Preliminary Noise Barrier Mitigation</th><th colspan="2">Feasible and Reasonable?</th><th colspan="2">Preliminary Barrier Dimensions (ft)</th></tr>
<tr><th>Yes</th><th>No</th><th>Yes</th><th>No</th><th>Length</th><th>Height</th></tr>
<tr><td colspan="9">Area 1 and 2: I-495 west side, south of George Washington Parkway to Clara Barton Parkway</td></tr>
<tr><td>VA-01</td><td>1</td><td>Y</td><td></td><td rowspan="2">495 VA-1/2 (Reconstruction/Extension)</td><td rowspan="2">Y</td><td rowspan="2"></td><td rowspan="2">4,999</td><td rowspan="2">21</td></tr>
<tr><td>VA-02</td><td>1</td><td>Y</td><td></td></tr>
<tr><td>VA-03[5]</td><td>1</td><td>Y</td><td></td><td>495 VA-3 (Reconstruction)</td><td colspan="2">N/A</td><td>2,614</td><td>25</td></tr>
<tr><td>VA-04</td><td>1</td><td></td><td>N</td><td>N/A</td><td colspan="2">N/A</td><td>N/A</td><td>N/A</td></tr>
<tr><td colspan="9">Area 3: I-495 west side, between Clara Barton Parkway and MD 190</td></tr>
<tr><td>1-01</td><td>3</td><td>Y*</td><td></td><td>495 MD-1 (New)</td><td>Y</td><td></td><td>1,517</td><td>17</td></tr>
<tr><td>1-02</td><td>3</td><td>Y*</td><td></td><td rowspan="2">495 MD-2 (New)</td><td rowspan="2">Y</td><td rowspan="2"></td><td rowspan="2">6,790</td><td rowspan="2">28</td></tr>
<tr><td>1-04</td><td>3,4</td><td>Y*</td><td></td></tr>
<tr><td>1-05</td><td>4,5</td><td>Y</td><td></td><td>495 MD-4 (New)</td><td>Y</td><td></td><td>4,101</td><td>22</td></tr>
<tr><td>1-03</td><td>4</td><td>Y*</td><td></td><td rowspan="2">495 MD-3 (Reconstruction/Extension)</td><td rowspan="2">Y</td><td rowspan="2"></td><td rowspan="2">5,201</td><td rowspan="2">23</td></tr>
<tr><td>2-01</td><td>4,5</td><td>Y</td><td></td></tr>
</table>

[5] NSA VA-03 has an existing noise barrier; since it is physically impacted by the project it will be replaced in-kind in accordance with VDOT policy. Since this is a replacement barrier, cost effectiveness is not required.

NSA	Map Number, App D	Impacted [* if => than 75 dB(A)]		Preliminary Noise Barrier Mitigation	Feasible and Reasonable?		Preliminary Barrier Dimensions (ft)	
		Yes	No		Yes	No	Length	Height
Area 4: I-495 west side, between MD 190 and I-270 west spur								
1-06	5	Y*		495 MD-5 (Reconstruction/Extension)	Y		6,973	32
3-01	5,6	Y*						
1-38	5	Y		495 MD-6/6A/7 (Reconstruction/Extension)	Y		7,475	32
4-01	5	Y*						
2-02	5,6	Y*						
Area 5: I-495 top side, between I-270 west spur and MD 187								
3-02[6]	6,7	Y*		495 MD-8 (Reconstruction)	N/A		2,709	36
3-04	7	Y*		495 MD-11 (Reconstruction/Extension)	Y		3,202	22
1-08	7	Y						
2-03[7]	7	Y		495 MD-10 (Reconstruction)	N/A		1,727	22
2-04A	8		N	Existing Barrier to Remain	N/A		N/A	N/A
2-05A	8		N	Existing Barrier to Remain	N/A		N/A	N/A
Area 6: I-270 west spur, between I-495 and Democracy Boulevard								
5-36	9	Y*		270-11 (Existing/Extension)	Y		5,445	25
5-37A	9	Y		270-12 (Reconstruction/Existing/Extension)	Y		5,454	21
5-37B	6,9	Y*						
Area 7: I-270 west spur, between Democracy Boulevard and Westlake Terrace								
5-32A	9		N	N/A	N/A		N/A	N/A
Area 8: I-270 east spur, between I-495 and MD 187								
5-33A	10,11	Y*		270-8 (New)	Y		5,848	28
5-34A	10,11	Y		270-9 (Existing/Extension)	Y		4,994	21
Area 9: I-270 west and east spurs, between Y-split and Westlake Terrace and MD 187								
5-32C	12	Y*		270-18	Y		915	31
5-32B[8]	11,12	Y		270-10 (Not Feasible/Reasonable)		N	N/A	N/A
5-31	11	Y		270-7B (Existing/Reconstruction)	Y		4,072	13
5-30	12	Y*		270-7A (Reconstruction)	Y		2,389	16
Area 10: I-270 mainline, between Y-split and Montrose Road								
5-29	12,13	Y*		270-15 (Reconstruction/Extension)	Y		6,162	26

[6] NSA 3-02 has an existing noise barrier; since it is physically impacted by the project it will be replaced in-kind in accordance with MDOT SHA policy. Since this is a replacement barrier, cost effectiveness is not required.
[7] NSA 2-03 has an existing noise barrier; since it is physically impacted by the project it will be replaced in-kind in accordance with MDOT SHA policy. Since this is a replacement barrier, cost effectiveness is not required.
[8] NSA 5-32B consists of a pedestrian path. The barrier is not reasonable (>1700 sf-p-r).

NSA	Map Number, App D	Impacted [* if => than 75 dB(A)]		Preliminary Noise Barrier Mitigation	Feasible and Reasonable?		Preliminary Barrier Dimensions (ft)	
		Yes	No		Yes	No	Length	Height
5-28[9]	12,13,14	Y*		270-17 (Not Feasible/Reasonable)		N	N/A	N/A
Area 11: I-270 mainline, between Montrose Road and MD 189								
5-27	14		N	N/A	N/A		N/A	N/A
5-26	14		N	N/A	N/A		N/A	N/A
5-25	14,15		N	N/A	N/A		N/A	N/A
5-24[10]	15	Y		270-16 (Not Feasible/Reasonable)		N	N/A	N/A
5-23	14,15		N	Existing Barrier to Remain	N/A		N/A	N/A
Area 12: I-270 mainline, between MD 189 and MD 28								
5-22	15	Y		270-6 (New)	Y		4,796	24
5-19	15	Y						
5-18	15,16	Y*						
5-21	15	Y*		270-14 (Reconstruction/Existing/Extension)	Y		5,068	18
5-20	15	Y*						
5-17	15,16	Y*						
5-16	16		N	N/A	N/A		N/A	N/A
Area 13: I-270 mainline, between MD 28 and Shady Grove Road								
5-15	16	Y		270-5 (Reconstruction/Existing/Extension)	Y		6,028	21
5-13	16	Y						
5-12	16,17	Y*						
5-14[11]	16,17	Y		270-4 (Not Feasible/Reasonable)		N	N/A	N/A
5-11[12]	17	Y*		270-13 (Not Feasible/Reasonable)		N	N/A	N/A
5-10[13]	17	Y		270-3 (Not Feasible/Reasonable)		N	N/A	N/A
5-09[14]	17	Y		270-2 (Not Feasible/Reasonable)		N	N/A	N/A
5-08[15]	17	Y						
Area 14: I-270 mainline, between Shady Grove Road and I-370								
5-07[15]	18	Y*		270-1 (Not Feasible/Reasonable)		N	N/A	N/A
5-06[16]	18	Y						

[9] NSA 5-28 consists of a Cabin John trails and campground. The barrier is not reasonable (>2700 sf-p-r).
[10] NSA 5-24 consists of the Orchard Ridge Community and the Montgomery County Police Rockville Station. The barrier is not reasonable (>1700 sf-p-r).
[11] NSA 5-14 consists of a hotel. The barrier for this area is not reasonable (>1700 sf-p-r).
[12] NSA 5-11 consists of offices, medical facilities, an apartment building, and a Section 4(f) resource. The barrier for this area is not reasonable (>1700 sf-p-r).
[13] NSA 5-10 consists of offices, hotels, and a medical facility. The barrier for this area is not reasonable (>1700 sf-p-r).
[14] NSAs 5-08 and 5-09 consist of an apartment complex and a hotel. The barrier evaluated for this area is not feasible (<70% of impacts are benefited).
[15] NSA 5-06 consists of the Rio Washingtonian Center. NSA 5-07 consists of various commercial land uses. The barrier for this area is not reasonable (>2700 sf-p-r).

NSA	Map Number, App D	Impacted [* if => than 75 dB(A)]		Preliminary Noise Barrier Mitigation	Feasible and Reasonable?		Preliminary Barrier Dimensions (ft)	
		Yes	No		Yes	No	Length	Height
5-05[16]	18	N/A		N/A	N/A		N/A	N/A
5-03	18		N	N/A	N/A		N/A	N/A
Area 15: I-270 mainline, north of I-370								
5-04	19		N	N/A	N/A		N/A	N/A
5-02[17]	18,20	Y*		Existing Barrier to Remain	N/A		N/A	N/A
5-01[18]	18,20	Y*		Existing Barrier to Remain	N/A		N/A	N/A
Summary of Noise Barrier System Mitigation								
Existing Noise Barriers that would remain in place as currently constructed								5
Existing Noise Barriers recommended to be extended								2
Existing Noise Barriers that would be displaced and replaced in-kind with a reconstructed barrier								5
Existing Noise Barriers recommended to be reconstructed and extended								9
New Noise Barriers recommended for construction								6
Noise Barrier is not feasible and/or reasonable								8

[16] NSA 5-05 consists of restaurants and shops at the northern end of the Rio Washingtonian Center with no evident outdoor use areas; as such it requires no further consideration.
[17] Impacts were identified in NSA 5-02 behind the existing barrier; however, the existing barrier meets the feasible and reasonableness criteria. Therefore, the existing barrier will remain in place with no modifications required.
[18] Impacts were identified in NSA 5-01 behind the existing barrier; however, the existing barrier meets the feasible and reasonableness criteria. Therefore, the existing barrier will remain in place with no modifications required.

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1 INTRODUCTION

1.1 Overview

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and the Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, are preparing a Final Environmental Impact Statement (FEIS) in accordance with the National Environmental Policy Act (NEPA) for the I-495 & I-270 Managed Lanes Study (Study). The I-495 & I-270 Managed Lanes Study (Study) is the first environmental study under the broader I-495 & I-270 Public-Private Partnership (P3) Program.

This Final Noise Analysis Technical Report has been prepared to support the FEIS and focuses on the analysis of the Preferred Alternative. The Preferred Alternative, also referred to as Alternative 9 – Phase 1 South, includes building a new American Legion Bridge and delivering two high-occupancy toll (HOT) managed lanes in each direction on I-495 from the George Washington Memorial Parkway in Virginia to east of MD 187 on I-495, and on I-270 from I-495 to north of I-370 and on the I-270 eastern spur from east of MD 187 to I-270. Refer to **Figure 1**. This Preferred Alternative was identified after extensive coordination with agencies, the public and stakeholders to respond directly to feedback received on the DEIS to avoid displacements and impacts to significant environmental resources, and to align the NEPA approval with the planned project phased delivery and permitting approach.

The purpose of the Final Noise Analysis Technical Report is to present the existing conditions, an assessment of potential noise impacts of the Preferred Alternative and final mitigation, if applicable, for unavoidable impacts. This Final Noise Analysis Technical Report builds upon the analysis in the Draft Noise Analysis Technical Report, DEIS and Supplemental DEIS (SDEIS), and has been prepared to support and inform the FEIS.

1.2 Study Corridors and the Preferred Alternative

In the SDEIS, published on October 1, 2021, FHWA and MDOT SHA identified the Preferred Alternative: Alternative 9 – Phase 1 South to be consistent with the previously determined phased delivery and permitting approach, which focuses on Phase 1 South. As a result, Alternative 9 – Phase 1 South includes the same improvements proposed as part of Alternative 9 in the DEIS but focuses the build improvements within the Phase 1 South limits only. The limits of Phase 1 South are along I-495 from the George Washington Memorial Parkway to east of MD 187 and along I-270 from I-495 to north of I-370 and on the I-270 east and west spurs as shown in **dark blue** in **Figure 1**. The improvements include two new HOT managed lanes in each direction along I-495 and I-270 within the Phase 1 South limits. There is no action, or no improvements included at this time on I-495 east of the I-270 east spur to MD 5 (shown in **light blue** in **Figure 1**). While the Preferred Alternative does not include improvements to the remaining parts of I-495 within the Study limits, improvements on the remainder of the interstate system may still be needed in the future. Any such improvements would advance separately and would be subject to additional environmental studies and analysis and collaboration with the public, stakeholders and agencies.

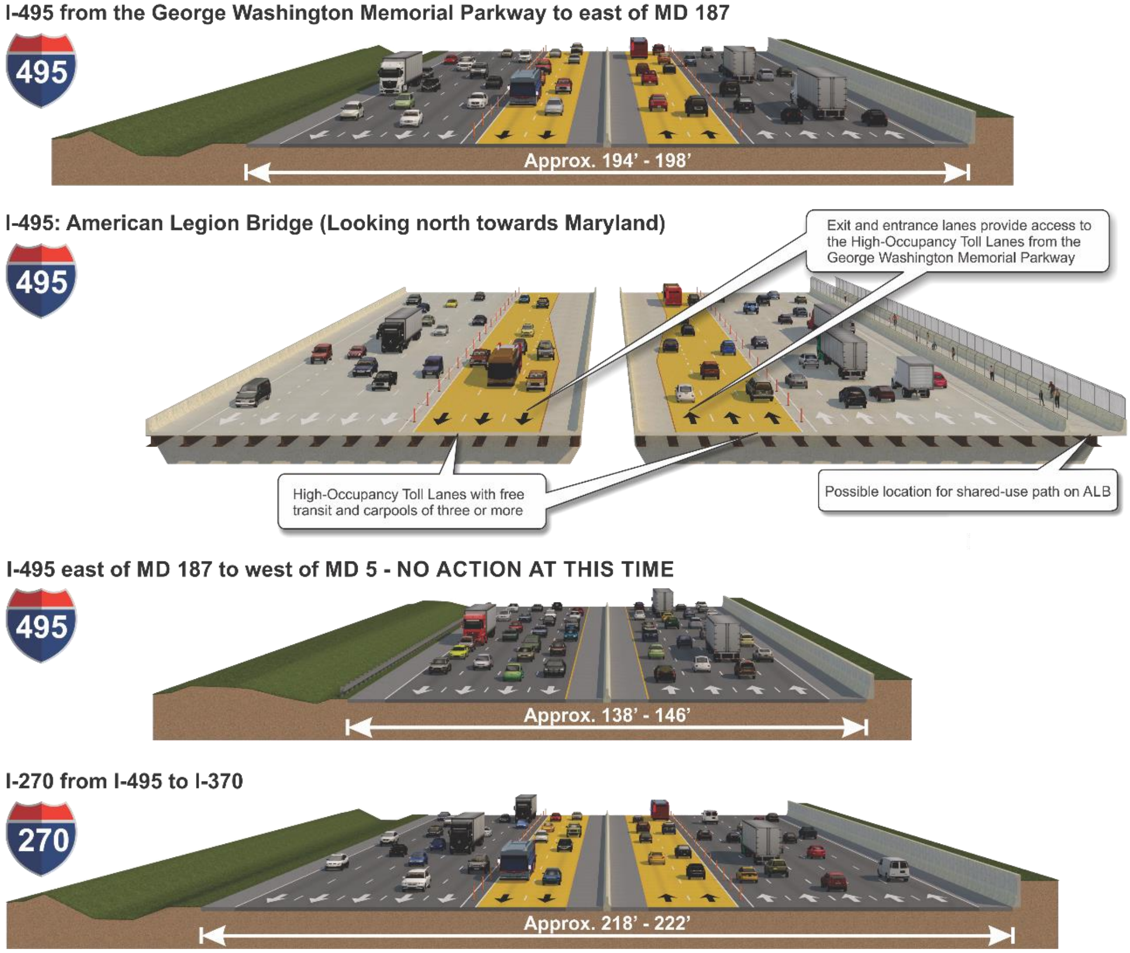
The 48-mile corridor Study limits remain unchanged: I-495 from south of the George Washington Memorial Parkway in Fairfax County, Virginia, to west of MD 5 and along I-270 from I-495 to north of I-370, including the east and west I-270 spurs in Montgomery and Prince George's Counties, Maryland (shown in both dark and light blue in **Figure 1**).

Figure 1: I-495 & I-270 Managed Lanes Study Corridors – Preferred Alternative

1.3 Description of the Preferred Alternative

The Preferred Alternative includes a two-lane HOT managed lanes network on I-495 and I-270 within the limits of Phase 1 South only (**Figure 2**). On I-495, the Preferred Alternative consists of adding two, new HOT managed lanes in each direction from the George Washington Memorial Parkway to east of MD 187. On I-270, the Preferred Alternative consists of converting the one existing HOV lane in each direction to a HOT managed lane and adding one new HOT managed lane in each direction on I-270 from I-495 to north of I-370 and on the I-270 east and west spurs. There is no action, or no improvements included at this time on I-495 east of the I-270 east spur to MD 5. Along I-270, the existing collector-distributor (C-D) lanes from Montrose Road to I-370 would be removed as part of the proposed improvements. The managed lanes would be separated from the general purpose lanes using pylons placed within a four-foot wide buffer. Transit buses and HOV 3+ vehicles would be permitted to use the managed lanes toll-free.

Figure 2: Preferred Alternative Typical Sections (HOT Managed lanes Shown in Yellow)



1.4 Highway Noise Fundamentals

The highway noise fundamentals discussion remains consistent with Section 1.5 of the Noise Technical Report prepared for the DEIS.

1.5 Noise Abatement Criteria

The Noise Abatement Criteria (NAC) discussion remains consistent with Section 1.6 of the Noise Technical Report prepared for the DEIS.

1.6 Noise Technical Analysis Approach

The background described in the Noise Technical Analysis Approach remains consistent with Section 1.7 of the Noise Technical Report prepared for the DEIS. This Final Noise Analysis Technical Report presents the results of the analysis for the Preferred Alternative. The analysis was updated since the SDEIS to address changes in the Phase 1 South study area limits and changes in roadway and ramp alignments. Additionally, No Build sound levels were determined for NSAs within Phase 1 South, as well as within Phases 2 and 3.

The Phase 1 South portion of the study area is divided into 15 geographic areas, beginning from the western/southern study boundary of I-495 in Virginia to I-495 in Maryland, to the two spur connections of I-495 with I-270, then to the northern boundary of I-270 at I-370. I-495, I-270, and George Washington Parkway are the dominant highway noise sources for all noise-sensitive areas (NSAs) within the Phase 1 South study limits [VDOT uses the term Common Noise Environment (CNE); however, for this summary, CNEs will be referred to as NSAs].

The Phase 2 and 3 portions of the study area is divided into 23 geographic areas, beginning from the spur connections of I-495 with I-270 to the eastern study boundary of I-495 in Maryland. I-495 and I-95 are the dominant highway noise sources for all NSAs within the Phase 2 and 3 study limits. Since the project would not involve construction near the NSAs within Phases 2 and 3, only the No Build sound levels are identified for NSAs within Phases 2 and 3.

The MLS study area overlaps with VDOT's I-495 Express Lanes Northern Extension Study between the Potomac River and Live Oak Drive. For the Maryland portion of the study area MDOT SHA's *Highway Noise Abatement Planning and Engineering Guidelines* (April 2020) was followed, and for the Virginia portion of the study area Virginia Department of Transportation's (VDOT) *Highway Traffic Noise Impact Analysis Guidance Manual* (February 2018) was followed.

2 MEASUREMENTS AND TNM MODEL VALIDATION

2.1 Introduction

This section separates the different land uses within the study limits into noise sensitive and non-noise sensitive areas, discusses the noise measurements that were collected for the Study, and documents the validation results of the noise prediction modeling. Generally, land use areas that fall within 500 feet of the edge of the proposed roadway have been identified within each NSA and the TNM model has been validated to this distance. Appendix A of the Type I Noise Technical Analysis Report prepared for the DEIS includes information on the input used for the TNM model validation, impact analysis and barrier analysis. Additional information prepared after the DEIS was published includes additional ramp traffic and traffic associated with direct access points and exchange ramps used in the Phase 1 South models. This information is included in Appendix A of this Final Noise Analysis Technical Report.

2.2 Land Uses

In some locations, areas of different land use have been combined into a single NSA since they are exposed to similar noise sources and levels; traffic volumes, traffic mix, and speed; and topographic features. Additionally, grouping them together assists in evaluating mitigation, as one barrier would be analyzed for the NSA, and not just each land use. A description of each NSA is listed below. Any distance references given are relative to the edge of the existing near roadway shoulder, unless otherwise noted. The descriptions have been updated since the publication of the DEIS and have been reorganized based upon the 15 geographical areas identified for the study corridor for the Preferred Alternative (Phase 1 South); followed by the additional 23 geographical areas within Phases 2 and 3 that are associated with the No Build Alternative.

2.2.1 Noise-Sensitive Areas

Residential NSAs include single-family residences, single-family attached residences (townhouses), and multi-family residences (condominiums and apartments), located in communities adjacent to I-495 and I-270. Non-residential NSAs include recreation areas, playgrounds, active sports areas, parks, schools, places of worship, motels, hotels, libraries, and hospitals.

Following is the numbering approach used for the NSAs:

- NSAs VA-xx are in located in Virginia.
- NSAs 1-xx are presently not protected by a noise barrier.
- NSAs 2-xx have existing noise barriers designed prior to 1995.
- NSAs 3-xx have existing noise barriers designed after 1995.
- NSAs 4-xx are non-residential areas that are noise sensitive land uses.
- NSAs 5-xx are located along I-270, including the I-270 spurs.

Following is a description of each NSA, organized by Area. Areas 1 through 15 are located within the Phase 1 South project limits while Areas 16 through 38 represent Phases 2 and 3. The NSAs within Phases 2 and 3 are described below in order to provide context for the no-build scenario.

A. Area 1: I-495 west side, south of George Washington Parkway

NSA VA-01

This NSA is located west of the southbound lanes of I-495, between the George Washington Memorial Parkway and the grade separation at Live Oak Drive over I-495. This area consists of recreational uses, including Scott's Run Nature Preserve and the Langley Swim and Tennis Club, as well as residences along Live Oak Drive. Trails at Scott's Run Nature Preserve within this NSA include sections of the Potomac Heritage Trail, the Laurel Ridge Trail, the Oak Trail, and some unnamed connector trails within the park boundary (Fairfax County, 2015). The trails at Scott's Run are maintained by Fairfax County Park Authority (Fairfax County, 2019). Receptors do not have direct line of sight with I-495 and are generally at least 10 feet higher in elevation than the interstate mainline. The dominant noise source is traffic from I-495.

Noise abatement is provided to the community by an existing noise barrier designed prior to 1995. The existing noise barrier is approximately 1,335 feet in length and 13 feet high on average.

NSA VA-03

This NSA is located east of northbound lanes of I-495, beginning at the grade separation at Live Oak Drive over I-495 and extending along the I-495 North on-ramp to eastbound George Washington Memorial Parkway. This area includes residences located along Lupine Lane, Wemberly Way, Lawton Street, Butternut Court, River Oaks Drive, and Arbor Lane, and recreational uses associated with the Dead Run Trail at Turkey Run Park (managed by the National Park Service (NPS)). Receptors are generally at least +/- 20 feet in elevation relative to the interstate mainline. The dominant noise source is traffic from I-495 and George Washington Memorial Parkway.

Noise abatement is provided to the community by an existing noise barrier designed prior to 1995. The existing noise barrier is approximately 2,666 feet in length and 20 feet high on average.

B. Area 2: I-495 west side, between George Washington Parkway and Clara Barton Parkway

NSA VA-02

This NSA is located west of the southbound lanes of I-495, between the American Legion Memorial Bridge and the George Washington Memorial Parkway Interchange. This area consists of residences along Live Oak Drive, Rivercrest Drive, Green Oak Drive, and recreational use associated with the Potomac Heritage Trail. Receptors generally do not have direct line of sight with I-495 and are generally at least 20 to 90 feet higher in elevation relative to the interstate mainline. The dominant noise source is traffic from I-495 and George Washington Memorial Parkway.

NSA VA-04

This NSA is located east of the northbound lanes of I-495 adjacent to the American Legion Memorial Bridge, and north of George Washington Memorial Parkway. This area consists of recreational uses associated with the Potomac Heritage Trail, and Dead Run Trail at Turkey Run Park (managed by the NPS). Receptors generally do not have direct line of sight with I-495 and are generally at least 70 feet lower in elevation than the adjacent highway. The dominant noise source is traffic from I-495 and George Washington Memorial Parkway.

C. Area 3: I-495 west side, between Clara Barton Parkway and MD 190

NSA 1-01

This area represents single-family residences of the Glengarry community along MacArthur Boulevard, Eggert Drive, and Tammy Court. A short developer barrier protects the northern edge of this community. The area is along the outer loop of I-495 from Clara Barton Parkway to Persimmon Tree Road. The residential receptors are between 130 feet and 930 feet from the edge of the southbound I-495 shoulder. A portion of the C&O Canal Towpath, within the C&O Canal National Historic Park, is included in this NSA. One hole at the Congressional Country Club golf course, a Section 4(f) resource, runs adjacent to I-495.

NSA 1-02

This area represents single-family residences along Carlynn Drive, River Rock Terrace, and Carlynn Court of the Congressional Country Club Estates community. The receptors are 90 feet to 680 feet from the edge of the northbound I-495 shoulder. The area is along the inner loop of I-495 from MacArthur Boulevard to Persimmon Tree Road. A portion of the C&O Canal Towpath is included in this NSA. This NSA is not presently protected by a noise barrier.

NSA 1-04

This area represents single-family residences, a local park, a trail, and a Section 4(f) property (Morningstar Tabernacle No. 88 Moses Hall and Cemetery). Residences in the Evergreen community are located along Tomlinson Avenue, Osage Lane, and Cypress Grove Lane. The receptors are 110 feet to 1,100 feet from the edge of the northbound I-495 shoulder. The area is along the inner loop of I-495 from Persimmon Tree Road to Seven Locks Road. Seven Locks Local Park is located off of Seven Locks Road, approximately 780 feet from I-495. Outdoor activities at the park include tennis courts, a soccer field, playground, basketball courts, and two swimming pools. A portion of Cabin John Trail is included in this NSA. This community is not presently protected by a noise barrier.

NSA 1-05

This area represents single-family residences along Royal Dominion Drive, Pepperell Drive, and Pepperell Court of the Al Marah community. A portion of Booze Creek Stream Valley Park is included in this NSA. The receptors are 210 feet to 1,010 feet from the edge of the northbound I-495 shoulder. The area is along the inner loop of I-495 from Cabin John Parkway to River Road. This community is not presently protected by a noise barrier.

NSA 1-03

This area represents single-family residences along Persimmon Tree Lane, Comanche Court, Stone Trail Drive, Hamilton Spring Road of the Carderock Springs community, and the Carderock Springs Elementary School, all within the Carderock Springs Historic District. The area is along the outer loop of I-495 from Persimmon Tree Road to approximately 2,200 feet east of Persimmon Tree Road. Outdoor activities at the elementary school include a ball field, several playgrounds, and basketball courts, with the nearest located approximately 160 feet from the outer loop of I-495. The outdoor land uses are all located on the highway side of the school and are therefore not shielded from highway noise by the building. The receptors are 80 feet to 750 feet from the edge of the southbound I-495 shoulder. This community is not presently protected by a noise barrier.

NSA 2-01

This area represents single-family residences, a church, and a trail. Residences of the Carderock Springs community are located along Hamilton Spring Road, Thornley Court, and Seven Locks Road, the majority of which are within the Carderock Springs Historic District. The receptors are 200 feet to 1,000 feet from the edge of the southbound I-495 shoulder. The area is along the outer loop of I-495 from 1,600 feet west of Seven Locks Road to Seven Locks Road.

Gibson Grove A.M.E. Zion Church, a Section 4(f) resource which has no frequent exterior use, is located along Seven Locks Road, approximately 150 feet from I-495. The building is of wooden construction with no apparent air conditioning. As a result, the structure is expected to have a building noise reduction factor of 10 dB(A) when assessing *interior* impacts. A portion of Cabin John Trail is included in this NSA.

Noise abatement is provided to the community by an existing noise barrier (#15143N0/ #15234N0) constructed in 1993. The existing noise barrier is approximately 1,476 feet in length and 16 feet high on average.

D. Area 4: I-495 west side, between MD 190 and I-270 west spur

NSA 1-06

This area represents single-family residences and townhouses of the Seven Locks Hills community. The residences are located along Seven Locks Road, Old Seven Locks Road, River Quarry Place, and Quarry Manor Terrace and are 210 feet to 1,110 feet from the edge of the southbound I-495 shoulder. The area is along the outer loop of I-495 from River Road to approximately 1,300 feet north of River Road.

Noise abatement is partially provided to the community by an existing noise barrier (#15393N0) constructed in 2004. The existing noise barrier [partially protecting both NSA 1-06 and fully protecting NSA 3-01] is approximately 6,020 feet in length with an average height of 27 feet. In some locations the existing wall approaches heights in excess of 34 feet.

NSA 3-01

This area represents single-family residences in the Seven Locks Hills, Charred Oak Estates, Burning Tree Estates, and Rose Hill Estates communities. The residences are located along Seven Locks Road, Lonesome Pine Lane, Honeybee Lane, Cindy Lane, Honeybee Court, Earl Court, Green Twig Road, Groton Road, Charred Oak Drive, Dwight Drive, Quintana Drive, English Way, Carteret Road, Rosehill Drive, Shadywood Road, Barnum Road, Glennon Drive, Seddon Road, and Bradley Boulevard and are 40 feet to 1,070 feet from the edge of the southbound I-495 shoulder. The area is along the outer loop of I-495 from 1,300 feet north of River Road to Bradley Boulevard.

Noise abatement is provided to the community by an existing noise barrier (#15393N0) constructed in 2004. The existing noise barrier [partially protecting NSA 1-06 and fully protecting NSA 3-01] is approximately 6,020 feet in length wall with an average height of 27 feet. In some locations the existing wall approaches heights in excess of 34 feet.

NSA 1-38

This area represents the Fox Hill senior living condominium community located between the ramp from River Road to the inner loop of I-495 to Burdette Road. The receptors are 750 feet to 1,500 feet from the edge of the northbound I-495 shoulder. The complex is approximately five stories with balconies facing I-495 and the ramp. The area is along the inner loop of I-495 from River Road to approximately 800 feet north of River Road. The area is not presently protected by a noise barrier.

NSA 4-01

This area represents the Burning Tree Country Club, a Section 4(f) resource, and is along the inner loop of I-495 from 800 feet north of River Road to approximately 2,600 feet north of River Road. Five of the holes at the golf course run adjacent to I-495.

Noise abatement is partially provided to this recreation facility in addition to NSA 2-02 by an existing noise barrier (#15142N0) constructed in 1994. The existing barrier is approximately 4,488 feet in length and 20 feet high on average.

NSA 2-02

This area represents single-family residences in the Arrowood community along Arrowood Court, Arrowood Road, Arrowood Terrace, Kittery Lane, and Redwood Avenue. The receptors are 110 feet to 1,140 feet from the edge of the northbound I-495 shoulder. The area is along the inner loop of I-495 from Burning Tree Country Club to Bradley Boulevard. A portion of the Burning Tree Country Club is also located in this NSA.

Noise abatement is provided to the community by an existing noise barrier (#15142N0) constructed in 1994. The existing noise barrier is approximately 4,488 feet in length and 20 feet high on average.

E. Area 5: I-495 top side, between I-270 west spur and Phase 2

NSA 3-02

This area represents single-family residences in the Bradley Manor and Longwood communities along Armat Drive, Longwood Drive, Brooke Drive, and Rainswood Court. The receptors are 190 feet to 1,220 feet from the edge of the northbound I-495 shoulder. The area is along the inner loop of I-495 from Bradley Boulevard to Greentree Road.

Noise abatement is provided to the community by an existing noise barrier (#15352N0) constructed in 2002. The existing barrier is approximately 2,608 feet in length and 26 feet high on average.

NSA 3-04

This area represents single-family residences in the Bradley Manor and Tuscullum communities along Greentree Road, Longwood Drive, Newbold Place, Newbold Drive, Newbold Court, and Michaels Drive. The receptors are 150 feet to 1,370 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from Greentree Road to approximately 800 feet west of Fernwood Road.

Noise abatement is provided to the community by an existing noise barrier (#15351N0) constructed in 2002. The existing noise barrier, partially protecting part of NSA 1-08 and fully protecting NSA 3-04, measures approximately 2,496 feet in length and 20 feet high on average.

NSA 1-08

This area represents single-family residences and a private swim club in the Tuscullum community along Michaels Court, Michaels Drive, Burning Tree Road, and Fernwood Road. Outdoor uses at the private swim club, Old Georgetown Club Inc., include a swimming pool and tennis courts. The receptors are 130 feet to 990 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from 850 feet west of Fernwood Road to Fernwood Road.

Noise abatement is partially provided to the NSA by an existing noise barrier (#15351N0) constructed in 2002. The existing noise barrier, partially protecting part of NSA 1-08 and fully protecting NSA 3-04, measures approximately 2,496 feet in length and 20 feet high on average.

NSA 2-03

This area represents single-family residences in the Stratton Woods community along Renita Lane, Corkran Lane, Rutley Road, Renita Lane, and Tusculum Road. The receptors are 140 feet to 1,110 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from 1,500 feet east of Greentree Road to Fernwood Road.

Noise abatement is provided to the Stratton Woods community by an existing noise barrier (#15157N0) constructed in 1996. The existing noise barrier is approximately 1,674 feet in length and 17 feet high on average.

Additionally, a new residential development, Amalyn Bethesda, is proposed for the area west of the Stratton Woods community, at the former WMAL property. The developer is coordinating with MDOT SHA regarding the potential to construct a noise barrier on SHA property along I-495.

NSA 2-04A

NSA 2-04A was adapted to conform with the Phase 1 South limits of construction; the boundary matches with NSA 2-04B in Phase 2, which is described below in Area 16. This area represents single-family residences in the Fernwood community along Rockhurst Road, Brixton Lane, Holmhurst Road, Stoneham Road, Montauk Avenue, and De Paul Drive. The receptors are 110 feet to 980 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from Fernwood Road to slightly east of De Paul Drive.

Noise abatement is provided to the community by an existing noise barrier (#15156N0) constructed in 1997. The existing noise barrier, which extends beyond the NSA, is approximately 3,740 feet in length and 21 feet high on average.

NSA 2-05A

NSA 2-05A was adapted to conform with the Phase 1 South limits of construction; the boundary matches with NSA 2-05B in Phase 2, which is described below in Area 16. This area represents single-family residences in the Ashburton community along Fernwood Road, Earlham Drive, and Hollins Drive. The receptors are 90 feet to 500 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from Fernwood Road to slightly east of Fernwood Road.

Noise abatement is provided to the community by an existing noise barrier (#15154N0) constructed in 1996. The existing noise barrier, which extends beyond the NSA, is approximately 4,502 feet in length and 21 feet high on average.

F. Area 6: I-270 west spur, between I-495 and Democracy Boulevard

NSA 5-36

This area represents single-family residences in the Bradley Manor community. The receptors are 80 feet to 950 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 along the west spur of I-270. The Wolfe's Subdivision community contains single-family residences along Barnett Road. The Academy Woods community, identified as a Section 4(f) resource, contains single-family residences located along Grubby Thicket Way. The nearest of these homes is located approximately 100 feet from the shoulder of the northbound I-270 Spur lanes. The Stratton Commons community is located along Greentree Road, Derbyshire Lane and Surreywood Lane. The residences include both single-family and townhouses. The nearest of these single-family homes and townhouses is located approximately 100 feet from the shoulder of the northbound I-270 Spur lanes.

Noise abatement is provided to a portion of the community by an existing noise barrier (#15353N0), constructed in 2002. The existing noise barrier is approximately 1,488 feet in length and 19 feet high on average.

NSA 5-37A

Located south of Democracy Boulevard, the Wildwood Hills community consists of single-family houses located along Woodhill Road, Bells Mill Road, and Thomas Branch Drive, with the nearest of these residences located approximately 250 feet from the southbound spur of I-270. Noise abatement is provided to the community by an existing Type I noise barrier (#15363N0), constructed in 2003. The existing noise barrier is approximately 1,584 feet in length and 21 feet high on average.

NSA 5-37B

The area is along the outer loop of I-495 from Bradley Boulevard/MD 191 to the north end of the Bethesda Country Club. This area represents townhouses (the Bethesda Overlook), tennis courts and the golf course associated with the Bethesda Country Club. The closest receptor at the Bethesda Overlook community is located 100 feet from the edge of the southbound I-495 shoulder. This area is not presently protected by a noise barrier.

G. Area 7: I-270 west spur, between Democracy Boulevard and Westlake Terrace

NSA 5-32A

This area includes a hotel and office buildings. The Bethesda Marriott Suites hotel has a jogging/fitness trail along the I-270 Spur on-ramp from Democracy Boulevard and an outdoor pool that is partially shielded by the hotel building and parking garage. The office buildings do not have any outdoor uses.

H. Area 8: I-270 east spur, between MD 187 and Phase 2

NSA 5-33A

NSA 5-33A was adapted to conform with the Phase 1 South limits of construction; the boundary matches with NSA 5-33B in Phase 2, which is described below in Area 16. This area includes residential uses, as well as recreational uses and a church. The Saint Mark Presbyterian Church is located at 10701 Old Georgetown Road. The church contains a playground at the southern side of the main building, which is primarily used on Sundays (as verified by the church coordinator). On the north side of the building, there is a memorial garden that contains two benches. This area receives some shielding from noise along I-270 by the church buildings.

The Cloisters community (platted as Timberlawn) consists of townhouses and single-family homes located along Valerian Lane and Lady Slipper Terrace. The nearest buildings are approximately 170 feet from the northbound I-270 shoulder. The two-car brick garages are situated directly behind the townhouses and act as a barrier for the rear yards, providing shielding from I-270 traffic noise. Two single-family residences immediately north of Lady Slipper Terrace are behind an 8-foot berm. Two tennis courts are located at the southern end of the community approximately 120 feet from the highway at their nearest point.

The Timberlawn South at North Bethesda community consists of townhouses located along Pine Haven Terrace and Mist Haven Terrace. The properties closest to I-270 all contain decks. The nearest of these homes are located approximately 210 feet from the northbound I-270 shoulder with the rear of the properties being roughly 180 feet away. The southernmost buildings sit 20 feet above the highway and the northernmost buildings sit roughly 10 feet above the highway.

The Timberlawn Crescent Apartments are located along Luxemburg Street. The three-story apartment buildings have balconies and patios. The nearest buildings are approximately 200 feet from the northbound I-270 shoulder. The southernmost buildings sit 10 feet below the highway and the northernmost buildings sit roughly 10 feet above the highway.

The Brighton Gardens of Tuckerman Lane retirement facility includes two outdoor use areas: the front entrance seating area and the outdoor patio. However, both of these areas are shielded from I-270 by the multi-story masonry building. The rear entrance area is not considered a use of sufficient frequency or duration. The latched windows are (at least) single glazed and appear to be primarily closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The facility is located approximately 185 feet from the I-270 northbound shoulder and sits behind a wooded berm of varying height.

The Grosvenor Park Townhouse Condominium community is located along Englishman Drive. A portion of the community is elevated 10 to 12 feet above the highway and the nearest residences are approximately 190 feet from the northbound shoulder. Most of the backyards have wooden privacy fences and elevated decks. A portion of the Bethesda Trolley Trail is included in this NSA.

<u>NSA 5-34A</u>

NSA 5-34A was adapted to conform with the Phase 1 South limits of construction; the boundary matches with NSA 5-34B in Phase 2, which is described below in Area 16. Wildwood Manor and Wildwood Knolls include single-family residences along Berkshire Drive, Aubinoe Farm Drive, Farnham Drive, Rudyard Drive, Rossmore Drive, St. Albans Drive, Cheshire Terrace, and Fleming Avenue. Noise abatement is provided to the community by an existing Type I noise barrier (#15356N0), constructed in 2003. The existing noise barrier is approximately 3,320 feet in length and 21 feet high on average.

The portion of the Grosvenor Woods community located along Snow Point Drive is located at the border of this NSA. The community contains single-family residences; a strip of undeveloped, wooded land sits between the residences and I-270, which is part of the subdivision's open space maintained by the homeowner's association. The nearest of these homes is located approximately 200 feet from the shoulder of the southbound I-270 lanes. A portion of the Bethesda Trolley Trail is included in this NSA.

I. Area 9: I-270 west and east spurs, between Y-split and Westlake Terrace and MD 187

NSA 5-32C

This area includes a proposed residential development, The Rae, which is scheduled to have 343 units as part of a five-story multi-family community that includes a courtyard with a pool, barbeque grills, hammocks, and an outdoor fireplace, as well as an office building without any outdoor uses. The Rae is located along Westlake Terrace, just west of the I-270 West Spur. At the nearest points, the outdoor areas are approximately 100 feet from the I-270 West Spur.

NSA 5-32B

Democracy Center consists of three commercial office buildings owned by Democracy Associates. There are a few paved walking paths in the northern region of the property and a basketball court and playground, located approximately 240 feet from I-270 Spur. Two Lockheed Martin office buildings are located at 6777 and 6801 Rockledge Drive. The area sits between both the I-270 Spur and I-270. There is a paved walking path in the northwest region of the property. At the nearest points, the path is approximately 135 feet from the I-270 Spur and 180 feet from I-270.

Two office buildings are located within the Rockledge Centre. There are two outdoor courtyards on the highway side with picnic tables. The extent of use is unknown at this time; however, both courtyards are depressed relative to the surrounding parking lot/garages. Therefore, they are shielded from the I-270 highway noise. Consequently, the area requires no further consideration.

The Montgomery Apartments complex is located along Rock Forrest Drive. Parking garages for the tenants have been constructed between the apartment buildings and I-270 and provide shielding from traffic noise. There is a pool area in the middle of the apartment complex, which currently receives abatement from a barrier put in place by the developer. Each apartment building contains a courtyard area with benches, which receives abatement in all directions from highway noise by the buildings. Consequently, this area requires no further consideration.

NSA 5-31

This area includes residential and recreational uses. The Oaks at North Bethesda community consists of single-family residences. An existing developer-brick noise barrier ties into the existing Type I screen wall (#15373N0), constructed in 2002. A paved path, located behind the barrier, begins on the east side of this area and extends along the south side of the community.

The eastern portion of the Windermere community (platted as Heritage Walk) contains single-family residences along Windermere Circle and Charnwood Lane. The nearest rear yards are approximately 70 feet from the northbound I-270 shoulder. The recreational uses associated with the Windermere Community Pool and Sam Suls Recreational Center include a playground, volleyball court, and tennis court.

NSA 5-30

This area represents the western portion of the Windermere Community along Daybreak Court. The area includes a row of six single-family detached homes east of I-270 and south of Tuckerman Lane. There are woods and a wooden fence in-between the houses and I-270, with the nearest building less than 100 feet from the road. Additional single-family residences are located along Earlsgate Lane, Earlsgate Way, Lancelot Drive, and Roundtable Court. The nearest rear yards are approximately 75 feet from the northbound I-270 shoulder.

Noise abatement is provided to the community by an existing Type I screen wall (#15373N0) constructed in 2002.

J. Area 10: I-270 mainline, between Y-split and Montrose Road

NSA 5-29

This area incudes residential communities and park land. The Old Farm and Montrose Woods communities include single-family detached homes located east of I-270 in-between Tuckerman Lane and Old Stage Road, south of Montrose Road. The buildings are located along several local roads and often are situated around cul-de-sacs.

Noise abatement is provided to the community by an existing Type I noise barrier (#15121N0) constructed in 1991. The existing noise barrier is approximately 4,932 feet in length and 19 feet high on average.

A portion of the Cabin John Stream Valley Park is located east of I-270 and south of Montrose Road. The area is covered entirely by trees and has no trails or recreational areas. The Old Farm Neighborhood Conservation Area (NCA), located at the end of Tilden Lane and adjacent to northbound I-270, and the Tilden Woods Stream Valley Park, located north of Tuckerman Lane and east of I-270, are both undeveloped, wooded areas.

Two additional parks are the Old Farm Neighborhood Conservation Area (NCA) and Tilden Woods Stream Valley Park, both undeveloped wooded areas.

NSA 5-28

This area includes residential and recreational land uses. Cabin John Regional Park, west of I-270, consists of a trail, running parallel to I-270, and the Robert C. McDonell Campground, which has seven campsites. The area is covered by trees, and the campground is accessed by an entrance along Tuckerman Lane approximately 0.5 miles west of I-270. The Watkins Glen community consists of the townhomes along Greenleaf Avenue, which is adjacent to the on-ramp from eastbound Montrose Road to the southbound I-270 C-D lanes.

K. Area 11: I-270 mainline, between Montrose Road and MD 189

NSA 5-27

This area includes residences, medical facilities, offices, a warehouse building, a restaurant, and recreational land. Single-family residences are located to the east of Tower Oaks Boulevard, approximately 900 feet from northbound I-270.

Medical facilities are located to the west of Tower Oaks Boulevard, and further north of the residences, to the east of Tower Oaks Boulevard. The building is of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. Due to the high noise criteria and the distance separation of approximately 800 feet to I-270, the medical facilities require no further consideration.

One office building, Lafayette Federal Credit Union, located east of I-270, bounded between Tower Oaks Boulevard and the ramp from Montrose Road onto northbound I-270 was evaluated for outdoor uses. There is an 80-foot wide section of woods and a group of picnic tables in-between the ramp and the office building. Given the type of tables, it is clear that they could be relocated easily to other areas of the property if an impact was predicted to occur. As a result, MDOT SHA considers this area to have no outdoor use areas of sufficient frequency, duration, or permanence. Consequently, it requires no further consideration.

The GEICO Materials Management Center, which consists of a warehouse building and parking lot, is located east of I-270 on the northeast side of Tower Oaks Boulevard. There are picnic tables located at the building entrance closest to Tower Oaks Boulevard. Given the type of tables observed in the field, it is clear that they could be relocated easily to other areas of the property if an impact was predicted to occur. As a result, MDOT SHA considers this area to have no outdoor use areas of sufficient frequency, duration, or permanence. Consequently, it requires no further consideration.

Another office building and a restaurant, located along Tower Oaks Boulevard, contains EMC^2, a software company were evaluated for outdoor uses. The buildings' elevations are approximately 15-25 feet below Tower Oaks Boulevard, as the side slope from the road is very steep. There are no outdoor uses located within this area. Consequently, it requires no further consideration.

Cabin John Stream Valley Park (Rockville) is located east of I-270, south of Preserve Parkway. The area is covered entirely by trees and has no trails or recreational areas.

NSA 5-26

This area contains commercial, retail, medical and office space. There are no outdoor noise sensitive uses in this NSA. An office building west of I-270 has a picnic table; however, given the type of table observed in the field, it is clear that it could be relocated easily to other areas of the property if an impact occurred from any proposed build condition. As a result, MDOT SHA considers this area to have no outdoor use areas of sufficient frequency, duration, or permanence. Consequently, it requires no further consideration.

The retail area houses a Harris Teeter store and restaurants with outdoor seating. The outdoor seating is shielded from roadway noise by the building. There is also a separate building utilized by Washington Radiology. There are no unshielded outdoor uses associated with this area. Consequently, it requires no further consideration.

NSA 5-25

This area represents the Montgomery County Detention Center west of I-270. As part of a Category D Land Use, the interior sound levels caused by traffic within the Center must be 51 dB(A) or less. It is estimated the windows cause a 25 dB(A) reduction, thus the sound levels just outside of the building would need to be 76 dB(A). The outdoor activity area is shielded from roadway noise by several large buildings. Due to the high noise criteria and the distance separation of approximately 200 feet to I-270, it requires no further consideration. The outdoor field associated with the Center is shielded by the Center itself, thus the field also requires no further consideration.

NSA 5-24

This area represents the Orchard Ridge community, which includes single-family detached homes located west of Seven Locks Road and west of I-270 along Cliff Hill Court, Big Tree Court, Cliffe Hill Way, and Willowleaf Way.

The Montgomery County Police Rockville Station is located between the residential community and I-270. There are no outdoor use areas associated with this building. Consequently, it requires no further consideration.

NSA 5-23

This area includes an office building, nursing center, residential community, and a recreational area. The Tower Building is located east of I-270 and north of Wootton Parkway. There are no outdoor use areas associated with this office building. Consequently, it requires no further consideration.

The Potomac Valley Nursing and Wellness Center is located at 1235 Potomac Valley Rd. The area is shielded from I-270 by a 350-foot section of trees and a retaining wall (#15250R0) that varies in height from 10-18 feet. There are tables and chairs located outside in front of the building. The Markwood Subdivision includes single-family detached houses located along Marcus Court east of I-270 and south of MD 189.

Millennium Garden Park is located east of I-270 and south of MD 189. The park consists of paved paths, an unpaved trail, and benches.

Noise abatement is provided to the community by an existing Type I noise barrier (#15122N0) constructed in 1989. The existing noise barrier is approximately 636 feet in length and 19 feet high on average.

L. Area 12: I-270 mainline, between MD 189 and MD 28

NSA 5-22

This area represents the Julius West Middle School located at 651 Great Falls Road (MD 189). The area includes the school, ballfield, tennis courts, and basketball courts. There is a 15-foot-high berm and a strip of woods located in between the ball field area and I-270.

NSA 5-19

This NSA consists of the Rose Hill Falls residential community, which also has recreational use areas, Bullards Park and Rose Hill Stream Valley Park. A wooded open space contains two paved walking paths, the closest of which is approximately 130 feet from I-270. Other recreational uses include a basketball court, tennis court, playground, and another walking trail. The Rose Hill Falls community, along Winding Rose Drive and Blue Hosta Way, contains three-story townhomes. Most of the residences have an elevated deck off the rear exit. The community is situated behind a berm varying in height between five and 15 feet, which is supported by a retaining wall on the community side.

NSA 5-18

This area includes a nursing home, a residential community and two religious facilities (one of which houses a preschool). The Rockville Nursing Home is located 60 feet from the local lanes along I-270. There are benches at the entrance to the nursing home.

The Rockville Christian Church has a large outdoor playground which is utilized weekly during their Playground Potluck and Bible Study on Wednesday evenings. A retaining wall (#15276R0), which is likely providing some shielding to the area, is situated along the northbound I-270 C-D lanes. The First Baptist Church operates the Weekday Early Education Center (W.E.E. Center) preschool, which has outdoor play areas. There is also an outdoor gathering area with benches and a basketball hoop on the church property.

The Foxboro community, which is located approximately 450 feet from the highway, includes single-family detached houses along Adclare Road east of I-270 and south of MD 28.

NSA 5-21

This area represents the Saddlebrook community, which includes single-family detached homes located along Woodsend Place, Woodsend Court, Lawngate Court, and Grovepoint Court along Watts Branch Parkway west of I-270.

Noise abatement is provided to a portion of the community by an existing Type I noise barrier (#15123N0) constructed in 1990. The existing noise barrier is approximately 4,092 feet in length and 15 feet high on average. A retaining wall (#15253R0) concentrated at the southern end of this area is situated in front of the last 270 feet of barrier along the southbound I-270 C-D lanes before following along the off-ramp to MD 189.

NSA 5-20

This NSA consists of a park and a residential community. The Fallswood community includes single-family detached homes located east and west of Watts Branch Parkway, along Fallswood Drive and Fallswood Court.

Noise abatement is provided to the community by an existing Type I noise barrier (#15123N0) constructed in 1990. The existing noise barrier is approximately 4,092 feet in length and 15 feet high on average.

Rockmead Park is covered entirely by trees and has no trails or recreational areas.

NSA 5-17

This area represents the Rockshire community, which includes townhomes located east of Watts Branch Parkway and west of I-270, just south of MD 28. The community also includes single-family detached homes located west of Watts Branch Parkway, along Lochness Court and Gerard Street.

Noise abatement is provided to the community by an existing Type I noise barrier (#15123N0) constructed in 1990. The existing noise barrier is approximately 4,092 feet in length and 15 feet high on average. A retaining wall (#15320R0) concentrated at the northern end of this area is situated in front of the barrier along the southbound I-270 C-D lanes.

NSA 5-16

This area represents Woottons Mill Park. Activities present include a community garden, tennis courts, and walking trails. This area also includes the former location of the Karma Academy School, which is now an open park and a basketball court.

M. Area 13: I-270 mainline, between MD 28 and Shady Grove Road

NSA 5-15

This area consists of residences as well as three churches. Two residences within the West End Park community are located along the west side of Nelson Street. The properties are between 30 and 70 feet away from the northbound I-270 C-D on-ramp and vary between 5 and 10 feet higher than the ramp. Additional residences within the West End Park community are located along the east side of Nelson Street. The northernmost property is approximately 200 feet from the northbound I-270 C-D shoulder and two feet below the highway. The property south of Beall Avenue is approximately 340 feet from the I-270 C-D on-ramp and 15 feet higher than the ramp.

The First Church-Christ Scientist, which has no frequent exterior use, is located between Nelson Street and I-270. Two other churches, Rockville Seventh Day Adventist Church and Rockville Church of God, are located 850 feet from the I-270 C-D lane and also have no outdoor uses. All three buildings are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 35 dB(A) when assessing *interior* impacts.

NSA 5-13

This area includes the Woodley Gardens Park, which contains two baseball fields, tennis courts, basketball courts, a playground, picnic tables, and grills. Woodley Gardens Park is within the Woodley Gardens historic district. Nearest to the highway is one of the baseball fields, which is approximately 180 feet away from the highway and 20 feet below it.

NSA 5-12

This area, east of I-270, includes retail, residences, and a senior center with recreational areas, all within the Woodley Gardens historic district. The Woodley Gardens Shopping Center includes an outdoor eating area. It is located about 190 feet away from the highway and 14 feet below it in elevation.

The Regents Square Condominium townhouses are located approximately 50 feet from the shoulder of the northbound I-270 C-D lanes. The community has a park with basketball courts and a playground. The Woodley Woods community is located further north, approximately 75 feet from the shoulder of the northbound I-270 C-D lanes.

The Rockville Senior Center, within the Rockville Senior Center Park, is located approximately 375 feet from the shoulder of the northbound I-270 C-D lanes. There are numerous outdoor noise-sensitive uses on the property including a garden and a walking trail.

Noise abatement is provided to the community by an existing Type I noise barrier (#15124N0), constructed in 1991. The existing noise barrier is approximately 3,468 feet in length and 19 feet high on average. A retaining wall (#15276R0), supporting the highway, is situated behind a portion of the barrier.

NSA 5-14

This area consists of office buildings, a hotel, and a restaurant. The Best Western PLUS Rockville Hotel & Suites is located along the west side of I-270. This building and outdoor pool is located approximately 265 feet from the outer shoulder of the southbound I-270 C-D lanes.

Benches are located outside of the restaurant; however, given that there are no tables, the area would not be classified as an area of sufficient frequency or duration. Consequently, the restaurant requires no further consideration.

Eight office buildings are located along the west side of I-270. The nearest of the office buildings is located approximately 100 feet from the southbound shoulder of I-270. There are no outdoor use areas of sufficient frequency, duration, or permanence associated with this area. Consequently, the office buildings require no further consideration.

NSA 5-11

This area, east of I-270, consists of offices, two medical facilities and an apartment building. The Ward Building, an office building for Piccard Homes, is identified as a Section 4(f) Property due to its eligibility for listing on the National Register of Historic Places. The building is located approximately 125 feet from the shoulder of the northbound I-270 C-D lanes.

A medical facility, containing the Piccard Surgery Center, is located along the east side of I-270. It has no frequent exterior use. The building appears to be of masonry construction with double glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 35 dB(A) when assessing *interior* impacts. The facility is located approximately 100 feet from the shoulder of the northbound I-270 C-D lanes.

Two office buildings are located north of the medical facility. The first building is located approximately 175 feet from the shoulder of the northbound I-270 C-D lanes. There is a landscaped courtyard at the entrance of the building, which contains a few benches. Since the use is not of sufficient duration, it requires no further consideration. The second is an office building for ZeniMax. The ZeniMax office building is located approximately 115 feet from the shoulder of the northbound I-270 C-D lanes. There is an outdoor seating area adjacent to the building.

The Flats at Shady Grove apartment building is located approximately 100 feet from the shoulder of the northbound I-270 C-D lanes. The apartment building has an outdoor pool that is completely surrounded by the building, which shields the use area from I-270.

One office building is located north of the apartment building, approximately 140 feet from the shoulder of the northbound I-270 C-D lanes. There are two picnic benches at the entrance of the building; however, they could be relocated easily to other areas of the property if an impact occurred from any proposed build condition. As a result, MDOT SHA considers this area to have no outdoor use areas of sufficient frequency, duration, or permanence. Consequently, it requires no further consideration.

The Kaiser Permanente Shady Grove Medical Center is located along the east side of I-270, which has no frequent exterior use. The building appears to be of masonry construction with double glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 35 dB(A) when assessing *interior* impacts. The facility building, which consists of doctor's offices run by Kaiser Permanente, is located approximately 95 feet from the shoulder of the northbound I-270 C-D lanes.

NSA 5-10

This area, west of I-270, consists of offices, two hotels, and a medical facility. Three office buildings are located approximately 225 feet from the southbound shoulder of I-270. The only outdoor noise-sensitive use is located adjacent to the northernmost building (2277 Research Boulevard), which has a large courtyard with numerous benches and tables. However, the outdoor seating is shielded from roadway noise by the building. There are no unshielded outdoor uses associated with this area. Consequently, it requires no further consideration.

Further north are four additional office buildings; the nearest of which is located approximately 160 feet from the southbound shoulder of I-270. There are no outdoor use areas of sufficient frequency, duration, or permanence associated with this area. Consequently, it requires no further consideration.

Two hotels are located along the west side of I-270: the Rockville Hotel (a Ramada by Wyndham) and a Sleep Inn. Both hotels share a common outdoor pool that is located approximately 220 feet from the outer shoulder of southbound I-270.

The medical facility is located along the west side of I-270 and has no frequent exterior use. This facility is located approximately 325 feet from the southbound shoulder of I-270. The building appears to be of masonry construction with double glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 35 dB(A) when assessing *interior* impacts.

NSA 5-09

This area, east of I-270, includes a hotel and residential development. The Sheraton Rockville Hotel is located approximately 360 feet from the shoulder of the northbound I-270 C-D lanes and 75 feet from the Redland Boulevard ramp. There are no outdoor use areas associated with this location. Consequently, it requires no further consideration.

The King Farm townhouses are located behind the hotel and north of the hotel, approximately 550 feet from the I-270 C-D lanes and 300 feet from the ramp from I-270 to Shady Grove Road. The development has an extensive paved path system with numerous benches. This outdoor area is approximately 430 feet from the outside shoulder of the northbound I-270 C-D lanes and 85 feet from the Redland Boulevard ramp.

NSA 5-08

This area consists of the apartment building of Gables Upper Rock. It is located approximately 140 feet from the adjacent Shady Grove Road interchange ramps and approximately 550 feet from the outside shoulder of the northbound I-270 C-D lanes. There is an outdoor pool area facing the highway, above the first-floor parking garage, as well as other outdoor areas scattered through the complex.

N. Area 14: I-270 mainline, between Shady Grove Road and I-370

NSA 5-07

This area, west of I-270, consists of an office building, two hotels, and residences. The office building at 9711 Washingtonian Boulevard is located along the west side of I-270. The building is located approximately 350 feet from the southbound shoulder of I-270. There is an outdoor seating area with multiple tables located in front of the building, approximately 400 feet from the shoulder of I-270.

The Spring Hill Suites hotel managed by Marriott is located along the west side of I-270. There is an outdoor seating area near the entrance to the hotel.

The Residence Inn hotel managed by Marriott is located along the west side of I-270. An outdoor pool is located approximately 145 feet from the shoulder of the southbound I-270 C-D lanes. The Rocky Gorge townhouse development and the Avalon apartment complex are located behind the hotel. The apartments have balconies facing I-270.

The Leidos Rio office building is approximately 350 feet from the shoulder of I-270. There are no outdoor use areas associated with this location. Consequently, it requires no further consideration.

NSA 5-06

This area, west of I-270, consists of outdoor retail and recreational land uses, as well as an office building and a hotel. The Gaithersburg Marriott Washingtonian Center hotel is located approximately 350 feet from the shoulder of the southbound I-270 C-D lanes. An outdoor patio is shielded by the hotel building. Consequently, it requires no further consideration.

A Sodexo office building is located along the west side of I-270. This facility is located approximately 620 feet from the southbound shoulder of I-270 and contains no evident outdoor use areas. Consequently, it requires no further consideration.

The Rio Washingtonian Center, which includes a variety of restaurants and shops are located approximately 650 feet from the southbound shoulder of I-270 across the lake. The facility is geared toward outdoor use, which includes outdoor eating areas and a boardwalk. The Rio Washingtonian Center also includes a park, located along the west side of I-270. The nearest portion of the path is located approximately 170 feet from the shoulder of the southbound I-270 C-D lanes (approximately 120 feet from the outer ramp shoulder) and consists of a paved walking trail, outdoor carousel, playground, and other features.

NSA 5-05

This area represents a variety of restaurants and shops at the northern end of the Rio Washingtonian Center located along the west side of I-270 adjacent to the ramp from I-370 to I-270. These facilities are generally located approximately 1,300-1,800 feet from the southbound shoulder of I-270 and 100 to 250 feet from the ramp. The area contains a Kohl's, Target, along with various other strip mall shops and is completely commercial with no evident outdoor use areas; as such it requires no further consideration.

NSA 5-03

This area consists of a restaurant, a medical facility, office buildings, and commercial / industrial uses. The restaurant, Red Lobster, is approximately 400 feet from the on-ramp to I-270. There are no outdoor use areas associated with this location. Consequently, it requires no further consideration.

The Shady Grove Development Park consists of five large buildings of mixed office and industrial use and includes a Veterans Affairs clinic. The buildings are located approximately 150 feet from the outside shoulder of the northbound I-270 C-D lanes. The office buildings have no outdoor use areas of sufficient frequency, duration, or permanence associated with this area. Consequently, they require no further consideration.

The Veteran Affairs clinic also has no outdoor uses. This medical facility is located approximately 170 feet from the southbound shoulder of I-270. The building appears to be of masonry construction with double glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 35 dB(A) when assessing *interior* impacts.

O. Area 15: I-270 mainline, north of I-370

NSA 5-04

This area represents the Camden Washingtonian Apartments and Lifetime Athletic Club, Spa, and Cafe. The apartments are located approximately 1,400 feet from the outside shoulder of the I-270 C-D lanes, 600 feet from the ramp from I-270 to I-370. The Athletic club includes an outdoor swimming pool that is located approximately 200 feet from the ramp from I-270 to I-370.

NSA 5-02

This area consists of residential and recreational land uses. Malcom King Park is located along the west side of I-270. The park's playground is located approximately 500 feet from the outer shoulder of I-270 southbound. A section of the hiker-biker trail is less than 100 feet away. A retaining wall (#15290R0) that supports the highway ends at the northern end of this location.

The Brighton West Condominiums Community is located along the west side of I-270. The nearest of these homes is located approximately 25 feet from the southbound shoulder of I-270.

Noise abatement is provided to the community by an existing Type I noise barrier (#15125N0), constructed in 1991. The existing noise barrier is approximately 2,031 feet in length and 14 feet high on average. A retaining wall (#15167R0), which begins at the northern end of this area, is situated in front of the barrier along the southbound I-270 C-D lanes and transitions into another retaining wall (#15290R0) that supports the highway at the southern end of this area.

NSA 5-01

This area consists of multiple residential and recreational land uses. Morris Park, which is maintained by the City of Gaithersburg, contains a playground, tennis and basketball courts, baseball and soccer fields, and a 90-person capacity picnic pavilion. The park is located approximately 360 feet from the edge of pavement where the on-ramp from I-370 merges with the northbound I-270 C-D lanes.

The Brighton East Townhouses community is located along the east side of I-270. The nearest residences are located approximately 100 feet from the shoulder of the northbound I-270 C-D lanes. The community pool area is approximately 60 feet from the I-270 C-D lanes.

The Fireside Condominiums community, along the east side of I-270, consists of 258 units. The nearest units are located approximately 30 feet from the shoulder of the northbound I-270 C-D lanes. The community pool area and tennis courts are between 30 and 50 feet from the I-270 C-D lanes.

The Brighton East Condominiums community is located along Duvall Lane behind the Fireside Condominiums east of I-270. The nearest of these condos are located approximately 300 feet from the shoulder of the northbound I-270 C-D lanes.

Noise abatement is provided to the community by an existing Type I noise barrier (#15126N0), constructed in 1991. The existing noise barrier is approximately 3,148 feet in length and 17 feet high on average. A retaining wall (#15166R0) is situated in front of the barrier along the northbound I-270 C-D lanes in front of the majority of the Fireside Condominiums.

P. Area 16: I-495 top side, between Phase 1 South and I-270 east spur

NSA 2-04B

This area represents single-family residences in the Fernwood community along Rockhurst Road, Stoneham Road, Stoneham Terrace, Stoneham Court, Ashburton Lane, Belhaven Road, Marquette Drive, and Marquette Terrace. The receptors are 110 feet to 980 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from slightly east of De Paul Drive to Old Georgetown Road (MD 187).

Noise abatement is provided to the community by an existing noise barrier (#15156N0) constructed in 1997. The existing noise barrier, which extends beyond the NSA, is approximately 3,740 feet in length and 21 feet high on average.

NSA 2-05B

This area represents single-family residences in the Ashburton community east of Fernwood Road along Earlham Drive, Singleton Drive, Singleton Court, Singleton Place, Starmont Road, Hollins Drive, Wadsworth Drive, Beck Court, Bulls Run Parkway, Kingsford Road, Kingsford Place, and Ryland Drive. The receptors are 90 feet to 960 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from slightly east of Fernwood Road to Old Georgetown Road (MD 187).

Noise abatement is provided to the community by an existing noise barrier (#15154N0) constructed in 1996. The existing noise barrier, which extends beyond the NSA, is approximately 4,502 feet in length and 21 feet high on average.

NSA 2-06

This area represents single-family residences in the Alta Vista Gardens community along Ipswich Road, Jarvis Lane, and Broad Street. The receptors are 180 feet to 830 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from Old Georgetown Road (MD 187) to approximately 1,300 feet east of Old Georgetown Road.

Noise abatement is provided to the community by an existing noise barrier (#15155N0) constructed in 1998. The existing noise barrier, partially protecting NSA 1-09 and fully protecting NSA 2-06, is approximately 1,530 feet in length and 22 feet high on average.

<u>NSA 1-09</u>

This area represents single-family residences and recreational resources in the North Bethesda Grove community generally along Dickens Avenue, Edward Avenue, and Fleming Avenue along the outer loop of I-495 from approximately 1,300 feet east of Old Georgetown Road to the I-270 interchange. The residential receptors are 120 feet to 630 feet from the edge of the westbound I-495 shoulder. The recreational resources include Fleming Park and the Bethesda Trolley Trail. Outdoor activities at the park include a ballfield, playground, and tennis courts located approximately 500 feet from the outer loop of I-495.

Noise abatement is partially provided to the community by an existing noise barrier (#15155N0) constructed in 1998. The existing noise barrier, partially protecting NSA 1-09 and fully protecting NSA 2-06, is approximately 1,530 feet in length and 22 feet high on average.

<u>NSA 1-10</u>

This area represents residential areas, a hotel, academic and religious facilities, and the Bethesda Trolley Trail. The area is along the inner loop of I-495 from Old Georgetown Road to I-270. An assisted-living facility, Maplewood Park Place, is located east of Old Georgetown Road, approximately 170 feet from I-495. Benches, outdoor seating areas, and a garden are located between the building and I-495. To the east of this facility, townhouses are located south of Maplewood Park Drive, between 200 and 500 feet from the edge of the eastbound I-495 shoulder. A short developer barrier protects a portion of this facility.

South of Maplewood Park Place and the townhouses is a group of academic and religious facilities, which include the St. Jane Frances de Chantal Catholic Church, St. Jane de Chantal School, and Rochambeau French International School. Outdoor uses include walking paths, an athletic field and track, and sitting areas, located between 500 and 850 feet from the inner loop of I-495.

The Whitley Park community is located approximately 150 feet from I-495. The complex includes townhouses and a pool that is located approximately 170 feet from I-495; additionally, many of the residences have balconies or patios. The Promenade condominium complex is located approximately 80 feet from I-495. Outdoor uses include balconies and an outdoor pool. The hotel (Bethesda Marriot), which includes tennis courts, is located approximately 300 feet from the interchange between I-495 and I-270.

Aside from the short developer barrier in front of the eastern edge of Maplewood Park Place, this NSA is not presently protected by a noise barrier.

Q. Area 17: I-270 east spur, between I-495 and Phase 1 South

<u>NSA 5-33B</u>

This area contains residential uses, including the Grosvenor House Condominiums and the Grosvenor Mews Townhouses. The area is along I-270 near the I-495 interchange. The Grosvenor House Condominiums are within the area identified as Grosvenor Park, a Section 4(f) resource.

The Grosvenor House Condominiums consist of three high-rise apartment buildings, which have balconies, as well as three outdoor pools and tennis courts; the closest pool is 400 feet from I-270. The townhouses in Grosvenor Mews have wooden privacy fences and elevated decks. The receptors are 80 feet from an interchange ramp between I-270 and MD 355. This community is not presently protected by a noise barrier.

NSA 5-34B

The portion of the Grosvenor Woods community along Thornbush Lane is located at the border of this NSA. The community contains single-family residences. A strip of undeveloped, wooded land sits between the residences and I-270, which is part of the subdivision's open space maintained by the homeowner's association. The nearest of these homes is located approximately 200 feet from the shoulder of the southbound I-270 lanes.

The Grosvenor Heights community contains single-family townhomes. The nearest of these homes is located approximately 200 feet from southbound I-270. This area is within the Grosvenor Estate (Wild Acres), a Section 4(f) resource. A developer barrier protects a portion of this community.

R. Area 18: I-495 top side, between I-270 east spur and MD 185

NSA 1-11

This area represents single-family residences along Parkwood Terrace, Franklin Street, and Parkwood Drive in the Grosvenor and Parkwood Communities, and part of Rock Creek Park (which includes a tot lot). The receptors are 100 to 1,190 from the edge of the westbound I-495 shoulder and 150 to 600 feet from the edge of the northbound I-270 shoulder. The area is located along the outer loop of I-495 from (east spur) I-270 to Cedar Lane. This NSA is not presently protected by a noise barrier.

NSA 1-13

This area represents single-family residences along Culver Street, Bramber Street, Carriage Road, Cable Drive, and Byeforde Road in the Rock Creek Highlands and Byeforde Knolls Communities, and Cedar Lane Unitarian Universalist Church, a Section 4(f) resource. A portion of the Rock Creek Trail is included in this NSA. The receptors are 380 feet to 1,250 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from Cedar Lane to Connecticut Avenue. This area is not presently protected by a noise barrier.

NSA 2-07

This area represents the Federation of American Societies for Experimental Biology building, a Section 4(f) resource. The building is approximately 400 feet from the on ramp to 495.

NSA 1-12

This area represents single-family residences between Rockville Pike (MD 355) and Cedar Lane in the Locust Hill Estates community, a portion of which is in the Locust Hill Estates historic district. Two parks are also located within the NSA, the Locust Hill Neighborhood Park, which has walking trails, and the Elmhirst Parkway Neighborhood Conservation Area, which has a path and a tot lot. The receptors are 90 feet to 1,050 feet from the edge of the eastbound I-495 shoulder.

Noise abatement is provided to the western portion of the community by an existing noise barrier (#15119N0) constructed in 1989. The existing noise barrier is approximately 2,375 feet in length and 20 feet high on average.

<u>NSA 2-08</u>

This area represents single-family residences between Cedar Lane and Parkhill Drive in the Parkview Estates community. A multi-purpose field is located at the far edge of the NSA. The receptors are 100 feet to 1,190 feet from the edge of the eastbound I-495 shoulder.

Noise abatement is provided to the community by existing noise barriers (#15120N0 and #15423N0) constructed in 1989. The existing noise barrier system is approximately 2,276 feet in length and 19 feet high on average.

<u>NSA 3-05</u>

This area represents single-family residences along Woodlawn Road in the North Chevy Chase community, Bethesda MWR Sports Complex, David Fairchild Estate, North Chevy Chase Local Park, and In the Woods, a Section 4(f) resource. The area is along the inner loop of I-495 from the NSA Sports Complex to Connecticut Avenue. Outdoor activities at the NSA Sports Complex include ballfields with the nearest located approximately 500 feet from the inner loop of I-495. Outdoor activities at North Chevy Chase Local Park include ballfields, swimming pools, and tennis courts, with the nearest of these facilities located approximately 350 feet from the inner loop of I-495. The receptors are 180 feet to 1,300 feet from the edge of the eastbound I-495 shoulder.

Noise abatement is provided to the community by an existing noise barrier (#15362N0) constructed in 2002. The existing noise barrier is approximately 544 feet in length and 28 feet high on average.

S. Area 19: I-495 top side, between MD 185 and MD 97

<u>NSA 1-14</u>

This area represents residential areas, a medical facility, a religious facility, and a recreational facility. This area is along the outer loop from Connecticut Avenue to Seminary Road. Single-family residences are located along Raymoor Road, Stoneybrook Drive, Hill Street, La Duke Drive, Campbell Drive, and Glenmoor Drive in the Rock Creek Hills community. The receptors are 110 feet to 1,270 feet from the edge of the westbound I-495 shoulder. A religious facility that is also a Section 4(f) resource, the Washington D.C. Temple, is located approximately 650 feet from the outer loop of I-495. Associates in Cardiology medical offices are located approximately 200 feet from the outer loop of I-495. It has no frequent exterior use. The building appears to be of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. A portion of the Rock Creek Trail is included in this NSA. This NSA is not presently protected by a noise barrier.

<u>NSA 1-36</u>

This area represents single-family homes along Inverness Drive in the North Chevy Chase community, as well as North Chevy Chase Church. The receptors are 290 feet to 1,320 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from Connecticut Avenue to approximately 1,000 feet east of Connecticut Avenue. This community is not presently protected by a noise barrier.

NSA 2-09

This area represents single-family residences along Kensington Parkway, Faircastle Drive, Glenmoor Drive, Husted Driveway, Clifford Avenue, and Spring Hill Lane in the North Chevy Chase community and Park View Estates community. The receptors are 130 feet to 1,100 feet from the edge of the eastbound I-495 shoulder. A portion of the Rock Creek Trail is included in this NSA. This NSA is along the inner loop of I-495 from Kensington Parkway to approximately 2,000 feet east of Kensington Parkway.

Noise abatement is provided to the community by an existing noise barrier system (#15118N0, constructed in 1989, and #15396N0, constructed in 2006). The existing noise barrier system is approximately 6,588 feet in length and 21 feet high on average.

NSA 3-06

This area represents single-family residences along Park View Road, Levelle Drive, Jones Mill Road, Forsythe Avenue, Wilton Avenue, Newcastle Avenue, and Stanton Avenue in the Park View Estates and Montgomery Hills communities, and condominiums and apartments at the National Park Seminary Historic District at Forest Glen. A portion of Rock Creek Park, which includes paved and unpaved walking paths is also located in this NSA. The receptors are 110 feet to 920 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from approximately 2,000 feet east of Kensington Parkway to the MARC railroad.

Noise abatement is provided to the community by an existing noise barrier system (#15118N0, constructed in 1989, and #15396N0, constructed in 2006) designed prior to 1995. The existing noise barrier is approximately 6,588 feet in length and 21 feet high on average.

NSA 2-10

This area represents single-family residences along inner loop of I-495 from the MARC railroad tracks to Georgia Avenue (MD 97), generally along Seminary Road, Westview Drive, and Landsdowne Way in the Montgomery Hills community. The receptors are 90 feet to 860 feet from the edge of the eastbound I-495 shoulder.

Noise abatement is provided to the community by an existing noise barrier (#15116N0) constructed in 1987. The existing noise barrier is approximately 3,012 feet in length and 18 feet high on average.

NSA 3-07

This area represents single-family residences and townhouses generally along Forest Glen Road, Glen Avenue, and Hollow Glen Place in the Forest Glen community. The eastern portion of this area is within the Forest Glen Historic District. The receptors are 110 feet to 740 feet from the edge of the westbound I-495 shoulder.

Noise abatement is provided to the community by an existing noise barrier (#15117N0) constructed in two separate phases, one portion in 1982 and one in 2001. The existing noise barrier [protecting both NSA 2-11 and NSA 3-07] is approximately 3,078 feet in length and 18 feet high on average.

NSA 2-11

This area represents single-family residences generally along Forest Glen Road, Coleridge Drive, Ellis Street, and Belvedere Place in the Forest Glen community. Other facilities include the St. John the Evangelist Historic Church & Our Lady Queen of Poland Parish, Knights of Columbus Hall, Carroll Family Historic Chapel, and Forest Glen Neighborhood Park. The park contains a playground, open space, and basketball courts, with the nearest of these facilities located approximately 60 feet from the outer loop of I-495. The western portion of this NSA is located within the Forest Glen Historic District. The receptors are 40 feet to 1110 feet from the edge of the westbound I-495 shoulder.

Noise abatement is provided to the community by an existing noise barrier (#15117N0) constructed in two separate phases, one portion in 1982 and one in 2001. The existing noise barrier [protecting both NSA 2-11 and NSA 3-07] is approximately 3,078 feet in length and 18 feet high on average.

T. Area 20: I-495 top side, between MD 97 and US 29

NSA 3-08

This area represents single-family residences along the outer loop of I-495 from Georgia Avenue to Holy Cross Hospital, generally along Woodland Drive, Forest Grove Drive, and Admiralty Drive in the Forest Estates community. Forest Glen Medical Center and Montgomery Hills Baptist Church are also located within this NSA at the intersection between Forest Glen Road and Georgia Avenue (MD 97). These facilities have no areas of frequent exterior use. The buildings are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction of 25 dB(A) when assessing *interior* impacts. The receptors are 130 feet to 910 feet from the edge of the westbound I-495 shoulder.

Noise abatement is provided to the NSA by an existing noise barrier (#15211N0) constructed in 1998. The existing noise barrier [fully protecting NSA 3-08 and partially protecting NSA 4-02] is approximately 1,600 feet in length and 29 feet high on average.

NSA 3-09

This area represents single-family residences generally along Woodland Drive, Landsdowne Way, Flora Lane, Columbia Boulevard, and Pin Oak Drive. The receptors are 80 feet to 850 feet from the edge of the eastbound I-495 shoulder. A portion of Sligo Creek Stream Valley Park, which includes a trail, is also located in this NSA. Also included in this NSA are the Calvary Evangelical Lutheran Church, a Section 4(f) resource, with basketball courts and playground facilities, and the Church of God Ministry of Jesus Christ International. This religious facility has no frequent exterior use. The building is of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a building noise reduction of 25 dB(A) when assessing *interior* impacts.

Noise abatement is provided to the community by an existing noise barrier (#15212N0) constructed in 1998. The existing noise barrier is approximately 1,856 feet in length and 19 feet high on average.

NSA 4-02

This area represents Holy Cross Hospital, residences and the Montgomery Child Care Association located north of Forest Glen Road along the outer loop of I-495. Holy Cross Hospital has recently added an addition directly adjacent to I-495. This addition was constructed with a specially designed curtain wall to insulate the interior of the building from highway noise. As a result, the structure is expected to have a minimum building noise reduction factor of 35 dB(A) when assessing *interior* impacts. The receptors are 90 feet to 120 feet from the edge of the westbound I-495 shoulder. The NSA also contains a paved walking trail associated with Sligo Creek Stream Valley Park.

Noise abatement is partially provided to the NSA by an existing noise barrier (#15211N0) constructed in 1998. The existing noise barrier [fully protecting NSA 3-08 and partially protecting NSA 4-02] is approximately 1,600 feet in length and 29 feet high on average.

<u>NSA 4-03</u>

This area represents Sligo Creek Golf Course and part of Sligo Creek Park. Three of the holes at the golf course run adjacent to I-495. The receptors are 100 feet to 780 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from approximately 2,300 feet east of Georgia Avenue to approximately 2,400 feet west of Colesville Road. This NSA is not presently protected by a noise barrier.

<u>NSA 2-12</u>

This area represents single-family homes in the Sunset Terrace community, generally along Forest Glen Road and Stirling Road. A small portion at the east edge of the community is within the Polychrome Historic District. The NSA also includes Argyle Park, South Four Corners Park, the Greater Washington Boys and Girls Club, Margaret Schweinhaut Senior Center, and the Siena School, which features basketball courts, playground facilities, and baseball fields located adjacent to I-495. Also included within this NSA is the Revelation Church, which has no outdoor use. The building is of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 80 feet to 870 feet from the edge of the westbound I-495 shoulder. This area is along the outer loop of I-495 from Sligo Creek Parkway to Colesville Road.

Noise abatement is provided to the community by an existing noise barrier system (#15115N0/ #15099N0) constructed in 1989. The existing noise barrier system is approximately 2,959 feet in length and 16 feet high on average.

<u>NSA 2-13</u>

This area represents single-family residences along Dallas Avenue, Bristol Avenue, Guilford Street, Grayson Avenue, Lorain Avenue, Granville Drive, and Sutherland Road within the North Hills of Sligo Park community. Also included within this NSA is the Knox Orthodox Presbyterian Church, which has no outdoor use. The building is of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 70 feet to 650 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from Dallas Avenue to Colesville Road.

Noise abatement is provided to the community by an existing noise barrier system (#15114N0/ #15264N0) constructed in 1989. The existing noise barrier system is approximately 1,901 feet in length and 18 feet high on average.

U. Area 21: I-495 top side, between US 29 and MD 193

NSA 2-14

Contains single-family residences along Shorey Road, Granville Drive, Fairway Avenue, Lawson Place, Lawndale Drive, Marshall Avenue, and Evergreen Street in the Indian Springs community. Also included in this NSA are the Hastings Neighborhood Conservation Area, Indian Springs Terrace Local Park, Silver Spring YMCA, and a Section 4(f) resource identified as Indian Spring Club Estates and Indian Spring Country Club. Outdoor activities present at the park include a basketball court, playground, pavilion, and tennis courts. Outdoor activities present at the YMCA include athletic fields, a swimming pool, and tennis courts. The receptors are 130 feet to 900 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from Colesville Road to University Boulevard.

Noise abatement is provided to the community by an existing noise barrier (#15210N0) constructed in 1998. The existing noise barrier is approximately 3,776 feet in length and 20 feet high on average.

NSA 4-04

This area represents the Montgomery Blair High School and Blair Local Park. The athletic fields are located between the high school and I-495. The receptors are 110 feet to 600 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from Colesville Road to University Boulevard.

Noise abatement is provided to the NSA by an existing county-owned noise barrier. The existing barrier is approximately 2,624 feet in length and 16 feet high on average.

V. Area 22: I-495 top side, between MD 193 and MD 650

NSA 2-15

This area represents single-family residences along Nassau Lane, Cherry Tree Lane, and Waterford Road in the Indian Springs Village community, and part of the Northwest Branch Stream Valley Park. The receptors are 120 feet to 1000 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop from University Boulevard to Northwest Branch Park.

Noise abatement is provided to the community by an existing noise barrier (#15113N0) constructed in 1990. The existing noise barrier is approximately 1,980 feet in length and 18 feet high on average.

NSA 2-17

This area represents single-family residences along Cresthaven Drive and Devere Drive in the Hillandale Heights community, and part of the Northwest Branch Stream Valley Park. The receptors are 110 feet to 820 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from Northwest Branch Park to approximately 1,800 feet west of New Hampshire Avenue.

Noise abatement is provided to the community by an existing noise barrier (#15111N0) constructed in 1990. The existing noise barrier is approximately 2,676 feet in length and 20 feet high on average.

NSA 2-16

This area represents single-family residences along Merwood Lane, East Indian Spring Drive, and McAlpine Road in the Franklin Knolls community, as well as the Bonner Wardell Church. The receptors are 120 feet to 970 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop from University Boulevard to Northwest Branch Stream Valley Park.

Noise abatement is provided to the community by an existing noise barrier (#15112N0) constructed in 1990. The existing noise barrier is approximately 2,472 feet in length and 14 feet high on average.

NSA 1-35

This area represents Roscoe Nix Elementary School and part of the Northwest Branch Stream Valley Park. Outdoor activities at the school include a ballfield, basketball courts, and several playgrounds, with the nearest of these facilities located approximately 150 feet from the inner loop of I-495. The receptors are 150 feet to 980 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from approximately 4200 feet east to 2,000 feet east of New Hampshire Avenue. This NSA is not presently protected by a noise barrier.

NSA 2-18

This area represents single-family residences along Hedin Drive, Arbor Hill Drive, East Light Drive, Dilston Road, Cottrell Terrace, Moffet Road, and Braddock Road in the Oakview community. The receptors are 150 feet to 750 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from approximately 2300 feet west of New Hampshire Avenue to New Hampshire Avenue.

Noise abatement is provided to the community by an existing noise barrier (#15110N0) constructed in 1990. The existing noise barrier is approximately 1,992 feet in length and 17 feet high on average.

W. Area 23: I-495 top side, between MD 650 and I-95

NSA 2-19

This area represents residential, medical, and recreational, as well as the Washington Coca-Cola Bottling Plant, a Section 4(f) resource. The single-family residences are located along Elton Road, Wooded Way, and Wooded Court in the Hillandale Forest community. Recreational facilities associated with the Hillandale Swim & Tennis Associations are located approximately 500 feet from the outer loop of I-495. Also included in this NSA is part of the Hillandale Shopping Center, which consists of two medical facilities with no frequent exterior uses. Both buildings are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. Other retail establishments are located adjacent to I-495; however, none have frequent exterior uses. The receptors are 110 feet to 750 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop of I-495 from approximately 700 feet east of New Hampshire Avenue to approximately 600 feet west of Riggs Road.

Noise abatement is provided to the community by an existing noise barrier (#15109N0) constructed in 1990. The existing noise barrier is approximately 1,716 feet in length and 19 feet high on average.

NSA 2-20

This area represents single-family residences along Avenel Road, Laconia Drive, Muskogee Street, 22nd Avenue, 23rd Avenue, 24th Avenue, and Mistletoe Place and apartments along Mount Pisgah Road and Hampshire Green Lane in the Holly Hill Manor and Château communities. Outdoor facilities associated with these apartments include a pool and tennis courts, with the nearest of these located approximately

750 feet from the inner loop of I-495. The receptors are 90 feet to 940 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop of I-495 from New Hampshire Avenue to Riggs Road.

Noise abatement is provided to the community by an existing noise barrier (#15108N0) constructed in 1990. The existing barrier is approximately 2,304 feet in length and 19 feet high on average.

NSA 1-15

This area represents two places of worship: Eglise Baptiste Du Calvaire and The Hindu Temple of Metropolitan Washington. The NSA also includes single-family homes along Vireo Street, Killdeer Avenue, Phoebe Lane, Geranium Avenue, and Floral Drive in the Adelphi Forest community, and Knollwood Park (recreational). The receptors are 200 feet to 800 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop in the northwest quadrant of the I-495/I-95 interchange, beginning approximately 500 feet west of Riggs Road. This NSA is not presently protected by a noise barrier.

NSA 1-16

This area represents single-family residences along Tuckahoe Lane, Muskogee Street, Custer Terrace, Lackawanna Place, Lackawanna Street, and Muskogee Place in the White Oak Manor community. This NSA includes one place of worship, Lighthouse Ministries International Inc., along Moon River Court. The receptors are 70 feet to 1020 feet from the edge of the eastbound I-495 shoulder. The area is along the inner loop in the southwest quadrant of the I-495/I-95 interchange, beginning at Riggs Road. This community is not presently protected by a noise barrier.

NSA 3-17

This area represents single-family homes along Duncan Drive and Edgemont Drive in the Knollwood community. The NSA includes Edgefield Drive Park and a portion of Paint Branch Stream Valley Park. The receptors are 200 feet to 1,200 feet from the edge of the westbound I-495 shoulder. The area is along the outer loop in the northwest quadrant of the I-495/I-95 interchange, beginning approximately 1,800 feet east of Riggs Road.

Noise abatement is provided to the community by a series of three existing noise barriers (#16384N0, #16385N0, and #16386N0) constructed in 2006. The existing noise barriers are approximately 3,574 feet in total length and range between 9 and 19 feet high on average.

NSA I-95-N

This area represents single-family and multi-family residences, as well as several schools, places of worship and residential areas, including Paint Branch Unitarian Universalist Church, Frances Fuchs Early Childhood Center, athletic fields at High Point High School, Silver Oaks Cooperative School, James E. Duckworth Regional School, and Healing Temple Church Nazarene. Single-family residences are located along Boxer Road, Bornedale Drive, Ashfield Drive, Sellman Road, Cherry Hill Road, Weeping Willow Lane, Collier Road, Green Ash Lane, and Green Ash Court. Multi-family residences are located along Powder Mill Village Lane, Continental Lane, and Evans Trail. The receptors are 150 feet to 1,150 feet from the edge of the southbound I-95 shoulder. This area is located along southbound I-95 north of the Capital Beltway from southwest of Cherry Hill Road to northeast of James E. Duckworth Regional School.

Noise abatement is provided to a portion of the community by an existing noise barrier (#16406N0) constructed in 2005. The existing noise barrier is approximately 963 feet in length and 19 feet high on average.

X. Area 24: I-495 east side, between I-95 and US 1

NSA I-95-S

This area represents Beltsville Agricultural Research Center (BARC), a Section 4(f) resource, Little Paint Branch Park, and single-family residences along Sellman Road, Woodbine Road, Taunton Drive, Taunton Court, and Ulster Road. The receptors are 400 feet to 1,350 feet from the edge of the northbound I-95 shoulder. This NSA is not presently protected by a noise barrier.

NSA 1-17

This area represents the Cherry Hill Park campgrounds along Appalachian Trail, Arctic Court, Yosemite Lane, Yukon Terrace, Carter Lake Vista, and Carlsbed Cove in the northeast quadrant of the I-495/I-95 interchange. Also included in this NSA is the Cherry Hill Ballroom, which features two pools located approximately 250 feet from the ramp between I-495 and I-95. The receptors are 270 feet to 990 feet from the edge of the westbound I-95/495 shoulder. The area is along the outer loop in the northeast quadrant of the I-495/I-95 interchange, ending at Cherry Hill Road. This NSA is not presently protected by a noise barrier.

NSA 1-18

This area represents single-family residences along Park Drive and 47th Avenue and apartment buildings along Cherry Hill Road in the Cherry Hill and Seven Springs Communities, Cherry Hill Road Park, and the Knights of Columbus property, which includes an outdoor pool located approximately 300 feet from the inner loop of I-495. Also, the east side of the area is a commercial-retail center, which includes a restaurant with outdoor seating. The receptors are 170 feet to 1,010 feet from the edge of the eastbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from approximately 900 feet west of Cherry Hill Road to Baltimore Boulevard. This NSA is not presently protected by a noise barrier.

Y. Area 25: I-495 east side, between US 1 and Greenbelt Metro

NSA 2-23

This area represents the Wynfield Park Apartments and single-family residences along Odessa Road, 51st Street, and 52nd Street in the Sunnyside community. Also included in this NSA is a police department facility, Sunnyside Skate Park, Holiday Inn hotel, and a portion of the BARC facility. The receptors are 60 feet to 810 feet from the edge of the westbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from Cherry Hill Road to approximately 1,000 feet east of Rhode Island Avenue.

Noise abatement is provided to a portion of this NSA by an existing noise barrier (#16027N0) constructed in 1989. The existing noise barrier is approximately 2,259 feet in length and 13 feet high on average.

NSA 2-21

This area represents single-family residences along Niagara Road and Nantucket Road in the College Park community. Also included in this NSA are office buildings and retail facilities located west of Rhode Island Avenue, as well as the Washington DC Center of Self-Realization and College Park Youth and Family, neither of which has frequent exterior uses. Both buildings are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 70 feet to 800 feet from the edge of the eastbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from Baltimore Avenue to Rhode Island Avenue.

Noise abatement is provided to the community by an existing noise barrier (#16026N0) constructed in 1987. The existing noise barrier is approximately 1,290 feet in length and 14 feet high on average.

NSA 2-22

This area represents single-family residences along Ontario Road, Niagara Road, Nantucket Road and 51st Street in the Hollywood community. Also included in this NSA are retail facilities located east of Rhode Island Avenue. The receptors are 100 feet to 480 feet from the edge of the eastbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from Rhode Island Avenue to 1,300 feet east of Rhode Island Avenue.

Noise abatement is provided to the community by existing noise barriers (#16025N0, constructed in 1987, and #16407N0, constructed in 2006). The existing noise barriers are approximately 3,070 feet in length and range from 16 to 20 feet high on average.

NSA 3-18

This area represents single-family residences along Niagara Place, 51st Terrace, 52nd Place, 53rd Avenue, and Edgewood Road of the Hollywood community, and part of Hollywood Park. Outdoor activities at the park include a basketball court, ballfields, and playgrounds. Also included in this NSA is the Al-Huda School located approximately 350 feet from the inner loop of I-495. The receptors are 160 feet to 1,040 feet from the edge of the eastbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from approximately 2,700 feet northwest of the Greenbelt Metro rail line to the Greenbelt Metro rail line.

Noise abatement is provided to the community by existing noise barriers (#16025N0, constructed in 1987, and #16407N0, constructed in 2006). The existing noise barriers are approximately 3,070 feet in length and range from 16 to 20 feet high on average.

Z. Area 26: I-495 east side, between Greenbelt Metro and MD 201

NSA 1-40

This area represents a residential development under construction, a portion of the BARC facility, and an office building complex, which has a hotel with an outdoor pool. The receptors are 150 feet to 700 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from Greenbelt Commuter Station Road to Kenilworth Avenue. This NSA is not presently protected by a noise barrier.

NSA 1-19

This area represents rental apartments and townhouses along Edmonston Road, Springhill Drive, and Spamhill Court in the Spring Hill Lake community. A community pool within this community is located approximately 450 feet from the inner loop of I-495. Also included in this NSA is the Springhill Lake Elementary School, Springhill Lake Recreation Center, Rivers of Life AME Church, and office buildings located west of Kenilworth Avenue. The church has no frequent exterior use. The building is of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 70 feet to 990 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from Cherrywood Lane to Kenilworth Avenue. This community is not presently protected by a noise barrier.

AA. Area 27: I-495 east side, between MD 201 and Baltimore-Washington Parkway

<u>NSA 1-20</u>

This area represents Indian Springs Park, and hotels with outdoor uses and office buildings, several of which have medical facilities with no frequent exterior uses. The buildings housing the medical facilities are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. There are also two hotels, each with outdoor patios. The receptors are 240 feet to 990 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from MD 201 to MD 193. This NSA is not presently protected by a noise barrier.

<u>NSA 1-21</u>

This area represents townhouses along Belle Point Drive, Damsel Court, Vanity Fair Drive, and Lady Anne Court in the Charlestown North and Belle Point communities, and professional offices, several of which are medical facilities with no frequent exterior uses. The buildings are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. Also within the NSA are the American Legion Greenbelt Post 136, Holy Cross Lutheran Church, the Greenbelt Maryland National Guard Armory, a Section 4(f) resource, and the Greenbelt Historic District, which includes Buddy Attick Lake Park. The receptors are 150 feet to 740 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from Kenilworth Avenue to Greenbelt Road. This community/ NSA is not presently protected by a noise barrier.

<u>NSA 1-22</u>

This NSA is located within Greenbelt Park. Outdoor activities within the park include picnic areas, walking paths, and meadows. The area is along the inner loop of I-495/I-95 from Greenbelt Road to the Baltimore Washington Parkway. The closest noise sensitive land use to the walking path which is located approximately 250 feet from the edge of the roadway. This NSA is not presently protected by a noise barrier.

BB. Area 28: I-495 east side, between Baltimore-Washington Parkway and MD 450

<u>NSA 1-23</u>

This area represents townhouses, condominiums and apartments along Hanover Parkway, Village Park Drive, and Lake Parke Drive in the Hunting Ridge and Greenbelt Lake Village communities. A community pool associated with the Hunting Ridge Condominiums is located approximately 150 feet from the outer loop of I-495. Also included in this NSA near the interchange with I-295 is a commercial area that includes a Holiday Inn Hotel with an outdoor pool, and office buildings, several containing medical facilities that do not have frequent exterior uses. All of the buildings are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. Recreational facilities within the NSA include Greenbelt Dog Park, Schrom Hills Recreation Center, Lanham Boys & Girls Club Field. One place of worship, Trinity Assembly of God, is located north of Good Luck Road. The receptors are 100 feet to 1320 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from approximately 1,000 feet southeast of the Baltimore Washington Parkway to Good Luck Road. This community is currently protected by a private noise barrier.

NSA 1-24

This area represents the Greenbelt Park along the inner loop of I-495/I-95 from the Baltimore Washington Parkway to approximately 2,000 feet southeast of the Baltimore Washington Parkway. The receptors are 720 feet and 280 from the edge of the southbound I-495/I-95 shoulder respectively. This NSA is not presently protected by a noise barrier.

NSA 2-24

This area represents single-family residences along Kepner Court, Nashville Court, Nashville Road, Lamont Drive, Wilhelm Drive, Graylynn Drive, and Cathedral Avenue in the Good Luck Estates community. Also included in this NSA is the Youth Memorial Sports Park and Good Luck Estates Park which includes tennis courts and an athletic field, and New Carrollton Bible Church (includes a playground and grounds for outdoor events). The receptors are 80 feet to 900 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from Greenbelt Park to Good Luck Road.

Noise abatement is provided to the community by an existing noise barrier (#16115N0) constructed in 1998. The existing noise barrier is approximately 2,992 feet in length and 20 feet high on average.

NSA 2-25

This area represents single-family residences along Midra Drive, Edgerton Drive, Desen Drive, Tiffany Lane, Seta Drive, Tiffany Court, and Brays Street in the Dresden Green community, as well as the Dresden Green Park at the northern edge of the community. The receptors are 70 feet to 650 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from Good Luck Road to 1800 feet southeast of Good Luck Road.

Noise abatement is provided to the community by an existing noise barrier (#16028N0) constructed in 1986. The existing noise barrier is approximately 1,718 feet in length and 18 feet high on average.

NSA 1-25

This area represents single-family residences along Priscilla Court in the Princess Gardens community. Also included in this NSA is the Christ Apostolic Church, New Song community Development church, and Shri Hanuman Temple of North America located west of Princess Garden Parkway, and Saint Cosmas of Aitolia Orthodox Church located east of Princess Garden Parkway. The receptors are 170 feet to 1,000 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from approximately 1,700 feet southeast of Good Luck Road to Annapolis Road. This community is not presently protected by a noise barrier.

NSA 2-26

This area represents single-family residences along Caswell Place, 86th Avenue, 86th Court, Carrollton Parkway, 87th Avenue, Fremont Street, Preston Street, Powhatan Street, Oliver Street, Oglethorpe Street, Nicholson Street, Madison Street, and Legation Road in the New Carrollton community and Carrollton Manor Apartments. Also included in this NSA to the south of Good Luck Road is a Buddhist temple, veterinary clinic, a medical center, and the Robert Frost Elementary School. Outdoor activities at the school include playgrounds and athletic fields located approximately 650 feet from the inner loop of I-495. The medical center is located within an office building adjacent to MD 450 and does not have frequent exterior uses. The building is of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. Located north of the interchange with MD 450 is the New Carrollton Community Center and Beckett Field, which features fields and basketball courts, with the nearest of these facilities located approximately 75 feet from the inner loop of I-495. The receptors are 50 feet to 740 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from Good Luck Road to the Amtrak railroad tracks.

Noise abatement is provided to the community by an existing noise barrier (#16030N0) constructed in 1986. The existing noise barrier is approximately 6,244 feet in length and 17 feet high on average.

NSA 2-27

This area represents single-family residences along Spring Avenue, 88th Place, 89th Place, and 89th Avenue in the New Carrollton community and Princess Gardens community. Also included in this NSA is the Murugan Temple of North America, New Carrollton Police Department and Community Center, Kingdom Hall of Jehovah's Witnesses, Greenbelt Spanish Seventh-day Adventist Church, Grace Presbyterian Church, office buildings, a Best Western hotel with an outdoor pool, a takeout restaurant, and car dealership (no outdoor uses). The receptors are 70 feet to 1,010 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from approximately 3,500 feet north of Lanham Severn Road to Lanham Severn Road.

Noise abatement is provided to the community by an existing noise barrier (#16029N0) constructed in 1986. The existing noise barrier is approximately 2,502 feet in length and 17 feet high on average.

CC. Area 29: I-495 east side, between MD 450 and US 50

NSA 3-10

This area represents single-family residences along Ruxton Drive, Saunders Lane, Misty Drive, Cortland Lane, and Timber Lane in the Lanham community. Retail facilities are located to the north of the residential area, between MD 450 and the Amtrak railroad tracks. The receptors are 100 feet to 830 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from the MD 450 to Whitfield Chapel Park.

Noise abatement is provided to the community by an existing noise barrier (#16270N0) constructed in 1989. The existing noise barrier [partially protecting both NSA 1-33 and fully protecting NSA 3-10] is approximately 2,396 feet in length and 23 feet high on average.

NSA 1-33

This area represents single-family residences along Whitfield Chapel Road and Jenna Court in the Whitfield West community. Also included in this NSA is the Mt. Calvary Baptist Church, Tumaini Baptist Church, and Whitfield Chapel Park, which features softball fields located approximately 745 feet from the outer loop of I-495. Outdoor activities at the park include a playground, picnic areas, and ballfields. The receptors are 110 feet to 1270 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 directly north of US 50.

Noise abatement is partially provided to this community by an existing noise barrier (#16270N0) constructed in 1989. The existing noise barrier [partially protecting NSA 1-33 and fully protecting NSA 3-10] is approximately 2,396 feet in length and 23 feet high on average.

NSA 2-28

This area represents single-family residences along 91st Place, 91st Court, Kinmount Road, Walkerton Drive, and Concept Court in the Whitfield Woods community. The receptors are 80 feet to 1,500 feet from the edge of the westbound US 50 shoulder. The area is along John Hanson Highway (US 50) from Whitfield Chapel Road to approximately 1,500 feet east of Whitfield Chapel Road.

Noise abatement is provided to the community by an existing noise barrier (#16031N0) constructed in 1990. The existing noise barrier is approximately 1,488 feet in length and 21 feet high on average.

NSA 1-41

This area represents the Carrollon Manor Apartments. Exterior uses at the complex include two pools and green space. This NSA also has retail, offices, and hotels. The Courtyard by Marriott has exterior uses but they are within the area surrounded by the hotel building. This NSA is not presently protected by a noise barrier.

DD. Area 30: I-495 east side, between US 50 and MD 202

NSA 2-29

This area represents single-family residences along Wallace Road, 91st Place, Varnum Street, Volta Street in the Carsondale community, all of which is located within the Carsondale Park Historic District. The receptors are 870 to 2,000 feet from the edge of the eastbound US 50 shoulder. The area is along John Hanson Highway (US 50) from Whitfield Chapel Road to approximately 1,200 feet east of Whitfield Chapel Road.

Noise abatement is provided to the community by an existing noise barrier (#16032N0) constructed in 1991. The existing noise barrier is approximately 1,479 feet in length and 15 feet high on average.

NSA 3-11

This area represents single-family residences along Ebenezer Lane, Jefferson Street, and Fairview Avenue in the Carsondale community. Also included in this NSA is the Ebenezer United Methodist Church, which features a tent and picnic tables. The receptors are 260 feet to 850 feet from the edge of the northbound I-495/I-95 shoulder. The area is located along the outer loop of I-495/I-95 from John Hanson Highway (US 50) to Martin Luther King Jr. Highway.

Noise abatement is provided to the community by an existing noise barrier (#16334N0) constructed in 2004. The existing barrier is approximately 1,504 feet in length and 23 feet high on average.

NSA 2-30

This area represents single-family residences along Jefferson Street, Ardmore Road, Bold Street, 7th Street, 8th Street, and Glenarden Parkway in the Glenarden community, Springdale Gardens and Tyrol Estates Communities. The portion of the NSA south of Ardwick Ardmore Road is within the Glenarden Historic District. Also included in this NSA is the Cherubim & Seraphim church and Holy Flock of Christ church, both with areas of frequent exterior uses. An office building containing a medical facility is located along the ramp from Route 202 to I-495; this facility has no frequent exterior use. The building appears to be of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 110 feet to 760 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from Martin Luther King Jr. Highway to approximately 1,200 feet south of Glenarden Parkway.

Noise abatement is provided to the community by three existing noise barriers (#16253N0, #16254N0, and #16255N0) constructed in 1996. The approximate total length of the existing barriers is 4,380 and average heights range from 18 to 21 feet.

NSA 1-42

This area represents the Street Railway Service Building, a Section 4(f) resource. The other uses in the area are non-noise sensitive.

NSA 2-31

This area represents single-family residences along Sterling Street, Amador Drive, 5th Street, 4th Street, 3rd Street, 2nd Street, and Reicher Street and apartments in the Glenarden community, the area south of Amador Drive is within the Glenarden Historic District. Also included in this NSA is the Shiloh Baptist Church, First Baptist Church of Glenarden, Zion Church, and Henry P Johnson Park. Outdoor activities at the park include a playground, pavilion, basketball court, athletic fields, and tennis courts, with the nearest of these facilities located approximately 100 feet from the inner loop of I-495. The nearest residential receptors are 110 feet to 840 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from Ardwick Ardmore Road to Landover Mall.

Noise abatement is provided to the community by two existing noise barriers (#16256N0 and #16257N0) constructed in 1996. The total length of the barriers is approximately 4,536 feet and the average height is 21 feet.

EE. Area 31: I-495 east side, between MD 202 and Arena Drive

NSA 1-39

This area represents several hotels and a university campus. Three hotels are located along the ramp from the outer loop of I-495/I-95 to MD 202. Two of the hotels, Homewood Suites and Doubletree Hotel, have outdoor patio areas. The University of Maryland Global Campus is located approximately 500 feet from the outer loop of I-495/I-95. Outdoor uses at the campus include a walking path. Two additional hotels are located south of the campus; both of the hotels have outdoor uses including a patio area and a basketball court.

NSA 1-43

This area represents an area of office buildings, including three places of worship (Agape Life Temple, Tabernacles Worship Christian, and Living Word Love Fellowship), and a school, the Foundation School. None of the places of worship or the school have exterior areas of frequent use. The buildings housing these uses are of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a building noise reduction factor of 25 dB(A) when assessing *interior* impacts. There is also a hotel located at the southern edge of the NSA with an outdoor patio area. This NSA is not presently protected by a noise barrier.

FF. Area 32: I-495 east side, between Arena Drive and MD 214

NSA 3-12

This area represents apartments along Continental Place and Congress Place in the Centennial Village community. The NSA also contains a rehabilitation center and a non-profit use, the Empowerment Center, neither of which have areas of frequent exterior use. The buildings appear to be of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a minimum building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 90 feet to 500 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from approximately 2300 feet south of Arena Drive to approximately 2,000 feet north of Central Avenue.

Noise abatement is partially provided to the NSA by an existing noise barrier (#16222N0) constructed in 1998. The existing barrier is approximately 1,840 feet in length and 25 feet high on average.

NSA 1-44

This area represents University of Maryland Capital Medical Center. There are also several restaurants, office buildings, and two hotels along the outer loop of I-495/I-95, all without any areas of outdoor frequent use. This NSA is not presently protected by a noise barrier.

GG. Area 33: I-495 east side, between MD 214 and Ritchie Marlboro Road

NSA 1-26

This area represents single-family townhomes along Campus Way South, and single-family residences along Patrician Lane, Pritchard Lane, Castlewood Drive, Carriage House Lane, New Orchard Drive, Merikem Lane, and Vermell Place in the Rambling Hills community. Stanley Martin Homes at Capital Court is a housing development being constructed just south of Central Avenue. Also included in this NSA is the Phyllis E. Williams Elementary School, Heritage Glen Park, and part of Southwest Branch Stream Valley Park. The receptors are 100 feet to 1,020 feet from the edge of the northbound I-495 shoulder. The area is along the outer loop of I-495 from Central Avenue to approximately 2000 feet south of Ritchie Marlboro Road. This community is not presently protected by a noise barrier.

NSA 1-45

This NSA represents a mixed area of restaurants, retail, and industrial uses, as well as two places of worship and two medical facilities. Two restaurants have outdoor seating areas. The two places of worship and two medical facilities do not have exterior areas of frequent uses. They are located in buildings that appear to be of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structures are expected to have a minimum building noise reduction factor of 25 dB(A) when assessing *interior* impacts. This NSA is not presently protected by a noise barrier.

HH. Area 34: I-495 east side, between Ritchie Marlboro Road and MD 4

NSA 1-37

This area represents single-family townhomes along Westhurst Lane and mobile homes along Baumann Drive, Elmwood Park Street, Dogwood Park Street, and Elmwood Park Drive in Fernwood Mobile Home Park. The receptors are 310 feet to 910 feet from the edge of the northbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from Ritchie Marlboro Road to approximately 2900 feet south of Ritchie Marlboro Road. This community is not presently protected by a noise barrier.

NSA 1-46

This area represents restaurants and a hotel along the inner loop of I-495/I-95. The hotel has an outdoor patio area. This NSA is not presently protected by a noise barrier.

NSA 1-47

This area represents a residential development under construction along Elk Avenue along the outer loop of I-495/I-95. The receptors were placed at approximately 400 feet from the edge of the northbound I-495/I-95 shoulder to approximate the location of the new development. This NSA is not presently protected by a noise barrier.

NSA 1-48

This area represents restaurants and a hotel along the inner loop of I-495/I-95. There are no outdoor use areas associated with any of the uses. Consequently, they require no further consideration.

NSA 1-27

This area represents the Percy Benson Sansbury Property, a Section 4(f) resource, and single-family residences along South Forest Edge Road, North Forest Edge Road, and Cranston Boulevard in the Forestville Community. The receptors are 500 feet to 800 feet from the edge of the southbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from approximately 1,300 feet northeast of Pennsylvania Avenue to Pennsylvania Avenue. This community is not presently protected by a noise barrier.

II. Area 35: I-495 east side, between MD 4 and Forestville Road / MD 337

There are no NSAs within this area.

JJ. Area 36: I-495 east side, between Forestville Road / MD 337 and Suitland Road / MD 337

NSA 1-28

This area represents Admiral Place Apartments along Forestville Road and Rena Road and single-family residences along Pickett Drive, Lou Lane, and Pickett Court; the single-family residences are within the Morningside Historic District. Also included in this NSA is the Ephesians New Testament Church, Andrews Federal Campus facilities, Benjamin Foulois Creative and Performing Arts School, a small shopping center, and Douglas E. Patterson Park. Outdoor activities at the park include a basketball court, tennis courts, a playground and picnic area, and athletic fields, with the nearest of these facilities located approximately 175 feet from the inner loop of I-495. The receptors are 110 feet to 960 feet from the edge of the westbound I-495/I-95 shoulder. Also included in this NSA is a retail building; however, there are no outdoor uses associated with this facility. The area is along the inner loop of I-495/I-95 from Forestville Road to Suitland Road. This NSA is not presently protected by a noise barrier.

NSA 1-51

This area represents restaurants and a hotel along the outer loop of I-495/I-95. There are no outdoor use areas associated with any of the uses. Consequently, they require no further consideration.

KK. Area 37: I-495 east side, between Suitland Road / MD 337 and MD 5

NSA 1-29

This area represents single-family residences along Mckeldin Drive, Walton Avenue, and Bridgeport Drive in the Morningside community. Also included in this NSA is a shopping center with retail and offices; however, there are no outdoor uses associated with these facilities. The receptors are 140 feet to 780 feet from the edge of the westbound I-495/I-95 shoulder. The community is along the inner loop of I-495/I-95 from Suitland Road to approximately 1,300 feet east of Auth Road.

Noise abatement is partially provided to the NSA by existing noise barriers (#16330N0 and #16329N0) constructed in 2001. The existing noise barrier system [partially protecting NSA 1-29 and fully protecting NSA 3-14] is approximately 1,420 feet in total length and 24 feet high on average.

NSA 3-14

The area represents single-family residences along Armand Avenue, Barto Avenue, Braymer Avenue, Delta Lane, and Dublin Drive, and townhouses along Clacton Avenue in the Auth Village and Silver Valley communities. The receptors are 100 feet to 680 feet from the edge of the westbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from approximately 1,200 feet east to approximately 1,500 feet west of Auth Road.

Noise abatement is provided to the community by existing noise barriers (#16329N0 and #16330N0) constructed in 2001 and divided by Auth Road. The existing noise barriers total approximately 4,812 feet in total length and range from 17 to 24 feet high on average.

NSA 3-13

This area represents single-family residences along Carswell Terrace, Medford Avenue, and Gunston Lane, and apartments along Morris Avenue and Maxwell Drive located in the Andrews Manor, Princeton and Manchester Estates communities, and a retail area with restaurants without any areas of outdoor frequent use. A community pool associated with The Courts of Camp Springs apartment complex is located approximately 150 feet from the outer loop of I-495. Also included in this NSA is the Beltway Church of Christ, From the Heart Christian school and church, and Andrews Manor Park. The receptors are 110 feet to 1,110 feet from the edge of the eastbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from approximately 2,000 feet west of Suitland Road to approximately 1,500 feet west of Auth Road.

Noise abatement is provided to the community by existing noise barriers (#16331N0 and #16332N0) constructed in 2002 and divided by Auth Road. The existing barriers total approximately 2,604 feet in length and range from 19 to 21 feet high on average.

NSA 1-34

This area represents the Manchester Estates community and the Manchester Estates Park. Existing single-family residences along Manchester Drive and Ridgecroft Drive are 330 feet to 1130 feet from the edge of the eastbound I-495/I-95 shoulder. Also included in this NSA is the Praise Zone of Camp Springs church and Manchester Estates Park. The area is along the outer loop of I-495/I-95 from approximately 1,500 feet west of Auth Road to Branch Avenue. This NSA is not presently protected by a noise barrier.

NSA 2-32

This area represents single-family residences along Oakland Way, Silver Valley Way, Hill Way, and Vernon Way in the Silver Valley community. Also included in this NSA is the Saint Philip's the Apostle church and school (with athletic fields and playgrounds), office buildings, a Country Inn & Suites hotel, Hampton Inn & Suites hotel, and Holiday Inn Express hotel with an outdoor pool (surrounded by concrete wall). The receptors are 90 feet to 1,110 feet from the edge of the westbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from 1,500 feet west of Auth Road to Branch Avenue.

Noise abatement is provided to the community by an existing noise barrier (#16034N0) constructed in 1987. The existing noise barrier is approximately 2,124 feet in length and 20 feet high on average.

LL. Area 38: I-495 east side, west of MD 5

NSA 3-15

This area represents single-family residences along Keppler Road, Old Branch Avenue, Braddock Road, and Long View Road in the Woodlane community, part of Henson Creek Stream Valley Park, and the residential area along Leslie Avenue and Temple Hill Road. Also located in the NSA is the Spread the News Church of God in Christ, a place of worship with no exterior areas of frequent use. The building appears to be of masonry construction with single glazed windows that are closed for air-conditioning. As a result, the structure is expected to have a minimum building noise reduction factor of 25 dB(A) when assessing *interior* impacts. The receptors are 60 feet to 1,150 feet from the edge of the westbound I-495/I-95 shoulder. The area is along the inner loop of I-495/I-95 from (the ramp from) Branch Avenue to approximately 2,100 feet west of Branch Avenue.

Noise abatement is provided to the community by an existing noise barrier (#16387N0) constructed in 2006. The existing barrier is approximately 1,728 feet in length and 16 feet high on average.

NSA 3-16

This area represents single-family residences along Old Branch Avenue, Yorkfield Drive, Tolson Road, Bentley Road, Acton Road, Keppler Place, Canterbury Way, Straton Road, Corkan Lane, Spring Terrace, Donna Lane, Dogwood Drive, Barry Drive, Fielding Lane, and Church Way in the Yorkshire Village and Temple Terrace communities. Also included in this NSA is the Hope and Praise International Ministries church, part of Henson Creek Stream Valley Park, and the Temple Hills Swim Club, featuring a pool located approximately 800 feet from the outer loop of I-495. The receptors are 100 feet to 1,150 feet from the edge of the eastbound I-495/I-95 shoulder. The area is along the outer loop of I-495/I-95 from (the ramp to) Branch Avenue to Temple Hill Road.

Noise abatement is provided to the community by an existing noise barrier (#16388N0) constructed in 2006. The existing barrier is approximately 7,659 feet in length and 20 feet high on average.

MM. Non-Noise-Sensitive Areas

The non-noise sensitive areas discussion remains consistent with Section 2.2.1.B, 2.3.1.B, 2.4.1.A, 2.5.1.A, and 2.6.1.A of the Noise Technical Report prepared for the DEIS.

2.2.2 Noise Measurement Data

The noise measurement data remains consistent with Section 2.2.2, 2.3.2, and 2.6.2 of the Noise Technical Report prepared for the DEIS.

2.2.3 TNM Model Validation

The TNM Model Validation discussion remains consistent with Section 2.2.3, 2.3.3, 2.4.2, 2.5.2, and 2.6.3 of the Noise Technical Report prepared for the DEIS.

3 PREDICTED NOISE LEVELS AND IMPACT ANALYSIS

3.1 Introduction

The section documents the future predicted noise levels resulting from the proposed design for each NSA and assesses whether or not the NSA is impacted and warrants a barrier analysis. Impacts were assessed based upon the following criteria:

- Predicted 2045 design year noise levels approach or exceed the FHWA NAC for the intended land use (see **Table 1-2** of the Type I Noise Technical Analysis Report prepared for the DEIS).

For the NSAs that do not approach or exceed the NAC (and therefore are not considered impacted under that criterion), the lowest existing noise level was compared to the future build condition noise level to determine if a substantial increase impact would occur. No NSAs will experience a substantial increase as a result of the Preferred Alternative.

All prediction modeling was performed using FHWA's TNM v2.5 by applying the 2045 loudest-hour traffic data to the TNM noise barrier analysis models. The direct access locations were included in this noise analysis. In this region, there are a significant number of side roads that carry high volumes of traffic and contribute to the overall noise environment. Major general purpose ramps, direct access ramps, and crossroads at interchanges were included in the noise models, but due to the density of the roadway network in this area, not all side roads could be modeled. The resulting "background noise" from this roadway network can reduce the perceived effectiveness of a noise barrier. During field noise monitoring, a 55 dB(A) background noise level was observed and has been applied to the results of the TNM modeling, using MDOT SHA's standard methodology. This step is necessary to ensure that the proposed noise barrier is effectively reducing noise levels from the highway noise source. In accordance with VDOT's standard methodology, the background noise level was not applied to the results in the Virginia portion of the study area.

3.2 Traffic Data

The Traffic Data discussion remains consistent with Section 3.2 of the Type I Noise Technical Report prepared for the DEIS.

Appendix B of the Type I Noise Technical Analysis Report prepared for the DEIS contains the LOS C/D volumes, speeds, and truck percentages for the Study area. Appendix A of this Final Noise Analysis Technical Report contains the LOS C/D volumes, speeds, and truck percentages for the direct access ramps, as well as cross streets at the interchanges.

3.3 Predicted No Build Noise Level Results

The 2045 No Build noise levels were determined for the 60 NSAs within Phase 1 South and the 87 NSAs within Phases 2 and 3. Predicted No Build noise level results for each modeled receptor are found in Table B-1, in Appendix B of this Report.

3.4 Relocation of Existing Noise Barriers

There are several existing noise barriers within the study area. For the analysis of Phase 1 South, noise barriers that are anticipated to be displaced for roadway improvements or stormwater management conflicts have been analyzed to verify that there is no decrease in performance as replacement barriers. Any barriers that are displaced will be re-evaluated during the final design process to verify that the replacement noise barriers meet or exceed the noise abatement performance of the existing noise barriers to be replaced including insertion loss and line of sight.

3.5 Predicted Build Noise Level Results

The 60 NSAs within Phase 1 South were evaluated for noise impacts. Forty-seven (47) NSAs contained impacts resulting from the Preferred Alternative. Detailed predicted noise level results for each modeled receptor are found in Table B-2, in Appendix B of this Report.

3.6 Summary of Noise Abatement Warrants

The following NSAs have noise impacts that warrant further consideration of noise abatement measures due to the construction of the proposed highway improvements: VA-01, VA-02, VA-03, 1-01, 1-02, 1-04, 1-05, 1-03, 2-01, 1-06, 3-01, 1-38, 4-01, 2-02, 3-02, 3-04, 1-08, 2-03, 5-36, 5-37A, 5-37B, 5-33A, 5-34A, 5-32C, 5-32B, 5-31, 5-30, 5-29, 5-28, 5-24, 5-22, 5-19, 5-18, 5-21, 5-20, 5-17, 5-15, 5-13, 5-12, 5-11, 5-10, 5-09, 5-08, 5-07, and 5-06. Although impacts were identified in NSAs 5-01 and 5-02, the existing barriers at these locations meet the feasibility and reasonableness criteria. Therefore, the existing barriers will remain in place with no modifications required.

4 BARRIER ANALYSIS

4.1 Introduction

Federal regulation (23 CFR 772) and the MDOT SHA *Highway Noise Abatement Planning and Engineering Guidelines* (2020) require that noise abatement be investigated at all NSAs where the Build traffic noise levels approach or exceed the FHWA NAC for the defined land use category, or where there are substantial increases over peak ambient noise levels. Where noise abatement was warranted for consideration, additional criteria were examined to determine if the abatement is feasible and reasonable. As noted in Section 1.7, the NSAs in Virginia are being evaluated for noise abatement in coordination with VDOT and in compliance with the VDOT's *Highway Traffic Noise Impact Analysis Guidance Manual (2018)*. The following sections document the results for each of the barrier systems[19] that were studied.

4.2 Feasibility and Reasonableness Criteria

The Feasibility and Reasonableness Criteria discussion remains consistent with Section 4.2 of the Type I Noise Technical Report prepared for the DEIS. As discussed in Section 4.2, MDOT SHA sets the appropriate barrier quantity cap (*evaluation threshold*) based on the degree and extent that the subject Type I highway project changes the existing noise environment[20]. The threshold can increase from a baseline allowance of 700 square-foot per residence (SF-p-r) up to a maximum possible allowance of 2700 SF-p-r as shown in **Table 4-1**. The evaluation threshold is independently determined for each proposed barrier system based upon the project characteristics affecting the noise environment. If a studied barrier system protects areas that fall under different conditions, the analysis will use the higher evaluation threshold in the assessment of barrier reasonableness. Given the nature of this project, condition no. 1 is assumed to be met (the project increases through capacity), but condition no. 2 would not be met (increases noise levels by a minimum of 3 dB(A). Therefore, each barrier system starts with a threshold of 1700 SF-p-r. If the project sound levels are at or above 75 dB(A), the threshold increases to 2700 SF-p-r. VDOT uses a straight threshold of 1,600 square feet per benefitted receptor.

Table 4-1: Cost Reasonableness Evaluation Thresholds

Baseline – applies to **ALL** Type I Projects	**NONE** of the conditions is present	700 SF-p-r
Condition • 1. The project increases through capacity. • 2. The project increases noise levels by a minimum of 3 dB(A) from existing to future build conditions. • 3. The project results in noise levels at or above 75 dB(A).	Only **ONE** of the conditions is present	1700 SF-p-r
	TWO OR MORE of the conditions are present	2700 SF-p-r

[19] A barrier system refers to a single barrier or group of barriers analyzed together to protect one or more NSAs.

[20] The SF-p-r calculation includes equivalent residences (ER) that have been calculated for outdoor noise-sensitive use areas as detailed in Appendix D of the MDOT SHA Highway Noise Abatement Planning and Engineering Guidelines (2020). The calculation of ER includes how often an area is used (calculated as a percentage of hours per 24-hour day, days per 30-day month, and months per 12-month year) multiplied by the total linear frontage (125 feet of linear frontage of the property along the subject highway is equivalent to one (1) residence). This yields a decimal ER value, which is not rounded to the nearest whole number.

4.3 Noise Barrier Design Terms

The Noise Barrier Design Terms discussion remains consistent with Section 4.3 of the Type I Noise Technical Report prepared for the DEIS.

4.4 Noise Barrier Design Process

The Noise Barrier Design Process discussion remains consistent with Section 4.4 of the Type I Noise Technical Report prepared for the DEIS.

For new or replacement noise barriers in Maryland, typically, constant height barriers were specified for each NSA. The barrier design is governed primarily by the goal of 7 dB(A) noise reduction at the *critical sensitive receptors*. Critical sensitive receptors are typically defined as first-row, ground level sites, where worst-case noise impacts are found. Noise attenuation at second-row receptors, upper-level receptors or other locations not directly adjacent to the proposed barrier are considered a secondary benefit.

For new or replacement noise barriers in Virginia, barrier alignments were initially modeled as per the *I-495 Express Lanes Northern Extension Noise Technical Report* (February, 2020), and then updated to reflect preliminary design-build noise barrier designs. However, it should be noted that coordination between MDOT SHA and VDOT representatives regarding this overlap area should continue throughout the life of both projects to ensure consistency and accuracy with all mitigation recommendations.

4.5 Existing Barrier Assessment

There are three scenarios that can occur for areas with existing barriers:

- The entire noise barrier is disturbed by the construction of the proposed highway improvement. In this case, a replacement barrier is designed.
- Part [or parts] of the noise barrier is disturbed by the construction of the proposed highway improvement. In this case, existing and replacement barrier segments are integrated into one design.
- None of the existing noise barrier is disturbed by construction. In this case, the existing barrier serves as the base design.

In each case, the barrier design – existing or proposed – is evaluated based on the modeled noise reduction (insertion loss) at critical sensitive receptors. If there are no impacts behind the existing barrier then no additional analysis is required. If impacts are predicted, barrier performance is reviewed based on a comparison of '2045 Build Barrier' predicted noise levels to '2045 No Barrier' predicted noise levels to verify that the noise barrier satisfies the requirements of MDOT SHA *Highway Noise Abatement Planning and Engineering Guidelines* (April 2020) and VDOT *Highway Traffic Noise Impact Analysis Guidance Manual* (February 2018).

For existing barriers in Virginia, a full in-kind noise barrier replacement analysis was not conducted during the development of the *I-495 Express Lanes Northern Extension Noise Technical Report* (February, 2020), due to the number of build phases. As a result, the following in-kind barrier replacement methodology was utilized:

- For existing noise barriers that would be physically impacted (or replaced) under the Preferred Alternative, the affected barriers were shifted laterally to the proposed edge of pavement (keeping the same top of wall elevation) to avoid any modeling conflicts in TNM.
- In-kind noise barrier replacement extensions were evaluated for existing barriers that were identified to be physically impacted by the project, and where additional impacts were predicted near either end of the existing barrier.
- Reasonableness of the in-kind noise barrier replacement extensions were evaluated using the area of the barrier extension or the total area of the proposed barrier, consistent with Sections 6.3.5 and 6.3.6 of VDOT *Highway Traffic Noise Impact Analysis Guidance Manual* (February 2018) and modified as appropriate, at the direction of VDOT.
- A full in-kind barrier replacement analysis for each of the respective Build phases will be completed under the appropriate build scenario during final design.

4.5.1 Existing Barriers Not Assessed

The existing barriers associated with NSAs 2-04A, 2-05A, and 5-23 would not be displaced by the Preferred Alternative, and there are no predicted impacts to noise sensitive land uses behind these barriers. Therefore, no additional analysis is required for NSAs 2-04A, 2-05A, and 5-23.

4.6 Noise Barrier Design Results

The noise barrier design results for each studied barrier system are presented below. The studied barriers are depicted in the exhibits attached to this report. Equivalent residence units were calculated for outdoor noise sensitive uses and Category D areas based on linear frontage and intensity of use. The tables included with each barrier description include only the receptors that would either experience impacts and/or experience benefits from the assessed barrier. Receptors shown with “a”, “b” etc. represent multi-story residences, with “a” representing the first floor, “b” representing the second floor, etc. Table B-2 in Appendix B includes results of the barriers analysis for all analyzed receptors.

4.6.1 Areas 1 and 2: I-495 west side, south of George Washington Parkway to Clara Barton Parkway

A. Barrier System 495 VA-1/2 (NSA VA-01 and NSA VA-02)

Approximately 1,275 feet of Barrier 495 VA-1/2 is physically impacted by Project NEXT; therefore, it would be replaced in-kind by Project NEXT. Noise impacts at the northern and southern terminus of the replacement noise barrier were also predicted. Multiple noise barriers including the replacement noise barrier and proposed new noise barrier would function as a system to benefit impacted receptors in NSA VA-01 and NSA VA-02; therefore, the replacement noise barrier with a northern and southern extension was analyzed as barrier system Barrier 495 VA-1/2.

A variable height noise barrier is proposed, ranging from 4 feet to 29 feet tall, with a length of approximately 4,999 feet. The barrier system consists of an existing noise barrier that will be replaced as well as extensions to the north and the south to address additional impacts in NSAs VA-1 and VA-2. Approximately 3,719 feet of barrier system Barrier 495 VA-1/2 is anticipated to be designed and constructed by Project NEXT, and the northern portion of approximately 1,280 feet is anticipated to be designed and constructed by the MLS Project. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 50% or more of the impacted receptors. The barrier also meets the reasonableness criterion of providing at least a single 7 dB(A) noise reduction to an impacted receptor.

There are 45 impacted, benefited receptors and 40 non-impacted, benefited receptors for a total of 85 benefited receptors, which results in a square-foot (SF) per benefited receptor of 1,220. Since the square footage per benefited receptor meets the maximum square footage per benefited receptor (MSF/BR) criterion of 1,600, the barrier system was determined to be feasible and reasonable.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-2**. The barrier location and benefit locations are shown on Map No. 1. Barrier system 495 VA-1/2 ***is considered feasible and reasonable*** for NSAs VA-01 and VA-02.

Table 4-2: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs VA-01 and VA-02

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
VA-01-1	1	63	6	57
VA-01-2	1	75	13	62
VA-01-3	1	69	9	60
VA-01-4	1	64	7	57
VA-01-5	1	64	7	57
VA-01-6	1	66	6	59
VA-01-7	1	69	6	63
VA-01-8	1	67	6	61
VA-01-10	1	72	6	66
VA-01-11	1	65	5	60
VA-01-13	1	70	5	65
VA-01-14	1	69	5	64
VA-01-17	1	63	5	58
VA-01-20	1	66	5	61
VA-01-21	1	66	5	61
VA-01-22	1	66	7	59
VA-01-23	1	73	7	65
VA-01-24	1	75	10	65
VA-01-25	1	77	13	64
VA-01-26	1	74	12	62
VA-01-27	1	70	9	61
VA-01-28	1	67	7	60
VA-01-29	1	67	8	59
VA-01-30	1	67	7	60
VA-01-31	1	67	7	60
VA-01-32	1	65	6	58
VA-01-44	1	60	5	55

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
VA-01-45	1	61	6	55
VA-01-46	1	59	5	55
VA-01-48	1	58	6	52
VA-01-49	1	63	6	57
VA-01-50	1	63	6	57
VA-01-51	1	62	6	57
VA-01-52	1	65	7	58
VA-01-53	1	64	6	58
VA-02-1	1	78	8	70
VA-02-2	1	74	6	68
VA-02-3	1	68	4	64
VA-02-4	1	73	7	67
VA-02-5	1	74	9	65
VA-02-6	1	72	8	64
VA-02-7	1	70	2	68
VA-02-8	1	68	6	62
VA-02-9	1	59	7	52
VA-02-10	1	69	0	69
VA-02-11	1	68	2	66
VA-02-13	1	66	1	65
VA-02-24	1	60	5	55
VA-02-27	1	59	5	54
VA-02-28	1	58	6	52
VA-02-29	1	62	6	56
VA-02-30	1	68	11	57
VA-02-31	1	60	5	56
VA-02-32	1	55	5	50
VA-02-33	1	56	6	50
VA-02-34	1	59	7	52
VA-02-35	1	68	11	57
VA-02-36	1	71	12	59
VA-02-37	1	66	8	58
VA-02-38	1	64	8	56
VA-02-39	1	62	7	55
VA-02-40	1	60	6	54
VA-02-41	1	58	6	53
VA-02-42	1	57	5	52
VA-02-43	1	56	5	51
VA-02-45	1	55	5	50
VA-02-46	1	58	6	52
VA-02-47	1	63	9	54
VA-02-48	1	65	9	56

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
VA-02-49	1	66	13	54
VA-02-50	1	67	14	54
VA-02-51	1	71	17	54
VA-02-52	1	72	17	55
VA-02-53	1	74	18	56
VA-02-54	1	76	19	57
VA-02-55	1	77	19	58
VA-02-56	1	68	10	58
VA-02-57	1	64	6	58
VA-02-58	1	63	5	58
VA-02-60	1	66	5	61
VA-02-61	1	73	11	63
VA-02-62	1	78	14	64
VA-02-63	1	76	11	65
VA-02-64	1	76	7	69
VA-02-65	1	81	14	67
VA-02-70	1	66	9	57
VA-02-71	1	55	5	51
VA-02-72	1	62	8	55
VA-02-73	1	60	6	54
VA-02-74	1	57	6	51

## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**VA-01 VA-02/Design**
Number of Impacted, Benefited Receptors	45
Number of Non-Impacted, Benefited Receptors	40
Total Number of Benefited Locations	85
Barrier Length (feet)	4,999
Average Barrier Height (feet)	21
Area (feet^2)	103,737
SF per Benefited Receptor	1,220
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

B. Barrier System 495 VA-3 (NSA VA-03)

Barrier 495 VA-3 is located in NSA VA-03 and would be physically impacted by Project NEXT; therefore, it would be replaced in-kind to meet or exceed the existing noise levels. Although additional noise impacts at the eastern terminus of the replacement noise barrier were predicted (VA-03-06 and VA-03-09), the noise barrier could not be extended due to right-of-way and property restrictions with the NPS-managed

Turkey Run Park. The NPS has requested that no noise barriers be constructed within NPS-managed land due to Section 4(f) concerns (see Appendix C).

A variable height noise barrier is proposed, ranging from 20 feet to 30 feet tall, with a length of approximately 2,614 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 50% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to at least a single impacted residence.

There are 27 impacted, benefited receptors and 11 non-impacted, benefited receptors for a total of 38 benefited receptors, which results in a SF per benefited receptor of 1,735. Although the square footage per benefited receptor exceeds the MSF/BR criterion of 1,600, this barrier would need to be replaced in kind due to being physically impacted by Project NEXT.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-3**. The barrier location and benefit locations are shown on Map No. 1. Although Barrier System 495 VA-3 does not meet the cost-effectiveness criterion, since this barrier has to be replaced due to roadway design, Barrier System 495 VA-3 will be ***replaced in kind***.

Table 4-3: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA VA-03

Receptor Number	Equivalent Residences[2]	2045 Predicted Noise Level (Leq	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
VA-03-06	1	66	0	66
VA-03-09	1	67	0	66
VA-03-20	1	61	5	56
VA-03-21	1	66	6	60
VA-03-22	1	67	8	58
VA-03-23	1	66	8	58
VA-03-24	1	70	12	58
VA-03-26	1	71	12	59
VA-03-27	1	74	13	61
VA-03-28	1	70	7	63
VA-03-29	1	65	6	59
VA-03-30	1	70	7	63
VA-03-31	1	77	13	64
VA-03-32	1	77	13	64
VA-03-33	1	73	10	62
VA-03-34	1	69	8	60
VA-03-35	1	68	9	59
VA-03-36	1	76	13	63
VA-03-37	1	71	11	60
VA-03-38	1	64	9	55
VA-03-39	1	77	13	64
VA-03-40	1	69	12	57

Receptor Number	Equivalent Residences[2]	2045 Predicted Noise Level (Leq	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
VA-03-41	1	70	12	58
VA-03-42	1	70	12	58
VA-03-43	1	66	11	55
VA-03-44	1	67	11	56
VA-03-45	1	67	11	56
VA-03-46	1	66	9	57
VA-03-47	1	73	13	60
VA-03-48	1	68	10	57
VA-03-49	1	76	14	62
VA-03-50	1	63	8	55
VA-03-53	1	65	10	55
VA-03-54	1	60	7	53
VA-03-55	1	60	6	54
VA-03-56	1	62	10	52
VA-03-57	1	67	12	54
VA-03-58	1	64	11	53
VA-03-59	1	63	10	53
VA-03-60	1	59	5	54

##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**495 VA-3/NEXT-Mod2**
Number of Impacted, Benefited Receptor	27
Number of Non-Impacted, Benefited Receptor	11
Total Number of Benefited Locations	38
Barrier Length (feet)	2,614
Average Barrier Height (feet)	25
Area (feet^2)	65,943
SF per Benefited Receptor	1,735
Feasible and Reasonable?	**N/A***

* Although the square footage per benefited receptor exceeds the MSF/BR criterion of 1,600, this barrier would need to be replaced in kind due to being physically impacted by the project; therefore, the MSF/BR criterion does not apply.

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.2 Area 3: I-495 west side, between Clara Barton Parkway and MD 190

A. Barrier System 495 MD-1 (NSA 1-01)

Noise impacts were identified at the at the NPS-managed C&O Canal Towpath; however, the NPS has requested that no barriers be constructed within, or obstruct the view from, NPS-managed land due to Section 4(f) concerns. Therefore, a noise barrier is not feasible for the portion of NSA 1-01 south of Clara Barton Parkway.

To provide 7 dB(A) insertion loss at the critical sensitive receptors in the northern portion of NSA 1-01, a variable height noise barrier is proposed, ranging from 16 feet to 20 feet tall, with a length of approximately 1,517 feet. [The existing 10-foot-tall privately owned noise barrier, combined with an extended barrier was not able to provide at least 5 dB(A) noise reduction to 70% or more of the impacted residences.] The new noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 11 impacted, benefited residences and 0 non-impacted, benefited residences for a total of 11 benefited residences. The SF per benefited residence is 2,315, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-4**. The barrier location and benefit locations are shown on Maps No. 2 and 3. Barrier System 495-MD-1 ***is considered feasible and reasonable*** for NSA 1-01.

Table 4-4: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 1-01

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted No Barrier Noise Level	2045 Build Barrier Noise Reduction (dB(A))	2045 Build With Barrier Predicted Noise Level
M1-1-1	3	77	5	72
M1-1-2	3	73	8	65
M1-1-3	2	66	5	61
R1-1-7	3	74	10	64

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-1/Mod 16-20**
Number of Impacted, Benefited Residences	11
Number of Non-Impacted, Benefited Residences	0
Total Number of Benefited Locations	11
Barrier Length (feet)	1,517
Average Barrier Height (feet)	17
Area (feet^2)	25,469
SF per Benefited Residence	2,315
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

B. Barrier System 495 MD-2 (NSAs 1-02 and 1-04)

Noise impacts were identified at the at the NPS-managed C&O Canal Towpath; however, the NPS has requested that no barriers be constructed within, or obstruct the view from, NPS-managed land due to Section 4(f) concerns. Therefore, a noise barrier is not feasible for the portion of NSA 1-02 south of Clara Barton Parkway.

To provide 7 dB(A) insertion loss at most of the critical sensitive receptors in NSAs 1-02 and 1-04, a constant height noise barrier of 28 feet is proposed, with a length of approximately 6,790 feet. Due to the close proximity of NSAs 1-02 and 1-04, the noise barriers were evaluated as Barrier System 495 MD-2. The new noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 54.5 impacted, benefited residences and 22 non-impacted, benefited residences for a total of 76.5 benefited residences. The SF per benefited residence is 2,486, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-5**. The barrier location and benefit locations are shown on Maps No. 2, 3 and 4. Barrier System 495 MD-2 ***is considered feasible and reasonable*** for NSAs 1-02 and 1-04.

Table 4-5: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 1-02 and 1-04

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level
M1-2-1	2	67	6	60
M1-2-2	4	67	9	58
M1-2-3	2	77	15	62
M1-2-4	3	79	18	61
M1-2-5	2	67	7	60
R1-2-1	3	72	5	67
R1-2-4	1	65	7	58
R1-2-5	3	63	6	57
R1-2-6	2	65	7	58
M1-4-1	3	71	8	62
M1-4-2	3	76	14	62
M1-4-3	3	73	12	61
M1-4-4	3	69	8	60
M1-4-5	5	72	12	60
M1-4-6	4	75	14	62
M1-4-7	3	68	8	60
R1-04-01	2	69	6	63
R1-04-06	4	72	11	61
R1-04-07	3	63	5	59

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level
R1-04-09	2	64	5	59
R1-04-11	2	63	5	58
R1-04-13	2	63	5	58
R1-04-15	5	63	6	57
R1-04-16	2	65	7	58
R1-04-17	3	66	8	57
R1-04-18	1.75	67	6	61
R1-04-19	1.75	67	5	62
R1-04-20	2	74	13	61

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-2/28ft**
Number of Impacted, Benefited Residences	54.5
Number of Non-Impacted, Benefited Residences	22
Total Number of Benefited Locations	76.5
Barrier Length (feet)	6,790
Average Barrier Height (feet)	28
Area ($feet^2$)	190,164
SF per Benefited Residence	2,486
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

C. Barrier System 495 MD-4 (NSA 1-05)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 1-05, a variable height noise barrier system is proposed, ranging from 12 feet to 40 feet tall, with a length of approximately 4,101 feet. The new noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 37 impacted, benefited residences and 18 non-impacted, benefited residences for a total of 55 benefited residences. The SF per benefited residence is 1,637, which is below the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-6**. The barrier location and benefit locations are shown on Map No. 4. Barrier System 495 MD-4 ***is considered feasible and reasonable*** for NSA 1-05.

Table 4-6: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 1-05

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M1-5-1	4	71	11	60
M1-5-2	5	72	12	60
M1-5-3	3	74	13	61
M1-5-4	2	70	8	62
M1-5-5	3	70	7	64
M1-5-6	2	67	5	62
R1-05-01	4	70	10	60
R1-05-03	3	67	5	62
R1-05-04	4	66	5	61
R1-05-06	3	64	5	60
R1-05-07	9	63	5	59
R1-05-09	6	65	5	60
R1-05-10	3	68	9	59
R1-05-11	2	68	8	60
R1-05-12	2	68	6	62

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-4/Mod3**
Number of Impacted, Benefited Residences	37
Number of Non-Impacted, Benefited Residences	18
Total Number of Benefited Locations	55
Barrier Length (feet)	4,101
Average Barrier Height (feet)	22
Area (feet^2)	90,008
SF per Benefited Residence	1,637
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

D. Barrier System 495 MD-3 (NSAs 1-03 and 2-01)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 1-03 and 2-01, a variable height noise barrier is proposed, ranging from 20 to 32 feet tall, with a length of approximately 5,201 feet. The barrier system was evaluated as a replacement for the barrier that currently shields NSA 2-01 and an extension that would shield NSA 1-03. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 35.99 impacted, benefited residences and 16.49 non-impacted, benefited residences for a total of 52.48 benefited residences. The SF per benefited residence is 2,237, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this combined new and replacement noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-7**. The barrier location and benefit locations are shown on Maps No. 3 and 4. Barrier System 495 MD-3 ***is considered feasible and reasonable*** for NSAs 1-03 and 2-01.

Table 4-7: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 1-03 and 2-01

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M1-3-1	0.99	**75**	12	63
M1-3-2	5	**78**	11	67
M1-3-3	5	**81**	18	63
R1-03-05	3	**69**	8	61
R1-03-07	3	**68**	6	62
M2-01-01	3	**69**	8	61
M2-01-03	3	**66**	6	60
M2-01-04	4	**66**	7	59
M2-01-05	3	**66**	8	58
M2-01-06	7	**70**	10	60
R2-01-01	3	65	6	59
R2-01-02	2	**66**	8	59
R2-01-03	1	63	5	58
R2-01-04	3	**68**	6	63
R2-01-05	3	65	5	60
R2-01-06	1	**69 (59)**[3]	9	61 (51)
R2-01-07	0.83	**66**	6	60
R2-01-09	0.83	63	5	59
R2-01-10	0.83	65	6	59

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-3/Design**
Number of Impacted, Benefited Residences	35.99
Number of Non-Impacted, Benefited Residences	16.49
Total Number of Benefited Locations	52.48
Barrier Length (feet)	5,201
Average Barrier Height (feet)	23
Area (feet^2)	117,408
SF per Benefited Residence	2,237
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.
3. Parenthesis indicates interior sound levels. For this receptor, a building noise reduction factor of 10 dB(A) was assumed as described in Section 2.2.1.C.

4.6.3 Area 4: I-495 west side, between MD 190 and I-270 west spur

A. Barrier System 495 MD-5 (NSAs 1-06 and 3-01)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 1-06 and 3-01, a constant height noise barrier of 32 feet tall is proposed, with a length of approximately 6,973 feet. The barrier system was evaluated as a replacement for the barrier that currently shields NSA 3-01 and an extension that would shield NSA 1-06. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 86 impacted, benefited residences and 14 non-impacted, benefited residences for a total of 100 benefited residences. The SF per benefited residence is 2,232, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this combined new and replacement noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-8**. The barrier location and benefit locations are shown on Maps No. 4 and 5. Barrier System 495 MD-5 ***is considered feasible and reasonable*** for NSAs 1-06 and 3-01.

Table 4-8: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 1-06 and 3-01

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M1-6-1	1	75	13	62
M1-6-2	1	74	9	65
M1-6-3	2	76	5	71
R1-06-07	3	67	3	63
R1-06-08	3	67	6	62
R1-06-09	3	69	8	61
M3-1-1	2	73	6	67

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M3-1-2	4	74	5	69
M3-1-3	3	76	13	64
M3-1-4	2	79	19	60
M3-1-6	3	78	17	61
M3-1-7	1	79	17	63
M3-1-8	2	75	10	66
M3-1-10	2	74	11	63
M3-1-11	2	79	15	64
M3-1-12	4	67	8	59
M3-1-13	4	78	17	62
M3-1-14	5	69	10	59
M3-1-15	1	75	13	62
M3-1-16	1	79	17	63
M3-1-17	2	69	7	62
M3-1-18	2	79	11	68
M3-1-19	4	71	7	64
M3-1-20	2	79	13	65
M3-1-21	3	75	10	65
M3-1-22	3	81	19	62
M3-1-23	5	72	9	63
M3-1-24	1	80	18	63
M3-1-25	2	78	12	66
M3-1-26	2	80	15	65
M3-1-27	3	76	11	64
M3-1-28	3	81	19	61
M3-1-29	3	81	15	66
R3-1-5	4	65	6	59
R3-1-10	6	63	6	57
R3-1-17	4	64	5	59
R3-1-20	5	67	7	60

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-5/32ft**
Number of Impacted, Benefited Residences	86
Number of Non-Impacted, Benefited Residences	14
Total Number of Benefited Locations	100
Barrier Length (feet)	6,973
Average Barrier Height (feet)	32
Area (feet^2)	223,164
SF per Benefited Residence	2,232
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

B. Barrier System 495 MD-6/6A/7 (NSAs 1-38, 4-01, and 2-02)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 1-38, 4-01, and 2-02, a variable height noise barrier is proposed, ranging from 24 feet to 36 feet tall, with a length of approximately 7,475 feet. The barrier system was evaluated as a replacement for the barrier that currently shields NSA 2-02 and an extension that would shield NSAs 1-38 and 4-01. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 112.65 impacted, benefited residences and 15.70 non-impacted, benefited residences for a total of 128.35 benefited residences. The SF per benefited residence is 1,858, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-9**. The barrier location and benefit locations are shown on Maps No. 4 and 5. Barrier System MD-6-6A-7 ***is considered feasible and reasonable*** for NSAs 1-38, 4-01, and 2-02.

Table 4-9: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 1-38, 4-01 and 2-02

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R1-38-1a	3	67	9	58
R1-38-1b	3	69	11	58
R1-38-1c	3	70	10	60
R1-38-1d	1	71	6	64
R1-38-2a	5	66	8	58
R1-38-2b	5	69	10	58
R1-38-2c	5	70	10	60
R1-38-2d	4	71	8	63

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R1-38-3a	2	67	9	58
R1-38-3b	2	69	11	58
R1-38-3c	3	70	11	59
R1-38-3d	2	71	8	63
R1-38-4a	3	66	8	58
R1-38-4b	3	68	9	59
R1-38-4c	3	69	9	60
R1-38-4d	2	69	8	61
R1-38-4e	2	70	5	65
R1-38-5a	4	67	3	64
R1-38-5b	4	69	3	65
R1-38-5c	4	69	3	66
R1-38-5d	3	69	3	67
R1-38-6c	4	66	2	64
R1-38-6d	1	67	2	65
R1-38-7	1	63	5	58
M4-01-01	0.85	64	5	59
M4-01-02	0.85	70	9	62
M4-01-03	0.85	75	14	61
M4-01-04	0.85	74	13	62
M4-01-05	0.85	67	9	58
R4-01-01	0.85	62	5	57
R4-01-02	0.85	66	7	59
R4-01-03	0.85	66	8	58
R4-01-04	0.85	72	11	61
R4-01-05	0.85	69	9	59
R4-01-06	0.85	72	12	60
M2-02-01	4	79	16	63
M2-02-02	2	69	9	60
M2-02-03	4	79	16	63
M2-02-04	5	78	12	65
M2-02-05	1	66	6	60
M2-02-06	3	65	7	58
M2-02-07	7	74	13	61
M2-02-08	3	74	12	62
M2-02-09	3	76	11	64
M2-02-10	2	69	8	61
R2-02-01	3	70	10	60
R2-02-02	2	73	11	62
R2-02-03	2	76	13	62
R2-02-04	2	73	12	62
R2-02-05	3	66	8	58

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R2-02-06	3	67	9	58
R2-02-07	3	62	5	58
R2-02-08	1	67	9	58
R2-02-09	2	65	7	58
R2-02-10	6	75	14	61
R2-02-11	2	62	5	57
R2-02-13	1	82	13	68
R2-02-15	3	64	6	58

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-6-6A-7/Design**
Number of Impacted, Benefited Residences	112.65
Number of Non-Impacted, Benefited Residences	15.70
Total Number of Benefited Locations	128.35
Barrier Length (feet)	7,475
Average Barrier Height (feet)	32
Area (feet^2)	238,485
SF per Benefited Residence	1,858
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.4 Area 5: I-495 top side, between I-270 west spur and MD 187

A. Barrier System 495 MD-8 (NSA 3-02)

To meet the noise levels provided by the existing barrier, a variable height noise barrier is proposed, ranging from 20 feet to 40 feet tall, with a length of approximately 2,709 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 24 impacted, benefited residences and 0 non-impacted, benefited residences for a total of 24 benefited residences. The SF per benefited residence is 4,031, which is above the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)). Although the square footage per benefited receptor exceeds the SF-p-r threshold of 2,700, this barrier would need to be replaced in kind due to being physically impacted by the project.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-10**. The barrier location and benefit locations are shown on Maps No. 5 and 6. Although Barrier System 495 MD-8 does not meet the cost-effectiveness criterion, since this barrier has to be replaced due to roadway design, Barrier System 495 MD-8 will be ***replaced in kind***.

Table 4-10: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 3-02

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M3-02-01	4	78	15	63
M3-02-03	4	78	18	60
M3-02-04	3	77	16	60
M3-02-05	4	77	17	60
M3-02-06	4	67	5	62
M3-02-07	3	73	10	63
M3-02-08	2	74	9	65

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-8/Mod3**
Number of Impacted, Benefited Residences	24
Number of Non-Impacted, Benefited Residences	0
Total Number of Benefited Locations	24
Barrier Length (feet)	2,709
Average Barrier Height (feet)	36
Area (feet^2)	96,732
SF per Benefited Residence	4,031
Feasible and Reasonable?	**N/A***

* Although the square footage per benefited receptor exceeds the SF-p-r criterion of 2,700, this barrier would need to be replaced in kind due to being physically impacted by the project; therefore, the MSF/BR criterion does not apply.

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

B. Barrier System 495 MD-11 (NSAs 3-04 and 1-08)

To meet the noise levels provided by the existing barrier in NSA 3-04 and to attempt to benefit additional impacted residences in NSA 1-08, a variable height noise barrier ranging from 12 feet to 32 feet tall is proposed, with a length of approximately 3,202 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 21 impacted, benefited residences and 11 non-impacted, benefited residences for a total of 32 benefited residences. The SF per benefited residence is 2,251, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-11**. The barrier location and benefit locations are shown on Maps No. 6 and 7. Barrier System 495 MD-11 ***is considered feasible and reasonable*** for NSAs 3-04 and 1-08.

Table 4-11: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 3-04 and 1-08

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M3-04-01	4	70	8	62
M3-04-03	6	66	6	59
M3-04-04	9	63	6	58
M3-04-05	1	64	6	57
M3-04-06	1	65	7	58
R3-04-05	5	71	12	60
R3-04-09	3	75	15	60
M1-08-01	1	70	9	61
M1-08-02	1	70	8	62
M1-08-03	1	66	5	61

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-11/Design**
Number of Impacted, Benefited Residences	21
Number of Non-Impacted, Benefited Residences	11
Total Number of Benefited Locations	32
Barrier Length (feet)	3,202
Average Barrier Height (feet)	22
Area (feet^2)	72,021
SF per Benefited Residence	2,251
Feasible and Reasonable?	**Yes**

1. A Receptor Number beginning with “M” represents a measured location and a Receptor Number beginning with “R” represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

C. Barrier System 495 MD-10 (NSA 2-03)

To meet the noise levels provided by the existing barrier, a variable height noise barrier is proposed, ranging from 12 feet to 36 feet tall, with a length of approximately 1,727 feet. [The adjacent developer is coordinating with MDOT SHA regarding the potential to construct a noise barrier on SHA property along I-495, that would ideally meet Barrier System 495 MD-10.] The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 8 impacted, benefited residences and 6 non-impacted, benefited residences for a total of 14 benefited residences. The SF per benefited residence is 2,774, which is above the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)). Although the square footage per benefited receptor exceeds the SF-p-r threshold of 1,700, this barrier would need to be replaced in kind due to being physically impacted by the project.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-12**. The barrier location and benefit locations are shown on Map No. 7. Although Barrier System 495 MD-10 does not meet the cost-effectiveness criterion, since this barrier has to be replaced due to roadway design, Barrier System 495 MD-10 will be ***replaced in kind***.

Table 4-12: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 2-03

Receptor Number[1]	Equivalent Residences[2]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
M2-3-2	8	73	10	63
M2-3-3	6	63	5	58

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD-10/Mod2**
Number of Impacted, Benefited Residences	8
Number of Non-Impacted, Benefited Residences	6
Total Number of Benefited Locations	14
Barrier Length (feet)	1,727
Average Barrier Height (feet)	22
Area (feet^2)	38,830
SF per Benefited Residence	2,774
Feasible and Reasonable?	**N/A***

* Although the square footage per benefited receptor exceeds the SF-p-r criterion of 1,700, this barrier would need to be replaced in kind due to being physically impacted by the project; therefore, the MSF/BR criterion does not apply.

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
2. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.5 Area 6: I-270 west spur, between I-495 and Democracy Boulevard

A. Barrier System 270-11 (NSA 5-36)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-36, a variable height noise barrier is proposed, ranging from 10 feet to 31 feet tall, with a length of approximately 5,445 feet. Of the 5,445 feet, 1,456 feet is existing barrier to remain and the remainder is proposed new barrier. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 54 impacted, benefited residences and 43 non-impacted, benefited residences for a total of 97 benefited residences. The SF per benefited residence is 1,412, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-13**. The barrier location and benefit locations are shown on Map No. 6. Barrier System 270-11 ***is considered feasible and reasonable*** for NSA 5-36.

Table 4-13: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-36

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-36-01	**1**	**79**	**14**	66
R 5-36-02	**1**	**74**	**11**	63
R 5-36-03	**1**	**73**	**10**	62
R 5-36-04	**1**	**72**	**10**	62
R 5-36-05	**1**	**70**	**8**	62
R 5-36-06	**1**	**68**	**6**	62
R 5-36-07	**1**	**67**	**5**	62
R 5-36-09	1	**75**	**9**	67
R 5-36-12	**1**	64	**5**	59
R 5-36-13	1	**66**	**7**	60
R 5-36-14	1	**68**	**8**	60
R 5-36-15	1	**71**	**9**	62
R 5-36-16	1	**77**	**9**	68
R 5-36-17	1	**80**	**12**	68
R 5-36-18	1	**73**	**12**	61
R 5-36-19	1	**66**	**8**	58
R 5-36-20	1	63	**6**	57
R 5-36-26	**1**	64	**5**	59
R 5-36-27	**1**	64	**5**	58
R 5-36-28	**1**	65	**5**	60
R 5-36-29	1	**67**	**6**	61
R 5-36-30	1	**70**	**8**	62
R 5-36-31	1	**70**	**8**	62

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-36-32	1	69	8	61
R 5-36-33	1	70	8	61
R 5-36-34	1	69	8	61
R 5-36-35	1	69	8	60
R 5-36-36	1	70	9	61
R 5-36-37	1	70	10	59
R 5-36-38	1	66	8	58
R 5-36-39	1	63	6	58
R 5-36-40	1	63	6	57
R 5-36-47	1	62	5	57
R 5-36-48	1	64	6	58
R 5-36-49	1	68	10	58
R 5-36-50	1	67	9	58
R 5-36-51	1	72	13	59
R 5-36-52	1	70	8	62
R 5-36-53	1	70	8	62
R 5-36-54	1	70	9	61
R 5-36-55	1	71	10	62
R 5-36-56	1	71	10	61
R 5-36-57	1	71	10	62
R 5-36-58	1	71	10	61
R 5-36-59	1	73	11	62
R 5-36-60	1	76	14	62
R 5-36-61	1	77	14	63
R 5-36-62	1	77	15	62
R 5-36-63	1	77	15	62
R 5-36-64	1	78	16	61
R 5-36-65	1	78	17	61
R 5-36-66	1	78	17	61
R 5-36-67	1	74	12	62
R 5-36-68	1	70	8	62
R 5-36-69	1	67	6	61
R 5-36-70	1	64	5	59
R 5-36-71	1	63	5	58
R 5-36-72	1	71	8	63
R 5-36-73	1	67	7	59
R 5-36-74	1	64	5	58
R 5-36-75	1	67	9	58
R 5-36-76	1	65	8	57
R 5-36-77	1	64	7	57
R 5-36-78	1	63	6	57
R 5-36-79	1	62	6	57

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-36-80	1	62	5	57
R 5-36-81	1	62	5	57
R 5-36-82	1	62	5	57
R 5-36-83	1	63	5	58
R 5-36-84	1	63	5	58
R 5-36-85	1	63	5	58
R 5-36-86	1	63	5	58
R 5-36-87	1	63	5	58
R 5-36-88	1	63	5	58
R 5-36-89	1	65	6	58
R 5-36-90	1	65	7	58
R 5-36-91	1	65	7	58
R 5-36-92	1	66	8	58
R 5-36-93	1	67	8	58
R 5-36-94	1	67	9	58
R 5-36-95	**1**	68	9	59
R 5-36-96	**1**	64	6	58
R 5-36-97	1	64	6	58
R 5-36-98	1	64	6	58
R 5-36-99	1	64	6	58
R 5-36-100	1	64	6	58
R 5-36-101	1	64	6	58
R 5-36-102	1	64	5	58
R 5-36-103	1	64	6	58
R 5-36-104	1	64	6	58
R 5-36-105	1	64	5	58
R 5-36-106	1	63	5	58
R 5-36-107	1	63	5	58
R 5-36-108	1	63	5	58
R 5-36-109	1	63	5	58
R 5-36-110	1	67	8	59
R 5-36-111	1	64	5	59

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**270-11/28ft**
Number of Impacted, Benefited Residences	54
Number of Non-Impacted, Benefited Residences	43
Total Number of Benefited Locations	97
Barrier Length (feet)	5,445
Average Barrier Height (feet)	25
Area (feet^2)	136,961
SF per Benefited Residence	1,412
Feasible and Reasonable?	**Yes**
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.	

B. Barrier System 270-12 (NSAs 5-37A and 5-37B)

This barrier system is comprised of two barriers in a system that were evaluated to provide abatement to NSAs 5-37A and 5-37B. The proposed system is a variable height noise barrier, ranging from 11 feet to 28 feet tall, with a length of approximately 5,454 feet. For the barrier shielding NSA 5-37A, it includes a portion of an existing barrier from Democracy Boulevard to the end of the ramp to I-270 that will be replaced; the remaining portion of the existing barrier will remain in place. Additionally, the barrier will be extended towards Democracy Boulevard. For the barrier shielding NSA 5-37B, it is a new proposed barrier that runs along the southbound lanes of the I-270 west spur.

Barrier System 270-12 met the feasibility criteria of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences and the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of impacted residences.

For Barrier system 270-12, there are 36.94 impacted, benefited residences and 6 non-impacted, benefited residences for a total of 42.94 benefits. The SF per benefited residence is 2,699, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels, and details on barrier design are shown in **Table 4-14**. The barrier location and benefit locations are shown on Maps No. 5 and 6. Barrier 12 ***is considered feasible and reasonable*** for NSAs 5-37A and 5-37B.

Table 4-14: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-37A and 5-37B

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-37-01	1	67	5	62
R 5-37-02	1	69	7	62
R 5-37-03	1	69	8	62
R 5-37-04	1	70	8	62
R 5-37-05	1	65	5	60

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-37-06	1	72	10	62
R 5-37-07	1	72	11	61
R 5-37-08	1	71	10	61
R 5-37-09	1	73	10	63
R 5-37-11	1	66	5	61
R 5-37-19A	0.5	67	5	62
R 5-37-20	0.44	78	11	67
R 5-37-21	1	80	16	63
R 5-37-22	1	78	16	62
R 5-37-23	1	78	15	63
R 5-37-24	1	77	14	62
R 5-37-25	1	76	14	62
R 5-37-26	1	76	14	62
R 5-37-27	1	75	13	61
R 5-37-28	1	72	12	60
R 5-37-29	1	72	11	61
R 5-37-30	1	71	11	60
R 5-37-31	1	70	10	60
R 5-37-32	1	69	10	60
R 5-37-33	1	66	8	59
R 5-37-34	1	66	7	58
R 5-37-35	1	64	6	58
R 5-37-36	1	64	6	58
R 5-37-37	1	63	6	58
R 5-37-38	1	63	5	57
R 5-37-39	1	62	5	57
R 5-37-40	3.25	71	5	66
R 5-37-41	3.25	76	5	71
R 5-37-42	3.25	73	6	67
R 5-37-43	3.25	71	7	63

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**270-12/Design**
Number of Impacted, Benefited Residences	36.94
Number of Non-Impacted, Benefited Residences	6
Total Number of Benefited Locations	42.94
Barrier Length (feet)	5,454
Average Barrier Height (feet)	21
Area (feet^2)	115,908
SF per Benefited Residence	2,699
Feasible and Reasonable?	**Yes**
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.	

4.6.6 Area 8: I-270 east spur, between I-495 and MD 187

A. Barrier System 270-8 (NSA 5-33A)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-33A, a constant height noise barrier of 28 feet is proposed, with a length of approximately 5,848 feet. The new noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 87 impacted, benefited residences and 103 non-impacted, benefited residences for a total of 190 benefited residences. The SF per benefited residence is 862, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-15**. The barrier location and benefit locations are shown on Maps No. 8 and 9. Barrier System 270-8 ***is considered feasible and reasonable*** for NSA 5-33A.

Table 4-15: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-33A

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-33-1	1	67	6	61
R 5-33-2	1	72	12	60
R 5-33-3	1	68	9	59
R 5-33-4	1	69	10	59
R 5-33-5	1	72	12	60
R 5-33-6	1	70	11	59
R 5-33-7	1	72	13	59
R 5-33-8	1	65	5	60
R 5-33-9	1	66	7	59
R 5-33-10	1	66	7	59
R 5-33-11	1	67	8	59
R 5-33-12	1	65	7	58

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-33-13	1	67	9	58
R 5-33-18	1	64	7	58
R 5-33-34	2	66	8	58
R 5-33-35	2	65	6	59
R 5-33-36	2	62	5	57
R 5-33-37	1	63	7	57
R 5-33-38	2	65	8	57
R 5-33-39	2	62	5	57
R 5-33-40	2	62	5	57
R 5-33-41	1	66	7	58
R 5-33-42	1	72	12	60
R 5-33-43	2	69	11	59
R 5-33-44	2	66	8	58
R 5-33-45	2	67	8	59
R 5-33-46	1	63	6	58
R 5-33-47	2	63	7	57
R 5-33-55	2	63	6	57
R 5-33-57	2	65	7	58
R 5-33-58	2	66	7	58
R 5-33-59	1	66	8	58
R 5-33-60	1	66	7	58
R 5-33-70	2	69	10	60
R 5-33-71	2	70	10	60
R 5-33-72	2	71	11	60
R 5-33-73	2	71	11	60
R 5-33-74	2	71	11	60
R 5-33-75	2	71	11	60
R 5-33-76	2	70	10	60
R 5-33-77	2	66	8	58
R 5-33-78	1	65	7	58
R 5-33-79	2	67	8	59
R 5-33-80	1	62	5	57
R 5-33-82	1	66	7	58
R 5-33-84	1	65	7	58
R 5-33-85	1	67	9	58
R 5-33-86	1	67	9	58
R 5-33-87	1	65	7	57
R 5-33-88	1	66	8	58
R 5-33-89	2	63	6	57
R 5-33-90	2	63	6	57
R 5-33-99	2	62	5	57
R 5-33-114	2	68	10	58

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-33-115	2	67	9	58
R 5-33-116	2	65	8	57
R 5-33-117	2	64	8	56
R 5-33-118	2	61	5	56
R 5-33-120	4	70	11	59
R 5-33-121	4	70	11	59
R 5-33-122	4	69	10	59
R 5-33-123	4	69	9	59
R 5-33-124	4	67	9	59
R 5-33-125	4	65	7	58
R 5-33-126	4	64	8	56
R 5-33-129	4	66	8	57
R 5-33-130	4	64	8	57
R 5-33-131	4	62	6	56
R 5-33-132	4	64	7	57
R 5-33-133	4	61	5	56
R 5-33-134	4	63	7	56
R 5-33-135	4	62	5	56
R 5-33-136	4	62	6	56
R 5-33-137	4	62	5	56
R 5-33-138	4	61	5	56
R 5-33-139	4	61	5	56
R 5-33-142	4	61	5	56
R 5-33-145	1	62 (37)	5	57 (32)
R 5-33-155	2	65	7	58
R 5-33-156	2	67	9	58
R 5-33-157	1	63	6	57
R 5-33-158	1	62	5	57
R 5-33-163	1	65	8	57
R 5-33-164	1	63	7	56
R 5-33-165	2	65	8	57
R 5-33-166	2	61	5	56
R 5-33-171	2	65	7	58
R 5-33-175	2	66	8	59
R 5-33-176	1	62	6	56
R 5-33-189	1	66	5	60
R 5-33-190	1	66	5	61
R 5-33-191	2	66	5	61
R 5-33-192	1	66	4	62
R 5-33-193	1	66	4	62
R 5-33-194	2	66	4	62
R 5-33-195	1	67	4	63

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-33-196	2	67	4	63
R 5-33-197	2	68	4	64
R 5-33-198	2	67	3	64
R 5-33-199	2	67	2	65
R 5-33-225	2	80	8	71
R 5-33-226	2	75	16	60

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD 270-08/28ft**
Number of Impacted, Benefited Residences	87
Number of Non-Impacted, Benefited Residences	103
Total Number of Benefited Locations	190
Barrier Length (feet)	5,848
Average Barrier Height (feet)	28
Area ($feet^2$)	163,765
SF per Benefited Residence	862
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

2. Parenthesis indicates interior sound levels. For this receptor, a building noise reduction factor of 25 dB(A) was assumed as described in Section 2.2.1.H.

B. Barrier System 270-9 (NSA 5-34A)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-34A, a variable height noise barrier is proposed, ranging from 12 feet to 30 feet tall, with a length of approximately 4,994 feet. Of the 4,994 feet, 758 feet is a proposed barrier extension south of the Bethesda Trolley Trail bridge, 916 feet is a proposed barrier extension towards Old Georgetown Rd, and the remainder is the existing barrier to remain. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 55 impacted, benefited residences and 19 non-impacted, benefited residences for a total of 74 benefited residences. The SF per benefited residence is 1,422, which is below the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-16**. The barrier location and benefit locations are shown on Maps No. 8 and 9. Barrier System 270-9 ***is considered feasible and reasonable*** for NSA 5-34A.

Table 4-16: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-34A

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-34-2	2	66	6	60
R 5-34-13	2	66	6	60
R 5-34-14	3	71	10	62
R 5-34-15	1	73	11	62
R 5-34-16	1	74	11	63
R 5-34-17	1	72	11	61
R 5-34-18	1	71	10	61
R 5-34-19	1	70	10	60
R 5-34-22	2	66	6	60
R 5-34-23	1	66	7	60
R 5-34-28	1	64	5	59
R 5-34-29	1	63	5	58
R 5-34-34	1	68	8	60
R 5-34-35	1	71	10	61
R 5-34-36	1	72	10	62
R 5-34-37	1	71	10	61
R 5-34-38	1	69	9	60
R 5-34-39	1	65	6	59
R 5-34-40	1	67	7	59
R 5-34-41	1	68	8	60
R 5-34-42	1	68	8	60
R 5-34-43	1	67	8	59
R 5-34-44	1	65	6	59
R 5-34-45	1	66	7	59
R 5-34-46	1	66	7	59
R 5-34-47	1	64	6	58
R 5-34-48	3	66	7	59
R 5-34-49	1	66	8	59
R 5-34-50	1	67	8	59
R 5-34-51	1	66	7	59
R 5-34-52	2	71	10	60
R 5-34-53	2	70	9	61
R 5-34-54	3	67	6	60
R 5-34-55	3	68	8	60
R 5-34-56	2	70	8	62
R 5-34-57	1	73	9	64
R 5-34-58	1	65	6	59
R 5-34-59	2	64	5	59
R 5-34-61	1	65	5	59
R 5-34-62	1	66	6	60

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-34-63	1	70	7	62
R 5-34-64	1	64	6	58
R 5-34-66	2	64	6	59
R 5-34-67	1	65	6	59
R 5-34-68	1	68	7	61
R 5-34-69	1	65	6	59
R 5-34-70	2	67	7	60
R 5-34-72	2	62	5	58
R 5-34-73	1	68	8	60
R 5-34-74	1	65	7	59
R 5-34-75	2	64	6	58
R 5-34-77	1	71	7	64
R 5-34-78	1	69	6	63
R 5-34-79	1	67	5	62
R 5-34-80	1	66	4	62
R 5-34-83	1	73	4	68
R 5-34-84	1	72	3	68
R 5-34-85	1	71	3	68
R 5-34-86	1	70	2	68
R 5-34-87	1	69	2	67
R 5-34-88	1	67	2	66
R 5-34-89	0.5	72	8	64
R 5-34-90	0.5	74	7	66

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD 270-09/Mod1**
Number of Impacted, Benefited Residences	55
Number of Non-Impacted, Benefited Residences	19
Total Number of Benefited Locations	74
Barrier Length (feet)	4,994
Average Barrier Height (feet)	21
Area (feet^2)	105,201
SF per Benefited Residence	1,422
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.7 Area 9: I-270 west and east spurs, between Y-split and Westlake Terrace and MD 187

A. Barrier System 270-18 (NSA 5-32C)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-32C, a variable height noise barrier is proposed, ranging from 24 feet to 40 feet tall, with a length of approximately 915 feet. Of the 915 feet, 517 feet is a proposed barrier mounted on a retaining wall along I-270 west spur southbound, and 398 feet is a proposed barrier along Westlake Terrace. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 111.02 impacted, benefited residences and 17 non-impacted, benefited residences for a total of 128.02 benefited residences. The SF per benefited residence is 221, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-17**. The barrier location and benefit locations are shown on Maps No. 10. Barrier System 270-18 ***is considered feasible and reasonable*** for NSA 5-32C.

Table 4-17: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-32C

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-32C-01	0.9	77	12	66
R 5-32C-02	0.9	75	12	63
R 5-32C-03	0.22	68	9	60
R 5-32C-04a	4	67	11	57
R 5-32C-04b	4	69	12	57
R 5-32C-04c	4	70	11	58
R 5-32C-04d	4	70	11	59
R 5-32C-04e	4	70	10	60
R 5-32C-05a	6	72	7	65
R 5-32C-05b	6	76	10	66
R 5-32C-05c	6	77	9	68
R 5-32C-05d	6	77	9	69
R 5-32C-05e	6	77	7	70
R 5-32C-06a	3	61	5	56
R 5-32C-06b	3	64	8	57
R 5-32C-06c	3	68	11	57
R 5-32C-06d	3	69	10	59
R 5-32C-06e	3	70	10	60
R 5-32C-07a	5	63	6	57
R 5-32C-07b	5	67	10	57
R 5-32C-07c	5	70	13	57

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-32C-07d	5	71	12	59
R 5-32C-07e	5	71	12	60
R 5-32C-08b	5	67	9	57
R 5-32C-08c	5	69	12	58
R 5-32C-08d	5	71	12	59
R 5-32C-08e	5	72	12	60
R 5-32C-09b	2	66	9	56
R 5-32C-09c	2	67	11	57
R 5-32C-09d	2	68	11	57
R 5-32C-09e	2	69	11	58
R 5-32C-10b	2	63	5	58
R 5-32C-10c	2	65	6	58
R 5-32C-10d	2	65	7	59
R 5-32C-10e	2	66	6	59

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**MD 270-18/Design**
Number of Impacted, Benefited Residences	111.02
Number of Non-Impacted, Benefited Residences	17
Total Number of Benefited Locations	128.02
Barrier Length (feet)	915
Average Barrier Height (feet)	31
Area (feet^2)	28,350
SF per Benefited Residence	221
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

B. Barrier System 270-10 - NSA 5-32B

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-32B a constant-height noise barrier of 18-foot-tall with a length of approximately 2,250 feet was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 0.71 impacted, benefited residences and 1.71 non-impacted, benefited residences for a total of 2.42 benefited residences. The SF per benefited residence is 16,735, which is more than the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this proposed noise barrier is not considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-18**. The barrier location and benefit locations are shown on Maps No. 8 and 10. Barrier System 270-10 ***is considered feasible and is not considered reasonable*** for NSA 5-32B.

Table 4-18: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-32

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
5-32-1	1.00	70	6	64
5-32-2	0.71	72	9	63
5-32-3	0.71	67	5	62

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-10/Opt 18'**
Number of Impacted, Benefited Residences	0.71
Number of Non-Impacted, Benefited Residences	1.71
Total Number of Benefited Locations	2.42
Barrier Length (feet)	2,250
Average Barrier Height (feet)	18
Area (feet^2)	40,498
SF per Benefited Residence	16,735
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

C. Barrier System 270-7B (NSA 5-31)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-31, a combined replaced noise barrier and existing noise barrier/screen wall system is proposed, with a length of approximately 4,072 feet. Of the length, 1,552 feet will remain as an existing barrier/screen wall in place. The remainder, 2,520 feet, will be a replaced barrier on new alignment with a constant-height barrier of 16 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 25.40 impacted, benefited residences and 12.92 non-impacted, benefited residences for a total of 38.32 benefited residences. The SF per benefited residence is 1,336, which is below the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-19**. The barrier location and benefit locations are shown on Maps No. 8 and 10. Barrier system 270-7B ***is considered feasible and reasonable*** for NSA 5-31.

Table 4-19: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-31

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-31-07	1	66	5	61
R 5-31-08	1	67	7	61
R 5-31-09	1	71	9	62
R 5-31-10	1	70	8	61
R 5-31-11	1	71	9	62
R 5-31-12	1	70	8	61
R 5-31-13	1	68	7	61
R 5-31-14	1	67	7	60
R 5-31-15	0.40	66	6	60
R 5-31-16	0.92	65	5	59
R 5-31-17	2	67	7	60
R 5-31-18	2	66	7	60
R 5-31-19	1	66	7	60
R 5-31-20	1	64	5	59
R 5-31-22	1	64	5	58
R 5-31-23	1	66	7	59
R 5-31-24	1	64	6	58
R 5-31-25	2	63	5	58
R 5-31-26	2	64	5	58
R 5-31-27	3	67	7	60
R 5-31-28	3	65	5	60
R 5-31-32	3	68	8	61
R 5-31-33	2	69	7	61
R 5-31-34	2	66	6	60
R 5-31-35	2	65	5	60
R 5-31-40	1	66	7	60
R 5-31-41	1	67	3	64
R 5-31-42	1	68	4	64

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-7B/Opt 16'1**
Number of Impacted, Benefited Residences	25.40
Number of Non-Impacted, Benefited Residences	12.92

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
Total Number of Benefited Locations			38.32	
Barrier Length (feet)			4,072	
Average Barrier Height (feet)			13	
Area (feet^2)			51,192	
SF per Benefited Residence			1,336	
Feasible and Reasonable?			**Yes**	
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.				

D. Barrier System 270-7A (NSA 5-30)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-30, a constant-height 16-foot replacement noise barrier is proposed, with a length of approximately 2,389 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 19 impacted, benefited residences and 1 non-impacted, benefited residences for a total of 20 benefited residences. The SF per benefited residence is 1,910, which is less than the 2,700 SF-p-r threshold (since sound levels are above 75 dB(A)); therefore, this proposed noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-20**. The barrier location and benefit locations are shown on Map No. 10. Barrier System 270-7A ***is considered feasible and reasonable*** for NSA 5-30.

Table 4-20: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-30

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-30-01	1	69	5	64
R 5-30-02	1	70	6	64
R 5-30-03	1	74	9	65
R 5-30-04	1	76	11	65
R 5-30-05	1	76	11	66
R 5-30-06	1	77	11	66
R 5-30-09	1	64	5	60
R 5-30-10	1	66	6	61
R 5-30-11	1	67	7	61
R 5-30-12	1	71	8	63
R 5-30-13	1	74	8	66
R 5-30-14	1	74	9	65
R 5-30-15	1	74	9	65
R 5-30-16	1	73	9	64
R 5-30-17	1	73	9	65

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-30-18	1	74	9	65
R 5-30-19	1	74	9	64
R 5-30-20	1	73	8	65
R 5-30-21	1	71	6	64
R 5-30-22	1	71	5	66

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-7A/Opt 16'**
Number of Impacted, Benefited Residences	19
Number of Non-Impacted, Benefited Residences	1
Total Number of Benefited Locations	20
Barrier Length (feet)	2,389
Average Barrier Height (feet)	16
Area (feet^2)	38,202
SF per Benefited Residence	1,910
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.8 Area 10: I-270 mainline, between Y-split and Montrose Road

A. Barrier System 270-15 (NSA 5-29)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-29 a combination of replacement and new barrier system is proposed, with an average height of 26 feet and length of approximately 6,162 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 90 impacted, benefited residences and 23 non-impacted, benefited residences for a total of 113 benefited residences. The SF per benefited residence is 1,408, which is less than the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-21**. The barrier location and benefit locations are shown on Maps No. 10 and 11. Barrier System 270-15 ***is considered feasible and reasonable*** for NSA 5-30.

Table 4-21: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-29

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-29-5	1	66	5	60
R 5-29-7	7	80	17	63
R 5-29-8	2	66	5	61
R 5-29-9	2	68	6	63
R 5-29-12	2	67	5	62
R 5-29-13	2	66	6	60
R 5-29-14	3	66	6	59
R 5-29-15	5	69	5	64
R 5-29-16	1	77	12	65
R 5-29-17	1	78	11	67
R 5-29-18	1	79	11	68
R 5-29-19	1	79	10	69
R 5-29-20	1	79	11	68
R 5-29-21	1	79	11	67
R 5-29-22	1	79	13	65
R 5-29-23	1	79	15	64
R 5-29-24	1	77	15	62
R 5-29-25	1	75	13	62
R 5-29-26	1	74	13	61
R 5-29-27	1	73	12	61
R 5-29-28	1	72	11	61
R 5-29-29	1	73	13	61
R 5-29-30	2	73	13	60
R 5-29-31	1	77	15	62
R 5-29-32	1	78	15	63
R 5-29-33	1	76	14	62
R 5-29-34	1	74	13	62
R 5-29-35	1	74	12	62
R 5-29-36	1	76	13	63
R 5-29-37	1	73	11	62
R 5-29-38	1	73	10	63
R 5-29-39	1	72	9	63
R 5-29-40	1	71	8	63
R 5-29-41	1	72	9	63
R 5-29-42	1	75	11	64
R 5-29-43	1	74	10	64
R 5-29-44	1	68	8	60
R 5-29-51	2	66	7	59
R 5-29-52	4	69	10	59
R 5-29-53	1	66	7	58

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-29-56	2	62	5	57
R 5-29-57	3	62	5	57
R 5-29-58	2	68	9	60
R 5-29-59	1	66	7	59
R 5-29-60	5	67	6	61
R 5-29-61	2	63	6	57
R 5-29-64	1	62	5	57
R 5-29-66	1	66	7	59
R 5-29-67	4	64	6	58
R 5-29-73	2	63	5	58
R 5-29-74	2	62	5	57
R 5-29-75	4	61	5	57
R 5-29-77	3	64	6	58
R 5-29-78	1	71	11	61
R 5-29-79	1	73	12	61
R 5-29-80	1	75	12	63
R 5-29-81	1	76	12	65
R 5-29-82	1	77	12	65
R 5-29-83	1	75	13	62
R 5-29-84	1	75	13	62
R 5-29-85	1	76	13	64
R 5-29-86	1	74	12	63
R 5-29-87	1	75	12	63
R 5-29-88	1	74	11	63
R 5-29-89	1	72	10	62
R 5-29-90	1	70	9	61
R 5-29-91	1	69	8	61
R 5-29-92	1	69	8	61
R 5-29-107	1	70	9	61
R 5-29-108	2	66	6	60
R 5-29-115	1	66	5	61
R 5-29-125	1	72	10	62

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-15/Design**
Number of Impacted, Benefited Residences	90
Number of Non-Impacted, Benefited Residences	23

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
Total Number of Benefited Locations			113	
Barrier Length (feet)			6,162	
Average Barrier Height (feet)			26	
Area (feet^2)			159,118	
SF per Benefited Residence			1,408	
Feasible and Reasonable?			**Yes**	
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.				

B. Barrier System 270-17 (NSA 5-28)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-24, a constant-height 28-foot-tall noise barrier with a length of approximately 6,138 feet was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier system also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 10.99 impacted, benefited residences and 2.55 non-impacted, benefited residences for a total of 13.54 benefited residences. The SF per benefited residence is 12,680, which is more than the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is not considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-22**. The barrier location and benefit locations are shown on Maps No. 10 and 11. Barrier System 270-17 is ***considered feasible and is not considered reasonable*** for NSA 5-28.

Table 4-22: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-28

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-28-25	0.51	64	5	59
R 5-28-26	0.51	66	6	60
R 5-28-27	0.51	77	14	63
R 5-28-29	0.51	79	10	70
R 5-28-31	0.51	70	9	61
R 5-28-32	0.51	74	13	61
R 5-28-33	0.51	65	6	59
R 5-28-34	0.51	66	6	60
R 5-28-35	0.51	65	5	60
R 5-28-36	0.51	65	5	60
R 5-28-37	0.51	67	7	60
R 5-28-38	0.51	71	10	62
R 5-28-39	0.51	75	12	63
R 5-28-40	0.51	72	9	63
R 5-28-42	0.51	73	12	61
R 5-28-43	0.51	70	9	61
R 5-28-44	0.51	70	7	62
R 5-28-45	0.51	78	12	66
R 5-28-46	0.51	70	5	65
R 5-28-47	0.51	73	10	63
R 5-28-48	0.51	69	8	61
R 5-28-49	0.51	70	10	60
R 5-28-50	0.51	67	7	60
R 5-28-51	0.51	63	5	58
R 5-28-61	1.3	69	9	60
R 5-28-63	1.3	67	4	62

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-17/Opt 28'**
Number of Impacted, Benefited Residences	10.99
Number of Non-Impacted, Benefited Residences	2.55
Total Number of Benefited Locations	13.54
Barrier Length (feet)	6,138
Average Barrier Height (feet)	28
Area (feet^2)	171,693
SF per Benefited Residence	12,680
Feasible and Reasonable?	**No**
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.	

4.6.9 Area 11: I-270 mainline, between Montrose Road and MD 189

A. Barrier System 270-16 (NSA 5-24)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-24, a barrier system consisting of two 40-foot-high noise barriers with a total length of approximately 2,151 feet was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier system also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 14 impacted, benefited residences and 9 non-impacted, benefited residences for a total of 23 benefited residences. The SF per benefited residence is 3,746, which is more than the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this noise barrier is not considered to meet the cost effectiveness criterion. The barriers were evaluated individually, but neither barrier was able to meet the feasibility, reasonableness, and cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-23**. The barrier location and benefit locations are shown on Map No. 13. Barrier System 270-16 ***is considered feasible and is not considered reasonable*** for NSA 5-24.

Table 4-23: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-24

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-24-1	1	65	8	57
R 5-24-2	2	68	11	57
R 5-24-3	1	69	12	57
R 5-24-4	1	67	8	60
R 5-24-5	1	66	7	59
R 5-24-6	2	63	6	57
R 5-24-8	2	65	6	58
R 5-24-9	1	65	6	59
R 5-24-10	1	66	7	59
R 5-24-11	1	67	7	60
R 5-24-12	2	63	6	57

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-24-13	1	66	7	60
R 5-24-14	1	67	7	60
R 5-24-17	1	66	7	60
R 5-24-18	2	66	6	60
R 5-24-19	2	66	6	60
R 5-24-20	2	65	6	58

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-16/Opt 40'**
Number of Impacted, Benefited Residences	14
Number of Non-Impacted, Benefited Residences	9
Total Number of Benefited Locations	23
Barrier Length (feet)	2,151
Average Barrier Height (feet)	40
Area (feet^2)	86,148
SF per Benefited Residence	3,746
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.10 Area 12: I-270 mainline, between MD 189 and MD 28

A. Barrier System 270-6 (NSA 5-22, 5-19, and 5-18)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 5-18, 5-19, and 5-22, a constant height noise barrier of 24 feet is proposed, with a length of approximately 4,796 feet. An existing berm is present in the area, shielding the first-row residences along Winding Rose Drive. The proposed barrier is assumed to have the bottom of the barrier located at the top of the berm. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 42.19 impacted, benefited residences and 43.95 non-impacted, benefited residences for a total of 86.14 benefited residences. The SF per benefited residence is 1,335, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-24**. The barrier location and benefit locations are shown on Maps No. 13 and 14. Barrier System 270-6 ***is considered feasible and reasonable*** for NSAs 5-22, 5-19, and 5-18.

Table 4-24: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 5-18, 5-19, and 5-22

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-18-1	0.63	65	6	58
R 5-18-2	0.63	67	8	59
R 5-18-3	0.63	69	10	60
R 5-18-6	1	63	5	58
R 5-18-7	1	64	6	58
R 5-18-8	0.63	73	12	61
R 5-18-9	0.96	68	7	60
R 5-18-10	0.88	75	12	63
R 5-19-1	2	65	6	58
R 5-19-2	2	65	6	59
R 5-19-3	2	66	7	59
R 5-19-4	2	67	8	59
R 5-19-5	3	68	8	60
R 5-19-6	2	69	9	60
R 5-19-8	2	62	5	57
R 5-19-9	2	62	5	57
R 5-19-10	1	62	5	57
R 5-19-11	2	65	7	58
R 5-19-12	2	66	8	58
R 5-19-13	2	68	9	59
R 5-19-14	2	65	7	59
R 5-19-15	2	63	5	58
R 5-19-19	6	63	6	58
R 5-19-24	2	62	5	57
R 5-19-29	6	62	5	58
R 5-19-30	1	63	5	58
R 5-19-32	2	64	5	59
R 5-19-45	0.70	63	5	58
R 5-19-46	0.70	64	6	58
R 5-19-47	6	66	6	60
R 5-19-48	5	67	7	60
R 5-19-49	5	68	8	60
R 5-19-50	7	67	7	60
R 5-19-51	6	65	5	60
R 5-19-52	0.70	68	9	60
R 5-19-54	0.40	72	11	61
R 5-19-55	0.40	71	10	61
R 5-22-1	0.48	65	6	60
R 5-22-2	0.48	66	7	59
R 5-22-3	0.48	71	11	60

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-22-4	0.48	64	6	58
R 5-22-6	0.48	63	5	58
R 5-22-7	0.48	64	6	59

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**270-6/Design**
Number of Impacted, Benefited Residences	42.19
Number of Non-Impacted, Benefited Residences	43.95
Total Number of Benefited Locations	86.14
Barrier Length (feet)	4,796
Average Barrier Height (feet)	24
Area (feet^2)	115,009
SF per Benefited Residence	1,335
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

B. Barrier System 270-14 (NSA 5-21, 5-20, and 5-17)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 5-21, 5-20, and 5-17, a combination of existing, replaced, and new barrier is proposed, with a total length of approximately 5,068 feet. The existing barrier to remain measures approximately 1,330 feet and the replaced barrier on new alignment measures 3,170 feet. To address impacts in NSA 5-21, an extended new barrier of 568 feet is proposed. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 78 impacted, benefited residences and 24 non-impacted, benefited residences for a total of 102 benefited residences. The SF per benefited residence is 914, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-25**. The barrier location and benefit locations are shown on Maps No. 13 and 14. Barrier System 270-14 ***is considered feasible and reasonable*** for NSAs 5-21, 5-20, and 5-17.

Table 4-25: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 5-21, 5-20, and 5-17

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-17-1	1	73	8	65
R 5-17-2	2	74	8	65
R 5-17-3	2	75	9	66
R 5-17-4	2	76	11	65
R 5-17-5	1	79	13	65
R 5-17-6	2	73	11	63
R 5-17-7	2	69	8	61
R 5-17-8	2	66	6	60
R 5-17-9	1	67	6	61
R 5-17-10	2	70	8	62
R 5-17-11	2	73	10	64
R 5-17-12	1	76	13	64
R 5-17-13	2	71	8	63
R 5-17-14	2	68	6	62
R 5-17-15	1	67	6	61
R 5-17-16	2	66	5	61
R 5-17-17	2	68	6	62
R 5-17-18	2	69	7	63
R 5-17-19	2	73	9	64
R 5-17-20	1	70	7	63
R 5-17-21	2	69	7	62
R 5-17-22	2	67	6	61
R 5-17-23	2	66	5	61
R 5-17-24	2	70	8	62
R 5-17-25	2	71	8	63
R 5-17-26	2	73	9	64
R 5-17-35	1	67	7	60
R 5-17-36	2	67	6	62
R 5-17-37	2	66	6	60
R 5-17-39	1	65	5	61
R 5-17-40	5	64	5	59
R 5-17-41	2	64	5	59
R 5-20-1	1	69	6	63
R 5-20-2	3	70	7	63
R 5-20-3	3	74	10	64
R 5-20-4	1	74	10	64
R 5-20-5	1	76	11	65
R 5-20-6	3	76	11	65
R 5-20-7	2	75	10	65
R 5-20-8	1	65	5	60

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-20-9	3	64	5	59
R 5-20-11	3	65	5	60
R 5-20-13	2	66	6	60
R 5-20-14	1	64	6	59
R 5-20-15	2	63	5	58
R 5-21-1	2	66	5	61
R 5-21-2	3	65	5	59
R 5-21-5	1	72	9	62
R 5-21-6	1	70	8	62
R 5-21-7	1	73	10	63
R 5-21-8	1	73	10	63
R 5-21-9	1	73	10	63
R 5-21-10	1	75	11	64
R 5-21-11	1	71	9	62
R 5-21-12	1	76	12	64
R 5-21-13	1	67	7	60
R 5-21-16	2	63	5	58
R 5-21-17	1	63	5	59

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-14/Opt 18'**
Number of Impacted, Benefited Residences	78
Number of Non-Impacted, Benefited Residences	24
Total Number of Benefited Locations	102
Barrier Length (feet)	5,068
Average Barrier Height (feet)	18
Area ($feet^2$)	93,249
SF per Benefited Residence	914
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.11 Area 13: I-270 mainline, between MD 28 and Shady Grove Road

A. Barrier System 270-5 (NSAs 5-15, 5-13, and 5-12)

To provide 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 5-15, 5-13, and 5-12 a combination of existing, replaced and new barrier is proposed, with an average height of 21 feet tall and a total length of approximately 6,028 feet. The noise barrier system was shown to meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 67.95 impacted, benefited residences and 10.40 non-impacted, benefited residences for a total of 78.35 benefited residences. The SF per benefited residence is 1,629, which is less than the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this proposed noise barrier is considered to be meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-26**. The barrier location and benefit locations are shown on Maps No. 14 and 15. Barrier System 270-5 ***is considered feasible and reasonable*** for NSAs 5-15, 5-13, and 5-12.

Table 4-26: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-12

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-12-2	1	**79**	**16**	63
R 5-12-3	1	**78**	**16**	63
R 5-12-4	1	**78**	**16**	62
R 5-12-5	1	**78**	**16**	62
R 5-12-6	1	**77**	**15**	62
R 5-12-7	1	**77**	**14**	63
R 5-12-8	1	**77**	**14**	64
R 5-12-9	1	**77**	**13**	64
R 5-12-10	1	**79**	**14**	65
R 5-12-11	1	**78**	**14**	64
R 5-12-12	1	**67**	**6**	61
R 5-12-14	1	**73**	**12**	61
R 5-12-15	1	**67**	**8**	59
R 5-12-16	2	63	**5**	58
R 5-12-30	2	**66**	4	61
R 5-12-33	2	**66**	**5**	61
R 5-12-36	2	**72**	**9**	63
R 5-12-37	2	**73**	**9**	64
R 5-12-38	3	**73**	**8**	65
R 5-12-39	4	**68**	**7**	61
R 5-12-45	2	65	**5**	60
R 5-12-46	4	**69**	**7**	62
R 5-12-50	4	**67**	4	63

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-12-51	3	66	3	63
R 5-12-57	6	68	5	64
R 5-12-61	3	66	5	62
R 5-12-67	2	69	6	63
R 5-12-69	6	69	5	63
R 5-12-92	0.59	67	6	61
R 5-12-93	0.17	67	1	65
R 5-12-94	0.17	67	3	64
R 5-12-95	0.17	68	4	64
R 5-12-96	0.17	71	5	66
R 5-12-97	0.17	74	6	69
R 5-12-98	0.17	77	12	65
R 5-12-99	0.17	82	21	62
R 5-12-100	0.17	78	16	63
R 5-12-101	0.17	74	11	63
R 5-12-102	0.17	73	10	63
R 5-13-1	0.76	66	6	60
R 5-13-2	0.76	65	6	60
R 5-15-1	3	69	7	63
R 5-15-2	2	69	7	63
R 5-15-3	2	70	7	63
R 5-15-4	3	69	6	64
R 5-15-5	2	70	7	63
R 5-15-6	3	69	7	61
R 5-15-7	0.05	71 (36)[2]	8	63 (28)
R 5-15-9	2	65	5	60
R 5-15-10	3	65	6	59
R 5-15-15	2	67	7	60
R 5-15-19	2	68	9	59

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-05/Design**
Number of Impacted, Benefited Residences	67.95
Number of Non-Impacted, Benefited Residences	10.40
Total Number of Benefited Locations	78.35
Barrier Length (feet)	6,028
Average Barrier Height (feet)	21
Area ($feet^2$)	127,628
SF per Benefited Residence	1,629
Feasible and Reasonable?	**Yes**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

2. Parenthesis indicates interior sound levels. For this receptor, a building noise reduction factor of 35 dB(A) was assumed as described in Section 2.2.1.N.

B. Barrier System 270-13 (NSA 5-11)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-11, a 16-foot-high noise barrier, approximately 1,615 feet long, was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 2.98 impacted, benefited residences and 0.34 non-impacted, benefited residences for a total of 3.32 benefited residences. The SF per benefited residence is 7,786, which is more than the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is not considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-27**. The barrier location and benefit locations are shown on Map No. 15. Barrier System 270-13 ***is considered feasible and is not considered reasonable*** for NSA 5-11.

Table 4-27: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-11

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-11-03	0.29	74	8	66
R 5-11-04	0.29	73	7	66
R 5-11-05	0.34	77 (42) [2]	10	67 (32)
R 5-11-06	2.40	76	10	66

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-13/Opt 16'**
Number of Impacted, Benefited Residences	2.98
Number of Non-Impacted, Benefited Residences	0.34
Total Number of Benefited Locations	3.32
Barrier Length (feet)	1,615
Average Barrier Height (feet)	16
Area (feet^2)	25,849
SF per Benefited Residence	7,786
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

2. Parenthesis indicates interior sound levels. For this receptor, a building noise reduction factor of 35 dB(A) was assumed as described in Section 2.2.1.N.

C. Barrier System 270-4 (NSA 5-14)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-14, a constant-height 32-foot-high noise barrier with a total length of approximately 946 feet was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. However, the new barrier system does not meet the reasonableness criterion of providing a 7 dB(A) noise reduction to at least 50% of the impacted residences.

There are 0.53 impacted, benefited residences and 0 non-impacted, benefited residences for a total of 0.53 benefited residences. The SF per benefited residence is 57,172, which is greater than the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this proposed noise barrier is not considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-28**. The barrier location and benefit locations are shown on Map No. 14. Barrier System 270-4 ***is considered feasible and is not considered reasonable*** for NSA 5-14.

Table 4-28: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-14

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-14-1	0.53	72	6	67

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-4/Opt 32'**
Number of Impacted, Benefited Residences	0.53
Number of Non-Impacted, Benefited Residences	0
Total Number of Benefited Locations	0.53
Barrier Length (feet)	946
Average Barrier Height (feet)	32
Area (feet^2)	30,301
SF per Benefited Residence	57,172
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

D. Barrier System 270-3 (NSA 5-10)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSA 5-10, a 20-foot-high noise barrier, approximately 1,442 feet, was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 0.33 impacted, benefited residences and 0.50 non-impacted, benefited residences for a total of 0.83 benefited residences. The SF per benefited residence is 34,734, which is more than the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this noise barrier is not considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-29**. The barrier location and benefit locations are shown on Map No. 15. Barrier System 270-3 ***is considered feasible and is not considered reasonable*** for NSA 5-10.

Table 4-29: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-10

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-10-01	0.50	69	7	62
R 5-10-02	0.33	73	8	65

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-3/Opt 20'**
Number of Impacted, Benefited Residences	0.33
Number of Non-Impacted, Benefited Residences	0.50
Total Number of Benefited Locations	0.83
Barrier Length (feet)	1,442
Average Barrier Height (feet)	20
Area (feet^2)	28,829
SF per Benefited Residence	34,734
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

E. Barrier System 270-2 (NSA 5-09 and 5-08)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 5-09 and 5-08 a constant-height 36-foot-high noise barrier with a length of approximately 1,147 feet was evaluated. The new barrier system does not meet the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also fails to meet the reasonableness criterion of providing at least a 7 dB(A) noise reduction to 50% or more of the impacted residences.

There are 10.27 impacted, benefited residences and 18 non-impacted, benefited residences for a total of 28.27 benefited residences. The SF per benefited residence is 1,461, which is less than the 1,700 SF-p-r threshold for this barrier system (since sound levels are below 75 dB(A)); therefore, this proposed noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-30**. The barrier location and benefit locations are shown on Maps No. 15 and 16. Barrier System 270-2 ***is not considered feasible and is not considered reasonable*** for NSAs 5-09 and 5-08.

Table 4-30: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-09 and 5-08

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-08-02c	1	67	0	67
R 5-08-02d	1	67	0	67
R 5-08-04b	1	66	0	66
R 5-08-04c	1	67	0	67
R 5-08-04d	1	68	0	68
R 5-08-05b	1	66	0	66
R 5-08-05c	1	67	0	67
R 5-08-05d	1	68	0	68
R 5-08-06b	1	67	0	67
R 5-08-06c	1	68	0	68
R 5-08-06d	1	68	0	68
R 5-08-07b	1	69	0	69
R 5-08-07c	1	70	0	70
R 5-08-07d	1	70	0	70
R 5-08-08a	1	70	0	70
R 5-08-08b	1	71	0	71
R 5-08-08c	1	71	0	71
R 5-08-08d	1	71	0	71
R 5-08-10b	1	63	7	56
R 5-08-10c	1	64	7	57
R 5-08-11b	1	63	6	56
R 5-08-11c	1	64	6	57
R 5-08-12b	1	66	6	60
R 5-08-12c	1	66	5	61
R 5-08-12d	1	67	2	65
R 5-08-13b	1	62	6	56
R 5-08-13c	1	64	7	57
R 5-08-13d	1	64	6	59
R 5-08-14b	1	62	6	56
R 5-08-14c	1	64	7	57
R 5-08-14d	1	64	6	59
R 5-08-15b	1	65	8	57
R 5-08-15c	1	66	8	58
R 5-08-15d	1	67	6	61
R 5-08-16b	1	66	9	58
R 5-08-16c	1	67	8	59
R 5-08-16d	1	68	5	63
R 5-09-11	0.27	66	7	59
R 5-09-12	4	64	5	60
R 5-09-17	3	66	7	60

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-09-18	3	62	6	56

Bold	Critical Sensitive Receptors
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	Receptor Impacted
##	Receptor Benefited by Barrier (5 dBA or more)

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-02/Opt 36'**
Number of Impacted, Benefited Residences	10.27
Number of Non-Impacted, Benefited Residences	18
Total Number of Benefited Locations	28.27
Barrier Length (feet)	1,147
Average Barrier Height (feet)	36
Area (feet^2)	41,301
SF per Benefited Residence	1,461
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.12 Area 14: I-270 mainline, between Shady Grove Road and I-370

A. Barrier System 270-1 (NSA 5-07 and 5-06)

With the goal of providing at least a 7 dB(A) insertion loss at the critical sensitive receptors in NSAs 5-06 and 5-07, a variable height noise barrier with an average height of 18 feet and length of approximately 3,344 feet was evaluated. The new barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier system also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 1.35 impacted, benefited residences and 3.47 non-impacted, benefited residences for a total of 4.82 benefited residences. The SF per benefited residence is 12,787, which is more than the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is not considered to meet the cost effectiveness criterion.

The 2045 Build Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-31**. The barrier location and benefit locations are shown on Map No. 16. Barrier System 270-1 ***is considered feasible and is not considered reasonable*** for NSAs 5-07 and 5-06.

Table 4-31: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSAs 5-07 and 5-06

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction	2045 Build Barrier Predicted Noise Level (Leq)
R 5-06-3	0.33	67	8	59
R 5-06-4	0.73	65	6	59
R 5-06-6	0.18	64	6	59
R 5-06-7	0.73	66	7	59
R 5-06-8	0.73	65	5	60
R 5-06-11	0.27	65	6	59
R 5-06-12	0.27	66	6	60
R 5-06-15a	0.15	66	6	60
R 5-06-15b	0.15	67	7	61
R 5-06-15c	0.15	68	6	62
R 5-06-15d	0.15	69	5	64
R 5-06-16a	0.15	67	7	60
R 5-06-16b	0.15	68	7	61
R 5-06-16c	0.15	69	6	62
R 5-06-16d	0.15	69	5	64
R 5-06-16h	0.15	71	2	68
R 5-07-1	0.09	74	10	64
R 5-07-2	0.09	70	8	62
R 5-07-3	0.20	76	6	70

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**Barrier 270-01/Opt 16-24'**
Number of Impacted, Benefited Residences	1.35
Number of Non-Impacted, Benefited Residences	3.47
Total Number of Benefited Locations	4.82
Barrier Length (feet)	3,344
Average Barrier Height (feet)	18
Area ($feet^2$)	61,632
SF per Benefited Residence	12,787
Feasible and Reasonable?	**No**

1. Only receptors impacted and/or benefited by the evaluated barrier are shown.

4.6.13 Area 15: I-270 mainline, north of I-370

A. Existing Barrier System for NSA 5-02

Although the existing barrier for NSA 5-02 would not be displaced by the current design, the entire barrier was evaluated against the current noise criteria. The existing barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 50 impacted, benefited residences and 0 non-impacted, benefited residences for a total of 50 benefited residences. The SF per benefited residence is 556, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Existing Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-32**. The barrier location and benefit locations are shown on Map No. 17. The existing barrier for NSA 5-02 ***is considered feasible and reasonable*** to remain for NSA 5-02.

Table 4-32: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-02

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-02-3	7	67	4	62
R 5-02-4	4	70	7	63
R 5-02-5	7	80	16	65
R 5-02-6	4	67	7	60
R 5-02-7	5	74	13	61
R 5-02-8	10	75	11	63
R 5-02-9	8	78	14	65
R 5-02-10	4	69	10	59
R 5-02-11	4	80	14	66
R 5-02-12	4	80	13	67
R 5-02-31	6	66	2	63
R 5-02-34	5	69	2	67

Bold	**Critical Sensitive Receptors**
(shaded)	**Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor**
## (red)	**Receptor Impacted**
## (blue)	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**NSA 5-02/Existing**
Number of Impacted, Benefited Residences	50
Number of Non-Impacted, Benefited Residences	0
Total Number of Benefited Locations	50
Barrier Length (feet)	1,461
Average Barrier Height (feet)	19
Area (feet^2)	27,780
SF per Benefited Residence	556
Feasible and Reasonable?	**Yes**
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.	

B. Existing Barrier System for NSA 5-01

Although the existing barrier for NSA 5-01 would not be displaced by the current design, noise impacts are predicted at receptors behind the existing noise barrier. Therefore, the existing noise barrier was evaluated to determine if the current noise criteria is met. The existing barrier system meets the feasibility criterion of providing at least 5 dB(A) noise reduction to 70% or more of the impacted residences. The barrier also meets the reasonableness criterion of providing a 7 dB(A) noise reduction to the majority of the impacted residences.

There are 213.17 impacted, benefited residences and 22 non-impacted, benefited residences for a total of 235.17 benefited residences. The SF per benefited residence is 227, which is below the 2,700 SF-p-r threshold for this barrier system (since sound levels are above 75 dB(A)); therefore, this noise barrier is considered to meet the cost effectiveness criterion.

The 2045 Existing Barrier predicted insertion losses, noise levels and benefits are shown in **Table 4-33**. The barrier location and benefit locations are shown on Map No. 17. The existing barrier for NSA 5-01 ***is considered feasible and reasonable*** to remain for NSA 5-01.

Table 4-33: 2045 Build Predicted Noise Levels, Barrier Benefits, and Barrier Design, NSA 5-01

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-01-4	5	68	5	63
R 5-01-5	6	69	6	63
R 5-01-6	6	68	5	62
R 5-01-7	5	69	6	63
R 5-01-8	3	67	5	62
R 5-01-9	4	69	6	63
R 5-01-10	4	67	6	62
R 5-01-11	3	68	5	63
R 5-01-12	2	67	5	63
R 5-01-13	3	66	4	63
R 5-01-14	4	66	3	63
R 5-01-25	0.55	69	6	63

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-01-26b	2	**69**	**6**	63
R 5-01-26c	2	**71**	**6**	65
R 5-01-30b	2	65	**7**	58
R 5-01-30c	2	**67**	**7**	60
R 5-01-30d	2	**70**	4	66
R 5-01-31d	2	**67**	3	64
R 5-01-32c	2	62	**5**	57
R 5-01-32d	2	65	**7**	58
R 5-01-34b	2	**69**	**6**	64
R 5-01-34c	2	**73**	**7**	66
R 5-01-34d	2	**74**	**6**	68
R 5-01-35b	2	**67**	4	63
R 5-01-35c	2	**70**	**5**	65
R 5-01-35d	2	**71**	**5**	66
R 5-01-36a	2	**71**	**9**	62
R 5-01-36b	2	**76**	**12**	64
R 5-01-36c	2	**77**	**9**	69
R 5-01-36d	2	**78**	3	75
R 5-01-37a	2	64	**5**	59
R 5-01-37b	2	70	**10**	60
R 5-01-37c	2	**73**	**11**	62
R 5-01-37d	2	**74**	**8**	66
R 5-01-38c	2	**67**	**5**	62
R 5-01-40	0.33	**75**	**11**	64
R 5-01-41b	2	**66**	**8**	58
R 5-01-41c	2	**69**	**10**	59
R 5-01-41d	2	**71**	**10**	61
R 5-01-42c	2	63	**6**	57
R 5-01-42d	2	65	**7**	58
R 5-01-43a	2	**66**	**7**	59
R 5-01-43b	2	**71**	**11**	61
R 5-01-43c	2	**74**	**11**	63
R 5-01-43d	2	**74**	**5**	70
R 5-01-44b	2	**66**	**8**	58
R 5-01-44c	2	**68**	**9**	59
R 5-01-44d	2	**70**	**9**	61
R 5-01-45a	2	**67**	**7**	60
R 5-01-45b	2	**72**	**11**	61
R 5-01-45c	2	**74**	**10**	64
R 5-01-45d	2	**75**	4	71
R 5-01-46a	2	62	**5**	58
R 5-01-46b	2	**67**	**8**	58

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-01-46c	2	69	9	59
R 5-01-46d	2	70	8	62
R 5-01-47a	2	71	10	61
R 5-01-47b	2	75	12	63
R 5-01-47c	2	76	9	68
R 5-01-47d	2	77	3	74
R 5-01-48a	2	64	6	59
R 5-01-48b	2	70	10	60
R 5-01-48c	2	72	10	62
R 5-01-48d	2	73	7	66
R 5-01-49	0.29	75	11	64
R 5-01-50a	2	67	8	60
R 5-01-50b	2	74	13	61
R 5-01-50c	2	76	11	65
R 5-01-50d	2	77	3	74
R 5-01-51b	2	66	8	59
R 5-01-51c	2	70	10	60
R 5-01-51d	2	72	9	64
R 5-01-52a	2	71	12	59
R 5-01-52b	2	74	14	60
R 5-01-52c	2	74	10	64
R 5-01-52d	2	75	2	72
R 5-01-53a	2	63	5	58
R 5-01-53b	2	67	9	58
R 5-01-53c	2	68	9	59
R 5-01-53d	2	70	6	64
R 5-01-65	5	69	5	63
R 5-01-66	5	67	5	62
R 5-01-67a	2	66	6	61
R 5-01-67b	2	80	19	61
R 5-01-67c	2	81	14	67
R 5-01-67d	2	81	3	78
R 5-01-68a	2	68	6	61
R 5-01-68b	2	81	19	62
R 5-01-68c	2	81	14	67
R 5-01-68d	2	81	1	80
R 5-01-69b	2	69	10	59
R 5-01-69c	2	70	10	60
R 5-01-69d	2	71	7	65
R 5-01-70c	2	65	7	59
R 5-01-70d	2	68	7	60
R 5-01-71a	2	68	8	60

Receptor Number	Equivalent Residences[1]	2045 Predicted Noise Level (Leq)	2045 Build Barrier Noise Reduction (dB(A))	2045 Build Barrier Predicted Noise Level (Leq)
R 5-01-71b	2	75	15	61
R 5-01-71c	2	76	12	65
R 5-01-71d	2	77	2	74
R 5-01-72a	2	63	5	58
R 5-01-72b	2	68	10	58
R 5-01-72c	2	70	11	59
R 5-01-72d	2	71	9	62
R 5-01-73a	2	75	13	63
R 5-01-73b	2	77	12	65
R 5-01-73c	2	77	4	73
R 5-01-73d	2	77	1	76
R 5-01-74a	2	70	10	60
R 5-01-74b	2	72	11	61
R 5-01-74c	2	73	8	65
R 5-01-74d	2	74	4	70
R 5-01-75a	2	70	9	61
R 5-01-75b	2	72	9	63
R 5-01-75c	2	73	8	65
R 5-01-75d	2	74	4	69
R 5-01-76a	2	70	8	62
R 5-01-76b	2	71	8	63
R 5-01-76c	2	72	7	66
R 5-01-76d	2	73	4	70
R 5-01-77a	2	76	12	64
R 5-01-77b	2	78	11	66
R 5-01-77c	2	78	6	73
R 5-01-77d	2	78	1	77
R 5-01-78a	2	76	12	65
R 5-01-78b	2	78	11	67
R 5-01-78c	2	79	5	73
R 5-01-78d	2	79	1	77

Bold	**Critical Sensitive Receptors**
	Effective Noise Reduction (7 dBA or more) at Critical Sensitive Receptor
##	**Receptor Impacted**
##	**Receptor Benefited by Barrier (5 dBA or more)**

Barrier Summary	
TNM Run / Barrier Run	**NSA 5-01 Existing**
Number of Impacted, Benefited Residences	213.17
Number of Non-Impacted, Benefited Residences	22
Total Number of Benefited Locations	235.17
Barrier Length (feet)	3,205
Average Barrier Height (feet)	17
Area ($feet^2$)	53,416
SF per Benefited Residence	227
Feasible and Reasonable?	**Yes**
1. Only receptors impacted and/or benefited by the evaluated barrier are shown.	

5 COORDINATION WITH LOCAL LAND USE PLANNING OFFICIALS AND CONSTRUCTION NOISE

5.1 Coordination with Local Land Use Planning Officials

The coordination with local land use planning officials discussion remains consistent with Section 5.1 of the Noise Technical Report prepared for the DEIS.

5.2 Construction Noise

The construction noise discussion remains consistent with Section 5.2 of the Noise Technical Report prepared for the DEIS.

6 PREFERRED ALTERNATIVE MAPPING

Refer to the following attachments:

- Land Uses and Receptors 2045 Build Scenario – Phase 1 South – January 2022.pdf
- Land Uses and Receptors - Phases 2 and 3 – January 2022.pdf

7 LIST OF PREPARERS / REVIEWERS

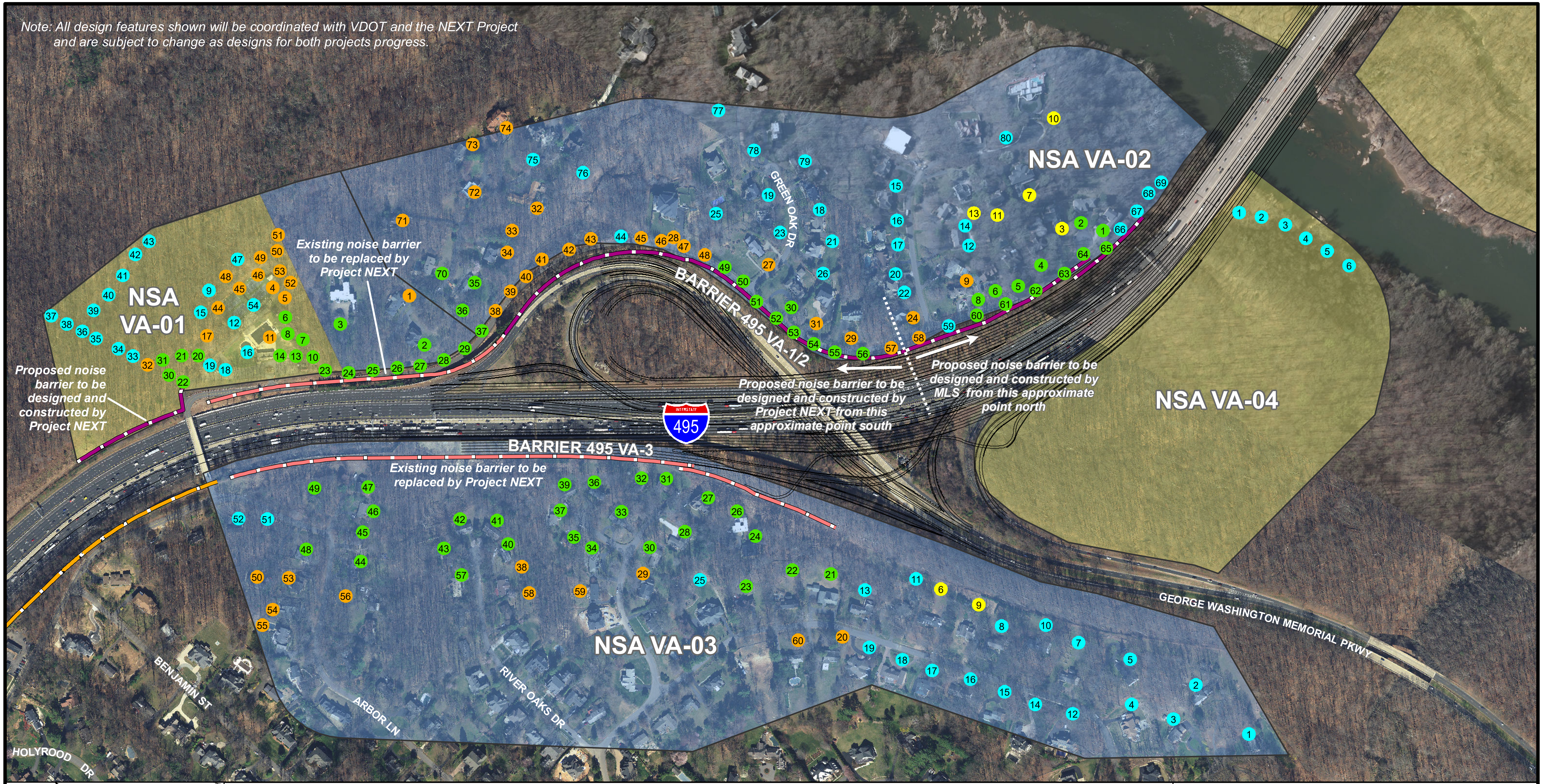
This Final Noise Analysis Technical Report was prepared and reviewed by FHWA and MDOT SHA with assistance from technical professionals. Key preparers and reviewers of this document are included below.

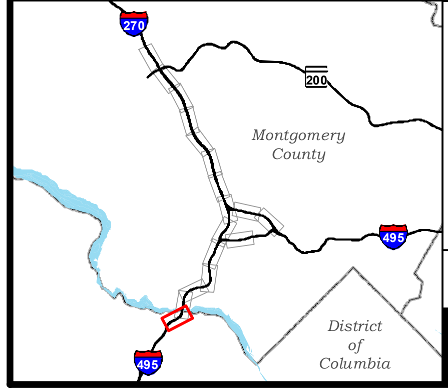
7.1 Preparers:

- Ken Bauer, PE, Whitman Requardt & Associates, LLP
- Kim Glinkin, AICP, Whitman Requardt & Associates, LLP
- William Minor, PE, Whitman Requardt & Associates, LLP
- Mark Reep, PE, Whitman Requardt & Associates, LLP
- Wendy Haubert, Whitman Requardt & Associates, LLP
- Dylan Houseal, ATCS
- Jaret Demcher, ATCS
- Jeffrey Lasko, ATCS
- Kevin Hughes, RK&K
- Matthew Monto, Wilson T. Ballard Company

7.2 Reviewers:

- Catherine Robbins, Blackwater Environmental Group
- Jack Cramer, ATCS





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Phase I South

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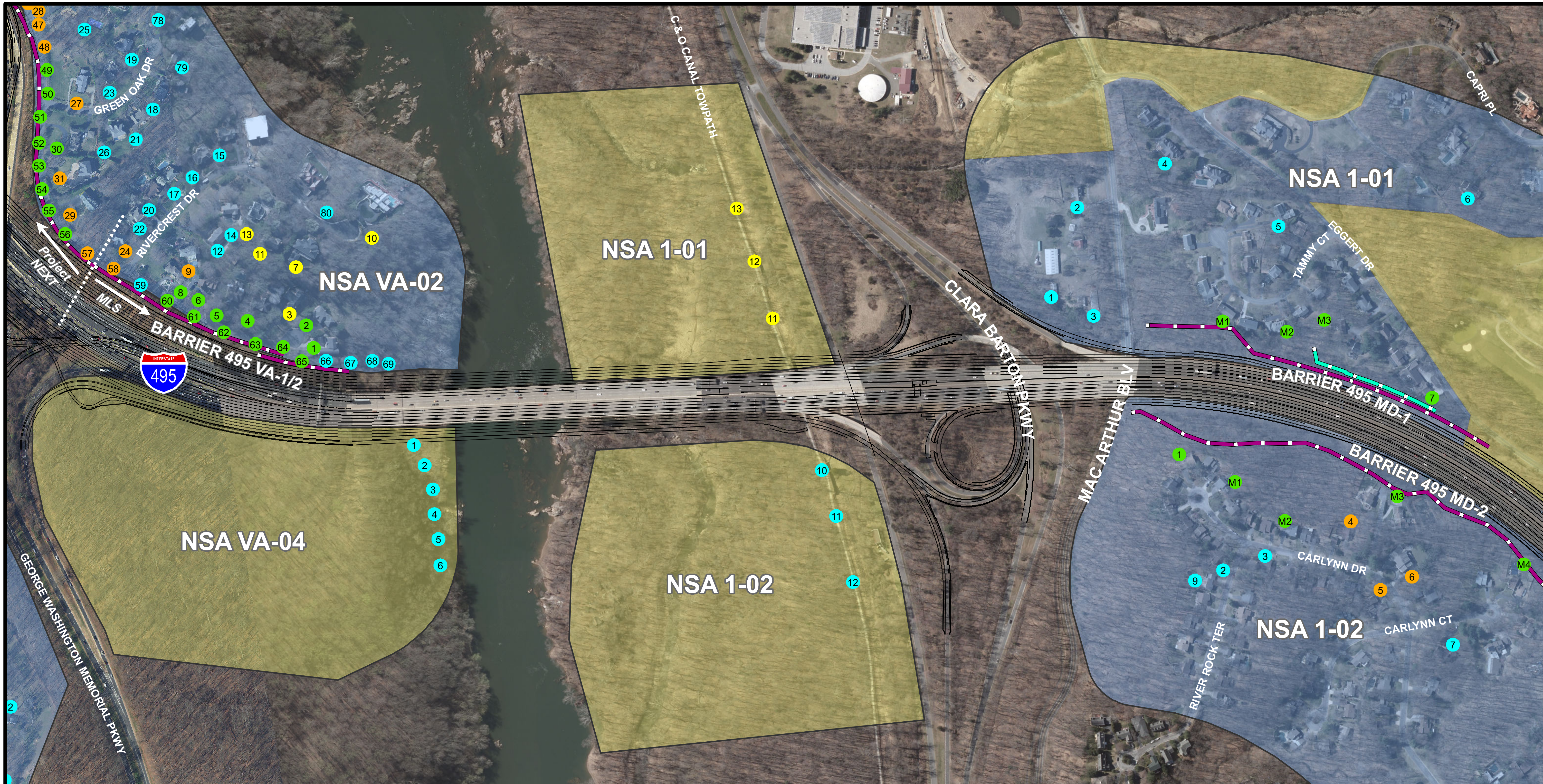

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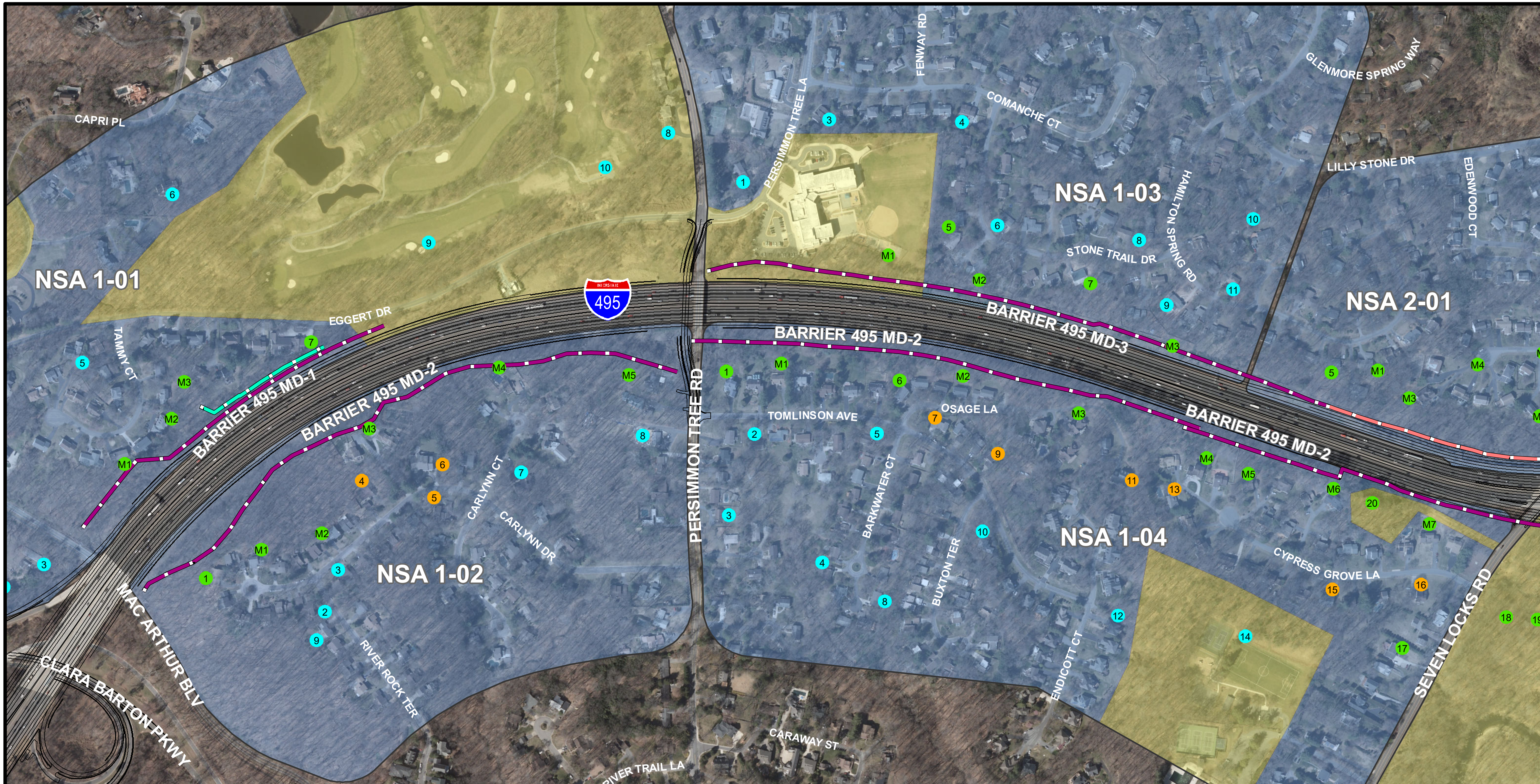

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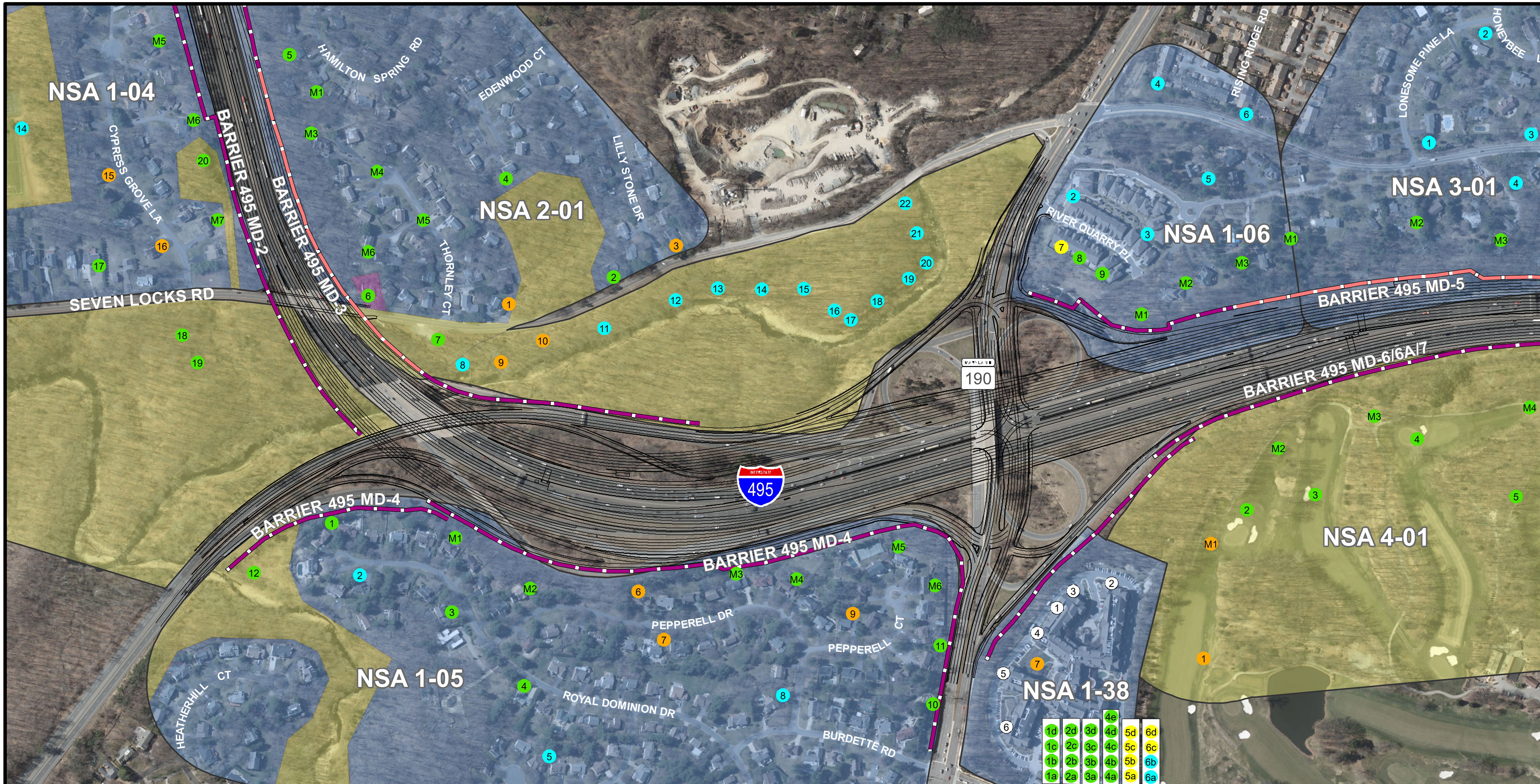

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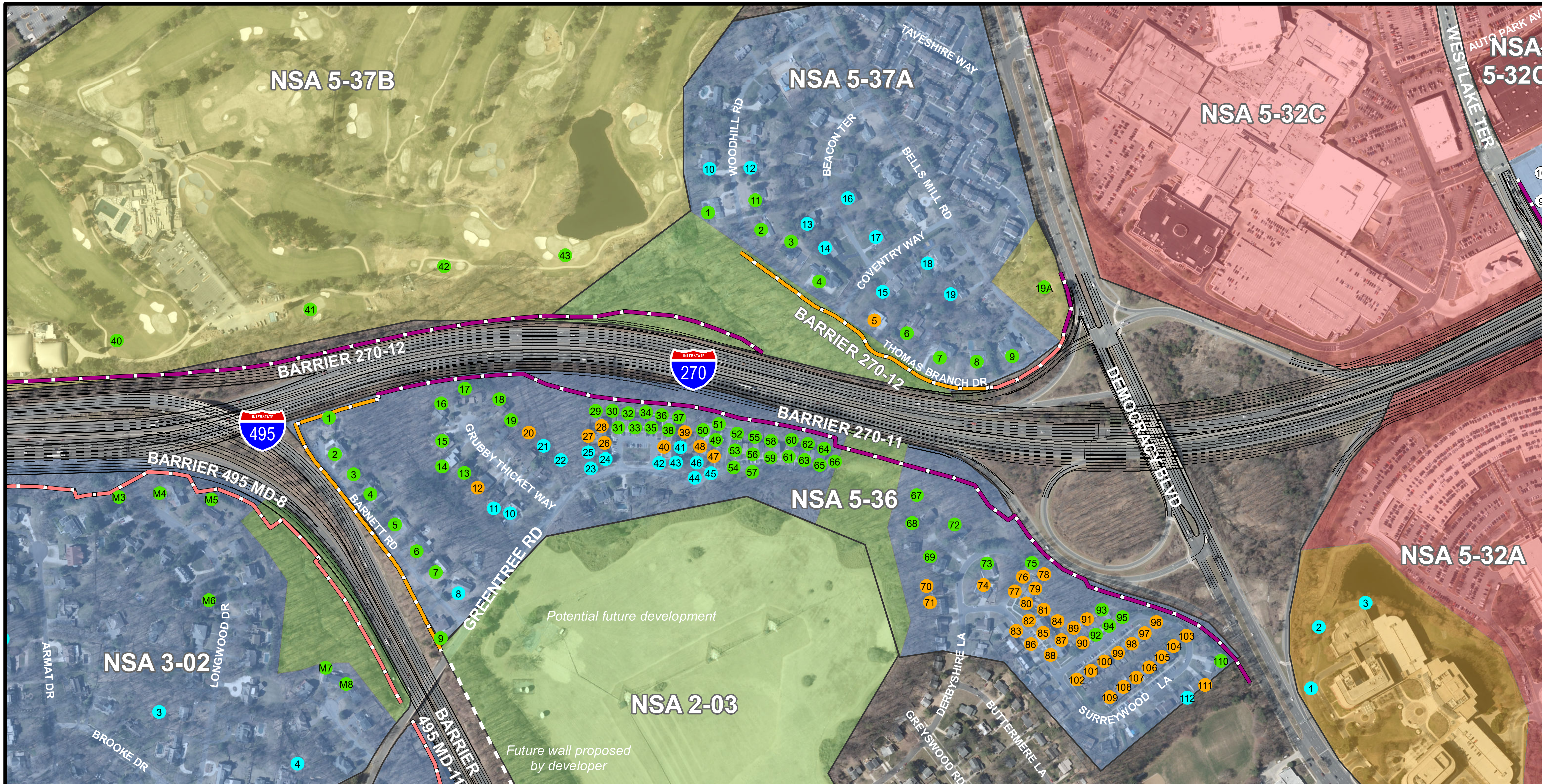

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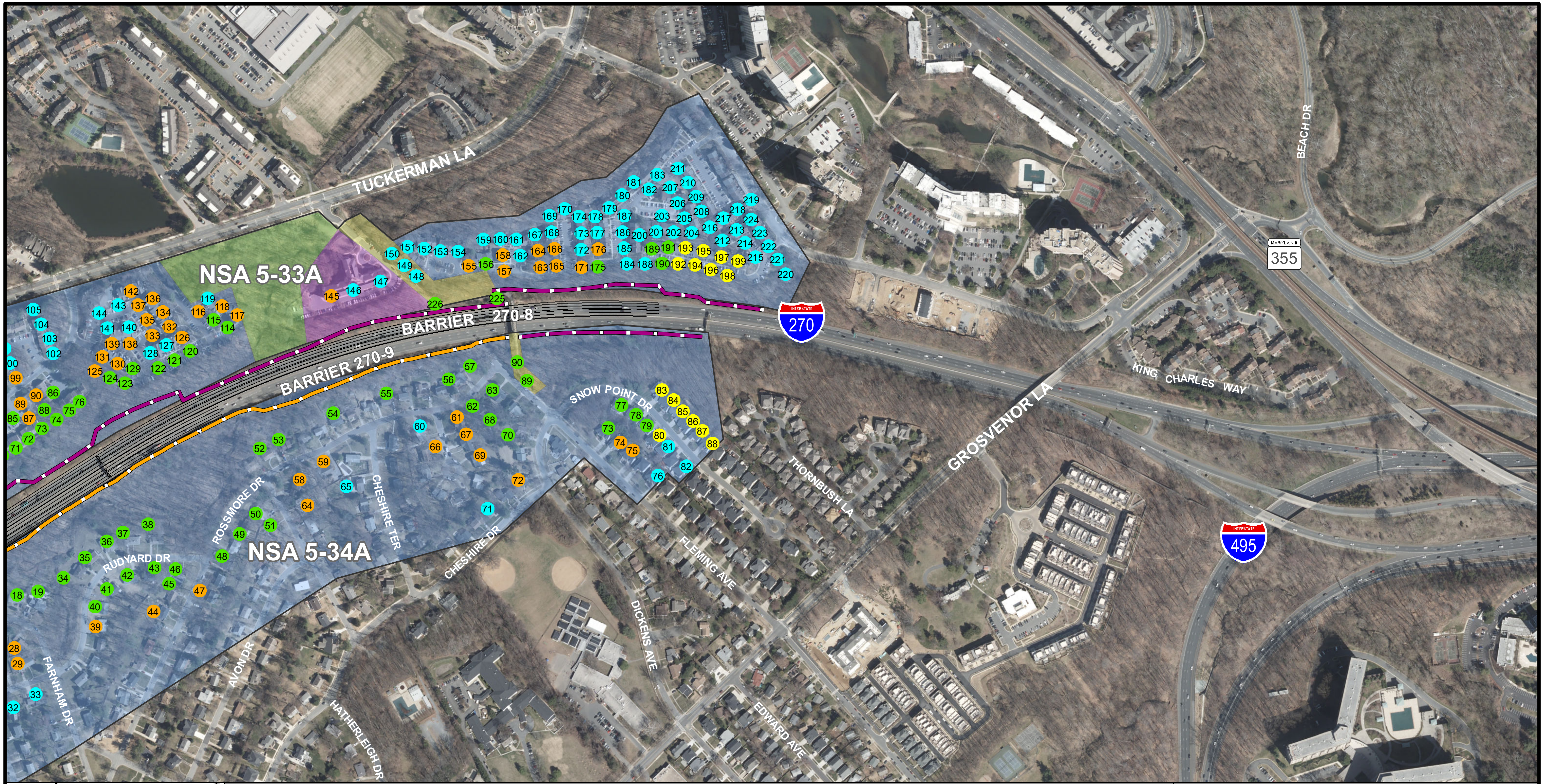

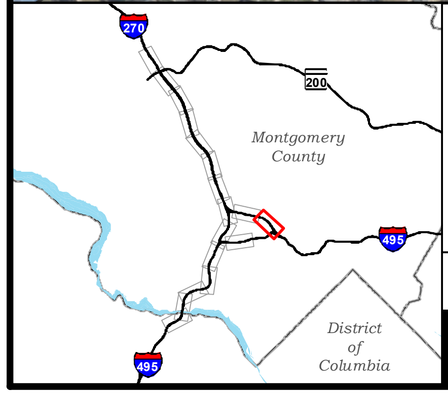

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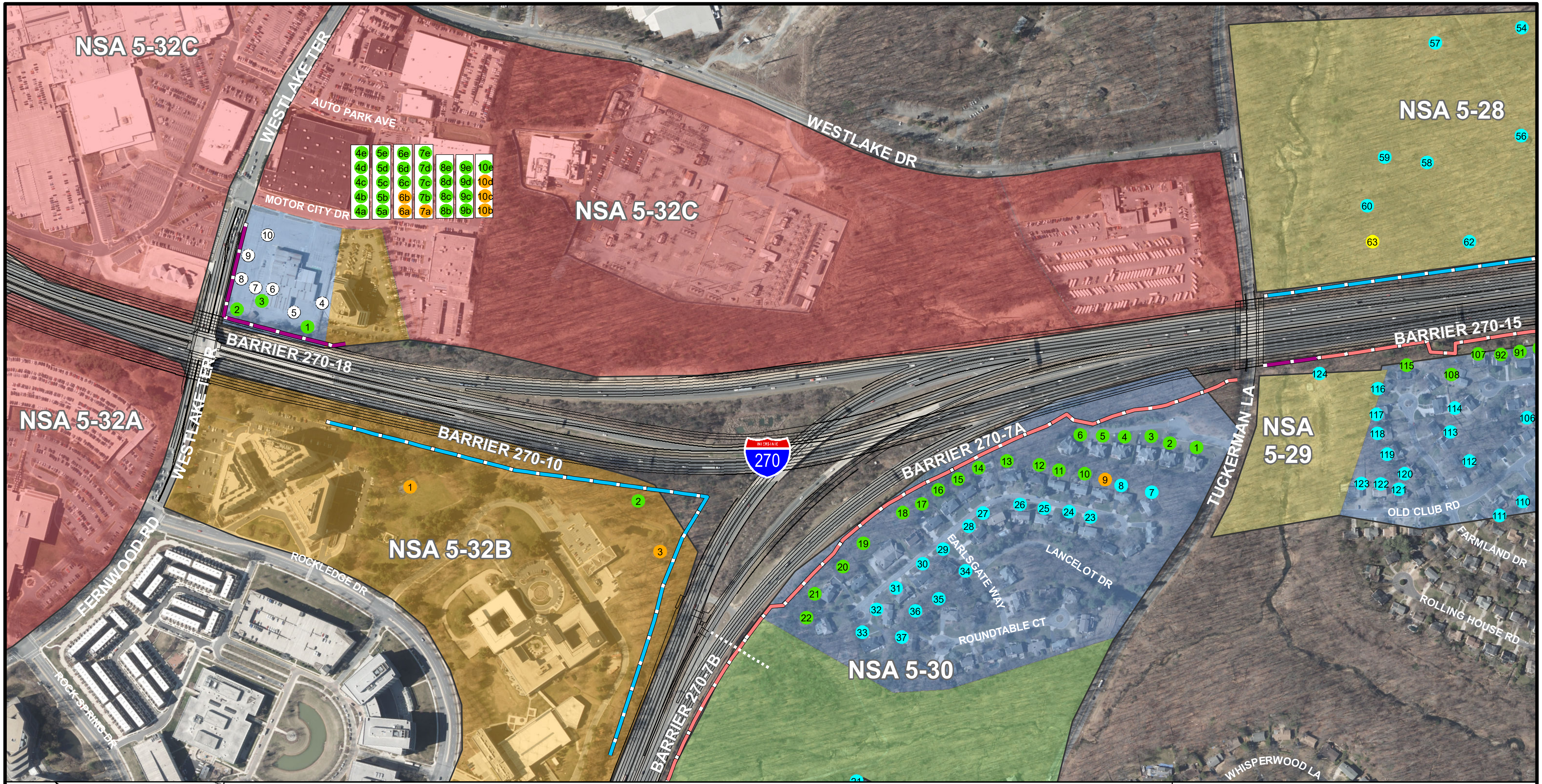

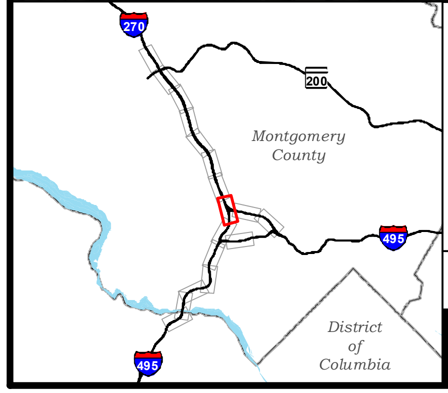

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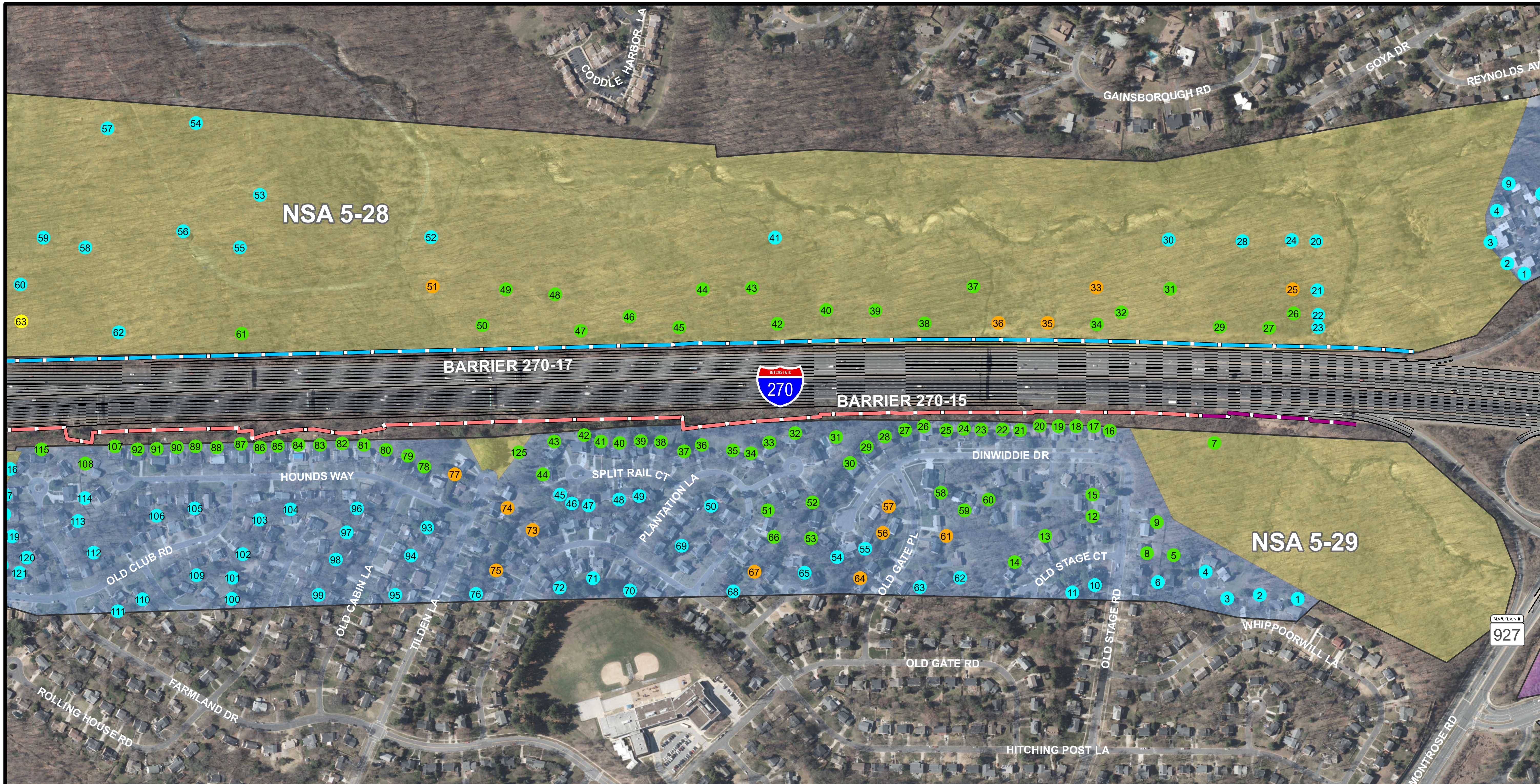

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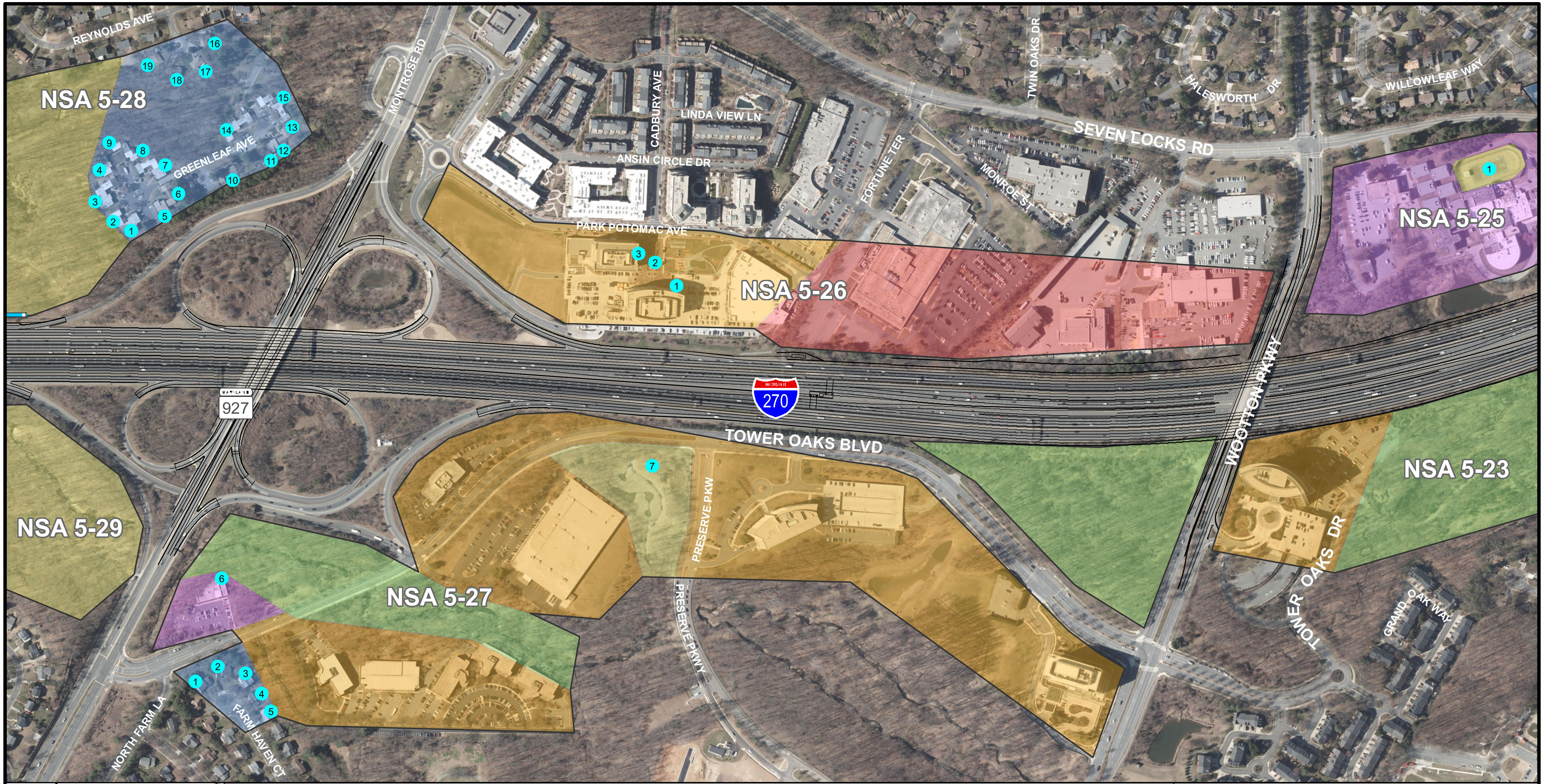

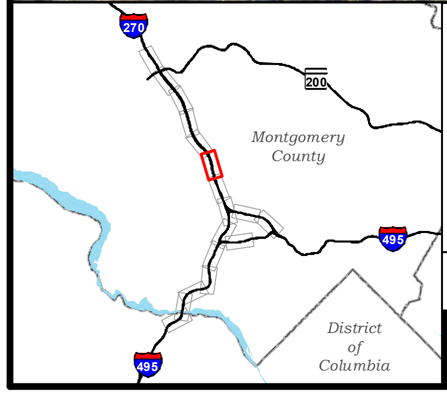

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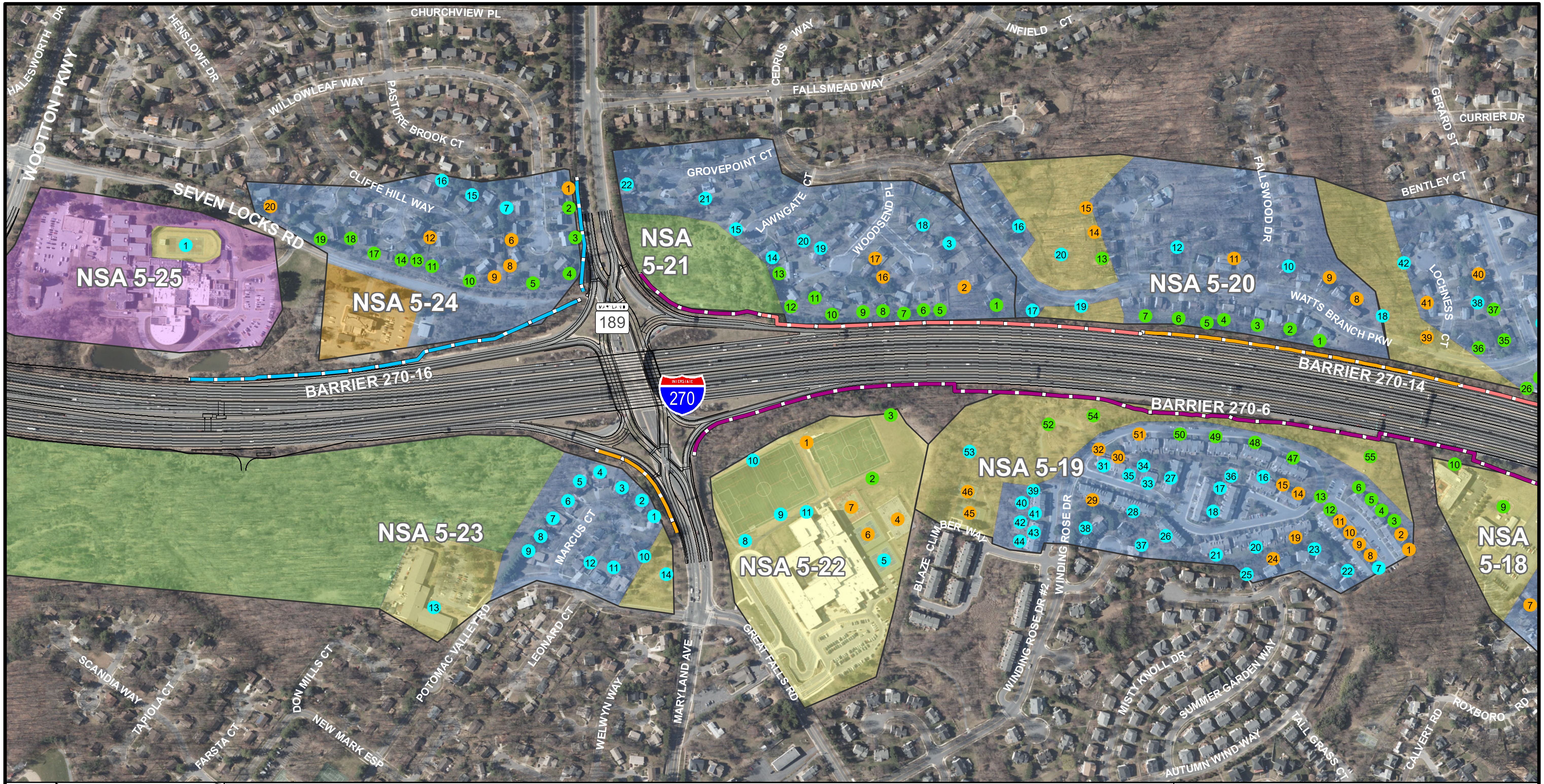

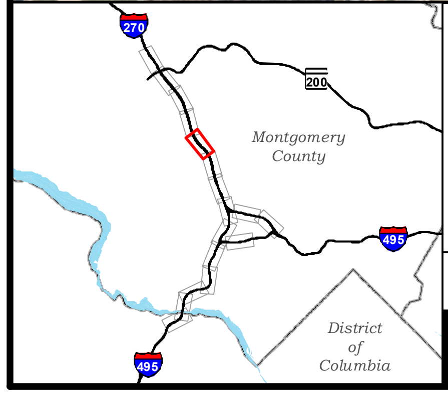

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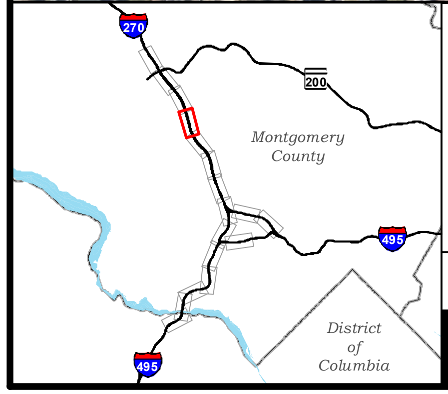

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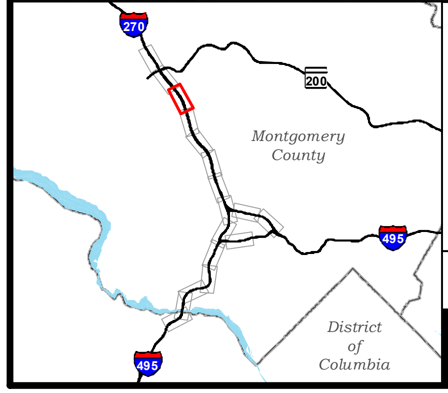

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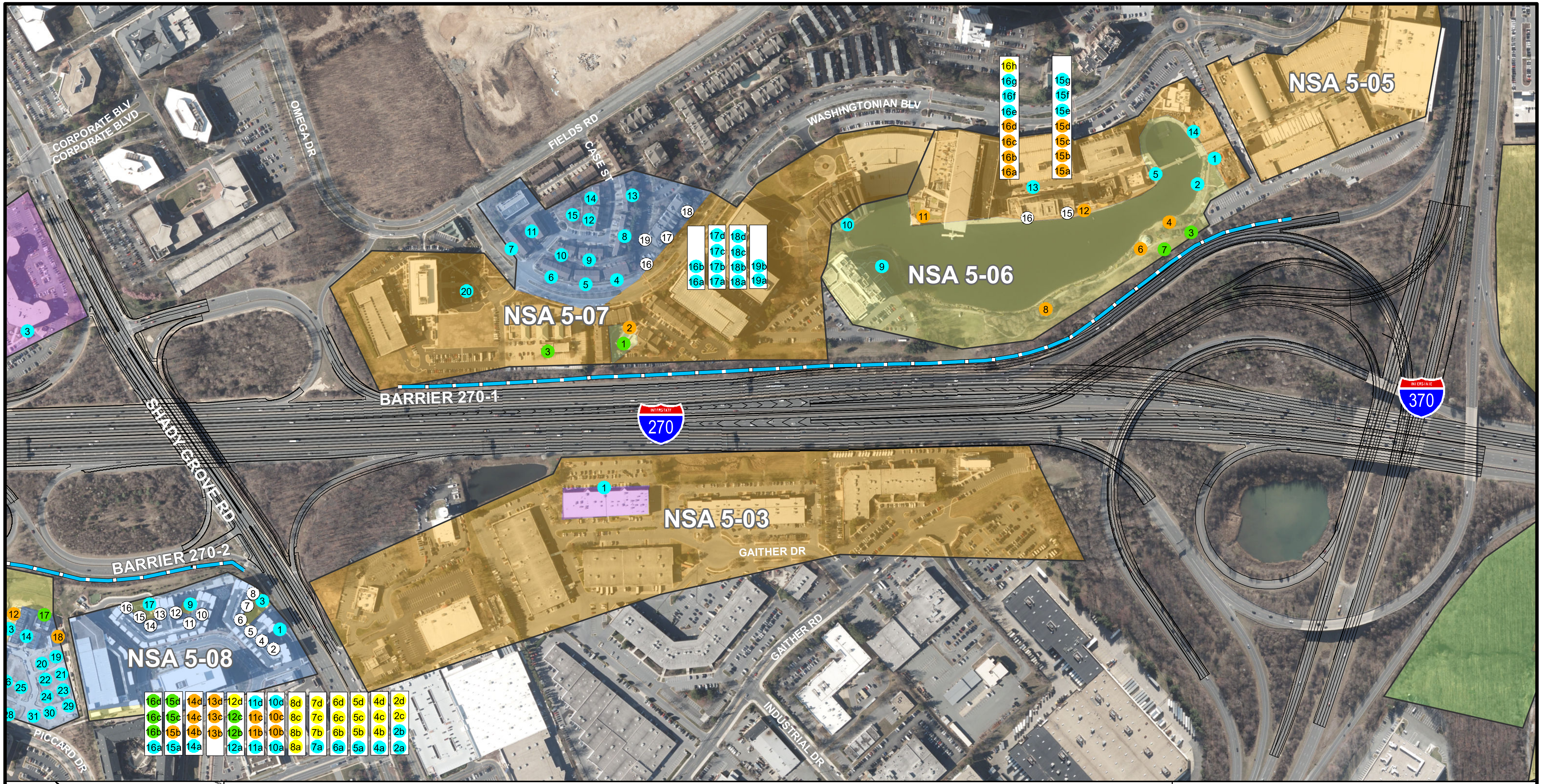

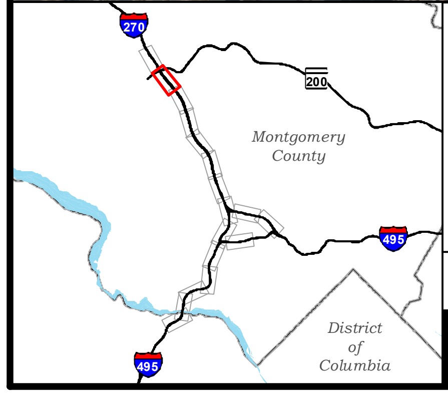

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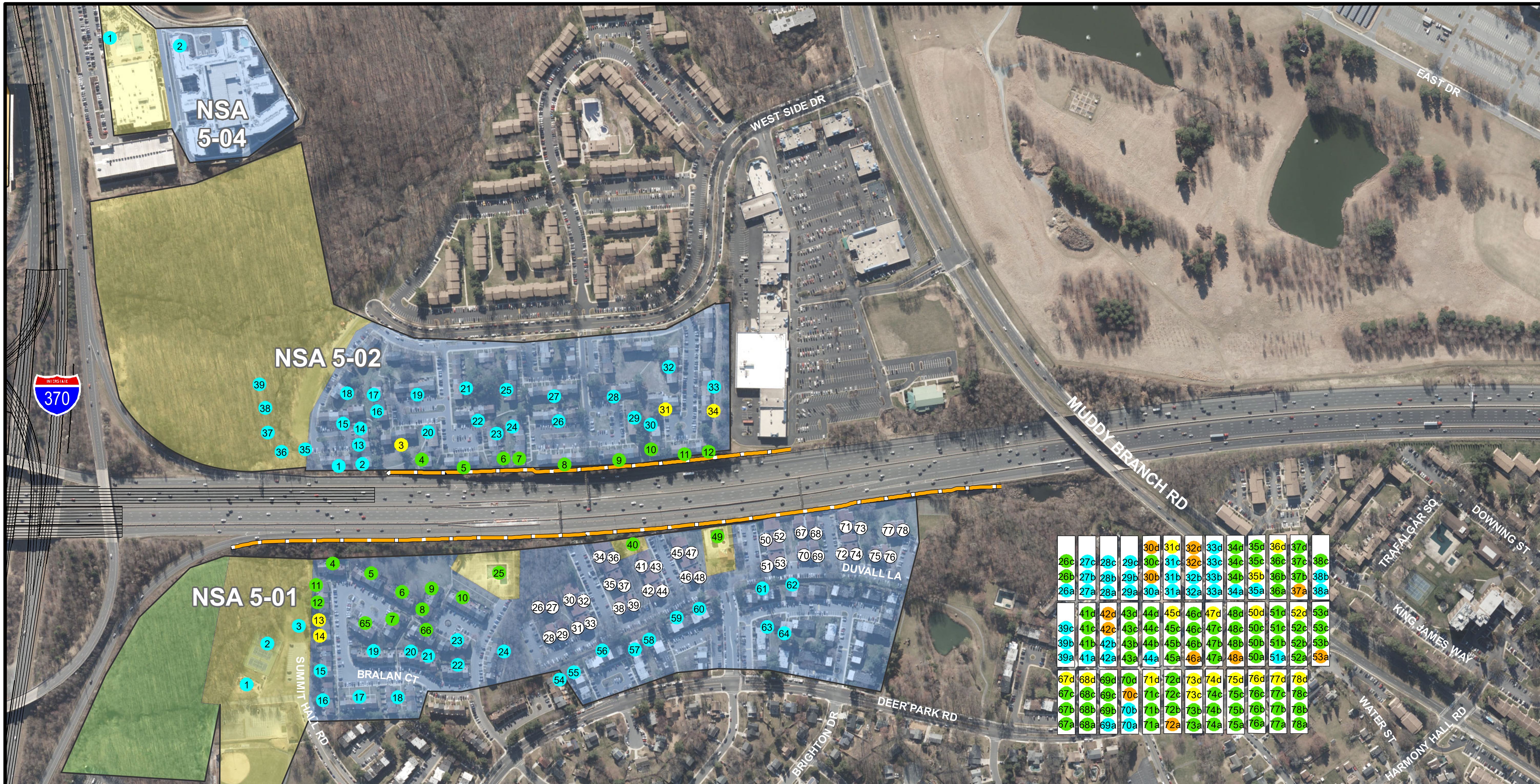

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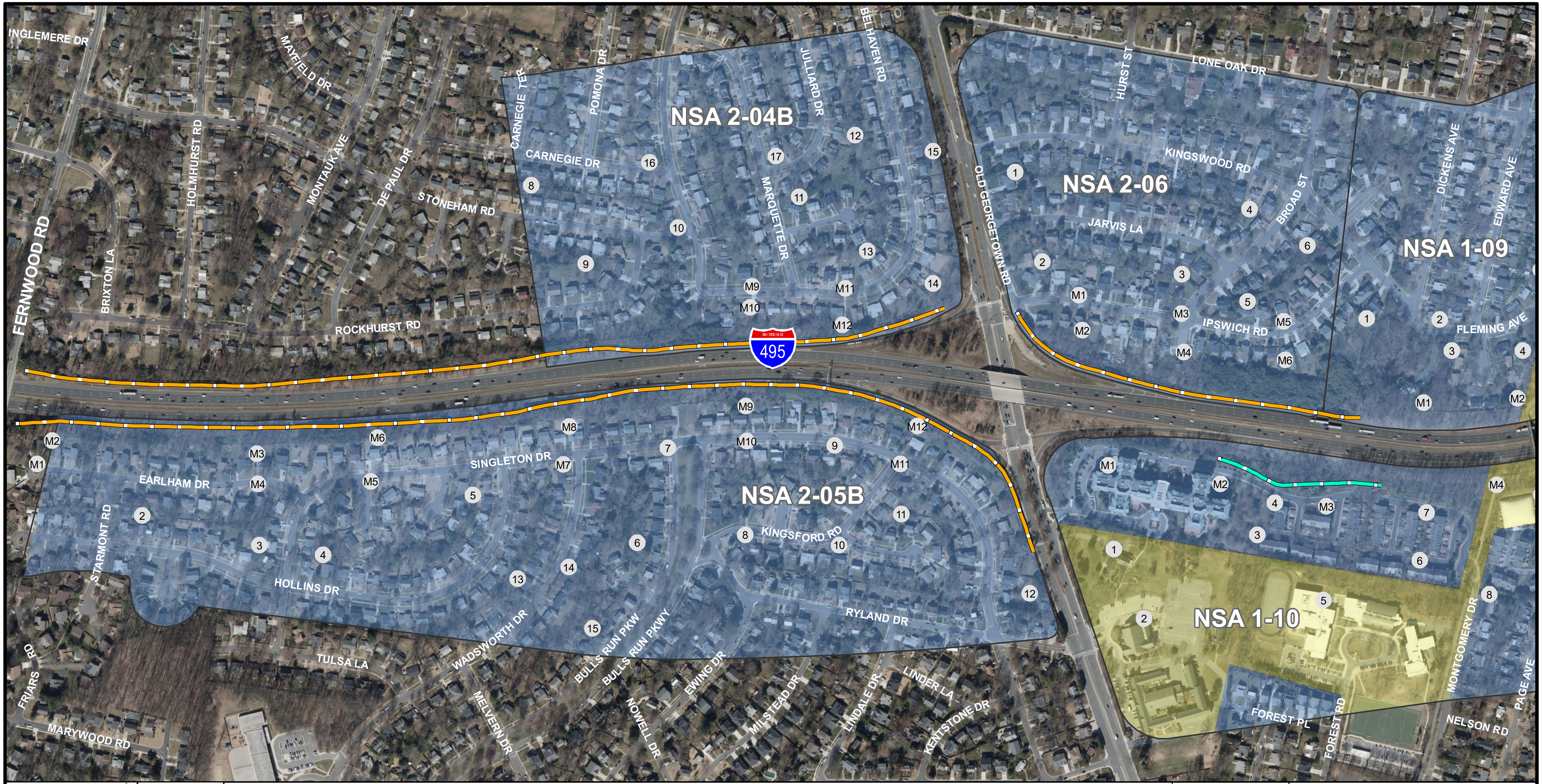

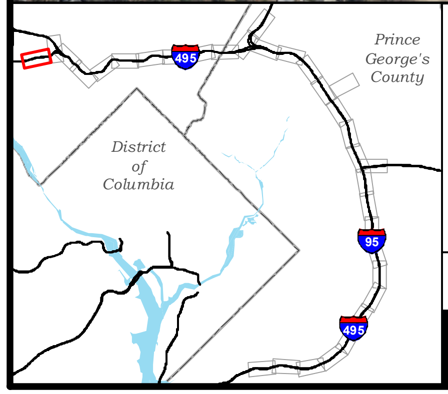

Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
- C: Noise Sensitive Area (EXTERIOR)
- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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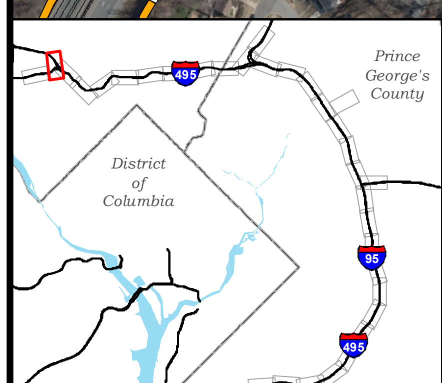

Modeled Receptor*

Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

D: Noise Sensitive Area (INTERIOR)

E: Noise Sensitive Area (EXTERIOR)

F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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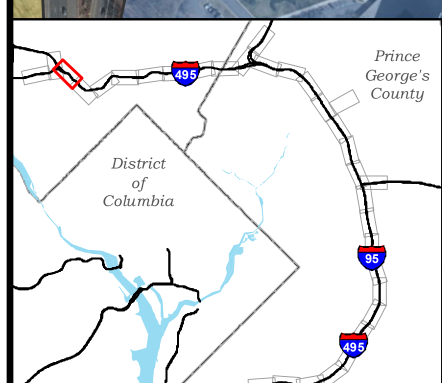

Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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E: Noise Sensitive Area (EXTERIOR)

F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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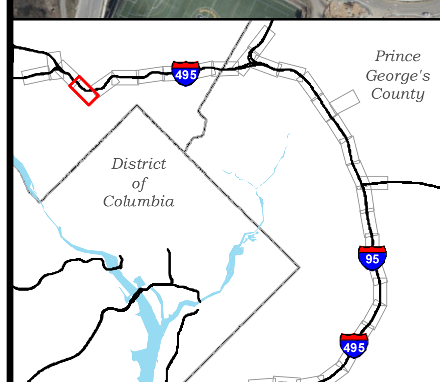

Modeled Receptor*

Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
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0 500 1,000 1,500 Feet

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Land Uses and Receptors

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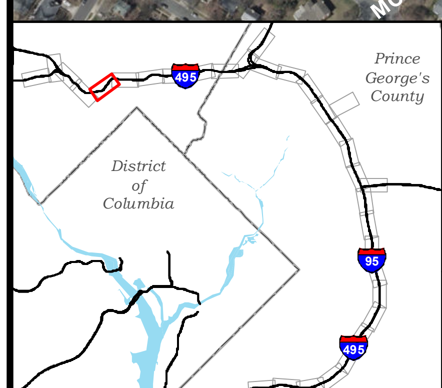

Modeled Receptor*

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Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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F: Non-Noise Sensitive Area

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0 500 1,000 1,500 Feet

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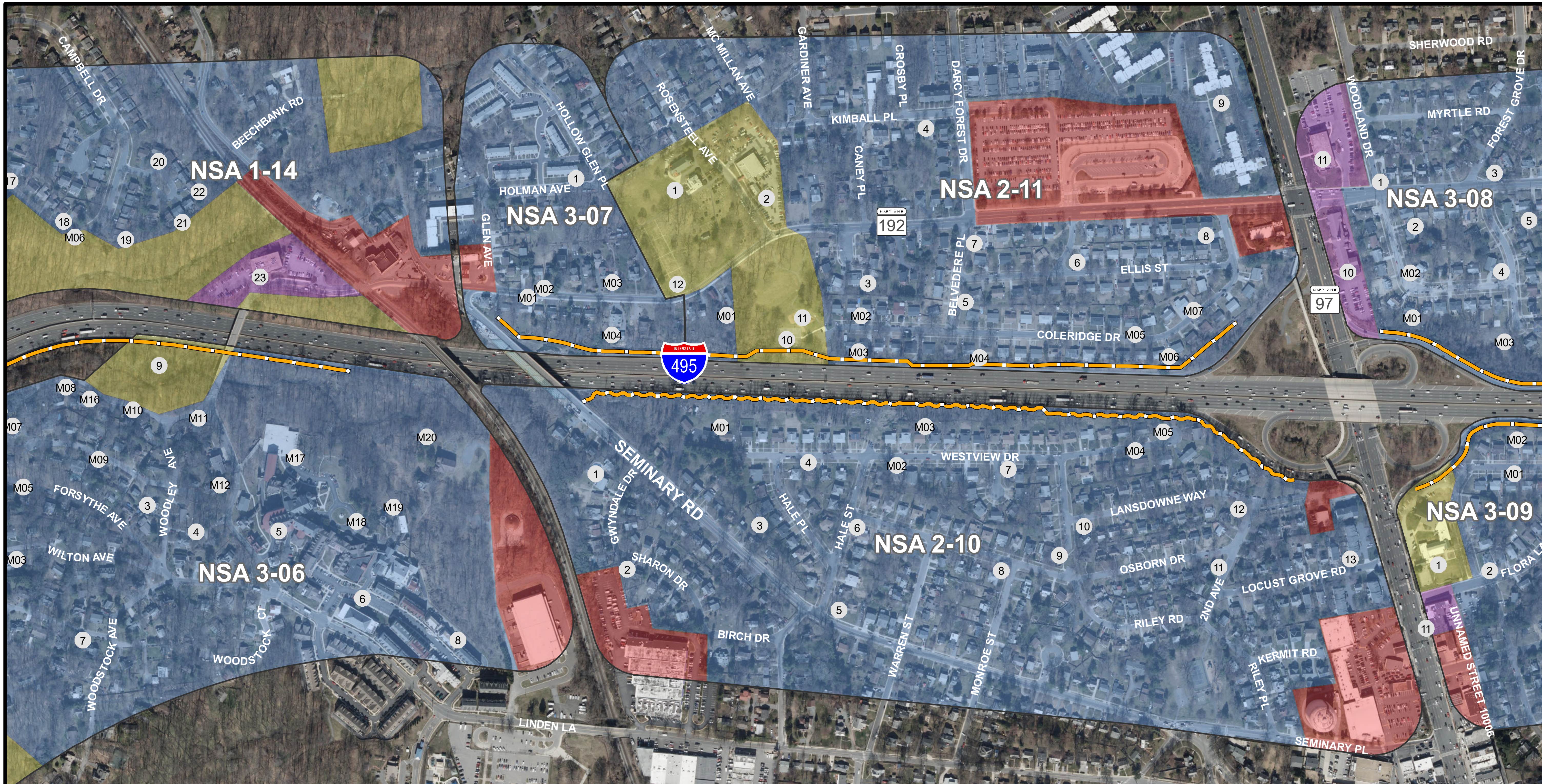
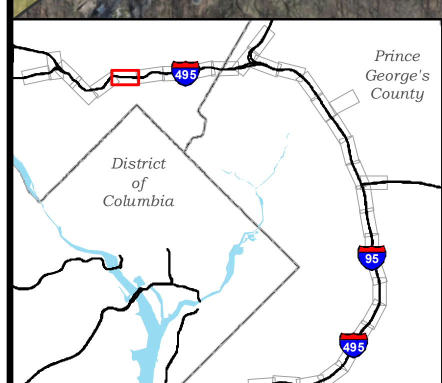
Land Uses and Receptors





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Existing Barrier

Private Barrier

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F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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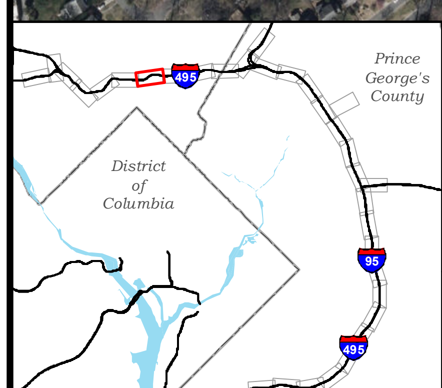

Modeled Receptor*
*Receptor is labeled with modeling result

Existing Barrier
Private Barrier

Land Use Activity Category
- B: Noise Sensitive Area (EXTERIOR)
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0 500 1,000 1,500 Feet

N

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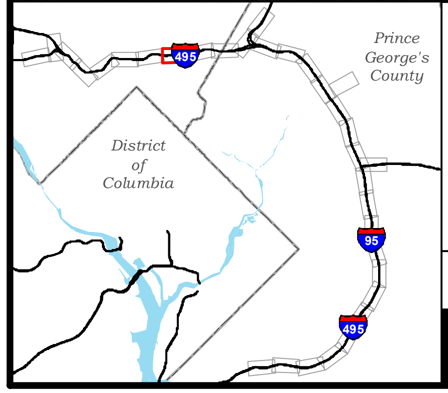
Land Uses and Receptors



Modeled Receptor*

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Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

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0 500 1,000 1,500 Feet

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Land Uses and Receptors

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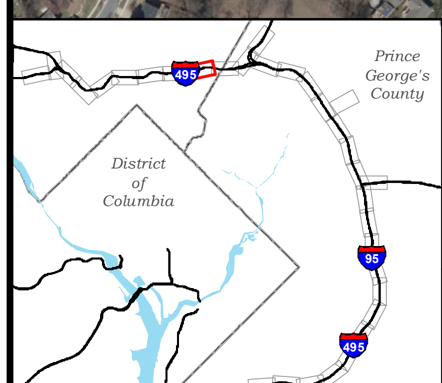

Modeled Receptor*

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Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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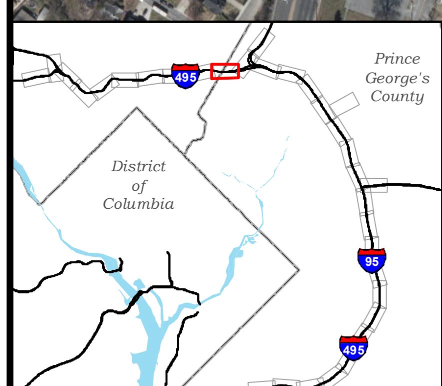

Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
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- E: Noise Sensitive Area (EXTERIOR)
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- G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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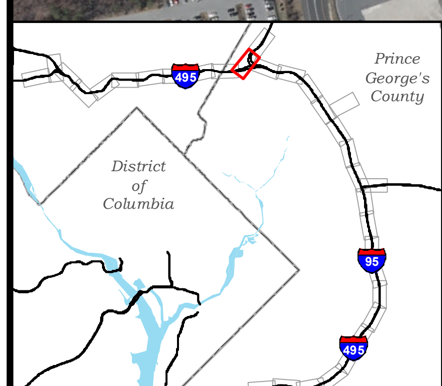

Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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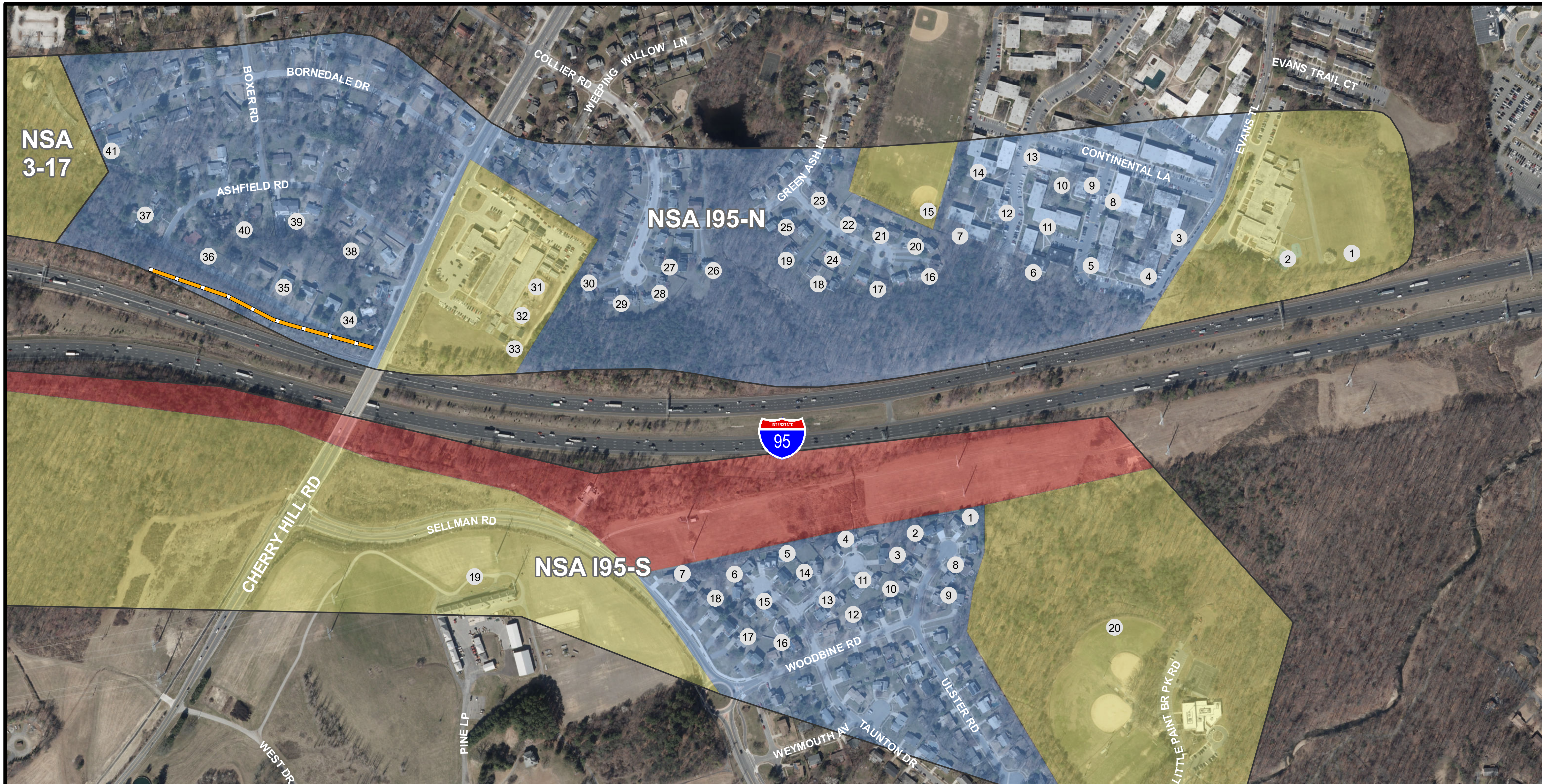

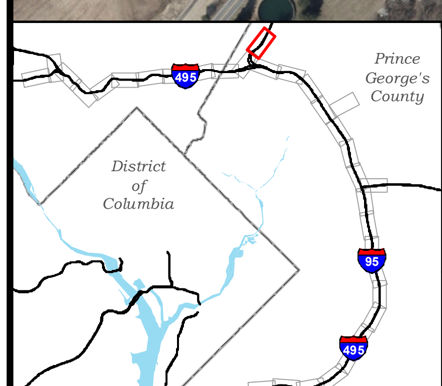

Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
- C: Noise Sensitive Area (EXTERIOR)
- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

Feet: 0, 500, 1,000, 1,500

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Land Uses and Receptors

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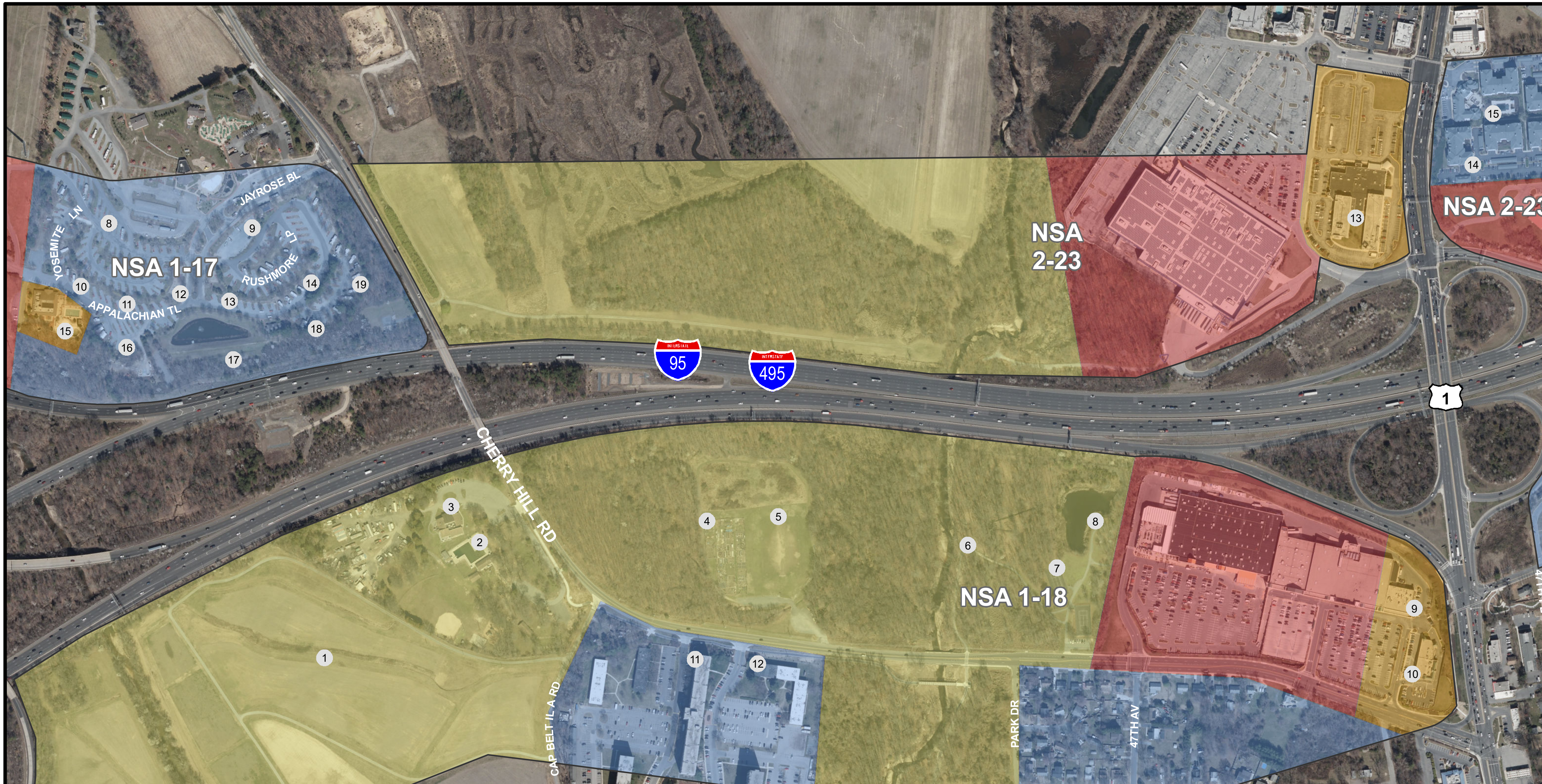

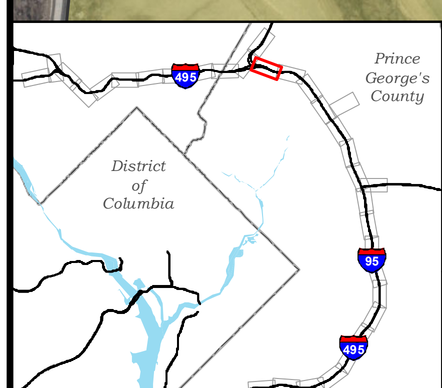

Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

D: Noise Sensitive Area (INTERIOR)

E: Noise Sensitive Area (EXTERIOR)

F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

Feet 0 500 1,000 1,500

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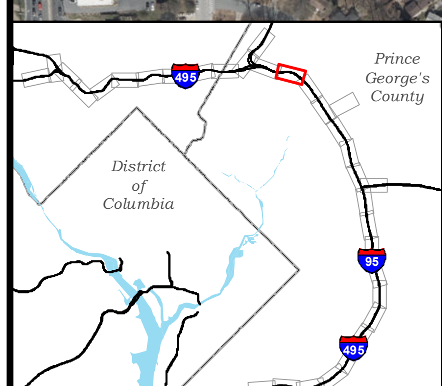
Land Uses and Receptors



Modeled Receptor*
*Receptor is labeled with modeling result

Existing Barrier
Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)
C: Noise Sensitive Area (EXTERIOR)
D: Noise Sensitive Area (INTERIOR)
E: Noise Sensitive Area (EXTERIOR)
F: Non-Noise Sensitive Area
G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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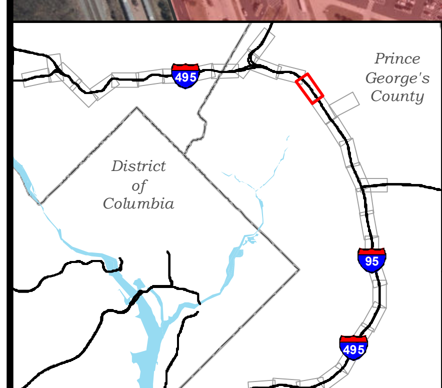

Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)	E: Noise Sensitive Area (EXTERIOR)
C: Noise Sensitive Area (EXTERIOR)	F: Non-Noise Sensitive Area
D: Noise Sensitive Area (INTERIOR)	G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

D: Noise Sensitive Area (INTERIOR)

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F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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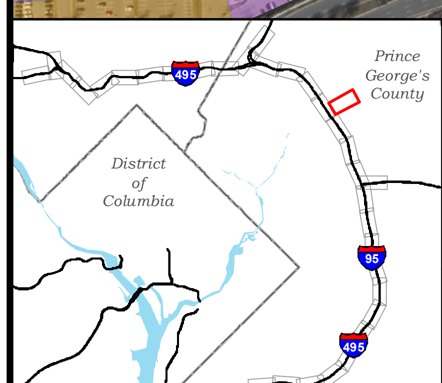
Land Uses and Receptors

April 2022



Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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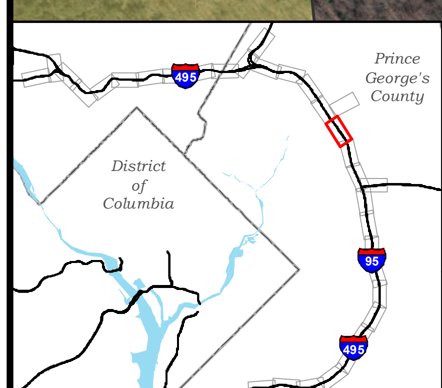
Land Uses and Receptors



Modeled Receptor*

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Existing Barrier

Private Barrier

Land Use Activity Category

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0 500 1,000 1,500 Feet

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Land Uses and Receptors

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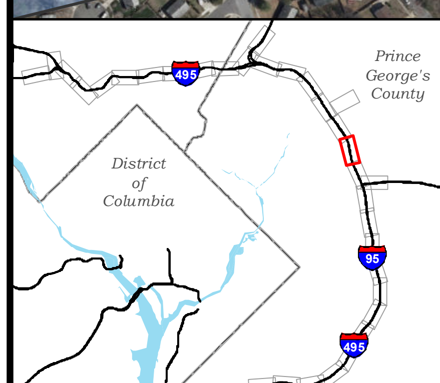

Modeled Receptor*

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Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

D: Noise Sensitive Area (INTERIOR)

E: Noise Sensitive Area (EXTERIOR)

F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

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Land Uses and Receptors

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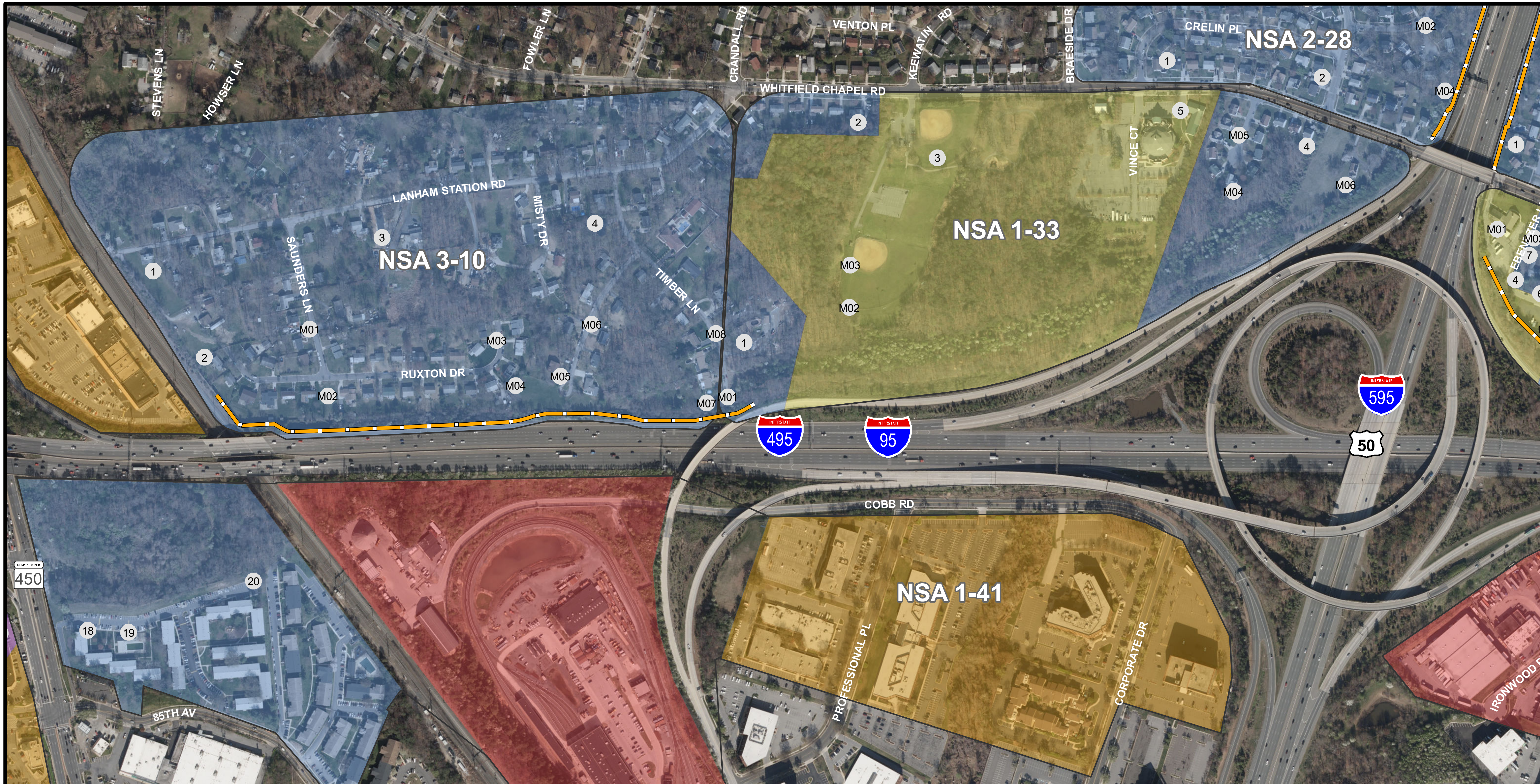

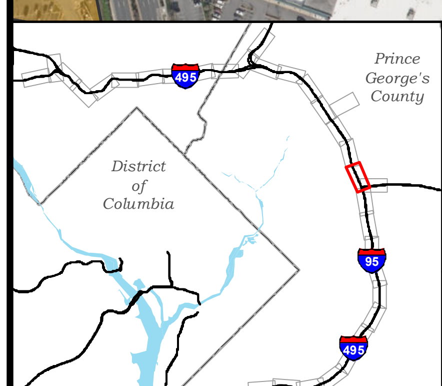

Modeled Receptor*
Receptor is labeled with modeling result

Existing Barrier
Private Barrier

Land Use Activity Category
- B: Noise Sensitive Area (EXTERIOR)
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- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

Feet: 0 500 1,000 1,500

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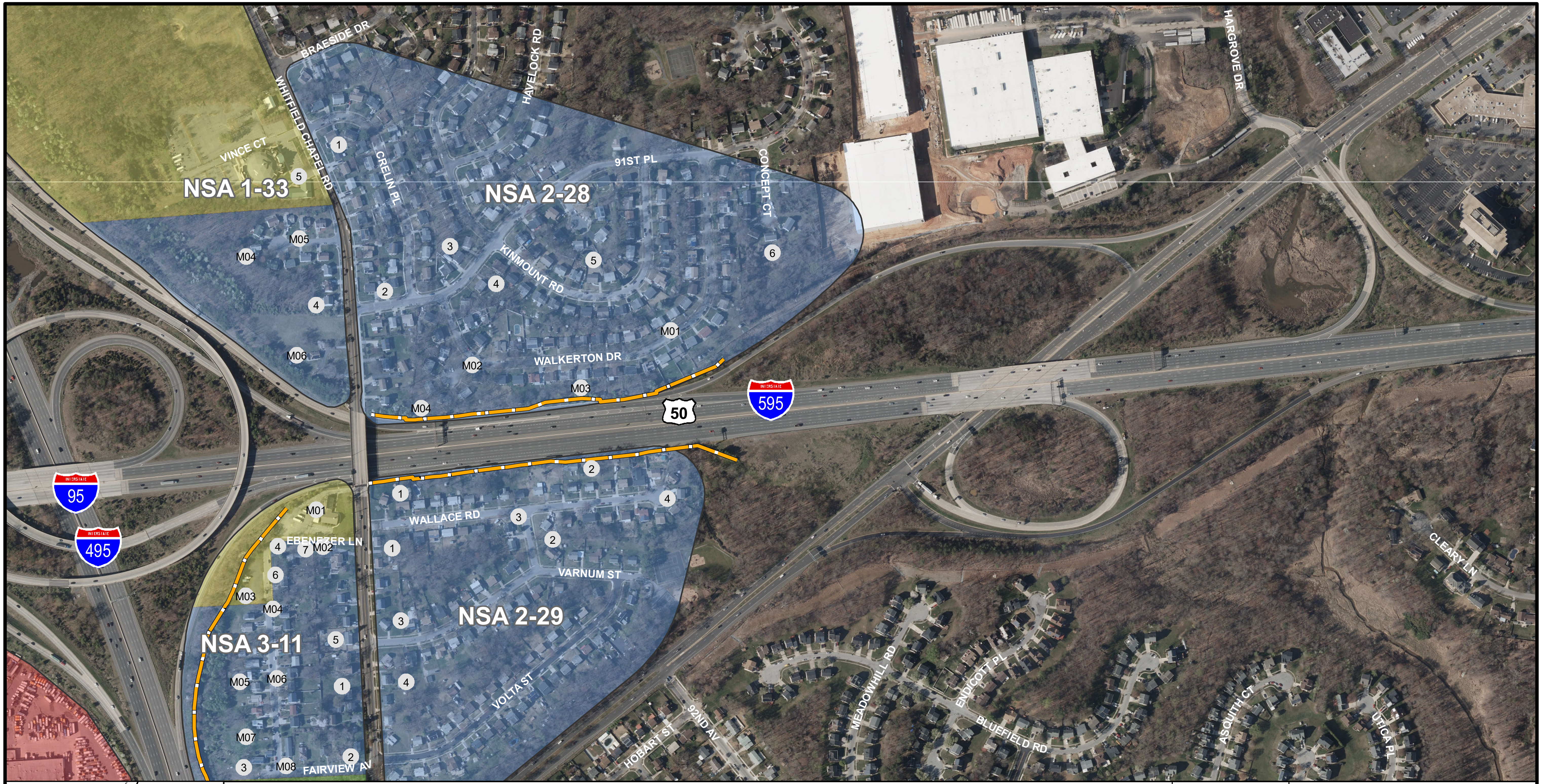
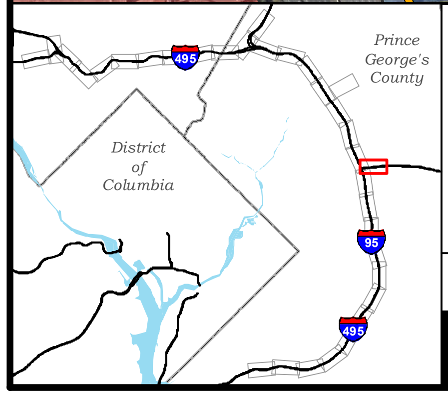
Land Uses and Receptors





Modeled Receptor*

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Existing Barrier

Private Barrier

Land Use Activity Category

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Feet: 0 | 500 | 1,000 | 1,500

N

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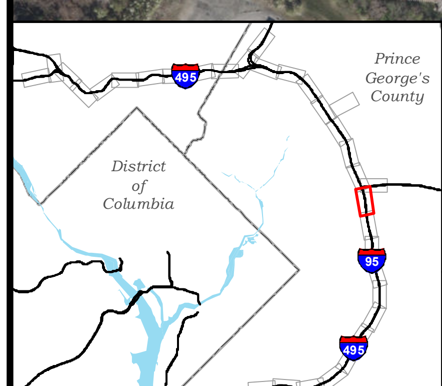
April 2022

Land Uses and Receptors



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Existing Barrier

Private Barrier

Land Use Activity Category

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0 500 1,000 1,500 Feet

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Land Uses and Receptors

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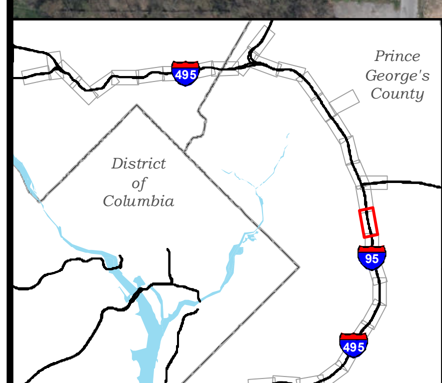

Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
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0 500 1,000 1,500 Feet

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Noise Abatement Design & Analysis Team

I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors

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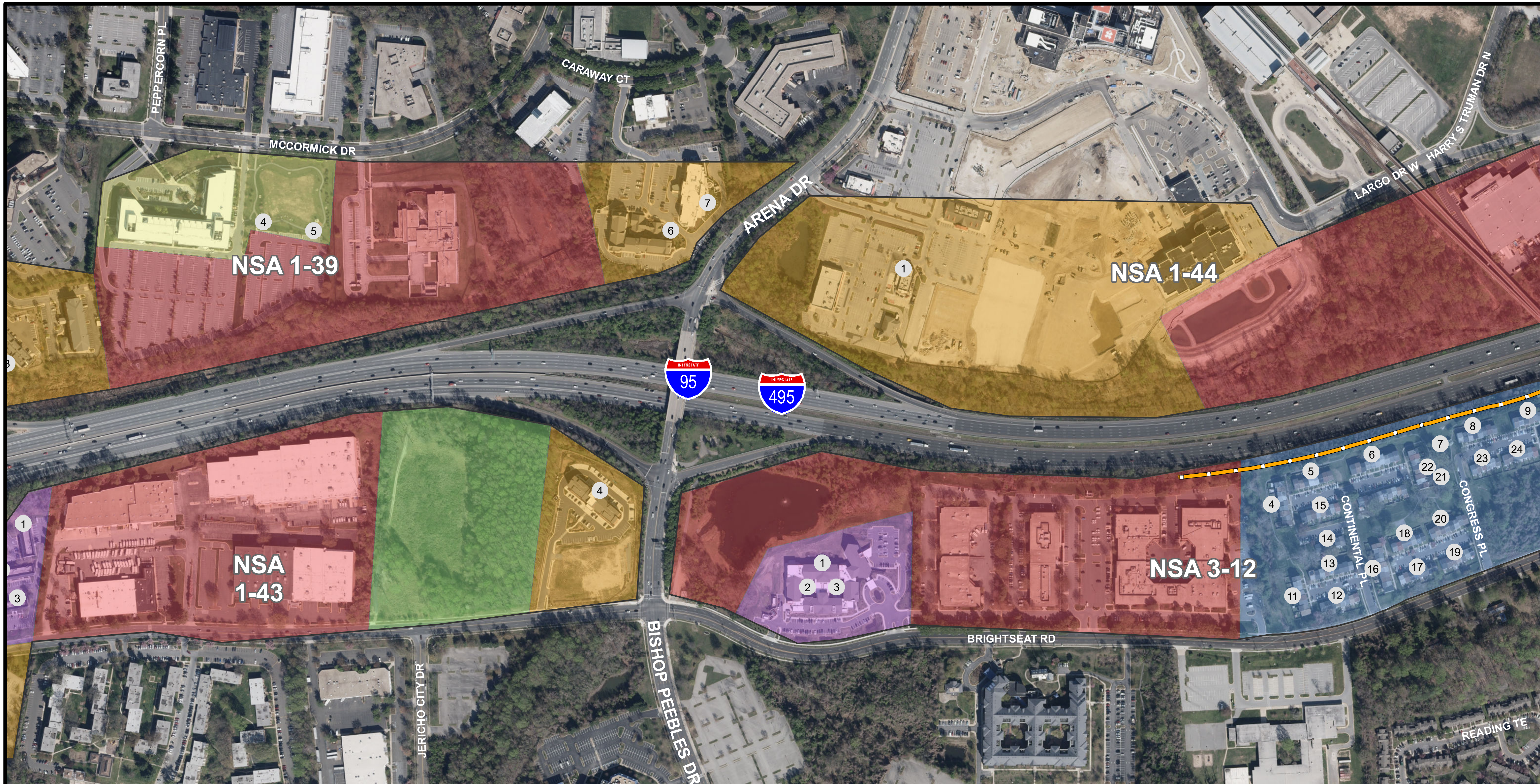


Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)	E: Noise Sensitive Area (EXTERIOR)
C: Noise Sensitive Area (EXTERIOR)	F: Non-Noise Sensitive Area
D: Noise Sensitive Area (INTERIOR)	G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

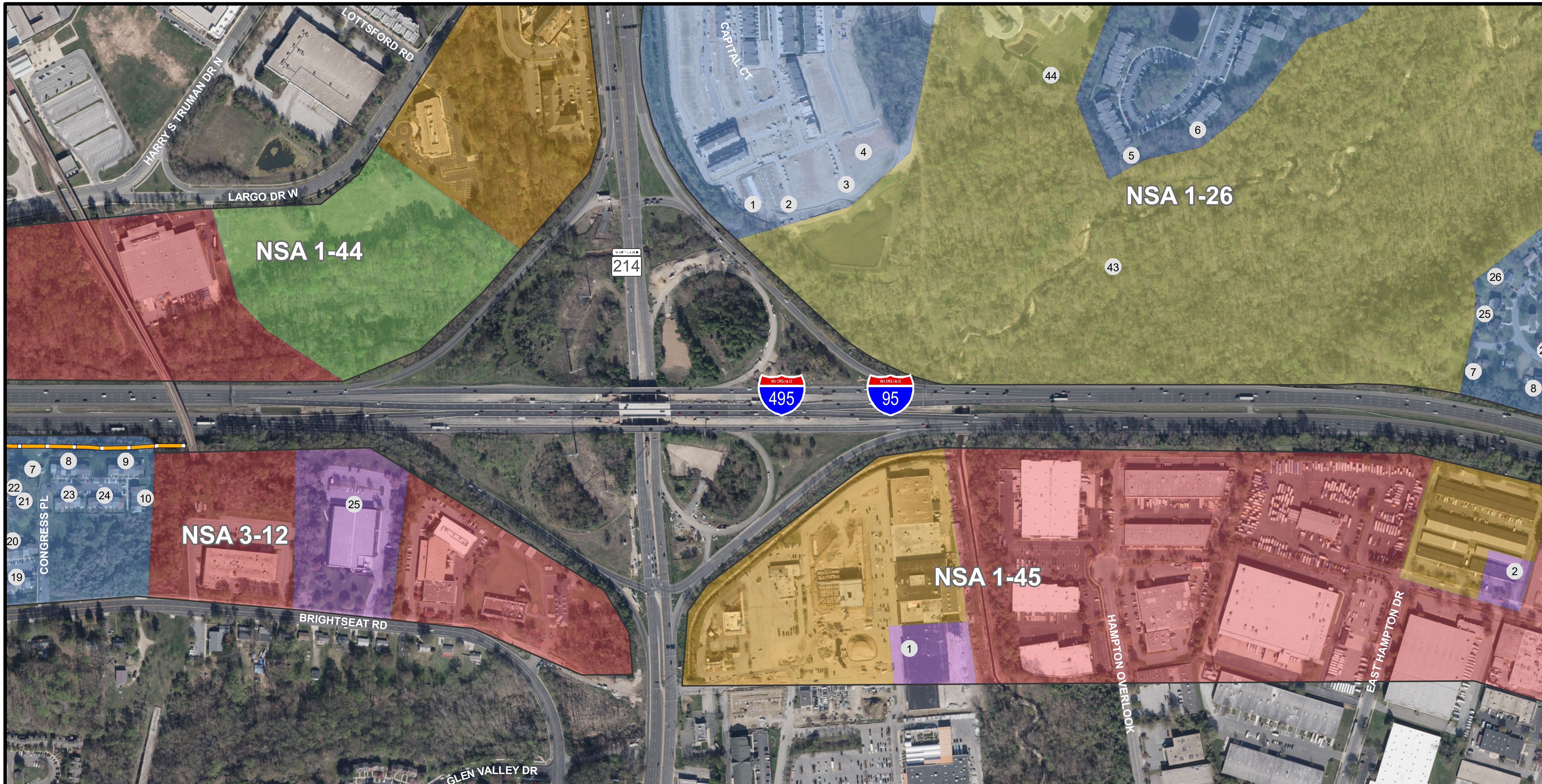
April 2022

Maryland Department of Transportation State Highway Administration
Office of Planning and Preliminary Engineering
Environmental Planning Division
Noise Abatement Design & Analysis Team

I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors



Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

D: Noise Sensitive Area (INTERIOR)

E: Noise Sensitive Area (EXTERIOR)

F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

April 2022

Maryland Department of Transportation State Highway Administration

Office of Planning and Preliminary Engineering

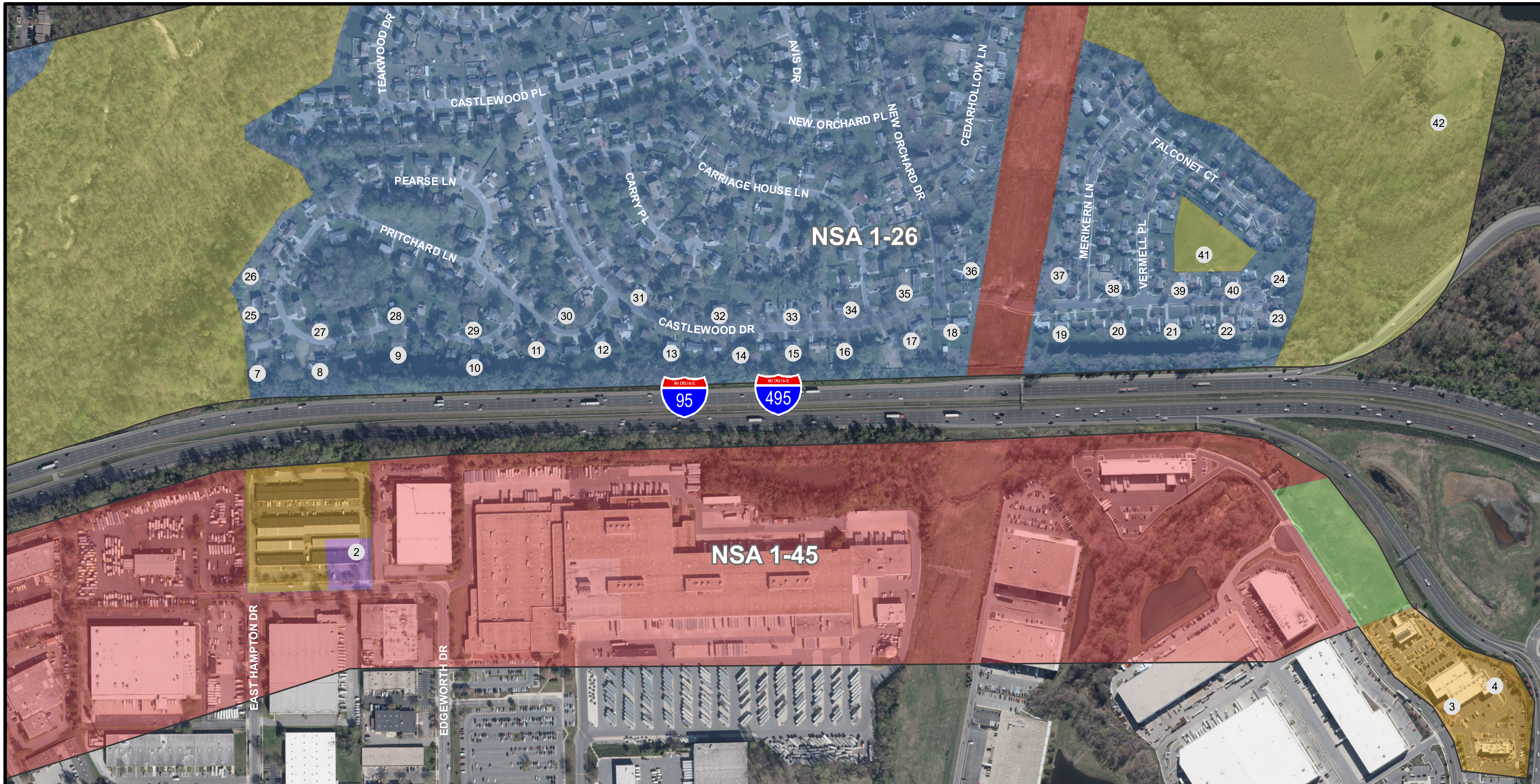
Environmental Planning Division

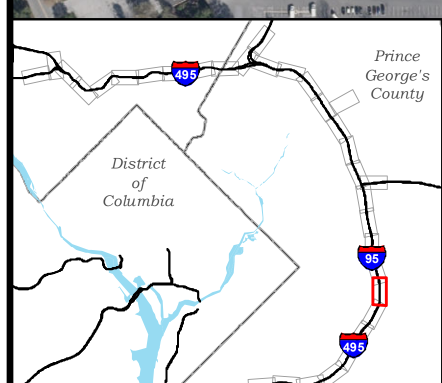
Noise Abatement Design & Analysis Team

I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors





Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
- C: Noise Sensitive Area (EXTERIOR)
- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

Feet: 0, 500, 1,000, 1,500

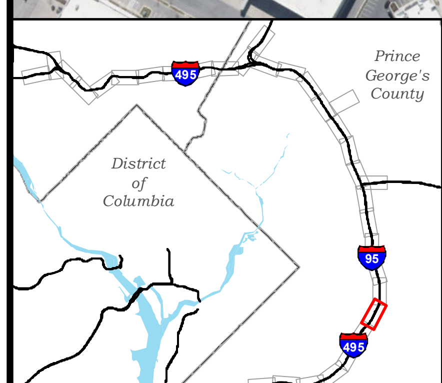
April 2022

Maryland Department of Transportation State Highway Administration
Office of Planning and Preliminary Engineering
Environmental Planning Division
Noise Abatement Design & Analysis Team

I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors



Modeled Receptor*

Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
- C: Noise Sensitive Area (EXTERIOR)
- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

Feet: 0, 500, 1,000, 1,500

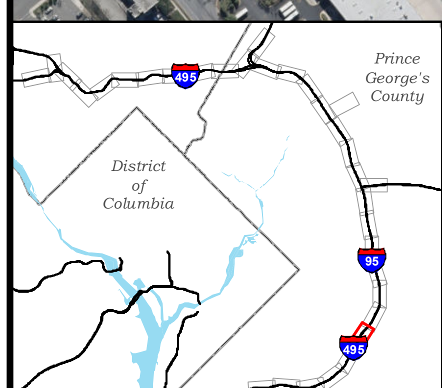
April 2022

Maryland Department of Transportation State Highway Administration
Office of Planning and Preliminary Engineering
Environmental Planning Division
Noise Abatement Design & Analysis Team

I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors



Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
- C: Noise Sensitive Area (EXTERIOR)
- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

Feet 0 500 1,000 1,500

April 2022

Maryland Department of Transportation State Highway Administration
Office of Planning and Preliminary Engineering
Environmental Planning Division
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I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors

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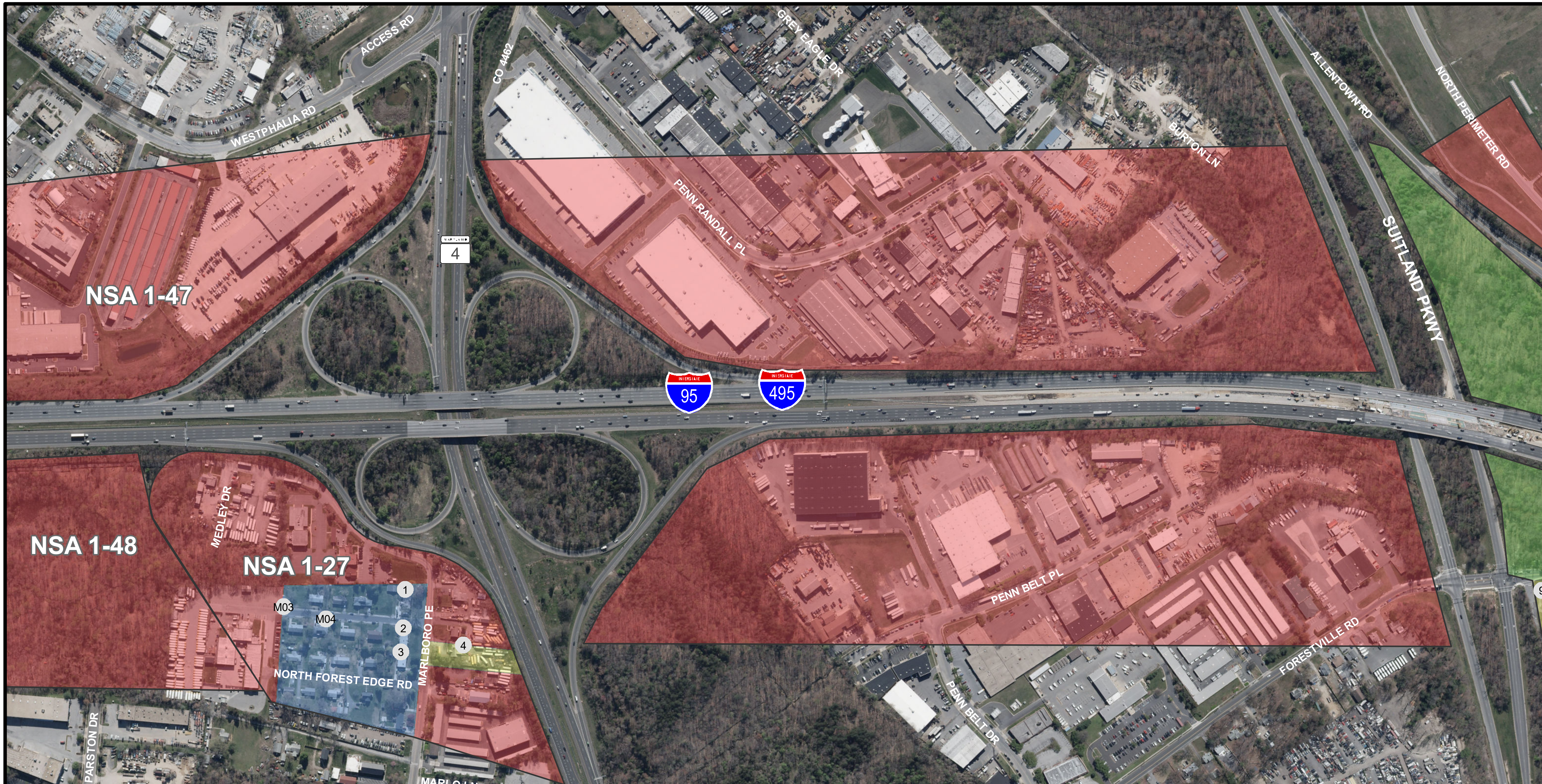

Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

D: Noise Sensitive Area (INTERIOR)

E: Noise Sensitive Area (EXTERIOR)

F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

Feet 0 500 1,000 1,500

April 2022

Maryland Department of Transportation State Highway Administration

Office of Planning and Preliminary Engineering

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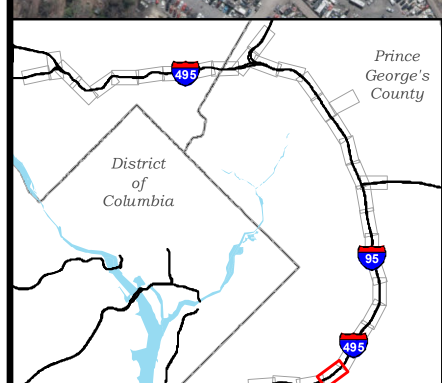
I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors



Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

Feet 0 500 1,000 1,500

April 2022

Maryland Department of Transportation State Highway Administration
Office of Planning and Preliminary Engineering
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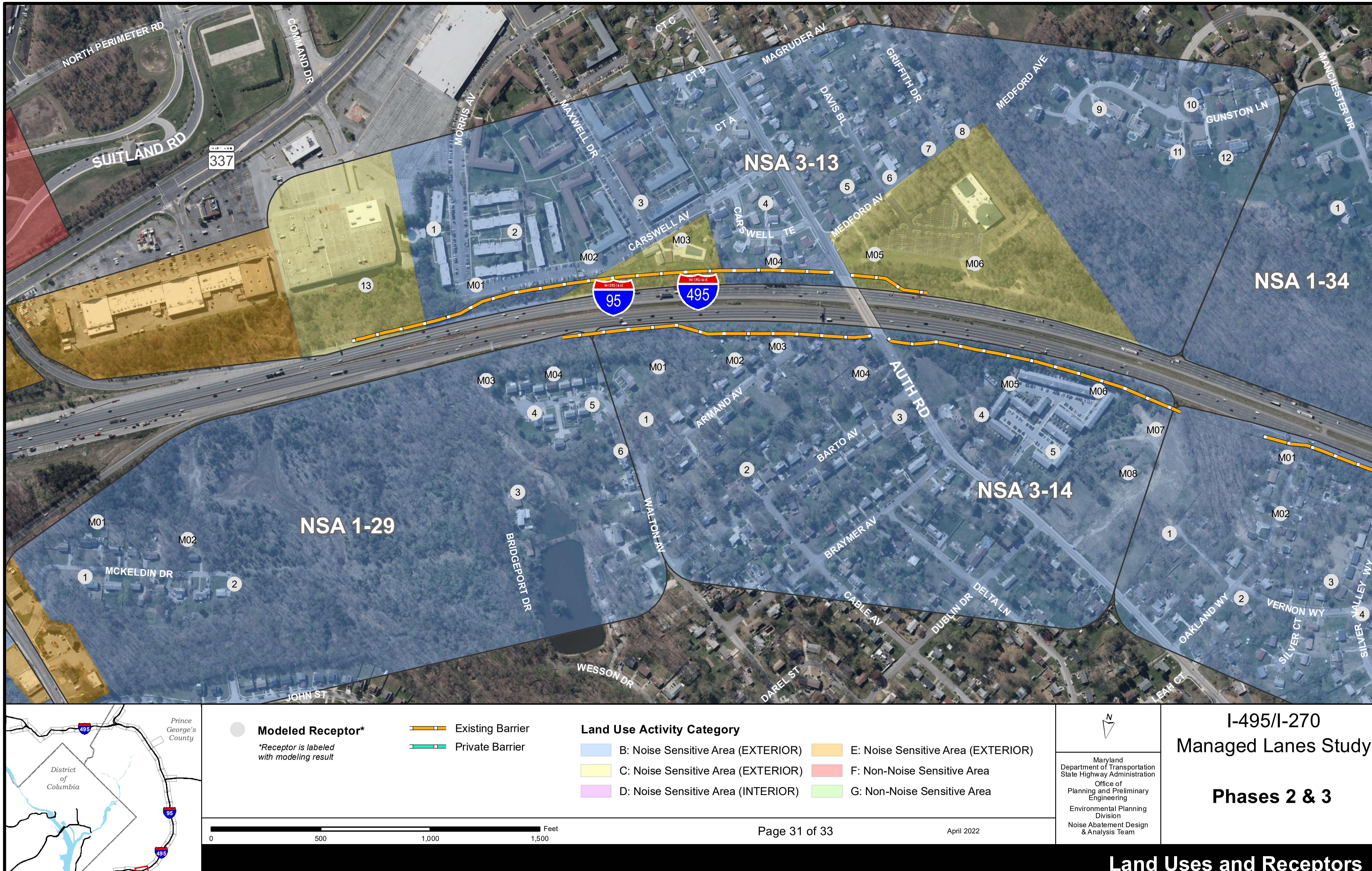
I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors



Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

- B: Noise Sensitive Area (EXTERIOR)
- C: Noise Sensitive Area (EXTERIOR)
- D: Noise Sensitive Area (INTERIOR)
- E: Noise Sensitive Area (EXTERIOR)
- F: Non-Noise Sensitive Area
- G: Non-Noise Sensitive Area

Feet: 0 500 1,000 1,500

April 2022

N

Maryland Department of Transportation State Highway Administration
Office of Planning and Preliminary Engineering
Environmental Planning Division
Noise Abatement Design & Analysis Team

I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors

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Modeled Receptor*

*Receptor is labeled with modeling result

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

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F: Non-Noise Sensitive Area

G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

April 2022

Maryland Department of Transportation State Highway Administration
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I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors

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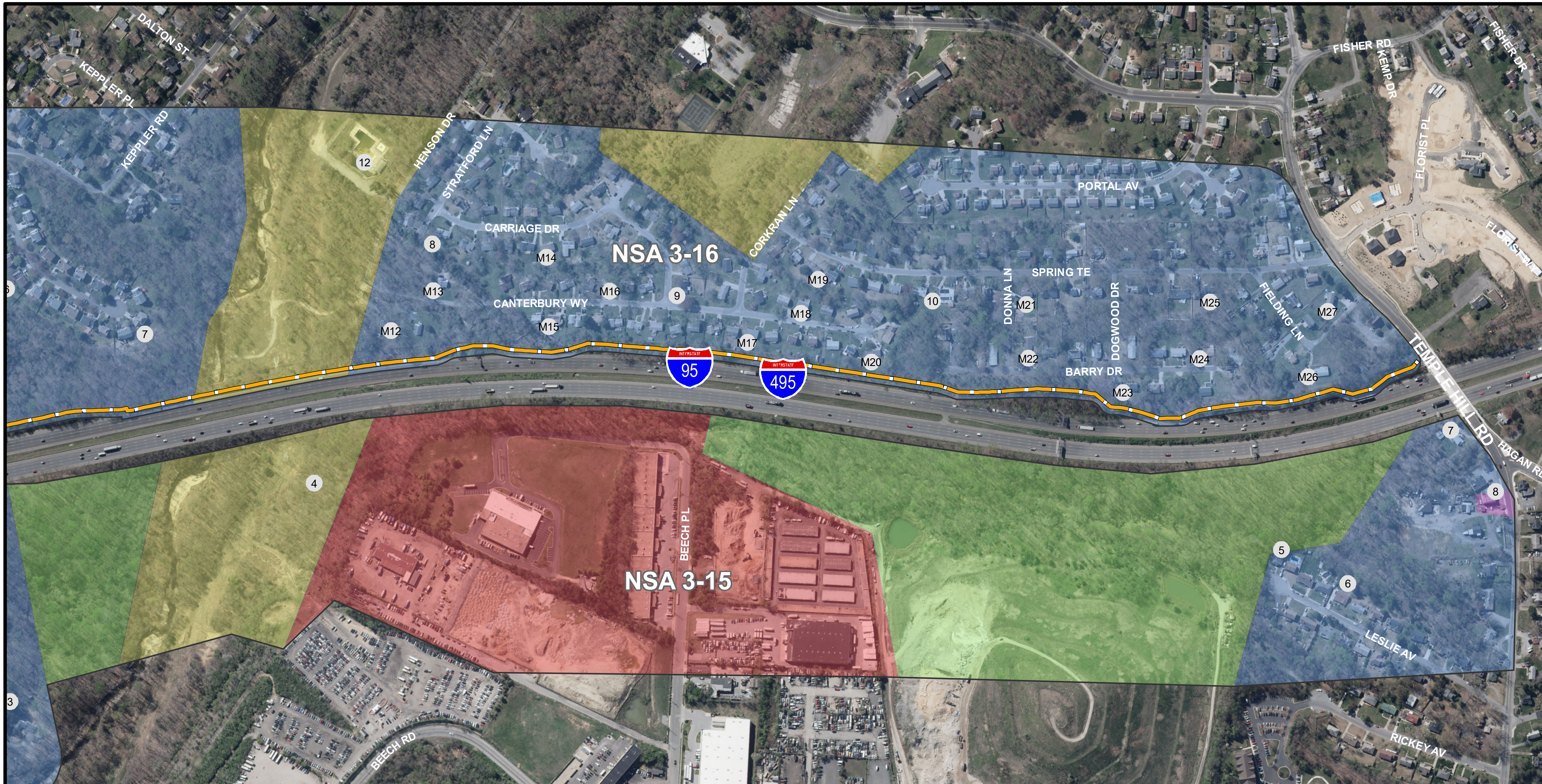

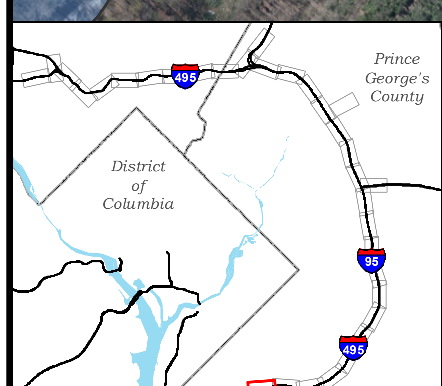

Modeled Receptor*

**Receptor is labeled with modeling result*

Existing Barrier

Private Barrier

Land Use Activity Category

B: Noise Sensitive Area (EXTERIOR)

C: Noise Sensitive Area (EXTERIOR)

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G: Non-Noise Sensitive Area

0 500 1,000 1,500 Feet

April 2022

N

Maryland Department of Transportation State Highway Administration

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I-495/I-270 Managed Lanes Study

Phases 2 & 3

Land Uses and Receptors

Document Path: F:\Workspace\P3\Noise\Mapfiles\Noise\Noise_Phase2_3_NB.mxd
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OP•LANES™
MARYLAND

I-495 & I-270 Managed Lanes Study

APPENDIX L
FINAL NOISE ANALYSIS TECHNICAL REPORT

APPENDIX A
DESIGN TRAFFIC VOLUMES

June 2022

U.S. Department of Transportation
Federal Highway Administration

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

1. Introduction

The FEIS noise models used the same LOS 'C/D' volumes per lane and truck percentages that were generated for the DEIS and SDEIS for the roadways that were evaluated in Maryland. The following table displays the number of lanes assumed per segment as well as truck percentages.

For the roadways in Virginia, the traffic volumes used were obtained from the I-495 NEXT Preliminary Noise Report. These traffic volumes were developed using ENTRADA following Virginia noise policy.

Additionally, vehicle volumes were added to major general purpose ramps, direct access ramps, and crossroads at interchanges. For both the general purpose ramps and the direct access ramps the vehicle classification percentages were consistent with the adjacent general purpose or price managed lanes. For speeds, a conservative estimate of 50 mph for directional ramps and 30 mph for loop ramps was utilized. The crossroads utilized the posted speed for their traffic volumes.

The following figures display the traffic volumes used for each ramp.

Loudest Noise Hour Volumes for Use in the SDEIS

NORTHBOUND

Segment	Direction	# PML	PML Volume	# GP	GP Volume	Total Lanes	Total Volume	Volume per lane
Tuckerman (I-270 Spur Merge) to Montrose	NB	3	4605	5	7425	8	12030	1504
Montrose to Wootton	NB	3	4605	5	7425	8	12030	1504
Wootton to Falls (MD 189)	NB	2	3070	5	7425	7	10495	1499
Falls (MD 189) to Montgomery (MD 28)	NB	2	3070	5	7425	7	10495	1499
Montgomery (MD 28) to Shady Grove	NB	2	3070	5	7425	7	10495	1499
Shady Grove to I-370	NB	1	1535	5	7425	6	8960	1493
N of I-370	NB	0	0	4	6025	4	6025	1506

SOUTHBOUND

Segment	Direction	# PML	PML Volume	# GP	GP Volume	Total Lanes	Total Volume	Volume per lane
Tuckerman (I-270 Spur Merge) to Montrose	SB	3	4605	5	7425	8	12030	1504
Montrose to Wootton	SB	3	4605	5	7425	8	12030	1504
Wootton to Falls (MD 189)	SB	2	3070	5	7425	7	10495	1499
Falls (MD 189) to Montgomery (MD 28)	SB	2	3070	5	7425	7	10495	1499
Montgomery (MD 28) to Shady Grove	SB	2	3070	5	7425	7	10495	1499
Shady Grove to I-370	SB	1	1535	5	7425	6	8960	1493
N of I-370	SB	0	0	4	6025	4	6025	1506

VEHICLE PERCENTAGES

Segment	Motorcyles	Autos	Buses	Medium Tr	Heavy Trucks
Tuckerman (I-270 Spur Merge) to Montrose	0.14%	94.15%	0.66%	2.85%	2.20%
Montrose to Wootton	0.03%	94.41%	0.69%	2.57%	2.30%
Wootton to Falls (MD 189)	0.03%	94.41%	0.69%	2.57%	2.30%
Falls (MD 189) to Montgomery (MD 28)	0.03%	94.41%	0.69%	2.57%	2.30%
Montgomery (MD 28) to Shady Grove	0.03%	94.62%	0.67%	2.31%	2.37%
Shady Grove to I-370	0.27%	91.56%	0.82%	4.17%	3.18%
N of I-370	similar to above				
ETL Lanes	0.20%	97.80%	1.00%	0.50%	0.50%

Projected Highest Noise Hour Volumes and Truck Percentages for Cross Streets

Location	SB / WB # of Lanes	SB / WB LOS C/D Volumes*	NB / EB # of Lane	NB / EB LOS C/D Volumes*	Vehicle Class: Motorcycles	Autos	Buses	Medium Trucks	Heavy Trucks
I-95, North of I-495	4	5,605	4	5,605	0.15%	88.23%	1.73%	3.00%	6.89%
MD 295 (Baltimore-Washington Pkwy), North of I-495	3	4,605	3	4,605	0.04%	98.03%	0.39%	1.41%	0.13%
US 50, East of I-495	4	5,740	6	8,325	0.32%	90.67%	0.89%	4.12%	4.00%
MD 5, South of I-495	4	5,985	5	7,130	0.42%	95.02%	0.65%	1.84%	2.07%
MD 295 (Baltimore-Washington Pkwy), South of I-495	3	4,430	2	3,040	0.03%	97.07%	0.51%	2.25%	0.14%
George Washington Parkway	2	3,055	2	3,055	0.05%	97.45%	0.50%	2.00%	0.00%
MD 5, North of I-495	3	3,960	3	4,125	0.25%	96.73%	0.61%	1.18%	1.23%
MD 187, South of I-495	3	2,790	3	2,770	0.17%	96.80%	0.67%	1.44%	0.92%
MD 185, South of I-495	4	4,160	4	3,820	0.22%	96.78%	0.44%	1.29%	1.27%
US 29, South of I-495	3	3,750	3	3,295	0.14%	96.32%	1.33%	1.66%	0.55%
MD 650, South of I-495	3	3,225	3	3,040	0.09%	96.59%	0.64%	1.97%	0.71%
US 1, South of I-495	3	2,615	2	2,415	0.16%	93.99%	1.39%	2.25%	2.21%
Cherrywood Lane, East of I-495	-	-	-	-	-	-	-	-	-
MD 202, East of I-495	4	2,990	4	2,640	0.14%	96.69%	0.50%	1.56%	1.11%
MD 214, East of I-495	3	3,310	3	4,065	0.33%	97.22%	0.38%	1.12%	0.95%
Ritchie Marlboro Road, Over I-495	2	1,560	2	2,085	0.11%	91.10%	1.42%	4.33%	3.04%
MD 4, East of I-495	2	2,855	2	2,855	0.46%	89.96%	1.49%	4.08%	4.01%
Persimmon Tree Road, East of I-495	1	235	1	165	0.65%	96.34%	0.20%	2.25%	0.56%
MD 190/ River Rd, West of I-495	3	2,055	3	1,760	0.08%	95.27%	0.65%	2.38%	1.62%
MD 191/Bradley Blvd, West of I-495	1	875	1	905	0.17%	96.89%	0.64%	1.42%	0.88%
Democracy Blvd, West of I-270 Spur	3	1,765	3	1,590	0.19%	94.23%	0.79%	2.68%	2.11%
Westlake Terrace, At access to I-495	2	1,065	2	1,025	0.30%	98.06%	0.31%	0.86%	0.47%
MD 187, South of I-270 East Spur	3	2,790	4	2,770	0.17%	96.80%	0.67%	1.44%	0.92%
Rockledge Blvd, South of I-270 East Spur	3	2,455	4	1,400	0.20%	95.93%	0.53%	2.14%	1.20%
Montrose Rd, East of I-270	2	3,055	2	2,360	0.14%	97.39%	0.62%	1.66%	0.19%
Wootton Parkway, East of I-270	2	1,405	2	1,370	0.30%	98.00%	0.30%	0.90%	0.50%
MD 189/Falls Rd, East of I-270	2	1,485	2	1,310	0.20%	94.65%	0.93%	3.10%	1.12%
MD 28/ W Montgomery Ave, West of I-270	2	2,620	2	2,220	0.14%	96.52%	0.97%	2.04%	0.33%
Gude Drive, East of I-270	2	1,550	2	1,720	0.30%	98.00%	0.30%	0.90%	0.50%
Shady Grove Rd, East of I-270	3	2,250	3	1,650	0.32%	92.70%	0.68%	3.09%	3.21%

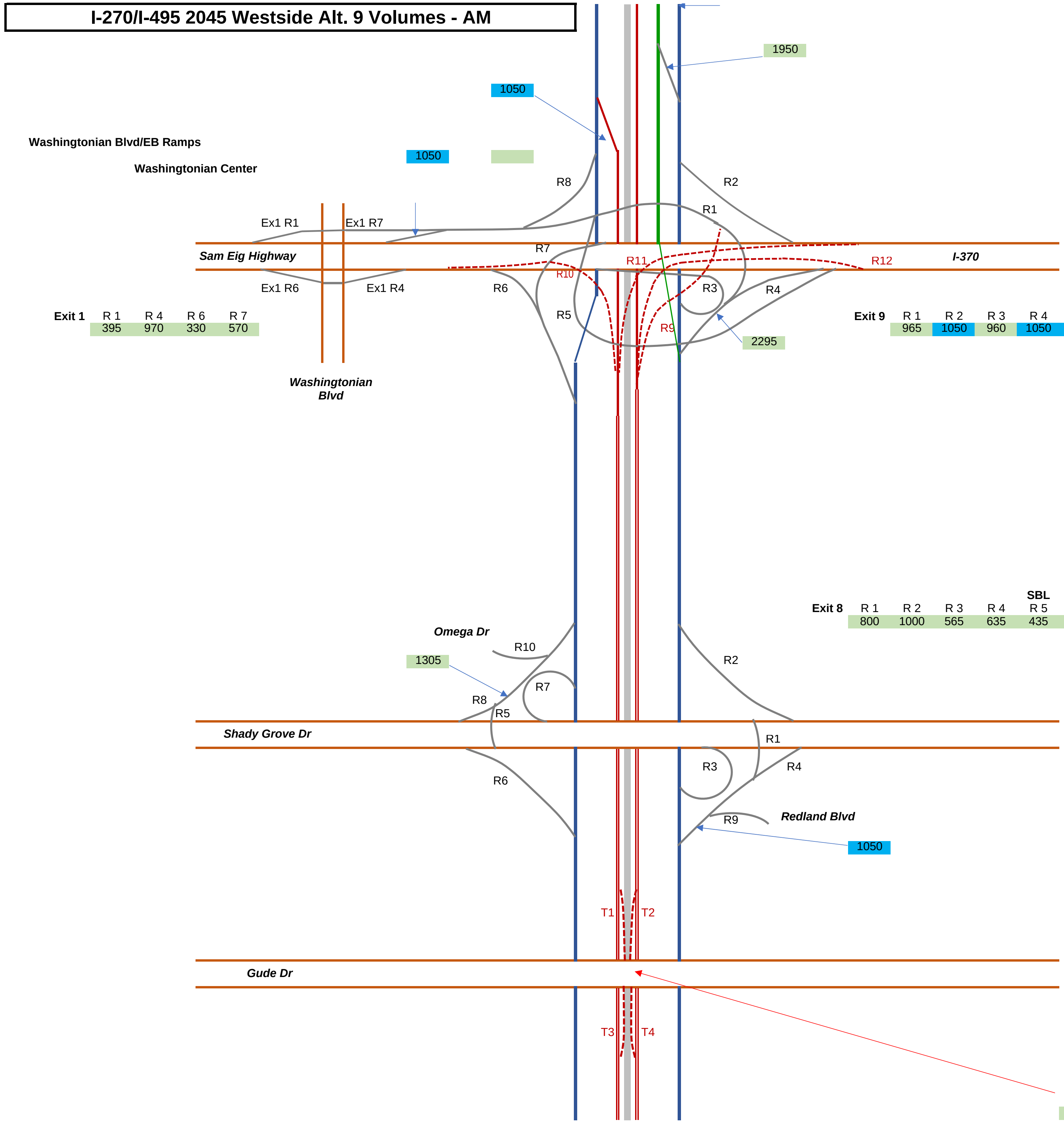
** Based on number of lanes and truck percentage using Highway Capacity Manaul (HCM6) formulas*

** Assumptions: PHF = 0.94, Terrain = Level, Free Flow Speed = 65 mph, Basic Freeway segment*

Requested cross street information are highlighted in the table

Updated 10/29/2021

I-270/I-495 2045 Westside Alt. 9 Volumes - AM

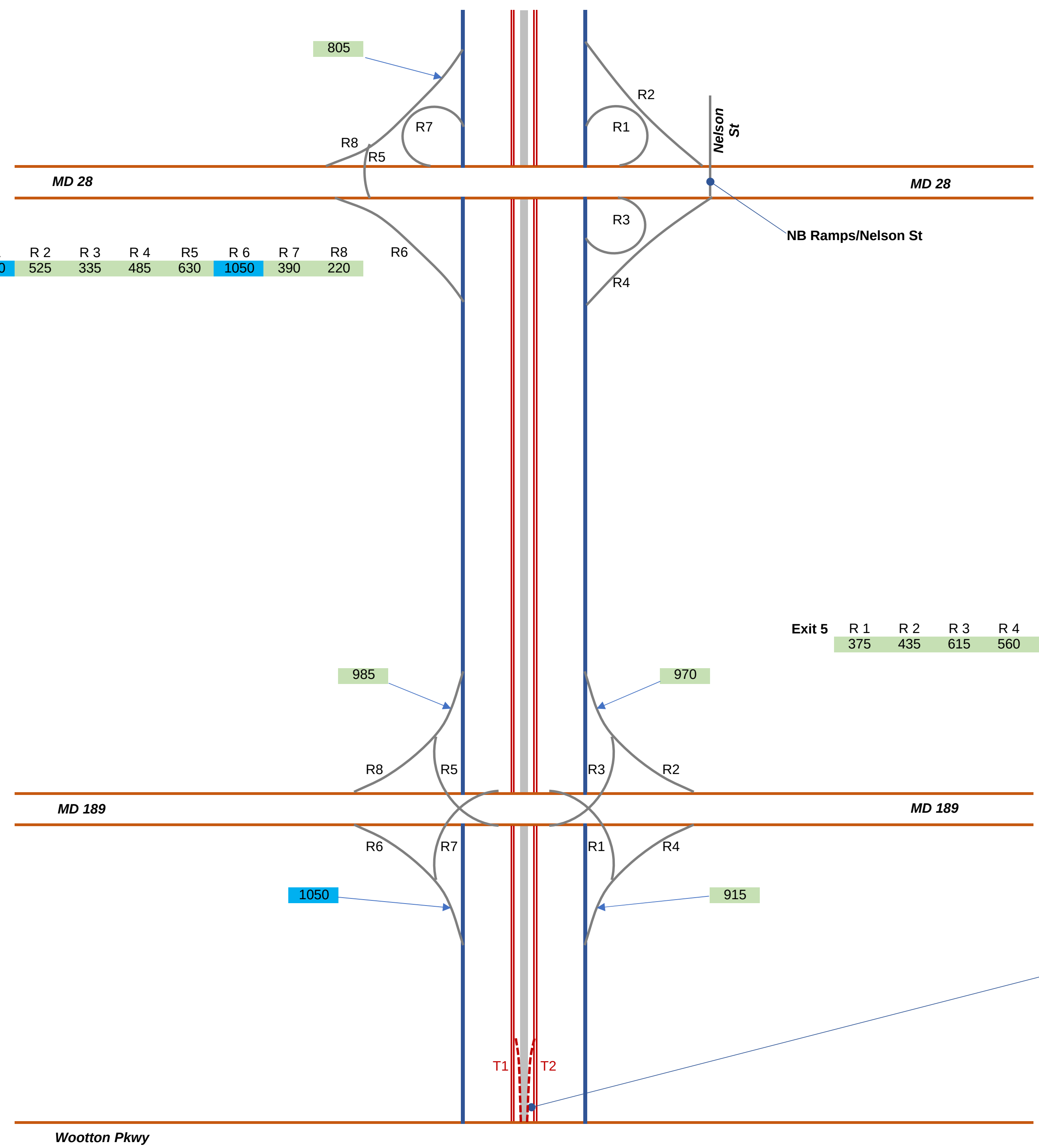


Exit 1	R 1	R 4	R 6	R 7
	395	970	330	570

Exit 9	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 10	R 11	R 12
	965	1050	960	1050	2200	780	1050	780	480	415	1050	650

Exit 8	R 1	R 2	R 3	R 4	SBL R 5	R 6	R 7	SBR R 8	R 9	R 10
	800	1000	565	635	435	770	935	870	375	395

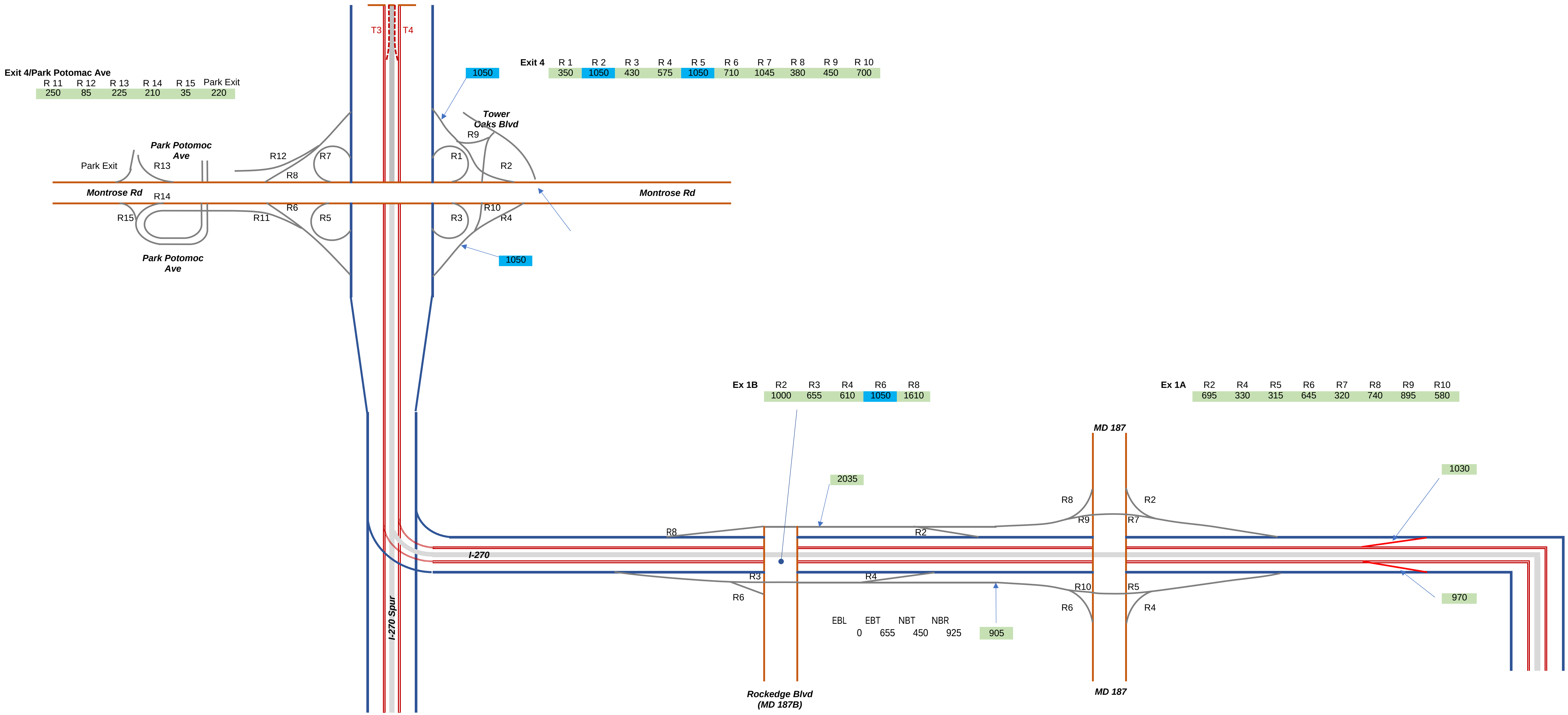
T1	T2	T3	T4
345	265	1050	1050

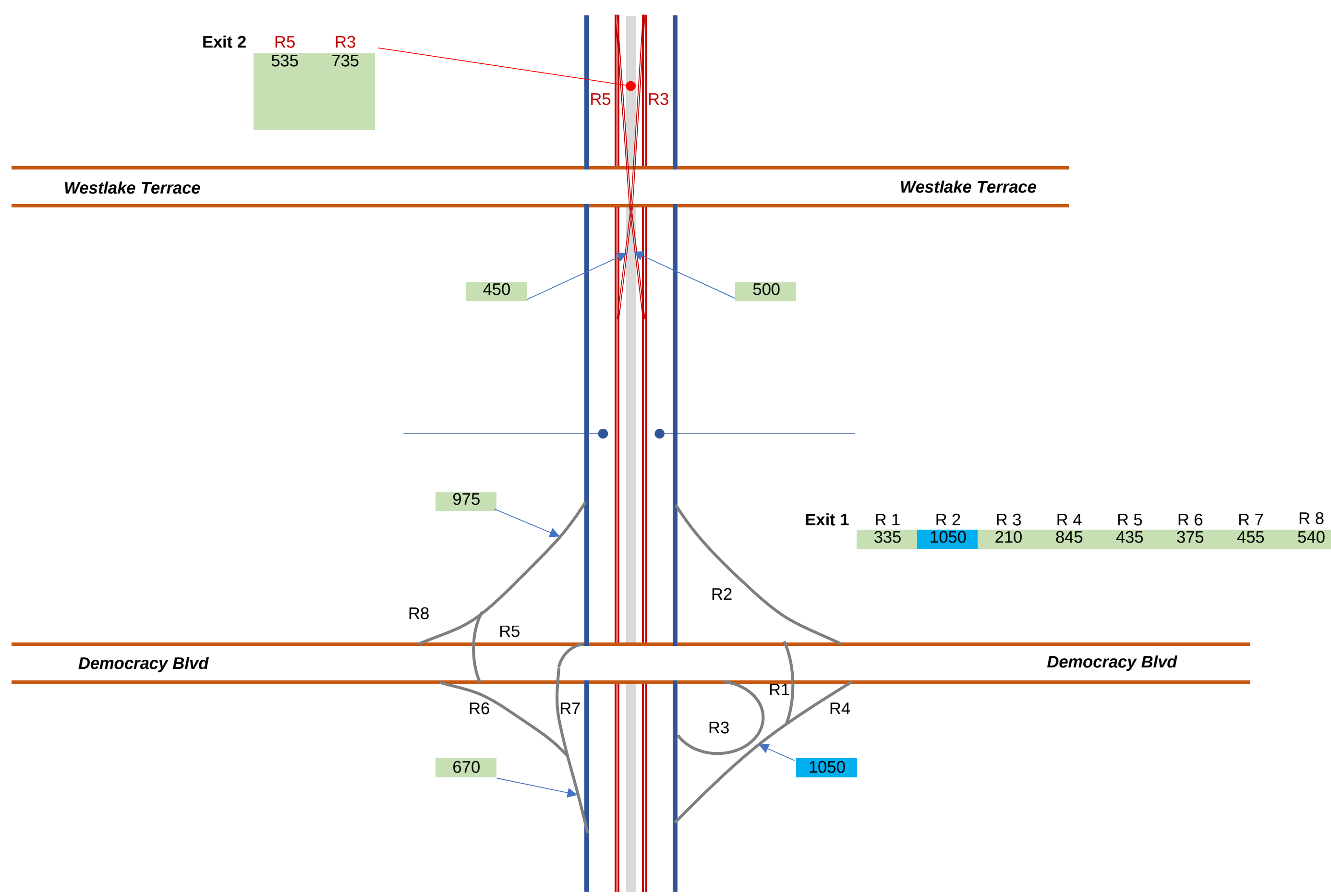


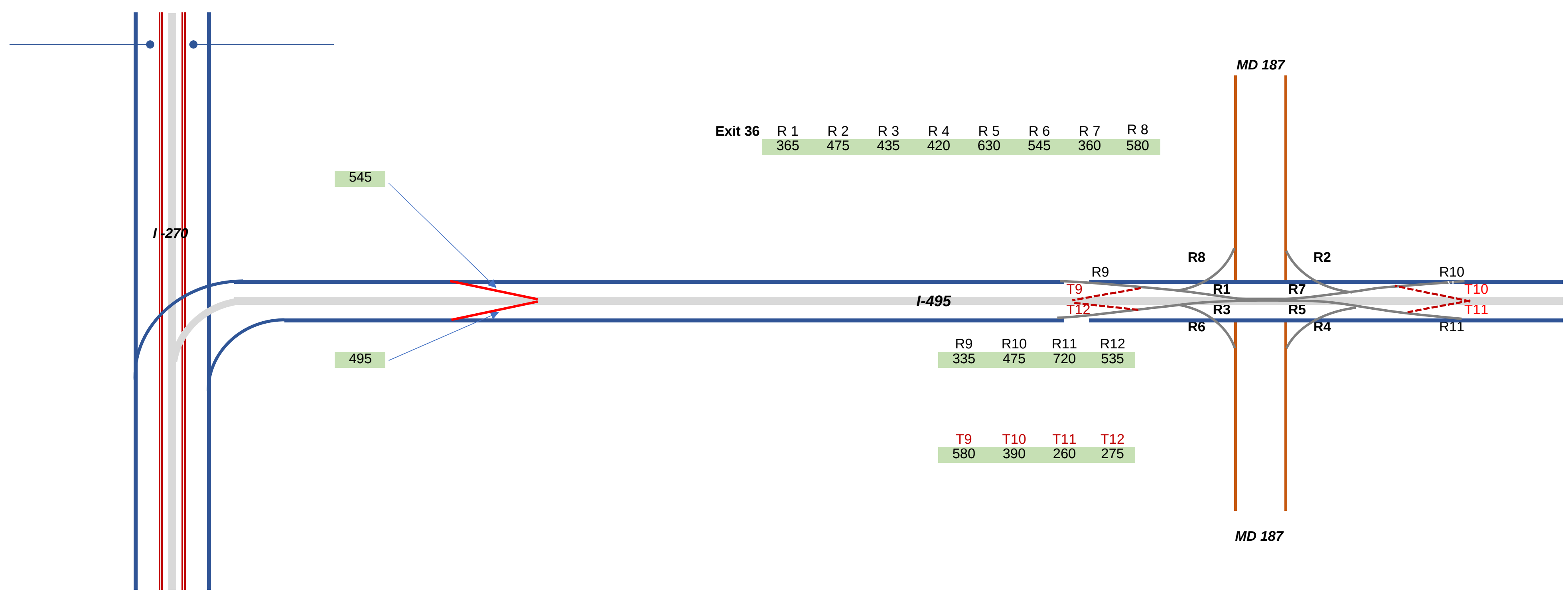
Exit 6	R 1	R 2	R 3	R 4	R5	R 6	R 7	R8
	1050	525	335	485	630	1050	390	220

Exit 5	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8
	375	435	615	560	280	530	640	705

T1	T2	T3	T4
380	330	915	745

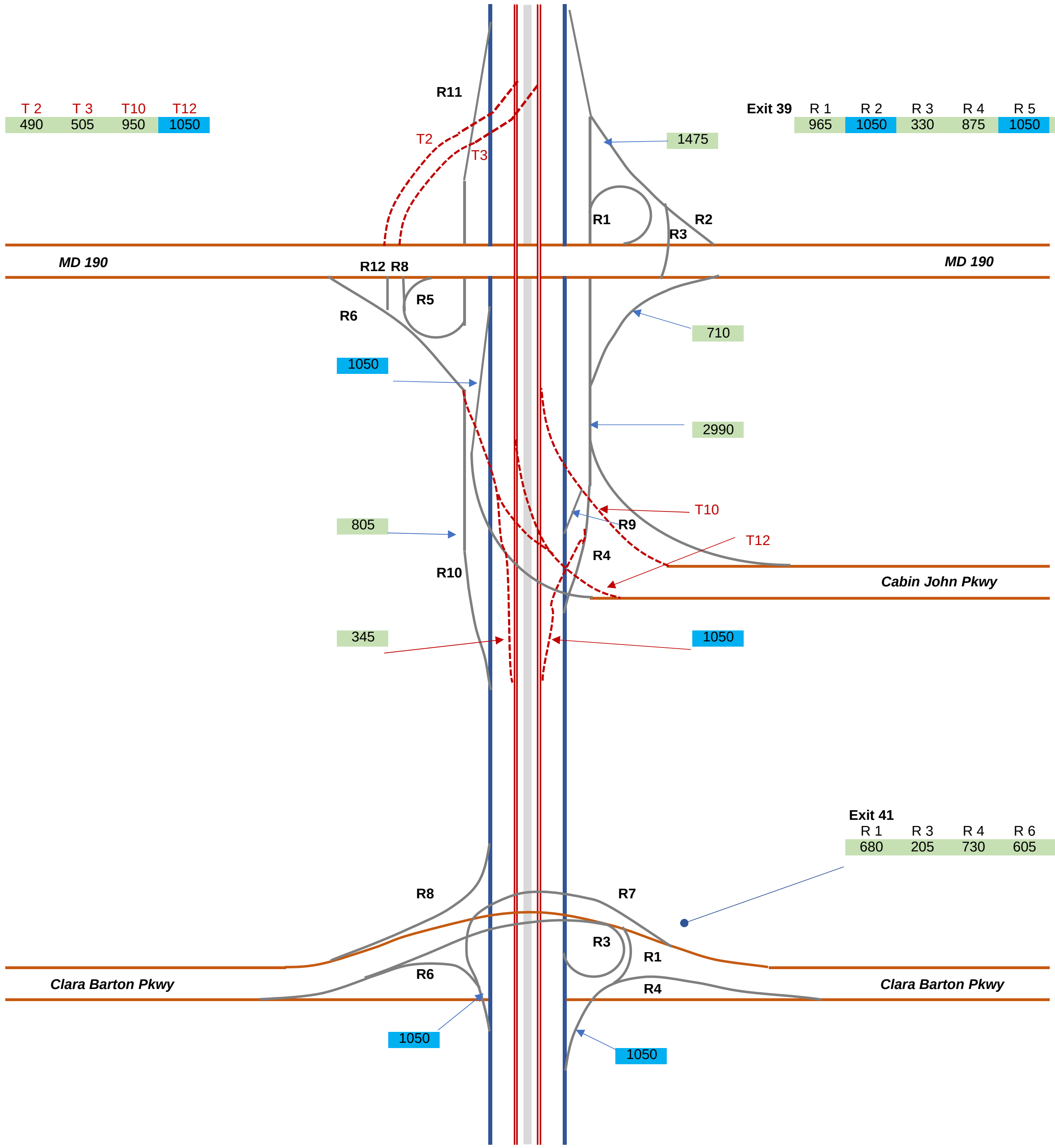

T3
T4
Exit 4/Park Potomac Ave
R 11 R 12 R 13 R 14 R 15 Park Exit
250 85 225 210 35 220
1050
Exit 4 R 1 R 2 R 3 R 4 R 5 R 6 R 7 R 8 R 9 R 10
350 1050 430 575 1050 710 1045 380 450 700
Tower Oaks Blvd
Park Potomoc Ave
Park Exit
R13
R12
R7
R8
R9
R1
R2
Montrose Rd
R14
R15
R6
R11
R5
R3
R10
R4
Montrose Rd
1050
Park Potomoc Ave
Ex 1B R2 R3 R4 R6 R8
1000 655 610 1050 1610
Ex 1A R2 R4 R5 R6 R7 R8 R9 R10
695 330 315 645 320 740 895 580
MD 187
1030
2035
R8
R2
R8
R9
R7
R2
I-270
R3
R4
R10
R5
R6
R6
R4
970
EBL EBT NBT NBR
0 655 450 925
905
I-270 Spur
Rockedge Blvd (MD 187B)
MD 187


Exit 2
R5
R3
535
735
R5
R3
Westlake Terrace
Westlake Terrace
450
500
975
R8
R5
R2
Democracy Blvd
Democracy Blvd
R6
R7
R3
R1
R4
670
1050
Exit 1
R 1
R 2
R 3
R 4
R 5
R 6
R 7
R 8
335
1050
210
845
435
375
455
540


MD 187
Exit 36
R 1
R 2
R 3
R 4
R 5
R 6
R 7
R 8
365
475
435
420
630
545
360
580
545
I-270
R8
R2
R9
R10
T9
R1
R7
T10
I-495
T12
R3
R5
T11
R6
R4
R11
495
R9
R10
R11
R12
335
475
720
535
T9
T10
T11
T12
580
390
260
275
MD 187

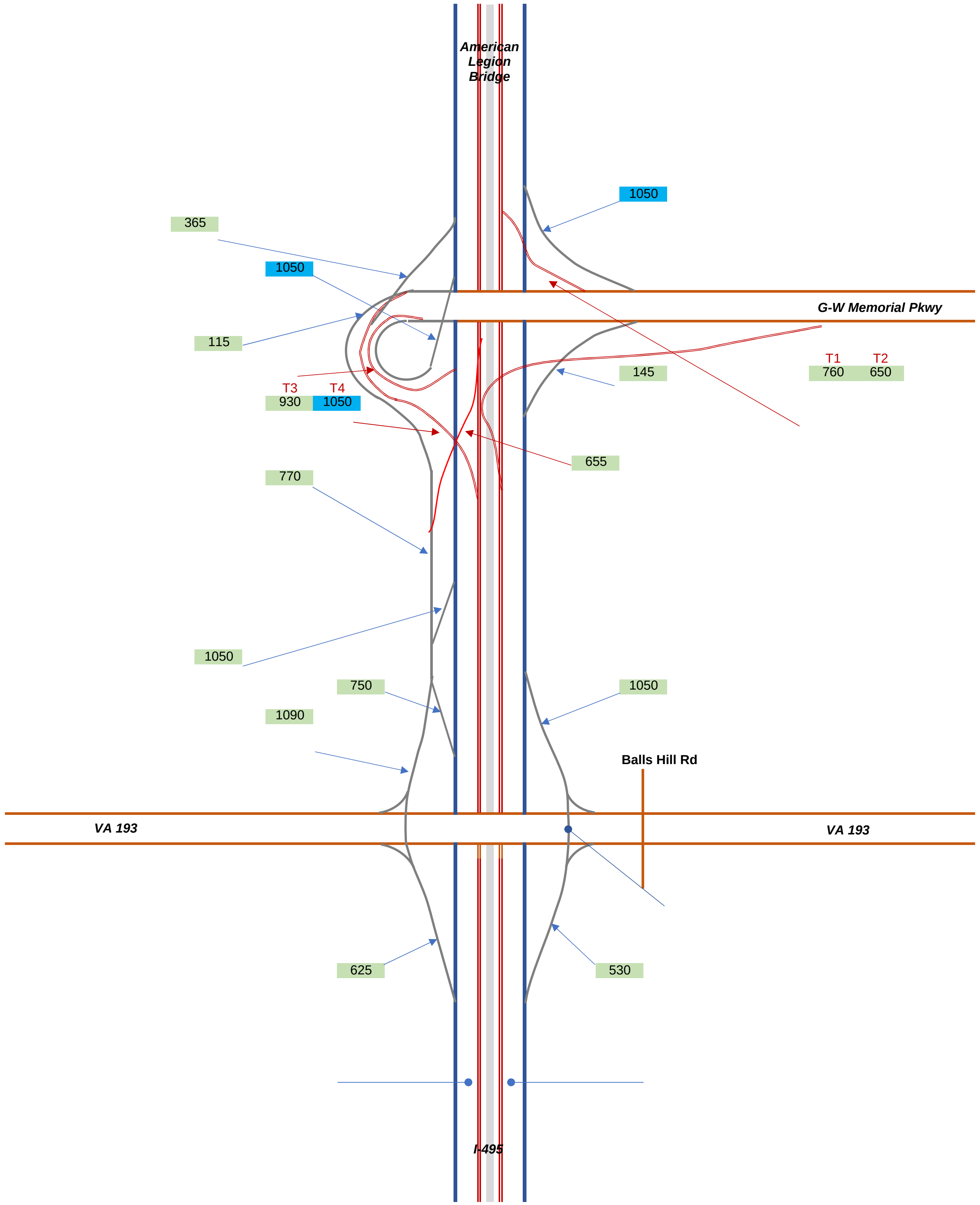
T 2	T 3	T10	T12
490	505	950	1050

Exit 39	R 1	R 2	R 3	R 4	R 5	R 6	R 8	R 9	R 10	R 11	R12
	965	1050	330	875	1050	855	170	1050	805	1050	760



Exit 41

R 1	R 3	R 4	R 6	R 7	R 8
680	205	730	605	1040	205


American Legion Bridge
1050
365
1050
G-W Memorial Pkwy
115
T1 T2
760 650
145
T3 T4
930 1050
655
770
1050
750
1050
1090
Balls Hill Rd
VA 193
VA 193
625
530
I-495

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I-495 & I-270 Managed Lanes Study

APPENDIX L
FINAL NOISE ANALYSIS TECHNICAL REPORT

APPENDIX B
NO BUILD AND BUILD NOISE LEVELS

June 2022

U.S. Department of Transportation
Federal Highway Administration

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

1. Introduction

This appendix summarizes the receptor data for the Preferred Alternative study area. Table B-1 lists the predicted No Build noise levels for Phase 1 South, Phase 2, and Phase 3. Table B-2 lists the predicted noise levels for the Preferred Alternative for Phase 1 South. Table B-2 also indicates in **bold red font** if the level is impacted by noise for the particular land use and highlights that level if it equals or exceeds 75 dB(A). Table B-2 also shows when a receptor has the maximum noise level within an NSA, and if the receptor was elevated to model multi-story balconies. Additionally, Table B-2 shows the noise levels with the analyzed noise barriers in place (including barriers considered Reasonable and Feasible and barriers considered NOT Reasonable and/or Feasible). The following information applies to the results in the table:

- A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.
- Interior sound levels are shown in parenthesis () where applicable.
- A background sound level of 55 dB(A) was added to the TNM results, since TNM does not account for background noise.
- An asterisk (*) represents an elevated receptor.

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
VA-1	1	VA-01-1		58
	2	VA-01-2		64
	3	VA-01-3		61
	4	VA-01-4		60
	5	VA-01-5		59
	6	VA-01-6		61
	7	VA-01-7		65
	8	VA-01-8		63
	9	VA-01-9		55
	10	VA-01-10		67
	11	VA-01-11		62
	12	VA-01-12		57
	13	VA-01-13		66
	14	VA-01-14		65
	15	VA-01-15		58
	16	VA-01-16		60
	17	VA-01-17		63
	18	VA-01-18		64
	19	VA-01-19		65
	20	VA-01-20		66
	21	VA-01-21		66
	22	VA-01-22		68
	23	VA-01-23		66
	24	VA-01-24		66
	25	VA-01-25		65
	26	VA-01-26		64
	27	VA-01-27		63
	28	VA-01-28		61
	29	VA-01-29		60
	30	VA-01-30		67
	31	VA-01-31		66
	32	VA-01-32		63
	33	VA-01-33		59
	34	VA-01-34		56
	35	VA-01-35		54
	36	VA-01-36		53
	37	VA-01-37		53
	38	VA-01-38		53
	39	VA-01-39		53
	40	VA-01-40		52
	41	VA-01-41		50
	42	VA-01-42		49
	43	VA-01-43		48
	44	VA-01-44		56
	45	VA-01-45		57

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	46	VA-01-46		56
	47	VA-01-47		53
	48	VA-01-48		53
	49	VA-01-49		59
	50	VA-01-50		60
	51	VA-01-51		59
	52	VA-01-52		60
	53	VA-01-53		60
	54	VA-01-54		55
VA-2	1	VA-02-1		77
	2	VA-02-2		73
	3	VA-02-3		67
	4	VA-02-4		74
	5	VA-02-5		75
	6	VA-02-6		72
	7	VA-02-7		69
	8	VA-02-8		68
	9	VA-02-9		57
	10	VA-02-10		67
	11	VA-02-11		68
	12	VA-02-12		64
	13	VA-02-13		66
	14	VA-02-14		61
	15	VA-02-15		47
	16	VA-02-16		46
	17	VA-02-17		46
	18	VA-02-18		44
	19	VA-02-19		55
	20	VA-02-20		46
	21	VA-02-21		43
	22	VA-02-22		52
	23	VA-02-23		49
	24	VA-02-24		58
	25	VA-02-25		55
	26	VA-02-26		44
	27	VA-02-27		60
	28	VA-02-28		61
	29	VA-02-29		58
	30	VA-02-30		68
	31	VA-02-31		57
	32	VA-02-32		54
	33	VA-02-33		56
	34	VA-02-34		60
	35	VA-02-35		64
	36	VA-02-36		64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	37	VA-02-37		59
	38	VA-02-38		61
	39	VA-02-39		60
	40	VA-02-40		59
	41	VA-02-41		58
	42	VA-02-42		57
	43	VA-02-43		57
	44	VA-02-44		59
	45	VA-02-45		60
	46	VA-02-46		63
	47	VA-02-47		65
	48	VA-02-48		66
	49	VA-02-49		68
	50	VA-02-50		69
	51	VA-02-51		71
	52	VA-02-52		72
	53	VA-02-53		72
	54	VA-02-54		70
	55	VA-02-55		69
	56	VA-02-56		66
	57	VA-02-57		63
	58	VA-02-58		63
	59	VA-02-59		64
	60	VA-02-60		67
	61	VA-02-61		73
	62	VA-02-62		76
	63	VA-02-63		75
	64	VA-02-64		76
	65	VA-02-65		77
	66	VA-02-66		70
	67	VA-02-67		67
	68	VA-02-68		63
	69	VA-02-69		62
	70	VA-02-70		60
	71	VA-02-71		52
	72	VA-02-72		61
	73	VA-02-73		60
	74	VA-02-74		58
	75	VA-02-75		54
	76	VA-02-76		54
	77	VA-02-77		54
	78	VA-02-78		56
	79	VA-02-79		51
	80	VA-02-80		60
VA-3	1	VA-03-01		44

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	2	VA-03-02		53
	3	VA-03-03		50
	4	VA-03-04		47
	5	VA-03-05		55
	6	VA-03-06		65
	7	VA-03-07		55
	8	VA-03-08		59
	9	VA-03-09		64
	10	VA-03-10		58
	11	VA-03-11		60
	12	VA-03-12		47
	13	VA-03-13		57
	14	VA-03-14		51
	15	VA-03-15		53
	16	VA-03-16		51
	17	VA-03-17		46
	18	VA-03-18		50
	19	VA-03-19		53
	20	VA-03-20		54
	21	VA-03-21		58
	22	VA-03-22		56
	23	VA-03-23		55
	24	VA-03-24		57
	25	VA-03-25		51
	26	VA-03-26		58
	27	VA-03-27		60
	28	VA-03-28		58
	29	VA-03-29		55
	30	VA-03-30		58
	31	VA-03-31		62
	32	VA-03-32		62
	33	VA-03-33		59
	34	VA-03-34		57
	35	VA-03-35		55
	36	VA-03-36		61
	37	VA-03-37		57
	38	VA-03-38		53
	39	VA-03-39		62
	40	VA-03-40		55
	41	VA-03-41		57
	42	VA-03-42		57
	43	VA-03-43		54
	44	VA-03-44		55
	45	VA-03-45		56
	46	VA-03-46		56

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	47	VA-03-47		59
	48	VA-03-48		57
	49	VA-03-49		61
	50	VA-03-50		56
	51	VA-03-51		53
	52	VA-03-52		58
	53	VA-03-53		55
	54	VA-03-54		54
	55	VA-03-55		54
	56	VA-03-56		52
	57	VA-03-57		53
	58	VA-03-58		51
	59	VA-03-59		51
	60	VA-03-60		52
VA-4	1	VA-04-01		59
	2	VA-04-02		59
	3	VA-04-03		60
	4	VA-04-04		62
	5	VA-04-05		60
	6	VA-04-06		59
1-01	M1	M1-1-1		74
	M2	M1-1-2		71
	M3	M1-1-3		65
	1	R1-01-01		60
	2	R1-01-02		63
	3	R1-01-03		62
	4	R1-01-04		61
	5	R1-01-05		57
	6	R1-01-06		56
	7	R1-01-07		69
	8	R1-01-08		59
	9	R1-01-09		63
	10	R1-01-10		60
	11	R1-01-11		70
	12	R1-01-12		68
	13	R1-01-13		65
1-02	M1	M1-02-01		63
	M2	M1-02-02		63
	M3	M1-02-03		74
	M4	M1-2-4		73
	M5	M1-2-5		64
	1	R1-02-01		71
	2	R1-02-02		62
	3	R1-02-03		59
	4	R1-02-04		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	5	R1-02-05		62
	6	R1-02-06		64
	7	R1-02-07		60
	8	R1-02-08		60
	9	R1-02-09		63
	10	R1-02-10		65
	11	R1-02-11		64
	12	R1-02-12		62
1-04	M1	M1-4-1		65
	M2	M1-4-2		70
	M3	M1-4-3		79
	M4	M1-4-4		62
	M5	M1-4-5		58
	M6	M1-4-6		58
	M7	M1-4-7		63
	1	R1-04-01		61
	2	R1-04-02		65
	3	R1-04-03		59
	4	R1-04-04		63
	5	R1-04-05		56
	6	R1-04-06		60
	7	R1-04-07		69
	8	R1-04-08		71
	9	R1-04-09		70
	10	R1-04-10		66
	11	R1-04-11		68
	12	R1-04-12		70
	13	R1-04-13		69
	14	R1-04-14		67
	15	R1-04-15		59
	16	R1-04-16		59
	17	R1-04-17		57
	18	R1-04-18		59
	19	R1-04-19		68
	20	R1-04-20		62
1-05	M1	M1-05-01		56
	M2	M1-05-02		62
	M3	M1-05-03		59
	M4	M1-05-04		62
	M5	M1-05-05		57
	M6	M1-05-06		61
	1	R1-05-01		61
	2	R1-05-02		64
	3	R1-05-03		66
	4	R1-05-04		65

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	5	R1-05-05		67
	6	R1-05-06		67
	7	R1-05-07		70
	8	R1-05-08		69
	9	R1-05-09		72
	10	R1-05-10		70
	11	R1-05-11		68
	12	R1-05-12		71
1-03	M1	M1-03-01		68
	M2	M1-03-02		70
	M3	M1-03-03		62
	1	R1-03-01		66
	3	R1-03-03		65
	4	R1-03-04		55
	5	R1-03-05		69
	6	R1-03-06		65
	7	R1-03-07		62
	8	R1-03-08		63
	9	R1-03-09		69
	10	R1-03-10		69
	11	R1-03-11		68
2-01	M1	M2-01-01		62
	M3	M2-01-03		67
	M4	M2-01-04		62
	M5	M2-01-05		61
	M6	M2-01-06		62
	1	R2-01-01		63
	2	R2-01-02		63
	3	R2-01-03		64
	4	R2-01-04		61
	5	R2-01-05		65
	6	R2-01-06		62 (52)
	7	R2-01-07		69
	8	R2-01-08		66
	9	R2-01-09		68
	10	R2-01-10		65
	11	R2-01-11		65
	12	R2-01-12		57
	13	R2-01-13		56
	14	R2-01-14		56
	15	R2-01-15		56
	16	R2-01-16		56
	17	R2-01-17		56
	18	R2-01-18		57
	19	R2-01-19		58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	20	R2-01-20		59
	21	R2-01-21		59
	22	R2-01-22		58
1-06	M1	M1-06-01		58
	M2	M1-06-02		73
	M3	M1-06-03		71
	2	R1-06-02		64
	3	R1-06-03		58
	4	R1-06-04		57
	5	R1-06-05		61
	6	R1-06-06		56
	7	R1-06-07		67
	8	R1-06-08		67
	9	R1-06-09		68
3-01	M1	M3-01-01		65
	M2	M3-01-02		61
	M3	M3-01-03		61
	M4	M3-01-04		59
	M6	M3-01-06		60
	M7	M3-01-07		62
	M8	M3-01-08		65
	M9	M3-01-09		56
	M10	M3-01-10		63
	M11	M3-01-11		64
	M12	M3-01-12		59
	M13	M3-01-13		62
	M14	M3-01-14		59
	M15	M3-01-15		63
	M16	M3-01-16		63
	M17	M3-01-17		59
	M18	M3-01-18		64
	M19	M3-01-19		61
	M20	M3-01-20		63
	M21	M3-01-21		63
	M22	M3-01-22		65
	M23	M3-01-23		63
	M24	M3-01-24		66
	M25	M3-01-25		69
	M26	M3-01-26		68
	M27	M3-01-27		66
	M28	M3-01-28		64
	M29	M3-01-29		71
	1	R3-01-01		56
	2	R3-01-02		55
	3	R3-01-03		56

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	4	R3-01-04		56
	5	R3-01-05		57
	6	R3-01-06		56
	7	R3-01-07		55
	8	R3-01-08		56
	09	R3-01-09		56
	10	R3-01-10		57
	11	R3-01-11		56
	12	R3-01-12		56
	13	R3-01-13		56
	14	R3-01-14		56
	15	R3-01-15		56
	16	R3-01-16		56
	17	R3-01-17		59
	18	R3-01-18		56
	19	R3-01-19		57
	20	R3-01-20		59
1-38	1a	R1-38-1a		67
	1b	R1-38-1b	*	69
	1c	R1-38-1c	*	70
	1d	R1-38-1d	*	70
	2a	R1-38-2a		66
	2b	R1-38-2b	*	69
	2c	R1-38-2c	*	70
	2d	R1-38-2d	*	70
	3a	R1-38-3a		67
	3b	R1-38-3b	*	70
	3c	R1-38-3c	*	70
	3d	R1-38-3d	*	71
	4a	R1-38-4a		64
	4b	R1-38-4b	*	67
	4c	R1-38-4c	*	68
	4d	R1-38-4d	*	69
	4e	R1-38-4e	*	70
	5a	R1-38-5a		66
	5b	R1-38-5b	*	67
	5c	R1-38-5c	*	68
	5d	R1-38-5d	*	69
	6a	R1-38-6a		63
	6b	R1-38-6b	*	65
	6c	R1-38-6c	*	66
	6d	R1-38-6d	*	67
	7	R1-38-7		62
4-01	M1	M4-01-01		62
	M2	M4-01-02		68

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	M3	M4-01-03		71
	M4	M4-01-04		71
	M5	M4-01-05		63
	1	R4-01-01		60
	2	R4-01-02		63
	3	R4-01-03		63
	4	R4-01-04		68
	5	R4-01-05		65
	6	R4-01-06		66
2-02	M1	M2-02-01		67
	M2	M2-02-02		62
	M3	M2-02-03		66
	M4	M2-02-04		70
	M5	M2-02-05		62
	M6	M2-02-06		61
	M7	M2-02-07		65
	M8	M2-02-08		66
	M9	M2-02-09		71
	M10	M2-02-10		63
	1	R2-02-01		65
	2	R2-02-02		66
	3	R2-02-03		66
	4	R2-02-04		66
	5	R2-02-05		60
	6	R2-02-06		59
	7	R2-02-07		59
	8	R2-02-08		59
	9	R2-02-09		59
	10	R2-02-10		66
	11	R2-02-11		59
	12	R2-02-12		61
	13	R2-02-13		71
	14	R2-02-14		58
	15	R2-02-15		60
	16	R2-02-16		57
	17	R2-02-17		56
	18	R2-02-18		56
	19	R2-02-19		58
	20	R2-02-20		57
	21	R2-02-21		56
	22	R2-02-22		56
	23	R2-02-23		56
	24	R2-02-24		56
	25	R2-02-25		57
	26	R2-02-26		57

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	27	R2-02-27		61
3-02	M1	M3-02-01		66
	M2	M3-02-02		59
	M3	M3-02-03		67
	M4	M3-02-04		65
	M5	M3-02-05		66
	M6	M3-02-06		64
	M7	M3-02-07		64
	M8	M3-02-08		65
	1	R3-02-01		57
	2	R3-02-02		57
	3	R3-02-03		56
	4	R3-02-04		59
3-04	M1	M3-04-01		62
	M2	M3-04-02		58
	M3	M3-04-03		61
	M4	M3-04-04		59
	M5	M3-04-05		59
	M6	M3-04-06		59
	1	R3-04-01		57
	2	R3-04-02		57
	3	R3-04-03		57
	4	R3-04-04		56
	5	R3-04-05		61
	6	R3-04-06		55
	7	R3-04-07		56
	8	R3-04-08		57
	9	R3-04-09		60
1-08	M1	M1-08-01		66
	M2	M1-08-02		69
	M3	M1-08-03		66
	1	R1-08-01		57
	2	R1-08-02		56
	3	R1-08-03		58
	4	R1-08-04		56
	5	R1-08-05		59
2-03	M1	M2-03-01		59
	M2	M2-03-02		63
	M3	M2-03-03		60
	M4	M2-03-04		57
	M5	M2-03-05		59
	1	R2-03-01		56
	2	R2-03-02		55
	3	R2-03-03		57
	4	R2-03-04		56

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	5	R2-03-05		55
	6	R2-03-06		56
2-04A	M1	M2-04-01		64
	M2	M2-04-02		60
	M3	M2-04-03		62
	M4	M2-04-04		60
	M5	M2-04-05		61
	M6	M2-04-06		63
	M7	M2-04-07		59
	M8	M2-04-08		61
	1	R2-04-01		56
	2	R2-04-02		56
	3	R2-04-03		56
	4	R2-04-04		58
	5	R2-04-05		56
	6	R2-04-06		56
	7	R2-04-07		56
2-05A	M1	M2-05-01		60
	M2	M2-05-02		62
	1	R2-05-01		57
5-36	1	R 5-36-01		65
	2	R 5-36-02		63
	3	R 5-36-03		62
	4	R 5-36-04		62
	5	R 5-36-05		62
	6	R 5-36-06		61
	7	R 5-36-07		61
	8	R 5-36-08		60
	9	R 5-36-09		64
	10	R 5-36-10		59
	11	R 5-36-11		58
	12	R 5-36-12		59
	13	R 5-36-13		60
	14	R 5-36-14		64
	15	R 5-36-15		67
	16	R 5-36-16		74
	17	R 5-36-17		77
	18	R 5-36-18		71
	19	R 5-36-19		66
	20	R 5-36-20		63
	21	R 5-36-21		60
	22	R 5-36-22		59
	23	R 5-36-23		60
	24	R 5-36-24		60
	25	R 5-36-25		60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	26	R 5-36-26		62
	27	R 5-36-27		62
	28	R 5-36-28		63
	29	R 5-36-29		65
	30	R 5-36-30		68
	31	R 5-36-31		68
	32	R 5-36-32		67
	33	R 5-36-33		68
	34	R 5-36-34		67
	35	R 5-36-35		67
	36	R 5-36-36		68
	37	R 5-36-37		69
	38	R 5-36-38		68
	39	R 5-36-39		67
	40	R 5-36-40		66
	41	R 5-36-41		64
	42	R 5-36-42		63
	43	R 5-36-43		62
	44	R 5-36-44		61
	45	R 5-36-45		62
	46	R 5-36-46		62
	47	R 5-36-47		64
	48	R 5-36-48		65
	49	R 5-36-49		67
	50	R 5-36-50		68
	51	R 5-36-51		72
	52	R 5-36-52		72
	53	R 5-36-53		71
	54	R 5-36-54		70
	55	R 5-36-55		73
	56	R 5-36-56		72
	57	R 5-36-57		73
	58	R 5-36-58		72
	59	R 5-36-59		74
	60	R 5-36-60		75
	61	R 5-36-61		75
	62	R 5-36-62		74
	63	R 5-36-63		75
	64	R 5-36-64		75
	65	R 5-36-65		75
	66	R 5-36-66		75
	67	R 5-36-67		73
	68	R 5-36-68		69
	69	R 5-36-69		66
	70	R 5-36-70		62

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	71	R 5-36-71		61
	72	R 5-36-72		70
	73	R 5-36-73		65
	74	R 5-36-74		62
	75	R 5-36-75		65
	76	R 5-36-76		63
	77	R 5-36-77		62
	78	R 5-36-78		61
	79	R 5-36-79		61
	80	R 5-36-80		60
	81	R 5-36-81		61
	82	R 5-36-82		61
	83	R 5-36-83		61
	84	R 5-36-84		62
	85	R 5-36-85		62
	86	R 5-36-86		61
	87	R 5-36-87		61
	88	R 5-36-88		62
	89	R 5-36-89		63
	90	R 5-36-90		63
	91	R 5-36-91		64
	92	R 5-36-92		65
	93	R 5-36-93		65
	94	R 5-36-94		66
	95	R 5-36-95		67
	96	R 5-36-96		63
	97	R 5-36-97		63
	98	R 5-36-98		63
	99	R 5-36-99		63
	100	R 5-36-100		63
	101	R 5-36-101		62
	102	R 5-36-102		62
	103	R 5-36-103		63
	104	R 5-36-104		63
	105	R 5-36-105		63
	106	R 5-36-106		62
	107	R 5-36-107		62
	108	R 5-36-108		62
	109	R 5-36-109		62
	110	R 5-36-110		66
	111	R 5-36-111		63
	112	R 5-36-112		61
5-37A	1	R 5-37-01		67
	2	R 5-37-02		65
	3	R 5-37-03		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	4	R 5-37-04		61
	5	R 5-37-05		59
	6	R 5-37-06		61
	7	R 5-37-07		60
	8	R 5-37-08		60
	9	R 5-37-09		62
	10	R 5-37-10		64
	11	R 5-37-11		65
	12	R 5-37-12		63
	13	R 5-37-13		61
	14	R 5-37-14		58
	15	R 5-37-15		59
	16	R 5-37-16		57
	17	R 5-37-17		57
	18	R 5-37-18		58
	19	R 5-37-19		59
	19A	R 5-37-19A		65
5-37B	20	R 5-37-20		75
	21	R 5-37-21		75
	22	R 5-37-22		74
	23	R 5-37-23		74
	24	R 5-37-24		73
	25	R 5-37-25		73
	26	R 5-37-26		72
	27	R 5-37-27		72
	28	R 5-37-28		70
	29	R 5-37-29		69
	30	R 5-37-30		69
	31	R 5-37-31		68
	32	R 5-37-32		67
	33	R 5-37-33		65
	34	R 5-37-34		65
	35	R 5-37-35		63
	36	R 5-37-36		63
	37	R 5-37-37		62
	38	R 5-37-38		62
	39	R 5-37-39		61
	40	R 5-37-40		69
	41	R 5-37-41		73
	42	R 5-37-42		71
	43	R 5-37-43		70
5-33A	1	R 5-33-1		68
	2	R 5-33-2		72
	3	R 5-33-3		68
	4	R 5-33-4		69

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	5	R 5-33-5		72
	6	R 5-33-6		70
	7	R 5-33-7		72
	8	R 5-33-8		66
	9	R 5-33-9		66
	10	R 5-33-10		66
	11	R 5-33-11		67
	12	R 5-33-12		66
	13	R 5-33-13		67
	14	R 5-33-14		63
	15	R 5-33-15		62
	16	R 5-33-16		61
	17	R 5-33-17		61
	18	R 5-33-18		65
	19	R 5-33-19		62
	20	R 5-33-20		60
	21	R 5-33-21		59
	22	R 5-33-22		59
	23	R 5-33-23		60
	24	R 5-33-24		61
	25	R 5-33-25		60
	26	R 5-33-26		59
	27	R 5-33-27		59
	28	R 5-33-28		59
	29	R 5-33-29		58
	30	R 5-33-30		58
	31	R 5-33-31		58
	32	R 5-33-32		58
	33	R 5-33-33		57
	34	R 5-33-34		66
	35	R 5-33-35		65
	36	R 5-33-36		63
	37	R 5-33-37		64
	38	R 5-33-38		65
	39	R 5-33-39		62
	40	R 5-33-40		63
	41	R 5-33-41		66
	42	R 5-33-42		72
	43	R 5-33-43		69
	44	R 5-33-44		66
	45	R 5-33-45		67
	46	R 5-33-46		64
	47	R 5-33-47		63
	48	R 5-33-48		61
	49	R 5-33-49		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	50	R 5-33-50		60
	51	R 5-33-51		60
	52	R 5-33-52		60
	53	R 5-33-53		60
	54	R 5-33-54		61
	55	R 5-33-55		63
	56	R 5-33-56		60
	57	R 5-33-57		65
	58	R 5-33-58		66
	59	R 5-33-59		66
	60	R 5-33-60		66
	61	R 5-33-61		59
	62	R 5-33-62		58
	63	R 5-33-63		58
	64	R 5-33-64		58
	65	R 5-33-65		58
	66	R 5-33-66		59
	67	R 5-33-67		59
	68	R 5-33-68		59
	69	R 5-33-69		58
	70	R 5-33-70		70
	71	R 5-33-71		71
	72	R 5-33-72		71
	73	R 5-33-73		71
	74	R 5-33-74		71
	75	R 5-33-75		71
	76	R 5-33-76		70
	77	R 5-33-77		67
	78	R 5-33-78		66
	79	R 5-33-79		67
	80	R 5-33-80		64
	81	R 5-33-81		62
	82	R 5-33-82		66
	83	R 5-33-83		61
	84	R 5-33-84		65
	85	R 5-33-85		67
	86	R 5-33-86		67
	87	R 5-33-87		65
	88	R 5-33-88		66
	89	R 5-33-89		63
	90	R 5-33-90		64
	91	R 5-33-91		61
	92	R 5-33-92		60
	93	R 5-33-93		59
	94	R 5-33-94		58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	95	R 5-33-95		60
	96	R 5-33-96		60
	97	R 5-33-97		59
	98	R 5-33-98		58
	99	R 5-33-99		62
	100	R 5-33-100		61
	101	R 5-33-101		60
	102	R 5-33-102		61
	103	R 5-33-103		61
	104	R 5-33-104		60
	105	R 5-33-105		60
	106	R 5-33-106		59
	107	R 5-33-107		60
	108	R 5-33-108		58
	109	R 5-33-109		60
	110	R 5-33-110		59
	111	R 5-33-111		57
	112	R 5-33-112		57
	113	R 5-33-113		59
	114	R 5-33-114		68
	115	R 5-33-115		67
	116	R 5-33-116		65
	117	R 5-33-117		64
	118	R 5-33-118		60
	119	R 5-33-119		59
	120	R 5-33-120		71
	121	R 5-33-121		71
	122	R 5-33-122		70
	123	R 5-33-123		70
	124	R 5-33-124		68
	125	R 5-33-125		66
	126	R 5-33-126		64
	127	R 5-33-127		58
	128	R 5-33-128		58
	129	R 5-33-129		67
	130	R 5-33-130		65
	131	R 5-33-131		62
	132	R 5-33-132		64
	133	R 5-33-133		62
	134	R 5-33-134		64
	135	R 5-33-135		63
	136	R 5-33-136		63
	137	R 5-33-137		62
	138	R 5-33-138		63
	139	R 5-33-139		62

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	140	R 5-33-140		62
	141	R 5-33-141		61
	142	R 5-33-142		61
	143	R 5-33-143		61
	144	R 5-33-144		61
	145	R 5-33-145		62 (37)
	146	R 5-33-146		62 (37)
	147	R 5-33-147		62 (37)
	148	R 5-33-148		60
	149	R 5-33-149		61
	150	R 5-33-150		60
	151	R 5-33-151		61
	152	R 5-33-152		60
	153	R 5-33-153		61
	154	R 5-33-154		62
	155	R 5-33-155		66
	156	R 5-33-156		69
	157	R 5-33-157		67
	158	R 5-33-158		65
	159	R 5-33-159		60
	160	R 5-33-160		62
	161	R 5-33-161		62
	162	R 5-33-162		61
	163	R 5-33-163		66
	164	R 5-33-164		64
	165	R 5-33-165		67
	166	R 5-33-166		63
	167	R 5-33-167		60
	168	R 5-33-168		60
	169	R 5-33-169		60
	170	R 5-33-170		60
	171	R 5-33-171		66
	172	R 5-33-172		60
	173	R 5-33-173		58
	174	R 5-33-174		57
	175	R 5-33-175		68
	176	R 5-33-176		63
	177	R 5-33-177		60
	178	R 5-33-178		58
	179	R 5-33-179		57
	180	R 5-33-180		58
	181	R 5-33-181		58
	182	R 5-33-182		57
	183	R 5-33-183		57
	184	R 5-33-184		65

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	185	R 5-33-185		64
	186	R 5-33-186		57
	187	R 5-33-187		57
	188	R 5-33-188		65
	189	R 5-33-189		67
	190	R 5-33-190		67
	191	R 5-33-191		66
	192	R 5-33-192		67
	193	R 5-33-193		67
	194	R 5-33-194		67
	195	R 5-33-195		68
	196	R 5-33-196		68
	197	R 5-33-197		68
	198	R 5-33-198		68
	199	R 5-33-199		68
	200	R 5-33-200		57
	201	R 5-33-201		56
	202	R 5-33-202		56
	203	R 5-33-203		57
	204	R 5-33-204		57
	205	R 5-33-205		57
	206	R 5-33-206		57
	207	R 5-33-207		57
	208	R 5-33-208		57
	209	R 5-33-209		57
	210	R 5-33-210		57
	211	R 5-33-211		57
	212	R 5-33-212		56
	213	R 5-33-213		57
	214	R 5-33-214		62
	215	R 5-33-215		65
	216	R 5-33-216		57
	217	R 5-33-217		57
	218	R 5-33-218		57
	219	R 5-33-219		61
	220	R 5-33-220		65
	221	R 5-33-221		65
	222	R 5-33-222		66
	223	R 5-33-223		65
	224	R 5-33-224		64
	225	R 5-33-225		80
	226	R 5-33-226		77
5-34A	1	R 5-34-1		66
	2	R 5-34-2		67
	3	R 5-34-3		65

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	4	R 5-34-4		64
	5	R 5-34-5		62
	6	R 5-34-6		60
	7	R 5-34-7		66
	8	R 5-34-8		65
	9	R 5-34-9		63
	10	R 5-34-10		61
	11	R 5-34-11		60
	12	R 5-34-12		60
	13	R 5-34-13		61
	14	R 5-34-14		62
	15	R 5-34-15		62
	16	R 5-34-16		63
	17	R 5-34-17		62
	18	R 5-34-18		62
	19	R 5-34-19		61
	20	R 5-34-20		59
	21	R 5-34-21		59
	22	R 5-34-22		60
	23	R 5-34-23		60
	24	R 5-34-24		59
	25	R 5-34-25		58
	26	R 5-34-26		58
	27	R 5-34-27		58
	28	R 5-34-28		59
	29	R 5-34-29		59
	30	R 5-34-30		58
	31	R 5-34-31		58
	32	R 5-34-32		58
	33	R 5-34-33		58
	34	R 5-34-34		60
	35	R 5-34-35		62
	36	R 5-34-36		62
	37	R 5-34-37		62
	38	R 5-34-38		60
	39	R 5-34-39		59
	40	R 5-34-40		60
	41	R 5-34-41		60
	42	R 5-34-42		61
	43	R 5-34-43		60
	44	R 5-34-44		59
	45	R 5-34-45		59
	46	R 5-34-46		59
	47	R 5-34-47		59
	48	R 5-34-48		59

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	49	R 5-34-49		59
	50	R 5-34-50		60
	51	R 5-34-51		59
	52	R 5-34-52		61
	53	R 5-34-53		63
	54	R 5-34-54		62
	55	R 5-34-55		62
	56	R 5-34-56		65
	57	R 5-34-57		67
	58	R 5-34-58		60
	59	R 5-34-59		60
	60	R 5-34-60		61
	61	R 5-34-61		63
	62	R 5-34-62		64
	63	R 5-34-63		67
	64	R 5-34-64		59
	65	R 5-34-65		59
	66	R 5-34-66		61
	67	R 5-34-67		63
	68	R 5-34-68		66
	69	R 5-34-69		63
	70	R 5-34-70		65
	71	R 5-34-71		60
	72	R 5-34-72		62
	73	R 5-34-73		68
	74	R 5-34-74		66
	75	R 5-34-75		64
	76	R 5-34-76		61
	77	R 5-34-77		71
	78	R 5-34-78		69
	79	R 5-34-79		67
	80	R 5-34-80		66
	81	R 5-34-81		65
	82	R 5-34-82		62
	83	R 5-34-83		73
	84	R 5-34-84		72
	85	R 5-34-85		71
	86	R 5-34-86		71
	87	R 5-34-87		70
	88	R 5-34-88		68
	89	R 5-34-89		71
	90	R 5-34-90		72
5-32C	1	R 5-32-1		76
	2	R5-32C-01		74
	3	R5-32C-02		69

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	4	R5-32C-03		66
	5	R5-32C-04a		68
	6	R5-32C-04b		69
	7	R5-32C-04c		69
	8	R5-32C-04d		69
	9	R5-32C-04e		72
	10	R5-32C-05a		75
	11	R5-32C-05b		76
	12	R5-32C-05c		76
	13	R5-32C-05d		76
	14	R5-32C-05e		63
	15	R5-32C-06a		66
	16	R5-32C-06b		68
	17	R5-32C-06c		69
	18	R5-32C-06d		69
	19	R5-32C-06e		64
	20	R5-32C-07a		69
	21	R5-32C-07b		71
	22	R5-32C-07c		71
	23	R5-32C-07d		71
	24	R5-32C-07e		67
	25	R5-32C-08b		70
	26	R5-32C-08c		71
	27	R5-32C-08d		71
	28	R5-32C-08e		65
	29	R5-32C-09b		67
	30	R5-32C-09c		68
	31	R5-32C-09d		68
	32	R5-32C-09e		63
	33	R5-32C-10b		64
	34	R5-32C-10c		65
	35	R5-32C-10d		65
5-32A	1	R5-32C-10e		70
	2	R 5-32A-2		64
	3	R 5-32A-3		61
5-32B	1	R 5-32-1		67
	2	R 5-32-2		70
	3	R 5-32-3		66
5-31	1	R 5-31-01		61
	2	R 5-31-02		61
	3	R 5-31-03		61
	4	R 5-31-04		61
	5	R 5-31-05		62
	6	R 5-31-06		62
	7	R 5-31-07		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	8	R 5-31-08		64
	9	R 5-31-09		66
	10	R 5-31-10		66
	11	R 5-31-11		67
	12	R 5-31-12		67
	13	R 5-31-13		65
	14	R 5-31-14		64
	15	R 5-31-15		63
	16	R 5-31-16		63
	17	R 5-31-17		64
	18	R 5-31-18		63
	19	R 5-31-19		63
	20	R 5-31-20		61
	21	R 5-31-21		60
	22	R 5-31-22		60
	23	R 5-31-23		62
	24	R 5-31-24		61
	25	R 5-31-25		60
	26	R 5-31-26		61
	27	R 5-31-27		63
	28	R 5-31-28		62
	29	R 5-31-29		59
	30	R 5-31-30		60
	31	R 5-31-31		60
	32	R 5-31-32		64
	33	R 5-31-33		65
	34	R 5-31-34		63
	35	R 5-31-35		62
	36	R 5-31-36		62
	37	R 5-31-37		60
	38	R 5-31-38		59
	39	R 5-31-39		59
	40	R 5-31-40		63
	41	R 5-31-41		65
	42	R 5-31-42		65
	43	R 5-31-43		64
	44	R 5-31-44		62
	45	R 5-31-45		62
	46	R 5-31-46		61
	47	R 5-31-47		60
	48	R 5-31-48		61
	49	R 5-31-49		60
	50	R 5-31-50		60
	51	R 5-31-51		62
	52	R 5-31-52		60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	53	R 5-31-53		59
5-30	1	R 5-30-01		69
	2	R 5-30-02		69
	3	R 5-30-03		71
	4	R 5-30-04		71
	5	R 5-30-05		72
	6	R 5-30-06		72
	7	R 5-30-07		60
	8	R 5-30-08		59
	9	R 5-30-09		61
	10	R 5-30-10		62
	11	R 5-30-11		62
	12	R 5-30-12		66
	13	R 5-30-13		68
	14	R 5-30-14		67
	15	R 5-30-15		66
	16	R 5-30-16		65
	17	R 5-30-17		66
	18	R 5-30-18		68
	19	R 5-30-19		67
	20	R 5-30-20		65
	21	R 5-30-21		63
	22	R 5-30-22		63
	23	R 5-30-23		56
	24	R 5-30-24		56
	25	R 5-30-25		57
	26	R 5-30-26		57
	27	R 5-30-27		57
	28	R 5-30-28		57
	29	R 5-30-29		58
	30	R 5-30-30		59
	31	R 5-30-31		61
	32	R 5-30-32		59
	33	R 5-30-33		60
	34	R 5-30-34		58
	35	R 5-30-35		59
	36	R 5-30-36		60
	37	R 5-30-37		60
5-29	1	R 5-29-1		63
	2	R 5-29-2		62
	3	R 5-29-3		63
	4	R 5-29-4		59
	5	R 5-29-5		64
	6	R 5-29-6		63
	7	R 5-29-7		78

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	8	R 5-29-8		65
	9	R 5-29-9		67
	10	R 5-29-10		56
	11	R 5-29-11		55
	12	R 5-29-12		65
	13	R 5-29-13		62
	14	R 5-29-14		61
	15	R 5-29-15		67
	16	R 5-29-16		68
	17	R 5-29-17		68
	18	R 5-29-18		69
	19	R 5-29-19		70
	20	R 5-29-20		69
	21	R 5-29-21		68
	22	R 5-29-22		67
	23	R 5-29-23		66
	24	R 5-29-24		64
	25	R 5-29-25		63
	26	R 5-29-26		63
	27	R 5-29-27		63
	28	R 5-29-28		63
	29	R 5-29-29		62
	30	R 5-29-30		61
	31	R 5-29-31		64
	32	R 5-29-32		64
	33	R 5-29-33		62
	34	R 5-29-34		61
	35	R 5-29-35		62
	36	R 5-29-36		63
	37	R 5-29-37		62
	38	R 5-29-38		63
	39	R 5-29-39		64
	40	R 5-29-40		64
	41	R 5-29-41		64
	42	R 5-29-42		65
	43	R 5-29-43		66
	44	R 5-29-44		61
	45	R 5-29-45		60
	46	R 5-29-46		59
	47	R 5-29-47		58
	48	R 5-29-48		58
	49	R 5-29-49		57
	50	R 5-29-50		58
	51	R 5-29-51		59
	52	R 5-29-52		60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	53	R 5-29-53		58
	54	R 5-29-54		57
	55	R 5-29-55		56
	56	R 5-29-56		57
	57	R 5-29-57		58
	58	R 5-29-58		60
	59	R 5-29-59		61
	60	R 5-29-60		62
	61	R 5-29-61		58
	62	R 5-29-62		57
	63	R 5-29-63		56
	64	R 5-29-64		57
	65	R 5-29-65		58
	66	R 5-29-66		59
	67	R 5-29-67		59
	68	R 5-29-68		57
	69	R 5-29-69		56
	70	R 5-29-70		56
	71	R 5-29-71		56
	72	R 5-29-72		56
	73	R 5-29-73		58
	74	R 5-29-74		57
	75	R 5-29-75		57
	76	R 5-29-76		56
	77	R 5-29-77		59
	78	R 5-29-78		61
	79	R 5-29-79		62
	80	R 5-29-80		64
	81	R 5-29-81		65
	82	R 5-29-82		65
	83	R 5-29-83		64
	84	R 5-29-84		64
	85	R 5-29-85		65
	86	R 5-29-86		65
	87	R 5-29-87		65
	88	R 5-29-88		66
	89	R 5-29-89		65
	90	R 5-29-90		64
	91	R 5-29-91		63
	92	R 5-29-92		63
	93	R 5-29-93		56
	94	R 5-29-94		56
	95	R 5-29-95		56
	96	R 5-29-96		58
	97	R 5-29-97		58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	98	R 5-29-98		57
	99	R 5-29-99		56
	100	R 5-29-100		56
	101	R 5-29-101		56
	102	R 5-29-102		57
	103	R 5-29-103		58
	104	R 5-29-104		58
	105	R 5-29-105		58
	106	R 5-29-106		58
	107	R 5-29-107		65
	108	R 5-29-108		63
	109	R 5-29-109		57
	110	R 5-29-110		56
	111	R 5-29-111		58
	112	R 5-29-112		57
	113	R 5-29-113		58
	114	R 5-29-114		59
	115	R 5-29-115		64
	116	R 5-29-116		63
	117	R 5-29-117		62
	118	R 5-29-118		62
	119	R 5-29-119		61
	120	R 5-29-120		59
	121	R 5-29-121		59
	122	R 5-29-122		59
	123	R 5-29-123		60
	124	R 5-29-124		64
	125	R 5-29-125		62
5-28	1	R 5-28-1		62
	2	R 5-28-2		62
	3	R 5-28-3		61
	4	R 5-28-4		60
	5	R 5-28-5		60
	6	R 5-28-6		59
	7	R 5-28-7		57
	8	R 5-28-8		57
	9	R 5-28-9		59
	10	R 5-28-10		62
	11	R 5-28-11		61
	12	R 5-28-12		61
	13	R 5-28-13		61
	14	R 5-28-14		59
	15	R 5-28-15		60
	16	R 5-28-16		58
	17	R 5-28-17		58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	18	R 5-28-18		58
	19	R 5-28-19		58
	20	R 5-28-20		61
	21	R 5-28-21		62
	22	R 5-28-22		62
	23	R 5-28-23		60
	24	R 5-28-24		61
	25	R 5-28-25		65
	26	R 5-28-26		67
	27	R 5-28-27		76
	28	R 5-28-28		60
	29	R 5-28-29		78
	30	R 5-28-30		61
	31	R 5-28-31		68
	32	R 5-28-32		73
	33	R 5-28-33		66
	34	R 5-28-34		67
	35	R 5-28-35		66
	36	R 5-28-36		67
	37	R 5-28-37		68
	38	R 5-28-38		74
	39	R 5-28-39		73
	40	R 5-28-40		71
	41	R 5-28-41		59
	42	R 5-28-42		73
	43	R 5-28-43		69
	44	R 5-28-44		69
	45	R 5-28-45		77
	46	R 5-28-46		69
	47	R 5-28-47		72
	48	R 5-28-48		69
	49	R 5-28-49		69
	50	R 5-28-50		69
	51	R 5-28-51		66
	52	R 5-28-52		62
	53	R 5-28-53		62
	54	R 5-28-54		58
	55	R 5-28-55		64
	56	R 5-28-56		62
	57	R 5-28-57		58
	58	R 5-28-58		59
	59	R 5-28-59		59
	60	R 5-28-60		61
	61	R 5-28-61		72
	62	R 5-28-62		67

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	63	R 5-28-63		67
5-27	1	R-5-27-1		64
	2	R-5-27-2		64
	3	R-5-27-3		62
	4	R-5-27-4		61
	5	R-5-27-5		62
	6	R-5-27-6		62 (37)
	7	R-5-27-7		64
5-26	1	R 5-26-1		65
	2	R 5-26-2		65
	3	R 5-26-3		58
5-25	1	R 5-25-1		59
5-24	1	R 5-24-1		68
	2	R 5-24-2		69
	3	R 5-24-3		71
	4	R 5-24-4		67
	5	R 5-24-5		64
	6	R 5-24-6		61
	7	R 5-24-7		60
	8	R 5-24-8		62
	9	R 5-24-9		63
	10	R 5-24-10		64
	11	R 5-24-11		63
	12	R 5-24-12		60
	13	R 5-24-13		63
	14	R 5-24-14		63
	15	R 5-24-15		59
	16	R 5-24-16		59
	17	R 5-24-17		62
	18	R 5-24-18		61
	19	R 5-24-19		61
	20	R 5-24-20		60
5-23	1	R 5-23-1		58
	2	R 5-23-2		59
	3	R 5-23-3		59
	4	R 5-23-4		60
	5	R 5-23-5		60
	6	R 5-23-6		59
	7	R 5-23-7		59
	8	R 5-23-8		59
	9	R 5-23-9		58
	10	R 5-23-10		60
	11	R 5-23-11		58
	12	R 5-23-12		58
	13	R 5-23-13		56

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	14	R 5-23-14		64
5-22	1	R 5-22-1		65
	2	R 5-22-2		65
	3	R 5-22-3		68
	4	R 5-22-4		64
	5	R 5-22-5		62
	6	R 5-22-6		63
	7	R 5-22-7		64
	8	R 5-22-8		62
	9	R 5-22-9		62
	10	R 5-22-10		62
	11	R 5-22-11		63
5-19	1	R 5-19-1		64
	2	R 5-19-2		65
	3	R 5-19-3		65
	4	R 5-19-4		66
	5	R 5-19-5		67
	6	R 5-19-6		68
	7	R 5-19-7		61
	8	R 5-19-8		61
	9	R 5-19-9		62
	10	R 5-19-10		62
	11	R 5-19-11		64
	12	R 5-19-12		66
	13	R 5-19-13		67
	14	R 5-19-14		65
	15	R 5-19-15		63
	16	R 5-19-16		59
	17	R 5-19-17		59
	18	R 5-19-18		61
	19	R 5-19-19		64
	20	R 5-19-20		62
	21	R 5-19-21		61
	22	R 5-19-22		62
	23	R 5-19-23		64
	24	R 5-19-24		63
	25	R 5-19-25		62
	26	R 5-19-26		60
	27	R 5-19-27		60
	28	R 5-19-28		60
	29	R 5-19-29		62
	30	R 5-19-30		62
	31	R 5-19-31		63
	32	R 5-19-32		64
	33	R 5-19-33		60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	34	R 5-19-34		60
	35	R 5-19-35		61
	36	R 5-19-36		59
	37	R 5-19-37		60
	38	R 5-19-38		61
	39	R 5-19-39		61
	40	R 5-19-40		60
	41	R 5-19-41		60
	42	R 5-19-42		59
	43	R 5-19-43		59
	44	R 5-19-44		59
	45	R 5-19-45		63
	46	R 5-19-46		63
	47	R 5-19-47		65
	48	R 5-19-48		67
	49	R 5-19-49		68
	50	R 5-19-50		67
	51	R 5-19-51		64
	52	R 5-19-52		67
	53	R 5-19-53		62
	54	R 5-19-54		67
	55	R 5-19-55		68
5-18	1	R 5-18-1		62
	2	R 5-18-2		65
	3	R 5-18-3		67
	4	R 5-18-4		58
	5	R 5-18-5		60
	6	R 5-18-6		61
	7	R 5-18-7		63
	8	R 5-18-8		71
	9	R 5-18-9		66
	10	R 5-18-10		72
5-21	1	R 5-21-1		63
	2	R 5-21-2		61
	3	R 5-21-3		60
	5	R 5-21-5		66
	6	R 5-21-6		65
	7	R 5-21-7		66
	8	R 5-21-8		67
	9	R 5-21-9		67
	10	R 5-21-10		74
	11	R 5-21-11		72
	12	R 5-21-12		76
	13	R 5-21-13		66
	14	R 5-21-14		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	15	R 5-21-15		60
	16	R 5-21-16		61
	17	R 5-21-17		61
	18	R 5-21-18		60
	19	R 5-21-19		60
	20	R 5-21-20		58
	21	R 5-21-21		58
	22	R 5-21-22		67
5-20	1	R 5-20-1		62
	2	R 5-20-2		62
	3	R 5-20-3		63
	4	R 5-20-4		64
	5	R 5-20-5		64
	6	R 5-20-6		66
	7	R 5-20-7		65
	8	R 5-20-8		59
	9	R 5-20-9		58
	10	R 5-20-10		59
	11	R 5-20-11		60
	12	R 5-20-12		59
	13	R 5-20-13		61
	14	R 5-20-14		60
	15	R 5-20-15		59
	16	R 5-20-16		58
	17	R 5-20-17		62
	18	R 5-20-18		59
	19	R 5-20-19		62
	20	R 5-20-20		58
5-17	1	R 5-17-1		64
	2	R 5-17-2		64
	3	R 5-17-3		65
	4	R 5-17-4		65
	5	R 5-17-5		66
	6	R 5-17-6		62
	7	R 5-17-7		61
	8	R 5-17-8		60
	9	R 5-17-9		61
	10	R 5-17-10		62
	11	R 5-17-11		63
	12	R 5-17-12		63
	13	R 5-17-13		61
	14	R 5-17-14		61
	15	R 5-17-15		60
	16	R 5-17-16		60
	17	R 5-17-17		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	18	R 5-17-18		61
	19	R 5-17-19		63
	20	R 5-17-20		62
	21	R 5-17-21		61
	22	R 5-17-22		58
	23	R 5-17-23		56
	24	R 5-17-24		62
	25	R 5-17-25		62
	26	R 5-17-26		63
	27	R 5-17-27		58
	28	R 5-17-28		58
	29	R 5-17-29		58
	30	R 5-17-30		57
	31	R 5-17-31		57
	32	R 5-17-32		57
	33	R 5-17-33		57
	34	R 5-17-34		59
	35	R 5-17-35		60
	36	R 5-17-36		61
	37	R 5-17-37		60
	38	R 5-17-38		58
	39	R 5-17-39		60
	40	R 5-17-40		59
	41	R 5-17-41		58
	42	R 5-17-42		58
5-16	1	R 5-16-1		60
	2	R 5-16-2		60
	3	R 5-16-3		58
5-15	1	R 5-15-1		69
	2	R 5-15-2		69
	3	R 5-15-3		70
	4	R 5-15-4		70
	5	R 5-15-5		69
	6	R 5-15-6		68
	7	R 5-15-7		72 (37)
	8	R 5-15-8		66
	9	R 5-15-9		66
	10	R 5-15-10		64
	11	R 5-15-11		65
	12	R 5-15-12		64
	13	R 5-15-13		63
	14	R 5-15-14		60
	15	R 5-15-15		66
	16	R 5-15-16		61
	17	R 5-15-17		59

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	18	R 5-15-18		59 (34)
	19	R 5-15-19		68
	20	R 5-15-20		60
	21	R 5-15-21		60
	22	R 5-15-22		68 (43)
	23	R 5-15-23		63
5-13	1	R 5-13-1		64
	2	R 5-13-2		64
	3	R 5-13-3		61
5-12	1	R 5-12-1		56
	2	R 5-12-2		63
	3	R 5-12-3		62
	4	R 5-12-4		62
	5	R 5-12-5		62
	6	R 5-12-6		62
	7	R 5-12-7		62
	8	R 5-12-8		63
	9	R 5-12-9		64
	10	R 5-12-10		64
	11	R 5-12-11		64
	12	R 5-12-12		61
	13	R 5-12-13		58
	14	R 5-12-14		61
	15	R 5-12-15		59
	16	R 5-12-16		58
	17	R 5-12-17		57
	18	R 5-12-18		56
	19	R 5-12-19		57
	20	R 5-12-20		57
	21	R 5-12-21		57
	22	R 5-12-22		57
	23	R 5-12-23		57
	24	R 5-12-24		56
	25	R 5-12-25		56
	26	R 5-12-26		56
	27	R 5-12-27		56
	28	R 5-12-28		59
	29	R 5-12-29		60
	30	R 5-12-30		61
	31	R 5-12-31		57
	32	R 5-12-32		58
	33	R 5-12-33		60
	34	R 5-12-34		56
	35	R 5-12-35		57
	36	R 5-12-36		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	37	R 5-12-37		63
	38	R 5-12-38		64
	39	R 5-12-39		60
	40	R 5-12-40		59
	41	R 5-12-41		58
	42	R 5-12-42		58
	43	R 5-12-43		57
	44	R 5-12-44		58
	45	R 5-12-45		59
	46	R 5-12-46		61
	47	R 5-12-47		61
	48	R 5-12-48		60
	49	R 5-12-49		59
	50	R 5-12-50		63
	51	R 5-12-51		62
	52	R 5-12-52		60
	53	R 5-12-53		58
	54	R 5-12-54		58
	55	R 5-12-55		58
	56	R 5-12-56		60
	57	R 5-12-57		63
	58	R 5-12-58		58
	59	R 5-12-59		59
	60	R 5-12-60		58
	61	R 5-12-61		61
	62	R 5-12-62		57
	63	R 5-12-63		57
	64	R 5-12-64		56
	65	R 5-12-65		59
	66	R 5-12-66		59
	67	R 5-12-67		65
	68	R 5-12-68		61
	69	R 5-12-69		65
	70	R 5-12-70		57
	71	R 5-12-71		57
	72	R 5-12-72		57
	73	R 5-12-73		57
	74	R 5-12-74		57
	75	R 5-12-75		57
	76	R 5-12-76		57
	77	R 5-12-77		57
	78	R 5-12-78		58
	79	R 5-12-79		58
	80	R 5-12-80		58
	81	R 5-12-81		58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	82	R 5-12-82		59
	83	R 5-12-83		60
	84	R 5-12-84		59
	85	R 5-12-85		60
	86	R 5-12-86		60
	87	R 5-12-87		60
	88	R 5-12-88		60
	89	R 5-12-89		61
	90	R 5-12-90		62
	91	R 5-12-91		62
	92	R 5-12-92		65
	93	R 5-12-93		65
	94	R 5-12-94		63
	95	R 5-12-95		63
	96	R 5-12-96		64
	97	R 5-12-97		64
	98	R 5-12-98		63
	99	R 5-12-99		63
	100	R 5-12-100		63
	101	R 5-12-101		62
	102	R 5-12-102		62
5-14	1	R 5-14-1		67
5-11	1	R 5-11-01		58
	2	R 5-11-02		75 (40)
	3	R 5-11-03		68
	4	R 5-11-04		66
	5	R 5-11-05		72 (37)
	6	R 5-11-06		74
5-10	1	R 5-10-01		69
	2	R 5-10-02		72
	3	R 5-10-03		68 (33)
5-09	01	R 5-09-01		62
	02	R 5-09-02	*	61
	03	R 5-09-03	*	60
	04	R 5-09-04	*	59
	05	R 5-09-05	*	59
	06	R 5-09-06	*	59
	07	R 5-09-07	*	60
	08	R 5-09-08	*	61
	09	R 5-09-09	*	60
	10	R 5-09-10	*	61
	11	R 5-09-11		67
	12	R 5-09-12	*	65
	13	R 5-09-13	*	63
	14	R 5-09-14	*	60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	15	R 5-09-15	*	58
	16	R 5-09-16	*	60
	17	R 5-09-17	*	67
	18	R 5-09-18	*	64
	19	R 5-09-19	*	55
	20	R 5-09-20	*	55
	21	R 5-09-21	*	55
	22	R 5-09-22	*	55
	23	R 5-09-23	*	55
	24	R 5-09-24	*	55
	25	R 5-09-25	*	56
	26	R 5-09-26	*	56
	27	R 5-09-27	*	55
	28	R 5-09-28	*	55
	29	R 5-09-29	*	55
	30	R 5-09-30	*	55
	31	R 5-09-31	*	55
	32	R 5-09-32	*	56
	33	R 5-09-33	*	56
5-08	1	R 5-08-01		62
	2a	R 5-08-02a		59
	2b	R 5-08-02b	*	64
	2c	R 5-08-02c	*	67
	2d	R 5-08-02d	*	67
	03	R 5-08-03		62
	4a	R 5-08-04a		59
	4b	R 5-08-04b	*	65
	4c	R 5-08-04c	*	67
	4d	R 5-08-04d	*	68
	5a	R 5-08-05a		59
	5b	R 5-08-05b	*	65
	5c	R 5-08-05c	*	67
	5d	R 5-08-05d	*	67
	6a	R 5-08-06a		60
	6b	R 5-08-06b	*	67
	6c	R 5-08-06c	*	68
	6d	R 5-08-06d	*	68
	7a	R 5-08-07a		61
	7b	R 5-08-07b	*	69
	7c	R 5-08-07c	*	70
	7d	R 5-08-07d	*	70
	8a	R 5-08-08a		70
	8b	R 5-08-08b	*	71
	8c	R 5-08-08c	*	71
	8d	R 5-08-08d	*	71

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	09	R 5-08-09		60
	10a	R 5-08-10a		59
	10b	R 5-08-10b	*	64
	10c	R 5-08-10c	*	66
	10d	R 5-08-10d	*	67
	11a	R 5-08-11a		59
	11b	R 5-08-11b	*	64
	11c	R 5-08-11c	*	66
	11d	R 5-08-11d	*	66
	12a	R 5-08-12a		60
	12b	R 5-08-12b	*	67
	12c	R 5-08-12c	*	68
	12d	R 5-08-12d	*	69
	13b	R 5-08-13b	*	63
	13c	R 5-08-13c	*	65
	13d	R 5-08-13d	*	66
	14a	R 5-08-14a		59
	14b	R 5-08-14b	*	64
	14c	R 5-08-14c	*	66
	14d	R 5-08-14d	*	66
	15a	R 5-08-15a		60
	15b	R 5-08-15b	*	67
	15c	R 5-08-15c	*	68
	15d	R 5-08-15d	*	69
	16a	R 5-08-16a		61
	16b	R 5-08-16b	*	68
	16c	R 5-08-16c	*	69
	16d	R 5-08-16d	*	70
	17	R 5-08-17		62
5-07	1	R 5-07-1		71
	2	R 5-07-2		67
	3	R 5-07-3		74
	4	R 5-07-4		60
	5	R 5-07-5		61
	6	R 5-07-6		60
	7	R 5-07-7		60
	8	R 5-07-8		59
	9	R 5-07-9		60
	10	R 5-07-10		60
	11	R 5-07-11		59
	12	R 5-07-12		59
	13	R 5-07-13		58
	14	R 5-07-14		58
	15	R 5-07-15		59
	16	R 5-07-16a	*	61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	17	R 5-07-16b	*	62
	7a	R 5-07-17a		58
	19	R 5-07-17b	*	59
	20	R 5-07-17c	*	60
	21	R 5-07-17d	*	61
	8a	R 5-07-18a		57
	23	R 5-07-18b	*	58
	24	R 5-07-18c	*	58
	25	R 5-07-18d	*	59
	9a	R 5-07-19a		59
	27	R 5-07-19b	*	60
	20	R 5-07-20		65
5-06	1	R 5-06-1		58
	2	R 5-06-2		61
	3	R 5-06-3		67
	4	R 5-06-4		65
	5	R 5-06-5		60
	6	R 5-06-6		64
	7	R 5-06-7		67
	8	R 5-06-8		64
	9	R 5-06-9		60
	10	R 5-06-10		60
	11	R 5-06-11		64
	12	R 5-06-12		64
	13	R 5-06-13		56
	14	R 5-06-14		57
	5a	R 5-06-15a		65
	5b	R 5-06-15b	*	67
	5c	R 5-06-15c	*	68
	5d	R 5-06-15d	*	68
	5e	R 5-06-15e	*	69
	5f	R 5-06-15f	*	70
	5g	R 5-06-15g	*	70
	6a	R 5-06-16a		65
	6b	R 5-06-16b	*	67
	6c	R 5-06-16c	*	68
	6d	R 5-06-16d	*	68
	6e	R 5-06-16e	*	69
	6f	R 5-06-16f	*	70
	6g	R 5-06-16g	*	71
	6h	R 5-06-16h	*	71
5-03	1	R 5-03-1		72 (37)
5-04	1	R 5-04-01		64
	2	R 5-04-02	*	60
5-02	1	R 5-02-1		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	2	R 5-02-2		64
	3	R 5-02-3		64
	4	R 5-02-4		65
	5	R 5-02-5		66
	6	R 5-02-6		60
	7	R 5-02-7		61
	8	R 5-02-8		65
	9	R 5-02-9		65
	10	R 5-02-10		59
	11	R 5-02-11		66
	12	R 5-02-12		67
	13	R 5-02-13		64
	14	R 5-02-14		63
	15	R 5-02-15		64
	16	R 5-02-16		64
	17	R 5-02-17		64
	18	R 5-02-18		58
	19	R 5-02-19		62
	20	R 5-02-20		64
	21	R 5-02-21		56
	22	R 5-02-22		60
	23	R 5-02-23		57
	24	R 5-02-24		57
	25	R 5-02-25		59
	26	R 5-02-26		57
	27	R 5-02-27		57
	28	R 5-02-28		60
	29	R 5-02-29		57
	30	R 5-02-30		57
	31	R 5-02-31		61
	32	R 5-02-32		57
	33	R 5-02-33		60
	34	R 5-02-34		63
	35	R 5-02-35		64
	36	R 5-02-36		64
	37	R 5-02-37		63
	38	R 5-02-38		63
	39	R 5-02-39		62
5-01	1	R 5-01-1		60
	2	R 5-01-2		60
	3	R 5-01-3		61
	4	R 5-01-4		63
	5	R 5-01-5		63
	6	R 5-01-6		63
	7	R 5-01-7		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	8	R 5-01-8		63
	9	R 5-01-9		63
	10	R 5-01-10		62
	11	R 5-01-11		63
	12	R 5-01-12		63
	13	R 5-01-13		63
	14	R 5-01-14		63
	15	R 5-01-15		62
	16	R 5-01-16		61
	17	R 5-01-17		62
	18	R 5-01-18		62
	19	R 5-01-19		63
	20	R 5-01-20		63
	21	R 5-01-21		62
	22	R 5-01-22		61
	23	R 5-01-23		62
	24	R 5-01-24		57
	25	R 5-01-25		62
	26a	R 5-01-26a		61
	26b	R 5-01-26b	*	63
	26c	R 5-01-26c	*	65
	27a	R 5-01-27a		56
	27b	R 5-01-27b	*	56
	27c	R 5-01-27c	*	59
	28a	R 5-01-28a		59
	28b	R 5-01-28b	*	60
	28c	R 5-01-28c	*	61
	29a	R 5-01-29a		56
	29b	R 5-01-29b	*	56
	29c	R 5-01-29c	*	58
	30a	R 5-01-30a		58
	30b	R 5-01-30b	*	59
	30c	R 5-01-30c	*	62
	30d	R 5-01-30d	*	66
	31a	R 5-01-31a		57
	31b	R 5-01-31b	*	58
	31c	R 5-01-31c	*	60
	31d	R 5-01-31d	*	64
	32a	R 5-01-32a		56
	32b	R 5-01-32b	*	57
	32c	R 5-01-32c	*	57
	32d	R 5-01-32d	*	61
	33a	R 5-01-33a		56
	33b	R 5-01-33b	*	56
	33c	R 5-01-33c	*	57

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	33d	R 5-01-33d	*	58
	34a	R 5-01-34a		59
	34b	R 5-01-34b	*	63
	34c	R 5-01-34c	*	65
	34d	R 5-01-34d	*	68
	35a	R 5-01-35a		58
	35b	R 5-01-35b	*	62
	35c	R 5-01-35c	*	64
	35d	R 5-01-35d	*	66
	36a	R 5-01-36a		62
	36b	R 5-01-36b	*	63
	36c	R 5-01-36c	*	68
	36d	R 5-01-36d	*	74
	37a	R 5-01-37a		59
	37b	R 5-01-37b	*	60
	37c	R 5-01-37c	*	62
	37d	R 5-01-37d	*	66
	38a	R 5-01-38a		57
	38b	R 5-01-38b	*	60
	38c	R 5-01-38c	*	62
	39a	R 5-01-39a		57
	39b	R 5-01-39b	*	58
	39c	R 5-01-39c	*	59
	40	R 5-01-40		63
	41a	R 5-01-41a		57
	41b	R 5-01-41b	*	58
	41c	R 5-01-41c	*	59
	41d	R 5-01-41d	*	64
	42a	R 5-01-42a		56
	42b	R 5-01-42b	*	57
	42c	R 5-01-42c	*	57
	42d	R 5-01-42d	*	61
	43a	R 5-01-43a		59
	43b	R 5-01-43b	*	61
	43c	R 5-01-43c	*	63
	43d	R 5-01-43d	*	70
	44a	R 5-01-44a		57
	44b	R 5-01-44b	*	58
	44c	R 5-01-44c	*	59
	44d	R 5-01-44d	*	63
	45a	R 5-01-45a		60
	45b	R 5-01-45b	*	61
	45c	R 5-01-45c	*	64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	45d	R 5-01-45d	*	72
	46a	R 5-01-46a		58
	46b	R 5-01-46b	*	58
	46c	R 5-01-46c	*	60
	46d	R 5-01-46d	*	65
	47a	R 5-01-47a		61
	47b	R 5-01-47b	*	63
	47c	R 5-01-47c	*	68
	47d	R 5-01-47d	*	74
	48a	R 5-01-48a		59
	48b	R 5-01-48b	*	60
	48c	R 5-01-48c	*	62
	48d	R 5-01-48d	*	67
	49	R 5-01-49		63
	50a	R 5-01-50a		60
	50b	R 5-01-50b	*	61
	50c	R 5-01-50c	*	65
	50d	R 5-01-50d	*	73
	51a	R 5-01-51a		58
	51b	R 5-01-51b	*	59
	51c	R 5-01-51c	*	60
	51d	R 5-01-51d	*	64
	52a	R 5-01-52a		59
	52b	R 5-01-52b	*	60
	52c	R 5-01-52c	*	65
	52d	R 5-01-52d	*	73
	53a	R 5-01-53a		58
	53b	R 5-01-53b	*	58
	53c	R 5-01-53c	*	61
	53d	R 5-01-53d	*	65
	54	R 5-01-54		58
	55	R 5-01-55		58
	56	R 5-01-56		57
	57	R 5-01-57		57
	58	R 5-01-58		57
	59	R 5-01-59		57
	60	R 5-01-60		58
	61	R 5-01-61		57
	62	R 5-01-62		56
	63	R 5-01-63		58
	64	R 5-01-64		58
	65	R 5-01-65		64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	66	R 5-01-66		63
	67a	R 5-01-67a		60
	67b	R 5-01-67b*	*	60
	67c	R 5-01-67c*	*	65
	67d	R 5-01-67d*	*	74
	68a	R 5-01-68a		61
	68b	R 5-01-68b*	*	61
	68c	R 5-01-68c*	*	65
	68d	R 5-01-68d*	*	79
	69a	R 5-01-69a		58
	69b	R 5-01-69b*	*	59
	69c	R 5-01-69c*	*	60
	69d	R 5-01-69d*	*	63
	70a	R 5-01-70a		58
	70b	R 5-01-70b*	*	58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	70c	R 5-01-70c*	*	58
	70d	R 5-01-70d	*	60
	71a	R 5-01-71a		60
	71b	R 5-01-71b	*	60
	71c	R 5-01-71c	*	64
	71d	R 5-01-71d	*	73
	72a	R 5-01-72a		57
	72b	R 5-01-72b	*	58
	72c	R 5-01-72c	*	59
	72d	R 5-01-72d	*	62
	73a	R 5-01-73a		62
	73b	R 5-01-73b	*	65
	73c	R 5-01-73c	*	73
	73d	R 5-01-73d	*	76
	74a	R 5-01-74a		60
	74b	R 5-01-74b	*	62
	74c	R 5-01-74c	*	65
	74d	R 5-01-74d	*	70
	75a	R 5-01-75a		60
	75b	R 5-01-75b	*	61
	75c	R 5-01-75c	*	63
	75d	R 5-01-75d	*	70
	76a	R 5-01-76a		59
	76b	R 5-01-76b	*	60
	76c	R 5-01-76c	*	63
	76d	R 5-01-76d	*	71
	77a	R 5-01-77a		65
	77b	R 5-01-77b	*	67
	77c	R 5-01-77c	*	73
	77d	R 5-01-77d	*	77
	78a	R 5-01-78a		65
	78b	R 5-01-78b	*	68
	78c	R 5-01-78c	*	75
	78d	R 5-01-78d	*	78

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
2-04B	M9	M2-04-09		59
	M10	M2-04-10		59
	M11	M2-04-11		61
	M12	M2-04-12		65
	8	R2-04-08		56
	9	R2-04-09		57
	10	R2-04-10		57
	11	R2-04-11		57
	12	R2-04-12		59
	13	R2-04-13		61
	14	R2-04-14		68
	15	R2-04-15		66
	16	R2-04-16		56
	17	R2-04-17		57
2-05B	M1	M2-05-01		60
	M2	M2-05-02		62
	M3	M2-05-03		63
	M4	M2-05-04		60
	M5	M2-05-05		60
	M6	M2-05-06		63
	M7	M2-05-07		59
	M8	M2-05-08		60
	M9	M2-05-09		60
	M10	M2-05-10		59
	M11	M2-05-11		59
	M12	M2-05-12		59
	1	R2-05-01		57
	2	R2-05-02		57
	3	R2-05-03		57
	4	R2-05-04		56
	5	R2-05-05		57
	6	R2-05-06		56
	7	R2-05-07		59
	8	R2-05-08		56
	9	R2-05-09		59
	10	R2-05-10		57
	11	R2-05-11		58
	12	R2-05-12		67
	13	R2-05-13		56
	14	R2-05-14		56
	15	R2-05-15		55
	16	R2-05-16		56

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	17	R2-05-17		56
2-06	M1	M2-06-01		62
	M2	M2-06-02		62
	M3	M2-06-03		59
	M4	M2-06-04		62
	M5	M2-06-05		61
	M6	M2-06-06		63
	1	R2-06-01		62
	2	R2-06-02		64
	3	R2-06-03		58
	4	R2-06-04		56
	5	R2-06-05		57
	6	R2-06-06		57
1-09	M1	M1-09-01		71
	M2	M1-09-02		68
	M3	M1-09-03		62
	1	R1-09-01		60
	2	R1-09-02		59
	3	R1-09-03		60
	4	R1-09-04		58
	5	R1-09-05		58
	6	R1-09-06		59
	7	R1-09-07		58
1-10	M1	M1-10-01		71
	M2	M1-10-02		70
	M3	M1-10-03		63
	M4	M1-10-04		72
	M5	M1-10-05		76
	M6	M1-10-06		75
	M7	M1-10-07		70
	M8	M1-10-08		70
	1	R1-10-01		65
	2	R1-10-02		59
	3	R1-10-03		63
	4	R1-10-04		66
	5	R1-10-05		62
	06	R1-10-06		59
	07	R1-10-07		67
	08	R1-10-08		62
	09	R1-10-09		63
	10	R1-10-10		60
	11	R1-10-11		60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	12	R1-10-12		75
	13	R1-10-13		62
	14	R1-10-14		60
	15	R1-10-15		68
	16	R1-10-16		61
	17	R1-10-17		58
	18	R1-10-18		60
5-33B	01	R 5-33B-01		72
	02	R 5-33B-02		74
	03	R 5-33B-03		63
	04	R 5-33B-04		58
	05	R 5-33B-05		66
	06	R 5-33B-06		59
	07	R 5-33B-07		59
	08	R 5-33B-08		64
	09	R 5-33B-09		62
	10	R 5-33B-10		61
	11	R 5-33B-11		64
	12	R 5-33B-12		59
	13	R 5-33B-13		58
	14	R 5-33B-14		64
	15	R 5-33B-15		62
	16	R 5-33B-16		62
	17	R 5-33B-17		62
	18	R 5-33B-18		59
	19	R 5-33B-19		58
	20	R 5-33B-20		59
	21	R 5-33B-21		58
	22	R 5-33B-22		59
	23	R 5-33B-23		58
	24	R 5-33B-24		59
	25	R 5-33B-25		63
	26	R 5-33B-26		65
	27	R 5-33B-27		56
	28	R 5-33B-28		58
	29	R 5-33B-29		59
	30	R 5-33B-30		60
	31	R 5-33B-31		58
	32	R 5-33B-32		60
	33	R 5-33B-33		59
	34	R 5-33B-34		56
	35	R 5-33B-35		57

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	36	R 5-33B-36		56
	37	R 5-33B-37		56
	38	R 5-33B-38		58
	39	R 5-33B-39		60
	40	R 5-33B-40		58
	41	R 5-33B-41		69
	42	R 5-33B-42		65
	43	R 5-33B-43		73
	44	R 5-33B-44		64
	45	R 5-33B-45		76
	46	R 5-33B-46		63
	47	R 5-33B-47		76
	48	R 5-33B-48		65
	49	R 5-33B-49		73
	50	R 5-33B-50		64
	51	R 5-33B-51		75
	52	R 5-33B-52		65
5-34B	1	R 5-34B-01		69
	2	R 5-34B-02		71
	3	R 5-34B-03		67
	04	R 5-34B-04		62
	05	R 5-34B-05		64
	06	R 5-34B-06		69
	07	R 5-34B-07		66
	08	R 5-34B-08		58
	09	R 5-34B-09		66
	10	R 5-34B-10		72
	11	R 5-34B-11		73
	12	R 5-34B-12		73
	13	R 5-34B-13		59
	14	R 5-34B-14		68
	15	R 5-34B-15		69
	16	R 5-34B-16		71
	17	R 5-34B-17		57
	18	R 5-34B-18		59
	19	R 5-34B-19		67
	20	R 5-34B-20		57
	21	R 5-34B-21		59
	22	R 5-34B-22		57
	23	R 5-34B-23		59
	24	R 5-34B-24		64
	25	R 5-34B-25		62

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	26	R 5-34B-26		62
	27	R 5-34B-27		61
	28	R 5-34B-28		60
	29	R 5-34B-29		55
	30	R 5-34B-30		55
	31	R 5-34B-31		55
	32	R 5-34B-32		55
	33	R 5-34B-33		58
	34	R 5-34B-34		57
	35	R 5-34B-35		55
	36	R 5-34B-36		55
	37	R 5-34B-37		55
	38	R 5-34B-38		55
	39	R 5-34B-39		57
	40	R 5-34B-40		57
	41	R 5-34B-41		58
	42	R 5-34B-42		63
	43	R 5-34B-43		56
	44	R 5-34B-44		56
	45	R 5-34B-45		57
	46	R 5-34B-46		57
	47	R 5-34B-47		56
	48	R 5-34B-48		56
	49	R 5-34B-49		56
	50	R 5-34B-50		65
1-11	M03	M 1-11-03		62
	M04	M 1-11-04		71
	06	R 1-11-06		57
	07	R 1-11-07		57
	08	R 1-11-08		63
	09	R 1-11-09		61
	10	R 1-11-10		61
	11	R 1-11-11		59
	12	R 1-11-12		62
	13	R 1-11-13		59
	14	R 1-11-14		66
	15	R 1-11-15		69
	16	R 1-11-16		69
1-13	M01	M 1-13-01		67
	M02	M 1-13-02		65
	01	R 1-13-01		66
	02	R 1-13-02		66

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	03	R 1-13-03		68
	04	R 1-13-04		68
	05	R 1-13-05		63
2-07	M01	M 2-07-01		65
	M02	M 2-07-02		61
	M03	M 2-07-03		57
	M04	M-2-07-04		65
	M05	M-2-07-05		60
	M06	M-2-07-06		66
	01	R-2-07-01		57
	02	R-2-07-02		57
	03	R-2-07-03		56
	04	R-2-07-04		57
	05	R-2-07-05		58
	06	R-2-07-06		58
	07	R-2-07-07		60
	08	R-2-07-08		64
1-12	M01	M 1-12-01		62
	M02	M 1-12-02		67
	01	R 1-12-01		60
	02	R 1-12-02		60
	03	R 1-12-03		60
	04	R 1-12-04		60
	05	R 1-12-05		59
	06	R 1-12-06		59
	07	R 1-12-07		62
	08	R 1-12-08		67
	09	R 1-12-09		63
2-08	M01	M 2-08-01		65
	M02	M 2-08-02		65
	M03	M 2-08-03		61
	M04	M 2-08-04		63
	M05	M 2-08-05		59
	M06	M 2-08-06		62
	01	R 2-08-01		63
	02	R 2-08-02		59
	03	R 2-08-03		57
	04	R 2-08-04		57
	05	R 2-08-05		60
	06	R 2-08-06		56
	07	R 2-08-07		62
	08	R 2-08-08		64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	09	R 2-08-09		59
3-05	M01	M 3-05-01		60
	M02	M 3-05-02		61
	M03	M 3-05-03		61
	M04	M 3-05-04		63
	01	R 3-5-01		60
	02	R 3-5-02		57
	03	R 3-5-03		60
	04	R 3-5-04		69
	05	R 3-5-05		65
1-14	M01	M 1-14-01		65
	M02	M 1-14-02		67
	M03	M 1-14-03		66
	M04	M 1-14-04		70
	M05	M 1-14-05		65
	M06	M 1-14-06		71
	01	R 1-14-01		65
	02	R 1-14-02		72
	03	R 1-14-03		63
	04	R 1-14-04		66
	05	R 1-14-05		64
	06	R 1-14-06		70
	07	R 1-14-07		71
	08	R 1-14-08		65
	09	R 1-14-09		63
	10	R 1-14-10		67
	11	R 1-14-11		65
	12	R 1-14-12		63
	13	R 1-14-13		62
	14	R 1-14-14		62
	15	R 1-14-15		62
	16	R 1-14-16		64
	17	R 1-14-17		65
	18	R 1-14-18		70
	19	R 1-14-19		71
	20	R 1-14-20		62
	21	R 1-14-21		68
	22	R 1-14-22		64
	23	R 1-14-23		69 (44)
1-36	01	R 1-36-01		66
	02	R 1-36-02		64
	03	R 1-36-03		66

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	04	R 1-36-04		62
	05	R 1-36-05		66
	06	R 1-36-06		62
	07	R 1-36-07		58
	08	R 1-36-08		71
	09	R 1-36-09		59
	10	R 1-36-10		61
2-09	M01	M 2-09-01		62
	M02	M 2-09-02		61
	M03	M 2-09-03		61
	M04	M 2-09-04		61
	M05	M 2-09-05		64
	M06	M 2-09-06		61
	01	R 2-09-01		65
	02	R 2-09-02		60
	03	R 2-09-03		61
	04	R 2-09-04		58
	05	R 2-09-05		58
	06	R 2-09-06		56
	07	R 2-09-07		59
	08	R 2-09-08		60
	09	R 2-09-09		58
	10	R 2-09-10		59
	11	R 2-09-11		62
	12	R 2-09-12		57
	13	R 2-09-13		56
	14	R 2-09-14		55
	15	R 2-09-15		60
3-06	M01	M 3-06-01		63
	M02	M 3-06-02		62
	M03	M 3-06-03		60
	M04	M 3-06-04		60
	M05	M 3-06-05		57
	M06	M 3-06-06		64
	M07	M 3-06-07		55
	M08	M 3-06-08		55
	M09	M 3-06-09		61
	M10	M 3-06-10		63
	M11	M 3-06-11		66
	M12	M 3-06-12		61
	M13	M 3-06-13		67
	M14	M 3-06-14		59

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	M15	M 3-06-15		68
	M16	M 3-06-16		65
	M17	M 3-06-17		66
	M18	M 3-06-18		63
	M19	M 3-06-19		64
	M20	M 3-06-20		70
	01	R 3-06-01		55
	02	R 3-06-02		60
	03	R 3-06-03		58
	04	R 3-06-04		58
	05	R 3-06-05		56
	06	R 3-06-06		56
	07	R 3-06-07		57
	08	R 3-06-08		64
	09	R 3-06-09		61
2-10	M01	M 2-10-01		64
	M02	M 2-10-02		61
	M03	M 2-10-03		63
	M04	M 2-10-04		65
	M05	M 2-10-05		65
	01	R2-10-01		68
	02	R2-10-02		60
	03	R2-10-03		59
	04	R2-10-04		61
	05	R2-10-05		57
	06	R2-10-06		60
	07	R2-10-07		62
	08	R2-10-08		59
	09	R2-10-09		60
	10	R2-10-10		60
	11	R2-10-11		62
	12	R2-10-12		63
	13	R2-10-13		68
3-07	M01	M-3-7-01		60
	M02	M-3-7-02		59
	M03	M-3-7-03		60
	M04	M-3-7-04		63
	01	R-3-7-01		55
2-11	M01	M-2-11-01		64
	M02	M-2-11-02		67
	M03	M-2-11-03		70
	M04	M-2-11-04		70

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	M05	M-2-11-05		64
	M06	M-2-11-06		71
	M07	M-2-11-07		64
	01	R2-11-01		57
	02	R2-11-02		58
	03	R2-11-03		64
	04	R2-11-04		56
	05	R2-11-05		61
	06	R2-11-06		58
	07	R2-11-07		58
	08	R2-11-08		66
	09	R2-11-09		56
	10	R2-11-10		67
	11	R2-11-11		65
	12	R2-11-12		61
3-08	M01	M-03-08-01		61
	M02	M-03-08-02		62
	M03	M-03-08-03		60
	M04	M-03-08-04		63
	M05	M-03-08-05		61
	01	R-3-08-01		59
	02	R-3-08-02		59
	03	R-3-08-03		56
	04	R-3-08-04		59
	05	R-3-08-05		57
	06	R-3-08-06		58
	07	R-3-08-07		60
	08	R-3-08-08		60
	09	R-3-08-09		59
	10	R-3-08-10		67 (42)
	11	R-3-08-11		56 (31)
3-09	M01	M-03-09-01		62
	M02	M-03-09-02		63
	M04	M-03-09-04		64
	M05	M-03-09-05		61
	M06	M-03-09-06		61
	01	R-3-09-01		58
	02	R-3-09-02		58
	03	R-3-09-03		59
	04	R-3-09-04		60
	05	R-3-09-05		60
	06	R-3-09-06		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	07	R-3-09-07		61
	08	R-3-09-08		61
	09	R-3-09-09		65
	10	R-3-09-10		71
	11	R-3-09-11		62 (37)
4-02	M01	M-04-02-01		79 (44)
	M02	M-04-02-02		78 (43)
	01	R 04-02-01		65 (30)
	02	R 04-02-02		71 (36)
	03	R 04-02-03		69
4-03	M01	M-04-03-01		74
	M02	M-04-03-02		70
	M03	M-04-03-03		75
	01	R 04-03-01		66
	02	R 04-03-02		77
	03	R 04-03-03		60
2-12	M01	M-02-12-01		65
	M02	M-02-12-02		66
	M03	M-02-12-03		66
	M04	M-02-12-04		63
	M05	M-02-12-05		64
	M06	M-02-12-06		65
	M07	M-02-12-07		68
	01	R 02-12-01		63
	02	R 02-12-02		58
	03	R 02-12-03		58
	04	R 02-12-04		57
	05	R 02-12-05		61
	06	R 02-12-06		58
	07	R 02-12-07		62
	08	R 02-12-08		60
	09	R 02-12-09		58
	10	R 02-12-10		60
	11	R 02-12-11		59
	12	R 02-12-12		62
	13	R 02-12-13		61
	14	R-02-12-14		73
	15	R-02-12-15		68
	16	R-02-12-16		65
	17	R-02-12-17		65
	18	R-02-12-18		67
	19	R-02-12-19		71 (46)

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
2-13	M01	M-02-13-01		70
	M02	M-02-13-02		68
	M03	M-02-13-03		63
	M04	M-02-13-04		61
	M05	M-02-13-05		61
	M06	M-02-13-06		59
	M07	M-02-13-07		65
	M08	M-02-13-08		59
	M09	M-02-13-09		60
	M10	M-02-13-10		63
	M11	M-02-13-11		65
	M12	M-02-13-12		68
	01	R 02-13-01		66
	02	R 02-13-02		63
	03	R 02-13-03		62
	04	R 02-13-04		57
	05	R 02-13-05		60 (35)
	06	R 02-13-06		66
4-04	01	R 4-04-01		63
	02	R 4-04-02		65
	03	R 4-04-03		64
	04	R 4-04-04		64
	05	R 4-04-05		62
	06	R 4-04-06		64
	07	R 4-04-07		64
	08	R 4-04-08		61
	09	R 4-04-09		60
	10	R 4-04-10		60
2-14	01	R 2-14-01		66
	02	R 2-14-02		66
	03	R 2-14-03		65
	04	R 2-14-04		61
	05	R 2-14-05		59
	06	R 2-14-06		60
	07	R 2-14-07		59
	08	R 2-14-08		59
	09	R 2-14-09		59
	10	R 2-14-10		60
	11	R 2-14-11		64
	12	R 2-14-12		62
	13	R 2-14-13		61
	14	R 2-14-14		59

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	15	R 2-14-15		63
	16	R 2-14-16		64
	17	R 2-14-17		60
	18	R 2-14-18		61
	19	R 2-14-19		58
	20	R 2-14-20		59
	21	R 2-14-21		60
	22	R 2-14-22		58
	23	R 2-14-23		57
	24	R 2-14-24		57
	25	R 2-14-25		58
	26	R 2-14-26		60
	27	R 2-14-27		58
	28	R 2-14-28		61
	29	R 2-14-29		64
	30	R 2-14-30		63
	31	R 2-14-31		64
	32	R 2-14-32		58
	33	R 2-14-33		60
	34	R 2-14-34		61
	35	R 2-14-35		62
	36	R 2-14-36		58
	37	R 2-14-37		58
	38	R 2-14-38		58
	39	R 2-14-39		60
	40	R 2-14-40		57
	41	R 2-14-41		57
	42	R 2-14-42		60
	43	R 2-14-43		57
	44	R 2-14-44		58
	45	R 2-14-45		62
	46	R 2-14-46		60
	47	R 2-14-47		63
2-15	01	R 2-15-01		65
	02	R 2-15-02		65
	03	R 2-15-03		68
	04	R 2-15-04		62
	05	R 2-15-05		62
	06	R 2-15-06		64
	07	R 2-15-07		62
	08	R 2-15-08		63
	09	R 2-15-09		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	10	R 2-15-10		64
	11	R 2-15-11		67
	12	R 2-15-12		58
	13	R 2-15-13		58
	14	R 2-15-14		57
	15	R 2-15-15		58
	16	R 2-15-16		59
	17	R 2-15-17		61
	18	R 2-15-18		60
	19	R 2-15-19		60
	20	R 2-15-20		57
	21	R 2-15-21		59
	22	R 2-15-22		60
	23	R 2-15-23		65
	24	R 2-15-24		58
	25	R 2-15-25		59
	26	R 2-15-26		61
	27	R 2-15-27		61
	28	R 2-15-28		64
	29	R 2-15-29		66
	30	R 2-15-30		64
	31	R 2-15-31		60
	32	R 2-15-32		59
	33	R 2-15-33		60
2-17	01	R 2-17-01		60
	02	R 2-17-02		60
	03	R 2-17-03		67
	04	R 2-17-04		65
	05	R 2-17-05		62
	06	R 2-17-06		60
	07	R 2-17-07		59
	08	R 2-17-08		61
	09	R 2-17-09		65
	10	R 2-17-10		62
	11	R 2-17-11		64
	12	R 2-17-12		66
	13	R 2-17-13		68
	14	R 2-17-14		64
	15	R 2-17-15		63
	16	R 2-17-16		64
	17	R 2-17-17		63
	18	R 2-17-18		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	19	R 2-17-19		58
	20	R 2-17-20		57
	21	R 2-17-21		65
	22	R 2-17-22		63
	23	R 2-17-23		61
	24	R 2-17-24		59
	25	R 2-17-25		63
	26	R 2-17-26		61
	27	R 2-17-27		59
	28	R 2-17-28		57
	29	R 2-17-29		58
	30	R 2-17-30		59
	31	R 2-17-31		61
	32	R 2-17-32		63
	33	R 2-17-33		72
	34	R 2-17-34		65
	35	R 2-17-35		64
	36	R 2-17-36		65
	37	R 2-17-37		63
	38	R 2-17-38		65
	39	R 2-17-39		62
	40	R 2-17-40		61
	41	R 2-17-41		65
	42	R 2-17-42		70
	43	R 2-17-43		65
	44	R 2-17-44	*	72
2-16	01	R 2-16-01		62
	02	R 2-16-02		66
	03	R 2-16-03		61
	04	R 2-16-04		64
	05	R 2-16-05		63
	06	R 2-16-06		61
	07	R 2-16-07		60
	08	R 2-16-08		61
	09	R 2-16-09		64
	10	R 2-16-10		65
	11	R 2-16-11		67
	12	R 2-16-12		67
	13	R 2-16-13		66
	14	R 2-16-14		65
	15	R 2-16-15		68
	16	R 2-16-16		70

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	17	R 2-16-17		67
	18	R 2-16-18		58
	19	R 2-16-19		67
	20	R 2-16-20		59
	21	R 2-16-21		60
	22	R 2-16-22		62
	23	R 2-16-23		62
	24	R 2-16-24		63
	25	R 2-16-25		64
	26	R 2-16-26		65
	27	R 2-16-27		62
	28	R 2-16-28		66
	29	R 2-16-29		64
	30	R 2-16-30		62
	31	R 2-16-31		59
	32	R 2-16-32		60
	33	R 2-16-33		57
	34	R 2-16-34		58
	35	R 2-16-35		60
	36	R 2-16-36		56
1-35	01	R 1-35-01		61
	02	R 1-35-02		60
	03	R 1-35-03		68
	04	R 1-35-04		73
	05	R 1-35-05		69
	06	R 1-35-06		69
	07	R 1-35-07		75
	08	R 1-35-08		67
	09	R 1-35-09		62
	10	R 1-35-10		65
	11	R 1-35-11		66
	12	R 1-35-12		71
2-18	01	R 2-18-01		64
	02	R 2-18-02		65
	03	R 2-18-03		62
	04	R 2-18-04		62
	05	R 2-18-05		63
	06	R 2-18-06		62
	07	R 2-18-07		64
	08	R 2-18-08		64
	09	R 2-18-09		58
	10	R 2-18-10		59

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	11	R 2-18-11		61
	12	R 2-18-12		61
	13	R 2-18-13		63
	14	R 2-18-14		63
	15	R 2-18-15		63
	16	R 2-18-16		65
	17	R 2-18-17		64
	18	R 2-18-18		63
	19	R 2-18-19		66
	20	R 2-18-20		65
	21	R 2-18-21		62
	22	R 2-18-22		62
	23	R 2-18-23		62
	24	R 2-18-24		60
	25	R 2-18-25		60
	26	R 2-18-26		60
	27	R 2-18-27		58
	28	R 2-18-28		57
	29	R 2-18-29		62
	30	R 2-18-30		63
	31	R 2-18-31		64
	32	R 2-18-32		67
	33	R 2-18-33		66
	34	R 2-18-34		65
	35	R 2-18-35		60
	36	R 2-18-36		58
	37	R 2-18-37		60
	38	R 2-18-38		58
	39	R 2-18-39		60
	40	R 2-18-40		60
	41	R 2-18-41		58
	42	R 2-18-42		60
	43	R 2-18-43		58
	44	R 2-18-44		59
	45	R 2-18-45		57
	46	R 2-18-46		67
	47	R 2-18-47		60
	48	R 2-18-48		57
2-19	01	R 2-19-01		73
	02	R 2-19-02		71
	03	R 2-19-03		67 (42)
	04	R 2-19-04		64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	05	R 2-19-05		65
	06	R 2-19-06		57
	07	R 2-19-07		67
	08	R 2-19-08		61
	09	R 2-19-09		63
	10	R 2-19-10		65
	11	R 2-19-11		63
	12	R 2-19-12		63
	13	R 2-19-13		64
	14	R 2-19-14		65
	15	R 2-19-15		63
	16	R 2-19-16		62
	17	R 2-19-17		62
	18	R 2-19-18		61
	19	R 2-19-19		62
	20	R 2-19-20		64
	21	R 2-19-21		65
	22	R 2-19-22		61
	23	R 2-19-23		63
2-20	01	R 2-20-01		71
	02	R 2-20-02	*	72
	03	R 2-20-03	*	72
	04	R 2-20-04	*	72
	05	R 2-20-05		64
	06	R 2-20-06	*	66
	07	R 2-20-07	*	66
	08	R 2-20-08		66
	09	R 2-20-09	*	68
	10	R 2-20-10	*	68
	11	R 2-20-11		68
	12	R 2-20-12		60
	13	R 2-20-13		69
	14	R 2-20-14	*	71
	15	R 2-20-15	*	72
	16	R 2-20-16	*	72
	17	R 2-20-17		67
	18	R 2-20-18	*	71
	19	R 2-20-19	*	74
	20	R 2-20-20	*	74
	21	R 2-20-21		62
	22	R 2-20-22		60
	23	R 2-20-23		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	24	R 2-20-24		61
	25	R 2-20-25		63
	26	R 2-20-26		62
	27	R 2-20-27		62
	28	R 2-20-28		60
	29	R 2-20-29		59
	30	R 2-20-30		62
	31	R 2-20-31		61
	32	R 2-20-32		62
	33	R 2-20-33		63
	34	R 2-20-34		67
	35	R 2-20-35		58
	36	R 2-20-36		60
	37	R 2-20-37		59
	38	R 2-20-38		58
	39	R 2-20-39		59
	40	R 2-20-40		58
	41	R 2-20-41		58
	42	R 2-20-42		60
	43	R 2-20-43		61
	44	R 2-20-44		57
	45	R 2-20-45		57
	46	R 2-20-46		57
1-15	01	R 1-15-01		62
	02	R 1-15-02		64
	03	R 1-15-03		74
	04	R 1-15-04		67
	05	R 1-15-05		63
	06	R 1-15-06		59
	07	R 1-15-07		62
	08	R 1-15-08		59
	09	R 1-15-09		60
	10	R 1-15-10		62
1-16	01	R 1-16-01		65
	02	R 1-16-02		64
	03	R 1-16-03		69
	04	R 1-16-04		72
	05	R 1-16-05		69
	06	R 1-16-06		65
	07	R 1-16-07		67
	08	R 1-16-08		65
	09	R 1-16-09		64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	10	R 1-16-10		59
	11	R 1-16-11		58
	12	R 1-16-12		59
	13	R 1-16-13		58
	14	R 1-16-14		57
	15	R 1-16-15		64
	16	R 1-16-16		60
	17	R 1-16-17		64
	18	R 1-16-18		61
	19	R 1-16-19		63
	20	R 1-16-20		62
	21	R 1-16-21		62
	22	R 1-16-22		62
3-17	01	R 3-17-01		62
	02	R 3-17-02		64
	03	R 3-17-03		63
	04	R 3-17-04		62
	05	R 3-17-05		62
	06	R 3-17-06		62
	07	R 3-17-07		61
	08	R 3-17-08		60
	09	R 3-17-09		60
	10	R 3-17-10		59
	11	R 3-17-11		62
	12	R 3-17-12		60
	13	R 3-17-13		59
	14	R 3-17-14		60
	15	R 3-17-15		60
	16	R 3-17-16		60
	17	R 3-17-17		61
	18	R 3-17-18		61
	19	R 3-17-19		65
I95-N	01	I95-N-01		75
	02	I95-N-02		74
	03	I95-N-03		66
	04	I95-N-04		71
	05	I95-N-05		68
	06	I95-N-06		68
	07	I95-N-07		63
	08	I95-N-08		59
	09	I95-N-09		60
	10	I95-N-10		57

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	11	I95-N-11		58
	12	I95-N-12		60
	13	I95-N-13		58
	14	I95-N-14		58
	15	I95-N-15		60
	16	I95-N-16		65
	17	I95-N-17		67
	18	I95-N-18		66
	19	I95-N-19		64
	20	I95-N-20		59
	21	I95-N-21		60
	22	I95-N-22		60
	23	I95-N-23		60
	24	I95-N-24		62
	25	I95-N-25		60
	26	I95-N-26		65
	27	I95-N-27		63
	28	I95-N-28		66
	29	I95-N-29		68
	30	I95-N-30		56
	31	I95-N-31		65
	32	I95-N-32		66
	33	I95-N-33		72
	34	I95-N-34		60
	35	I95-N-35		61
	36	I95-N-36		60
	37	I95-N-37		59
	38	I95-N-38		57
	39	I95-N-39		57
	40	I95-N-40		57
	41	I95-N-41		58
I95-S	01	I95-S-01		67
	02	I95-S-02		65
	03	I95-S-03		63
	04	I95-S-04		63
	05	I95-S-05		63
	06	I95-S-06		63
	07	I95-S-07		64
	08	I95-S-08		60
	09	I95-S-09		58
	10	I95-S-10		59
	11	I95-S-11		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	12	I95-S-12		57
	13	I95-S-13		60
	14	I95-S-14		63
	15	I95-S-15		59
	16	I95-S-16		58
	17	I95-S-17		58
	18	I95-S-18		62
	19	I95-S-19		61
	20	I95-S-20		60
1-17	01	R 1-17-01		73
	02	R 1-17-02		65
	03	R 1-17-03		63
	04	R 1-17-04		66
	05	R 1-17-05		65
	06	R 1-17-06		71
	07	R 1-17-07		69
	08	R 1-17-08		65
	09	R 1-17-09		65
	10	R 1-17-10		67
	11	R 1-17-11		68
	12	R 1-17-12		68
	13	R 1-17-13		70
	14	R 1-17-14		64
	15	R 1-17-15		72
	16	R 1-17-16		72
	17	R 1-17-17		76
	18	R 1-17-18		72
	19	R 1-17-19		63
1-18	01	R 1-18-01		64
	02	R 1-18-02		63
	03	R 1-18-03		71
	04	R 1-18-04		66
	05	R 1-18-05		67
	06	R 1-18-06		65
	07	R 1-18-07		65
	08	R 1-18-08		68
	09	R 1-18-09		60
	10	R 1-18-10		59
	11	R 1-18-11		61
	12	R 1-18-12		61
2-21	M01	M-02-21-01		61
	M02	M-02-21-02		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	M03	M-02-21-03		64
	M04	M-02-21-04		64
	M05	M-02-21-05		67
	M06	M-02-21-06		63
	01	R-02-21-01		63
	02	R-02-21-02		60
	03	R-02-21-03		60
	04	R-02-21-04		57
	05	R-02-21-05		59
	06	R-02-21-06		66 (41)
	07	R-02-21-07		74
2-22	M01	M-02-22-01		68
	M02	M-02-22-02		64
	M03	M-02-22-03		67
	M04	M-02-22-04		62
	M05	M-02-22-05		63
	M06	M-02-22-06		62
	01	R-02-22-01		59
	02	R-02-22-02		58
	03	R-02-22-03		58
3-18	M01	M-03-18-01		62
	M02	M-03-18-02		64
	M03	M-03-18-03		66
	M04	M-03-18-04		61
	M05	M-03-18-05		59
	M06	M-03-18-06		58
	M07	M-03-18-07		57
	M08	M-03-18-08		62
	M09	M-03-18-09		65
	M10	M-03-18-10		60
	M11	M-03-18-11		58
	M12	M-03-18-12		64
	M13	M-03-18-13		61
	M14	M-03-18-14		58
	01	R-03-18-01		62
	02	R-03-18-02		58
	03	R-03-18-03		56
	04	R-03-18-04		56
	05	R-03-18-05		56
	06	R-03-18-06		66
	07	R-03-18-07		57
2-23	M01	M-02-23-01		67

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	M02	M-02-23-02		65
	M03	M-02-23-03		66
	M04	M-02-23-04		64
	M05	M-02-23-05		66
	M06	M-02-23-06		65
	M07	M-02-23-07		62
	M08	M-02-23-08		66
	M09	M-02-23-09		66
	M10	M-02-23-10		62
	M11	M-02-23-11		68
	01	R-02-23-01		66
	02	R-02-23-02		61
	03	R-02-23-03		60
	04	R-02-23-04		63
	05	R-02-23-05		58
	06	R-02-23-06		63
	07	R-02-23-07		61
	08	R-02-23-08		62
	09	R-02-23-09		63
	10	R-02-23-10		66
	11	R-02-23-11		68
	12	R-02-23-12		69
	13	R-02-23-13		66
	14	R-02-23-14		64
	15	R-02-23-15		59
	16	R-02-23-16		57
1-40	01	R-01-40-01		66
	02	R-01-40-02		60
	03	R-01-40-03		58
	04	R-01-40-04		63
	05	R-01-40-05		75
	06	R-01-40-06		72
1-19	M01	M 1-19-01		79
	M02	M 1-19-02		69
	M03	M 1-19-03		72
	M04	M 1-19-04		65
	M05	M 1-19-05		66
	M06	M 1-19-06		71
	M07	M 1-19-07		73
	M08	M 1-19-08		74
	M09	M 1-19-09		79
	M10	M 1-19-10		67

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	M11	M 1-19-11		72
	M12	M 1-19-12		76
	M13	M 1-19-13		76
	M14	M 1-19-14		68
	M15	M 1-19-15		67
	M16	M 1-19-16		76
	M17	M 1-19-17		75
	M18	M 1-19-18		69
	M19	M 1-19-19		65
	M20	M 1-19-20		60
	M21	M 1-19-21		62
	M22	M 1-19-22		65
	M23	M 1-19-23		61
	M24	M 1-19-24		72
	M25	M 1-19-25		76
	M26	M 1-19-26		66
	M27	M 1-19-27		62
	M28	M 1-19-28		66
	01	R-1-19-01		57
	02	R-1-19-02		60
	03	R-1-19-03	*	66
	04	R-1-19-04		72
	05	R-1-19-05		64
	06	R-1-19-06		64
	07	R-1-19-07	*	75 (50)
	08	R-1-19-08		62
	09	R-1-19-09		60
	10	R-1-19-10		59
	11	R-1-19-11		66
	12	R-1-19-12		57
	13	R-1-19-13		57
	14	R-1-19-14		61
1-20	01	R1-20-01		74
	02	R1-20-02		72 (47)
	03	R1-20-03		65 (40)
	04	R1-20-04		58 (33)
	05	R1-20-05		58
	06	R1-20-06		56
1-21	M01	M-1-21-01		59
	M02	M-1-21-02		76
	M03	M-1-21-03		59
	01	R1-21-01		69

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	02	R1-21-02		59
	03	R1-21-03		62
	04	R1-21-04		61
	05	R1-21-05		58
	06	R1-21-06		74 (49)
	07	R1-21-07		71 (46)
	08	R1-21-08		75 (50)
	09	R1-21-09		62
	10	R1-21-10		73 (48)
	11	R1-21-11		69
	12	R1-21-12		66
	13	R1-21-13		68
	14	R1-21-14		61
	15	R1-21-15		61
	16	R1-21-16		62
1-22	M01	M-1-22-01		70
	M02	M-1-22-02		76
	01	R1-22-01		67
	02	R1-22-02		63
1-23	M01	M-1-23-01		74
	M02	M-1-23-02		60
	M03	M-1-23-03		58
	M04	M-1-23-04		73
	M05	M-1-23-05		59
	M06	M-1-23-06		66
	M07	M-1-23-07		60
	M08	M-1-23-08		58
	01	R1-23-01		66
	02	R1-23-02		66
	03	R1-23-03		64
	04	R1-23-04		57
	05	R1-23-05		59
	06	R1-23-06		68
	07	R1-23-07		59
	08	R1-23-08		56
	09	R1-23-09		59
	10	R1-23-10		58
	11	R1-23-11		76
	12	R1-23-12		62
	13	R1-23-13		57
	14	R1-23-14		56
	15	R1-23-15		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	16	R1-23-16		57
	17	R1-23-17		73
	18	R1-23-18		58
	19	R1-23-19		65
	20	R1-23-20		73
	21	R1-23-21		56
	22	R1-23-22		57
	23	R1-23-23		64 (39)
	24	R1-23-24		58 (33)
	25	R1-23-25		57 (32)
	26	R1-23-26		69 (44)
	27	R1-23-27		56 (31)
1-24	01	R1-24-01		64
	02	R1-24-02		65
2-24	M01	M 2-24-01		62
	M02	M 2-24-02		61
	M03	M 2-24-03		62
	M04	M 2-24-04		62
	M05	M 2-24-05		61
	M06	M 2-24-06		62
	M07	M 2-24-07		59
	M08	M 2-24-08		58
	M09	M 2-24-09		61
	M10	M 2-24-10		60
	M11	M 2-24-11		60
	M12	M 2-24-12		79
	01	R-2-24-01		58
	02	R-2-24-02		59
	03	R-2-24-03		57
	04	R-2-24-04		56
	05	R-2-24-05		58
2-25	M01	M 2-25-01		60
	M02	M 2-25-02		61
	M03	M 2-25-03		61
	M04	M 2-25-04		63
	M05	M 2-25-05		62
	M06	M 2-25-06		63
	M07	M 2-25-07		61
	01	R-02-25-01		64
	02	R-02-25-02		61
	03	R-02-25-03		60
	04	R-02-25-04		58

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	05	R-02-25-05		58
	06	R-02-25-06		59
	07	R-02-25-07		60
1-25	M01	M-1-25-01		70
	M02	M-1-25-02		60
	M03	M-1-25-03		67
	M04	M-1-25-04		60
	01	R1-25-01		69
	02	R1-25-02		58
	03	R1-25-03		57
	04	R1-25-04		58
	05	R1-25-05		58
	06	R1-25-06		57
2-26	M01	M 2-26-01		61
	M02	M 2-26-02		63
	M03	M 2-26-03		60
	M04	M 2-26-04		62
	M05	M 2-26-05		59
	M06	M 2-26-06		64
	M07	M 2-26-07		63
	M08	M 2-26-08		66
	M09	M 2-26-09		63
	M10	M 2-26-10		60
	M11	M 2-26-11		61
	M12	M 2-26-12		63
	M13	M 2-26-13		60
	M14	M 2-26-14		65
	M15	M 2-26-15		61
	M16	M 2-26-16		64
	M17	M 2-26-17		63
	01	R-02-26-01		59
	02	R-02-26-02		59
	03	R-02-26-03		58
	04	R-02-26-04		57
	05	R-02-26-05		58
	06	R-02-26-06		59
	07	R-02-26-07		56
	08	R-02-26-08		62
	09	R-02-26-09		58
	10	R-02-26-10		61
	11	R-02-26-11		58
	12	R-02-26-12		60

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	13	R-02-26-13		63
	14	R-02-26-14		62
	15	R-02-26-15		63
	16	R-02-26-16		66 (41)
	17	R-02-26-17		66
	18	R-02-26-18		66
	19	R-02-26-19		65
	20	R-02-26-20		69
2-27	M01	M 2-27-01		67
	M02	M 2-27-02		63
	M03	M 2-27-03		60
	M04	M 2-27-04		64
	M05	M 2-27-05		61
	M06	M 2-27-06		62
	M07	M 2-27-07		64
	M08	M 2-27-08		61
	M09	M 2-27-09		65
	M10	M 2-27-10		63
	M11	M 2-27-11		67
	M12	M 2-27-12		67
	01	R-02-27-01		71
	02	R-02-27-02		58
	03	R-02-27-03		58
	04	R-02-27-04		57
	05	R-02-27-05		60
	06	R-02-27-06		66
	07	R-02-27-07		70
3-10	M01	M 3-10-01		60
	M02	M 3-10-02		64
	M03	M 3-10-03		59
	M04	M 3-10-04		63
	M05	M 3-10-05		64
	M06	M 3-10-06		59
	M07	M 3-10-07		65
	M08	M 3-10-08		64
	01	R-3-10-01		64
	02	R-3-10-02		68
	03	R-3-10-03		58
	04	R-3-10-04		56
1-33	M01	M 1-33-01		65
	M02	M 1-33-02		62
	M03	M 1-33-03		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	M04	M 1-33-04		61
	M05	M 1-33-05		60
	M06	M 1-33-06		70
	01	R 1-33-01		64
	02	R 1-33-02		55
	03	R 1-33-03		56
	04	R 1-33-04		63
	05	R 1-33-05		59
2-28	M01	M2-28-01		62
	M02	M2-28-02		61
	M03	M2-28-03		64
	M04	M2-28-04		64
	01	R02-28-01		57
	02	R02-28-02		60
	03	R02-28-03		56
	04	R02-28-04		56
	05	R02-28-05		56
	06	R02-28-06		65
2-29	01	M2-29-01		68
	02	M2-29-02		66
	03	M2-29-03		60
	04	M2-29-04		62
	01	R02-29-01		59
	02	R02-29-02		58
	03	R02-29-03		58
	04	R02-29-04		58
	05	R02-29-05		56
3-11	M01	M3-11-01		71
	M02	M3-11-02		63
	M03	M3-11-03		60
	M04	M3-11-04		59
	M05	M3-11-05		61
	M06	M3-11-06		60
	M07	M3-11-07		63
	M08	M3-11-08		61
	01	R3-11-01		57
	02	R3-11-02		57
	03	R3-11-03		62
	04	R3-11-04		61
	05	R3-11-05		58
	06	R3-11-06		60
	07	R3-11-07		62

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
2-30	M01	M 2-30-01		62
	M02	M 2-30-02		63
	M03	M 2-30-03		64
	M04	M 2-30-04		61
	M05	M 2-30-05		64
	M06	M 2-30-06		65
	M07	M 2-30-07		62
	M08	M 2-30-08		65
	M09	M 2-30-09		60
	M10	M 2-30-10		61
	01	R-02-30-01		57
	02	R-02-30-02		57
	03	R-02-30-03		57
	04	R-02-30-04		56
	05	R-02-30-05		60
	06	R-02-30-06		62
	07	R-02-30-07		59
	08	R-02-30-08		58
	09	R-02-30-09		57
	10	R-02-30-10		58
	11	R-02-30-11		59
	12	R-02-30-12		68 (43)
1-42	01	R-01-42-01		70
2-31	M01	M 2-31-01		67
	M02	M 2-31-02		63
	M03	M 2-31-03		60
	M04	M 2-31-04		60
	M05	M 2-31-05		63
	M06	M 2-31-06		63
	M07	M 2-31-07		63
	M08	M 2-31-08		61
	M09	M 2-31-09		63
	M10	M 2-31-10		62
	M11	M 2-31-11		62
	M12	M 2-31-12		62
	M13	M 2-31-13		64
	M14	M 2-31-14		67
	01	R-02-31-01		62
	02	R-02-31-02		61
	03	R-02-31-03		56
	04	R-02-31-04		58
	05	R-02-31-05		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	06	R-02-31-06		62
	07	R-02-31-07		56
	08	R-02-31-08		58
	09	R-02-31-09		56
	10	R-02-31-10		59
	11	R-02-31-11		57
	12	R-02-31-12		61
1-39	01	R 1-39-01		70
	02	R 1-39-02		66
	03	R 1-39-03		75
	04	R 1-39-04		65
	05	R 1-39-05		66
	06	R 1-39-06		60
	07	R 1-39-07		61
1-43	01	R 1-43-01		74 (49)
	02	R 1-43-02		65 (40)
	03	R 1-43-03		65 (40)
	04	R 1-43-04		70
	05	R 1-43-05		58 (33)
1-44	01	R 1-44-01		62
3-12	01	R 3-12-01		69 (44)
	02	R 3-12-02		58 (33)
	03	R 3-12-03		58 (33)
	04	R 3-12-04		59
	05	R 3-12-05		63
	06	R 3-12-06		62
	07	R 3-12-07		60
	08	R 3-12-08		63
	09	R 3-12-09		64
	10	R 3-12-10		65
	11	R 3-12-11		56
	12	R 3-12-12		55
	13	R 3-12-13		56
	14	R 3-12-14		56
	15	R 3-12-15		57
	16	R 3-12-16		56
	17	R 3-12-17		57
	18	R 3-12-18		58
	19	R 3-12-19		57
	20	R 3-12-20		58
	21	R 3-12-21		59
	22	R 3-12-22		59

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	23	R 3-12-23		60
	24	R 3-12-24		62
	25	R 3-12-25		72 (47)
1-26	01	R 1-26-01	*	69
	02	R 1-26-02	*	69
	03	R 1-26-03	*	68
	04	R 1-26-04	*	66
	05	R 1-26-05		63
	06	R 1-26-06		62
	07	R 1-26-07		74
	08	R 1-26-08		71
	09	R 1-26-09		63
	10	R 1-26-10		67
	11	R 1-26-11		68
	12	R 1-26-12		71
	13	R 1-26-13		76
	14	R 1-26-14		77
	15	R 1-26-15		77
	16	R 1-26-16		76
	17	R 1-26-17		74
	18	R 1-26-18		72
	19	R 1-26-19		71
	20	R 1-26-20		65
	21	R 1-26-21		67
	22	R 1-26-22		71
	23	R 1-26-23		68
	24	R 1-26-24		64
	25	R 1-26-25		64
	26	R 1-26-26		62
	27	R 1-26-27		65
	28	R 1-26-28		64
	29	R 1-26-29		65
	30	R 1-26-30		65
	31	R 1-26-31		67
	32	R 1-26-32		69
	33	R 1-26-33		68
	34	R 1-26-34		67
	35	R 1-26-35		65
	36	R 1-26-36		65
	37	R 1-26-37		61
	38	R 1-26-38		64
	39	R 1-26-39		66

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	40	R 1-26-40		66
	41	R 1-26-41		65
	42	R 1-26-42		64
	43	R 1-26-43		65
	44	R 1-26-44		60
1-45	01	R 1-45-01		61 (36)
	02	R 1-45-02		63 (38)
	03	R 1-45-03		59
	04	R 1-45-04		65
1-37	01	R 1-37-01		69
	02	R 1-37-02		68
	03	R 1-37-03		67
	04	R 1-37-04		65
	05	R 1-37-05		64
	06	R 1-37-06		64
	07	R 1-37-07		66
	08	R 1-37-08		69
	09	R 1-37-09		69
	10	R 1-37-10		68
	11	R 1-37-11		68
	12	R 1-37-12		63
	13	R 1-37-13		72
	14	R 1-37-14		69
1-46	01	R 1-46-01		67
1-27	M03	M-1-27-03		63
	M04	M-1-27-04		62
	01	R1-27-01		67
	02	R1-27-02		64
	03	R1-27-03		63
	04	R1-27-04		68
1-47	01	R1-47-01		66
	02	R1-47-02		67
	03	R1-47-03		66
	04	R1-47-04		67
	05	R1-47-05		67
	06	R1-47-06		67
1-28	M02	M 1-28-02		69
	M03	M 1-28-03		70
	M04	M 1-28-04		71
	01	R 1-28-01		68
	02	R 1-28-02		65
	03	R 1-28-03		62

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	04	R 1-28-04		60
	05	R 1-28-05		63
	06	R 1-28-06		63
	07	R 1-28-07		63
	08	R 1-28-08		64
	09	R 1-28-09		65
1-29	M01	M 1-29-01		67
	M02	M 1-29-02		61
	M03	M 1-29-03		75
	M04	M 1-29-04		66
	01	R 1-29-01		61
	02	R 1-29-02		61
	03	R 1-29-03		61
	04	R 1-29-04		64
	05	R 1-29-05		63
	06	R 1-29-06		60
3-13	M01	M 3-13-01		66
	M02	M 3-13-02		63
	M03	M 3-13-03		60
	M04	M 3-13-04		61
	M05	M 3-13-05		65
	M06	M 3-13-06		71
	01	R-3-13-01		60
	02	R-3-13-02		56
	03	R-3-13-03		57
	04	R-3-13-04		58
	05	R-3-13-05		57
	06	R-3-13-06		58
	07	R-3-13-07		58
	08	R-3-13-08		58
	09	R-3-13-09		59
	10	R-3-13-10		59
	11	R-3-13-11		60
	12	R-3-13-12		62
	13	R-3-13-13		69
3-14	M01	M 3-14-01		61
	M02	M 3-14-02		62
	M03	M 3-14-03		62
	M04	M 3-14-04		63
	M05	M 3-14-05		63
	M06	M 3-14-06		65
	M07	M 3-14-07		64

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	M08	M 3-14-08		60
	01	R-3-14-01		62
	02	R-3-14-02		57
	03	R-3-14-03		60
	04	R-3-14-04		62
	05	R-3-14-05		56
1-34	01	R 1-34-01		65
	02	R 1-34-02		61
	03	R 1-34-03		65
	04	R 1-34-04		66
	05	R 1-34-05		65
	06	R 1-34-06		64
	07	R 1-34-07		65
	08	R 1-34-08		64
	09	R 1-34-09		77
2-32	M01	M 2-32-01		65
	M02	M 2-32-02		60
	M03	M 2-32-03		63
	M04	M 2-32-04		66
	M05	M 2-32-05		63
	M06	M 2-32-06		67
	M07	M 2-32-07		66
	01	R 02-32-01		59
	02	R 02-32-02		58
	03	R 02-32-03		58
	04	R 02-32-04		57
	05	R 02-32-05		58
	06	R 02-32-06		58
	07	R 02-32-07		62
	08	R 02-32-08		61
	09	R 02-32-09		62
3-15	M1	M 03-15-01		63
	M2	M 03-15-02		63
	M03	M 03-15-03		69
	M04	M 03-15-04		61
	M05	M 03-15-05		62
	M06	M 03-15-06		60
	M07	M 03-15-07		63
	M08	M 03-15-08		63
	M09	M 03-15-09		58
	M10	M 03-15-10		60
	01	R-03-15-01		63

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers) [2,3]
	02	R 03-15-02		58
	03	R-03-15-03		59
	04	R 03-15-04		67
	05	R-03-15-05		62
	06	R 03-15-06		63
	07	R-03-15-07		77
	08	R 03-15-08		65 (40)
3-16	M1	M 03-16-01		63
	M2	M 03-16-02		60
	M03	M 03-16-03		60
	M04	M 03-16-04		59
	M05	M 03-16-05		60
	M06	M 03-16-06		60
	M07	M 03-16-07		63
	M08	M 03-16-08		63
	M09	M 03-16-09		59
	M10	M 03-16-10		57
	M11	M 03-16-11		63
	M12	M 03-16-12		61
	M13	M 03-16-13		61
	M14	M 03-16-14		61
	M15	M 03-16-15		66
	M16	M 03-16-16		63
	M17	M 03-16-17		64
	M18	M 03-16-18		61
	M19	M 03-16-19		61
	M20	M 03-16-20		64
	M21	M 03-16-21		60
	M22	M 03-16-22		63
	M23	M 03-16-23		62
	M24	M 03-16-24		59
	M25	M 03-16-25		58
	M26	M 03-16-26		62
	M27	M 03-16-27		60
	01	R 03-16-01		60
	02	R 03-16-02		59
	03	R 03-16-03		58
	04	R 03-16-04		60
	05	R 03-16-05		56
	06	R 03-16-06		61
	07	R 03-16-07		60
	08	R 03-16-08		61

Table B-1: Predicted No Build Sound Levels

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 No Build Alternative Sound Levels (dB(A)) (with existing noise barriers)[2,3]
	09	R 03-16-09		62
	10	R 03-16-10		62
	11	R 03-16-11		65
	12	R 03-16-12		57

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.

2. Interior sound levels are shown in parenthesis () where applicable.

3. For the receptors in Maryland, a background sound level of 55 dB(A) was added to the TNM results, since TNM does not account for background noise.

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
VA-1	1	VA-01-1		63	57	
	2	VA-01-2		75	62	
	3	VA-01-3		69	60	
	4	VA-01-4		64	57	
	5	VA-01-5		64	57	
	6	VA-01-6		66	59	
	7	VA-01-7		69	63	
	8	VA-01-8		67	61	
	9	VA-01-9		56	54	
	10	VA-01-10		72	66	
	11	VA-01-11		65	60	
	12	VA-01-12		60	56	
	13	VA-01-13		70	65	
	14	VA-01-14		69	64	
	15	VA-01-15		61	57	
	16	VA-01-16		59	58	
	17	VA-01-17		63	58	
	18	VA-01-18		63	62	
	19	VA-01-19		64	61	
	20	VA-01-20		66	61	
	21	VA-01-21		66	61	
	22	VA-01-22		66	59	
	23	VA-01-23		73	65	
	24	VA-01-24		75	65	
	25	VA-01-25		77	64	✓
	26	VA-01-26		74	62	
	27	VA-01-27		70	61	
	28	VA-01-28		67	60	
	29	VA-01-29		67	59	
	30	VA-01-30		67	60	
	31	VA-01-31		67	60	
	32	VA-01-32		65	58	
	33	VA-01-33		59	57	
	34	VA-01-34		55	53	
	35	VA-01-35		53	51	
	36	VA-01-36		52	50	
	37	VA-01-37		51	49	
	38	VA-01-38		52	50	
	39	VA-01-39		52	51	
	40	VA-01-40		51	50	
	41	VA-01-41		50	48	
	42	VA-01-42		49	47	
	43	VA-01-43		49	46	
	44	VA-01-44		60	55	
	45	VA-01-45		61	55	
	46	VA-01-46		59	55	
	47	VA-01-47		56	52	
	48	VA-01-48		58	52	
	49	VA-01-49		63	57	
	50	VA-01-50		63	57	
	51	VA-01-51		62	57	
	52	VA-01-52		65	58	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	53	VA-01-53		64	58	
	54	VA-01-54		56	54	
VA-2	1	VA-02-1		78	70	
	2	VA-02-2		74	68	
	3	VA-02-3		68	64	
	4	VA-02-4		73	67	
	5	VA-02-5		74	65	
	6	VA-02-6		72	64	
	7	VA-02-7		70	68	
	8	VA-02-8		68	62	
	9	VA-02-9		59	52	
	10	VA-02-10		69	69	
	11	VA-02-11		68	66	
	12	VA-02-12		64	63	
	13	VA-02-13		66	65	
	14	VA-02-14		62	61	
	15	VA-02-15		48	46	
	16	VA-02-16		48	47	
	17	VA-02-17		49	47	
	18	VA-02-18		46	46	
	19	VA-02-19		54	52	
	20	VA-02-20		48	46	
	21	VA-02-21		45	45	
	22	VA-02-22		54	50	
	23	VA-02-23		51	51	
	24	VA-02-24		60	55	
	25	VA-02-25		55	52	
	26	VA-02-26		47	45	
	27	VA-02-27		59	54	
	28	VA-02-28		58	52	
	29	VA-02-29		62	56	
	30	VA-02-30		68	57	
	31	VA-02-31		60	56	
	32	VA-02-32		55	50	
	33	VA-02-33		56	50	
	34	VA-02-34		59	52	
	35	VA-02-35		68	57	
	36	VA-02-36		71	59	
	37	VA-02-37		66	58	
	38	VA-02-38		64	56	
	39	VA-02-39		62	55	
	40	VA-02-40		60	54	
	41	VA-02-41		58	53	
	42	VA-02-42		57	52	
	43	VA-02-43		56	51	
	44	VA-02-44		55	51	
	45	VA-02-45		55	50	
	46	VA-02-46		58	52	
	47	VA-02-47		63	54	
	48	VA-02-48		65	56	
	49	VA-02-49		66	54	
	50	VA-02-50		67	54	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	51	VA-02-51		71	54	
	52	VA-02-52		72	55	
	53	VA-02-53		74	56	
	54	VA-02-54		76	57	
	55	VA-02-55		77	58	
	56	VA-02-56		68	58	
	57	VA-02-57		64	58	
	58	VA-02-58		63	58	
	59	VA-02-59		64	60	
	60	VA-02-60		66	61	
	61	VA-02-61		73	63	
	62	VA-02-62		78	64	
	63	VA-02-63		76	65	
	64	VA-02-64		76	69	
	65	VA-02-65		81	67	✓
	66	VA-02-66		65	64	
	67	VA-02-67		62	63	
	68	VA-02-68		60	60	
	69	VA-02-69		60	60	
	70	VA-02-70		66	57	
	71	VA-02-71		55	51	
	72	VA-02-72		62	55	
	73	VA-02-73		60	54	
	74	VA-02-74		57	51	
	75	VA-02-75		54	49	
	76	VA-02-76		54	51	
	77	VA-02-77		56	54	
	78	VA-02-78		58	55	
	79	VA-02-79		53	52	
	80	VA-02-80		60	60	
VA-3	1	VA-03-01		56	56	
	2	VA-03-02		60	60	
	3	VA-03-03		55	54	
	4	VA-03-04		51	50	
	5	VA-03-05		61	61	
	6	VA-03-06		66	66	
	7	VA-03-07		61	61	
	8	VA-03-08		63	62	
	9	VA-03-09		67	66	
	10	VA-03-10		64	64	
	11	VA-03-11		64	63	
	12	VA-03-12		50	50	
	13	VA-03-13		64	61	
	14	VA-03-14		56	56	
	15	VA-03-15		57	56	
	16	VA-03-16		57	55	
	17	VA-03-17		53	49	
	18	VA-03-18		56	53	
	19	VA-03-19		59	56	
	20	VA-03-20		61	56	
	21	VA-03-21		66	60	
	22	VA-03-22		67	58	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	23	VA-03-23		66	58	
	24	VA-03-24		70	58	
	25	VA-03-25		57	54	
	26	VA-03-26		71	59	
	27	VA-03-27		74	61	
	28	VA-03-28		70	63	
	29	VA-03-29		65	59	
	30	VA-03-30		70	63	
	31	VA-03-31		77	64	✓
	32	VA-03-32		77	64	✓
	33	VA-03-33		73	62	
	34	VA-03-34		69	60	
	35	VA-03-35		68	59	
	36	VA-03-36		76	63	
	37	VA-03-37		71	60	
	38	VA-03-38		64	55	
	39	VA-03-39		77	64	✓
	40	VA-03-40		69	57	
	41	VA-03-41		70	58	
	42	VA-03-42		70	58	
	43	VA-03-43		66	55	
	44	VA-03-44		67	56	
	45	VA-03-45		67	56	
	46	VA-03-46		66	57	
	47	VA-03-47		73	60	
	48	VA-03-48		68	57	
	49	VA-03-49		76	62	
	50	VA-03-50		63	55	
	51	VA-03-51		58	53	
	52	VA-03-52		65	63	
	53	VA-03-53		65	55	
	54	VA-03-54		60	53	
	55	VA-03-55		60	54	
	56	VA-03-56		62	52	
	57	VA-03-57		67	54	
	58	VA-03-58		64	53	
	59	VA-03-59		63	53	
	60	VA-03-60		59	54	
VA-4	1	VA-04-01		57	57	
	2	VA-04-02		58	58	
	3	VA-04-03		58	58	
	4	VA-04-04		61	61	✓
	5	VA-04-05		60	60	
	6	VA-04-06		59	59	
1-01	M1	M1-1-1		77	72	✓
	M2	M1-1-2		73	65	
	M3	M1-1-3		66	61	
	1	R1-01-01		60	60	
	2	R1-01-02		63	63	
	3	R1-01-03		62	62	
	4	R1-01-04		63	63	
	5	R1-01-05		58	57	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers)[2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers)[4,5]	Maximum Noise Level within NSA
	6	R1-01-06		57	56	
	7	R1-01-07		74	64	
	8	R1-01-08		61	61	
	9	R1-01-09		64	64	
	10	R1-01-10		60	60	
	11	R1-01-11		71	71	
	12	R1-01-12		69	69	
	13	R1-01-13		67	67	
1-02	M1	M1-2-1		67	60	
	M2	M1-2-2		67	58	
	M3	M1-2-3		77	62	
	M4	M1-2-4		79	61	✓
	M5	M1-2-5		67	60	
	1	R1-02-01		72	67	
	2	R1-02-02		63	63	
	3	R1-02-03		60	57	
	4	R1-02-04		65	58	
	5	R1-02-05		63	57	
	6	R1-02-06		65	58	
	7	R1-02-07		61	57	
	8	R1-02-08		62	58	
	9	R1-02-09		65	65	
	10	R1-02-10		65	65	
	11	R1-02-11		63	63	
	12	R1-02-12		62	62	
1-04	M1	M1-4-1		71	62	
	M2	M1-4-2		76	62	✓
	M3	M1-4-3		73	61	
	M4	M1-4-4		69	60	
	M5	M1-4-5		72	60	
	M6	M1-4-6		75	62	
	M7	M1-4-7		68	60	
	1	R1-04-01		69	63	
	2	R1-04-02		60	58	
	3	R1-04-03		60	57	
	4	R1-04-04		57	56	
	5	R1-04-05		59	58	
	6	R1-04-06		72	61	
	7	R1-04-07		63	59	
	8	R1-04-08		56	55	
	9	R1-04-09		64	59	
	10	R1-04-10		60	57	
	11	R1-04-11		63	58	
	12	R1-04-12		57	56	
	13	R1-04-13		63	58	
	14	R1-04-14		61	57	
	15	R1-04-15		63	57	
	16	R1-04-16		65	58	
	17	R1-04-17		66	57	
	18	R1-04-18		67	61	
	19	R1-04-19		67	62	
	20	R1-04-20		74	61	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
1-05	M1	M1-5-1		71	60	
	M2	M1-5-2		72	60	
	M3	M1-5-3		74	61	✓
	M4	M1-5-4		70	62	
	M5	M1-5-5		70	64	
	M6	M1-5-6		67	62	
	1	R1-05-01		70	60	
	2	R1-05-02		64	63	
	3	R1-05-03		67	62	
	4	R1-05-04		66	61	
	5	R1-05-05		57	57	
	6	R1-05-06		64	60	
	7	R1-05-07		63	59	
	8	R1-05-08		62	58	
	9	R1-05-09		65	60	
	10	R1-05-10		68	59	
	11	R1-05-11		68	60	
	12	R1-05-12		68	62	
1-03	M1	M1-3-1		75	63	
	M2	M1-3-2		78	67	
	M3	M1-3-3		81	63	✓
	1	R1-03-01		63	60	
	3	R1-03-03		60	57	
	4	R1-03-04		60	57	
	5	R1-03-05		69	61	
	6	R1-03-06		63	59	
	7	R1-03-07		68	62	
	8	R1-03-08		62	59	
	9	R1-03-09		64	61	
	10	R1-03-10		57	56	
	11	R1-03-11		61	59	
2-01	M1	M2-01-01		69	61	
	M3	M2-01-03		66	60	
	M4	M2-01-04		66	59	
	M5	M2-01-05		66	58	
	M6	M2-01-06		70	60	✓
	1	R2-01-01		65	59	
	2	R2-01-02		66	59	
	3	R2-01-03		63	58	
	4	R2-01-04		68	63	
	5	R2-01-05		65	60	
	6	R2-01-06		69 (59)	61 (51)	
	7	R2-01-07		66	60	
	8	R2-01-08		64	59	
	9	R2-01-09		63	59	
	10	R2-01-10		65	59	
	11	R2-01-11		59	56	
	12	R2-01-12		58	56	
	13	R2-01-13		57	56	
	14	R2-01-14		56	56	
	15	R2-01-15		56	56	
	16	R2-01-16		57	57	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	17	R2-01-17		58	58	
	18	R2-01-18		58	58	
	19	R2-01-19		59	59	
	20	R2-01-20		60	60	
	21	R2-01-21		59	59	
	22	R2-01-22		58	58	
1-06	M1	M1-6-1		75	62	
	M2	M1-6-2		74	65	
	M3	M1-6-3		76	71	✓
	2	R1-06-02		65	65	
	3	R1-06-03		59	57	
	4	R1-06-04		57	57	
	5	R1-06-05		62	59	
	6	R1-06-06		56	56	
	7	R1-06-07		67	63	
	8	R1-06-08		67	62	
	9	R1-06-09		69	61	
3-01	M1	M3-1-1		73	67	
	M2	M3-1-2		74	69	
	M3	M3-1-3		76	64	
	M4	M3-1-4		79	60	
	M6	M3-1-6		78	61	
	M7	M3-1-7		79	63	
	M8	M3-1-8		75	66	
	M9	M3-1-9		61	57	
	M10	M3-1-10		74	63	
	M11	M3-1-11		79	64	
	M12	M3-1-12		67	59	
	M13	M3-1-13		78	62	
	M14	M3-1-14		69	59	
	M15	M3-1-15		75	62	
	M16	M3-1-16		79	63	
	M17	M3-1-17		69	62	
	M18	M3-1-18		79	68	
	M19	M3-1-19		71	64	
	M20	M3-1-20		79	65	
	M21	M3-1-21		75	65	
	M22	M3-1-22		81	62	✓
	M23	M3-1-23		72	63	
	M24	M3-1-24		80	63	
	M25	M3-1-25		78	66	
	M26	M3-1-26		80	65	
	M27	M3-1-27		76	64	
	M28	M3-1-28		81	61	✓
	M29	M3-1-29		81	66	✓
	1	R3-1-1		59	57	
	2	R3-1-2		57	56	
	3	R3-1-3		60	57	
	4	R3-1-4		60	57	
	5	R3-1-5		65	59	
	6	R3-1-6		61	57	
	7	R3-1-7		57	56	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	8	R3-1-8		61	57	
	9	R3-1-9		59	56	
	10	R3-1-10		63	57	
	11	R3-1-11		57	56	
	12	R3-1-12		57	56	
	13	R3-1-13		57	56	
	14	R3-1-14		57	56	
	15	R3-1-15		56	56	
	16	R3-1-16		57	56	
	17	R3-1-17		64	59	
	18	R3-1-18		59	57	
	19	R3-1-19		57	56	
	20	R3-1-20		67	60	
1-38	1a	R1-38-1a		67	58	
	1b	R1-38-1b	*	69	58	
	1c	R1-38-1c	*	70	60	
	1d	R1-38-1d	*	71	64	✓
	2a	R1-38-2a		66	58	
	2b	R1-38-2b	*	69	58	
	2c	R1-38-2c	*	70	60	
	2d	R1-38-2d	*	71	63	✓
	3a	R1-38-3a		67	58	
	3b	R1-38-3b	*	69	58	
	3c	R1-38-3c	*	70	59	
	3d	R1-38-3d	*	71	63	✓
	4a	R1-38-4a		66	58	
	4b	R1-38-4b	*	68	59	
	4c	R1-38-4c	*	69	60	
	4d	R1-38-4d	*	69	61	
	4e	R1-38-4e	*	70	65	
	5a	R1-38-5a		67	64	
	5b	R1-38-5b	*	69	65	
	5c	R1-38-5c	*	69	66	
	5d	R1-38-5d	*	69	67	
	6a	R1-38-6a		63	61	
	6b	R1-38-6b	*	65	63	
	6c	R1-38-6c	*	66	64	
	6d	R1-38-6d	*	67	65	
	7	R1-38-7		63	58	
4-01	M1	M4-01-01		64	59	
	M2	M4-01-02		70	62	
	M3	M4-01-03		75	61	✓
	M4	M4-01-04		74	62	
	M5	M4-01-05		67	58	
	1	R4-01-01		62	57	
	2	R4-01-02		66	59	
	3	R4-01-03		66	58	
	4	R4-01-04		72	61	
	5	R4-01-05		69	59	
	6	R4-01-06		72	60	
2-02	M1	M2-02-01		79	63	
	M2	M2-02-02		69	60	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	M3	M2-02-03		79	63	
	M4	M2-02-04		78	65	
	M5	M2-02-05		66	60	
	M6	M2-02-06		65	58	
	M7	M2-02-07		74	61	
	M8	M2-02-08		74	62	
	M9	M2-02-09		76	64	
	M10	M2-02-10		69	61	
	1	R2-02-01		70	60	
	2	R2-02-02		73	62	
	3	R2-02-03		76	62	
	4	R2-02-04		73	62	
	5	R2-02-05		66	58	
	6	R2-02-06		67	58	
	7	R2-02-07		62	58	
	8	R2-02-08		67	58	
	9	R2-02-09		65	58	
	10	R2-02-10		75	61	
	11	R2-02-11		62	57	
	12	R2-02-12		63	63	
	13	R2-02-13		82	68	✓
	14	R2-02-14		61	57	
	15	R2-02-15		64	58	
	16	R2-02-16		59	56	
	17	R2-02-17		58	56	
	18	R2-02-18		57	56	
	19	R2-02-19		61	57	
	20	R2-02-20		59	57	
	21	R2-02-21		57	56	
	22	R2-02-22		60	56	
	23	R2-02-23		57	56	
	24	R2-02-24		57	56	
	25	R2-02-25		59	56	
	26	R2-02-26		58	57	
	27	R2-02-27		62	62	
3-02	M1	M3-02-01		78	63	✓
	M2	M3-02-02		62	58	
	M3	M3-02-03		78	60	✓
	M4	M3-02-04		77	60	
	M5	M3-02-05		77	60	
	M6	M3-02-06		67	62	
	M7	M3-02-07		73	63	
	M8	M3-02-08		74	65	
	1	R3-2-1		59	57	
	2	R3-2-2		61	57	
	3	R3-2-3		57	56	
	4	R3-2-4		61	58	
3-04	M1	M3-04-01		70	62	
	M2	M3-04-02		61	58	
	M3	M3-04-03		66	59	
	M4	M3-04-04		63	58	
	M5	M3-04-05		64	57	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	M6	M3-04-06		65	58	
	1	R3-4-1		59	56	
	2	R3-4-2		60	58	
	3	R3-4-3		59	57	
	4	R3-4-4		57	56	
	5	R3-4-5		71	60	
	6	R3-4-6		56	55	
	7	R3-4-7		57	56	
	8	R3-4-8		60	57	
	9	R3-4-9		75	60	✓
1-08	M1	M1-08-01		70	61	✓
	M2	M1-08-02		70	62	✓
	M3	M1-08-03		66	61	
	1	R1-08-01		59	57	
	2	R1-08-02		57	56	
	3	R1-08-03		58	57	
	4	R1-08-04		56	55	
	5	R1-08-05		60	58	
2-03	M1	M2-03-01		59	59	
	M2	M2-03-02		73	63	✓
	M3	M2-03-03		63	58	
	M4	M2-03-04		59	57	
	M5	M2-03-05		61	57	
	1	R02-03-01		56	56	
	2	R02-03-02		55	55	
	3	R02-03-03		57	57	
	4	R02-03-04		56	56	
	5	R02-03-05		56	55	
	6	R02-03-06		56	56	
2-04A[6]	M1	M2-04-01		64	64	✓
	M2	M2-04-02		60	60	
	M3	M2-04-03		62	62	
	M4	M2-04-04		60	60	
	M5	M2-04-05		61	61	
	M6	M2-04-06		63	63	
	M7	M2-04-07		59	59	
	M8	M2-04-08		61	61	
	1	R02-04-01		56	56	
	2	R02-04-02		56	56	
	3	R02-04-03		56	56	
	4	R02-04-04		58	58	
	5	R02-04-05		56	56	
	6	R02-04-06		56	56	
	7	R02-04-07		56	56	
2-05A[6]	M1	M2-05-01		60	60	
	M2	M2-05-02		62	62	✓
	1	R2-05-01		57	57	
5-36	1	R 5-36-01		79	66	
	2	R 5-36-02		74	63	
	3	R 5-36-03		73	62	
	4	R 5-36-04		72	62	
	5	R 5-36-05		70	62	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	6	R 5-36-06		68	62	
	7	R 5-36-07		67	62	
	8	R 5-36-08		65	63	
	9	R 5-36-09		75	67	
	10	R 5-36-10		63	60	
	11	R 5-36-11		62	59	
	12	R 5-36-12		64	59	
	13	R 5-36-13		66	60	
	14	R 5-36-14		68	60	
	15	R 5-36-15		71	62	
	16	R 5-36-16		77	68	
	17	R 5-36-17		80	68	✓
	18	R 5-36-18		73	61	
	19	R 5-36-19		66	58	
	20	R 5-36-20		63	57	
	21	R 5-36-21		60	57	
	22	R 5-36-22		59	57	
	23	R 5-36-23		62	57	
	24	R 5-36-24		62	57	
	25	R 5-36-25		62	58	
	26	R 5-36-26		64	59	
	27	R 5-36-27		64	58	
	28	R 5-36-28		65	60	
	29	R 5-36-29		67	61	
	30	R 5-36-30		70	62	
	31	R 5-36-31		70	62	
	32	R 5-36-32		69	61	
	33	R 5-36-33		70	61	
	34	R 5-36-34		69	61	
	35	R 5-36-35		69	60	
	36	R 5-36-36		70	61	
	37	R 5-36-37		70	59	
	38	R 5-36-38		66	58	
	39	R 5-36-39		63	58	
	40	R 5-36-40		63	57	
	41	R 5-36-41		60	57	
	42	R 5-36-42		60	57	
	43	R 5-36-43		59	57	
	44	R 5-36-44		59	57	
	45	R 5-36-45		60	57	
	46	R 5-36-46		60	57	
	47	R 5-36-47		62	57	
	48	R 5-36-48		64	58	
	49	R 5-36-49		68	58	
	50	R 5-36-50		67	58	
	51	R 5-36-51		72	59	
	52	R 5-36-52		70	62	
	53	R 5-36-53		70	62	
	54	R 5-36-54		70	61	
	55	R 5-36-55		71	62	
	56	R 5-36-56		71	61	
	57	R 5-36-57		71	62	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	58	R 5-36-58		71	61	
	59	R 5-36-59		73	62	
	60	R 5-36-60		76	62	
	61	R 5-36-61		77	63	
	62	R 5-36-62		77	62	
	63	R 5-36-63		77	62	
	64	R 5-36-64		78	61	
	65	R 5-36-65		78	61	
	66	R 5-36-66		78	61	
	67	R 5-36-67		74	62	
	68	R 5-36-68		70	62	
	69	R 5-36-69		67	61	
	70	R 5-36-70		64	59	
	71	R 5-36-71		63	58	
	72	R 5-36-72		71	63	
	73	R 5-36-73		67	59	
	74	R 5-36-74		64	58	
	75	R 5-36-75		67	58	
	76	R 5-36-76		65	57	
	77	R 5-36-77		64	57	
	78	R 5-36-78		63	57	
	79	R 5-36-79		62	57	
	80	R 5-36-80		62	57	
	81	R 5-36-81		62	57	
	82	R 5-36-82		62	57	
	83	R 5-36-83		63	58	
	84	R 5-36-84		63	58	
	85	R 5-36-85		63	58	
	86	R 5-36-86		63	58	
	87	R 5-36-87		63	58	
	88	R 5-36-88		63	58	
	89	R 5-36-89		65	58	
	90	R 5-36-90		65	58	
	91	R 5-36-91		65	58	
	92	R 5-36-92		66	58	
	93	R 5-36-93		67	58	
	94	R 5-36-94		67	58	
	95	R 5-36-95		68	59	
	96	R 5-36-96		64	58	
	97	R 5-36-97		64	58	
	98	R 5-36-98		64	58	
	99	R 5-36-99		64	58	
	100	R 5-36-100		64	58	
	101	R 5-36-101		64	58	
	102	R 5-36-102		64	58	
	103	R 5-36-103		64	58	
	104	R 5-36-104		64	58	
	105	R 5-36-105		64	58	
	106	R 5-36-106		63	58	
	107	R 5-36-107		63	58	
	108	R 5-36-108		63	58	
	109	R 5-36-109		63	58	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	110	R 5-36-110		67	59	
	111	R 5-36-111		64	59	
	112	R 5-36-112		62	59	
5-37	1	R 5-37-01		67	62	
	2	R 5-37-02		69	62	
	3	R 5-37-03		69	62	
	4	R 5-37-04		70	62	
	5	R 5-37-05		65	60	
	6	R 5-37-06		72	62	
	7	R 5-37-07		72	61	
	8	R 5-37-08		71	61	
	9	R 5-37-09		73	63	
	10	R 5-37-10		64	60	
	11	R 5-37-11		66	62	
	12	R 5-37-12		63	60	
	13	R 5-37-13		65	61	
	14	R 5-37-14		62	58	
	15	R 5-37-15		62	59	
	16	R 5-37-16		59	58	
	17	R 5-37-17		60	58	
	18	R 5-37-18		61	59	
	19	R 5-37-19		63	59	
	19A	R 5-37-19A		67	62	
	20	R 5-37-20		78	67	
	21	R 5-37-21		80	63	✓
	22	R 5-37-22		78	62	
	23	R 5-37-23		78	63	
	24	R 5-37-24		77	62	
	25	R 5-37-25		76	62	
	26	R 5-37-26		76	62	
	27	R 5-37-27		75	61	
	28	R 5-37-28		72	60	
	29	R 5-37-29		72	61	
	30	R 5-37-30		71	60	
	31	R 5-37-31		70	60	
	32	R 5-37-32		69	60	
	33	R 5-37-33		66	59	
	34	R 5-37-34		66	58	
	35	R 5-37-35		64	58	
	36	R 5-37-36		64	58	
	37	R 5-37-37		63	58	
	38	R 5-37-38		63	57	
	39	R 5-37-39		62	57	
	40	R 5-37-40		71	66	
	41	R 5-37-41		76	71	
	42	R 5-37-42		73	67	
	43	R 5-37-43		71	63	
5-33A	1	R 5-33-1		67	61	
	2	R 5-33-2		72	60	
	3	R 5-33-3		68	59	
	4	R 5-33-4		69	59	
	5	R 5-33-5		72	60	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	6	R 5-33-6		70	59	
	7	R 5-33-7		72	59	
	8	R 5-33-8		65	60	
	9	R 5-33-9		66	59	
	10	R 5-33-10		66	59	
	11	R 5-33-11		67	59	
	12	R 5-33-12		65	58	
	13	R 5-33-13		67	58	
	14	R 5-33-14		63	60	
	15	R 5-33-15		62	58	
	16	R 5-33-16		60	57	
	17	R 5-33-17		61	57	
	18	R 5-33-18		64	58	
	19	R 5-33-19		62	59	
	20	R 5-33-20		60	58	
	21	R 5-33-21		59	57	
	22	R 5-33-22		59	57	
	23	R 5-33-23		60	57	
	24	R 5-33-24		61	57	
	25	R 5-33-25		60	59	
	26	R 5-33-26		59	57	
	27	R 5-33-27		58	57	
	28	R 5-33-28		58	57	
	29	R 5-33-29		58	56	
	30	R 5-33-30		58	57	
	31	R 5-33-31		58	57	
	32	R 5-33-32		57	56	
	33	R 5-33-33		57	56	
	34	R 5-33-34		66	58	
	35	R 5-33-35		65	59	
	36	R 5-33-36		62	57	
	37	R 5-33-37		63	57	
	38	R 5-33-38		65	57	
	39	R 5-33-39		62	57	
	40	R 5-33-40		62	57	
	41	R 5-33-41		66	58	
	42	R 5-33-42		72	60	
	43	R 5-33-43		69	59	
	44	R 5-33-44		66	58	
	45	R 5-33-45		67	59	
	46	R 5-33-46		63	58	
	47	R 5-33-47		63	57	
	48	R 5-33-48		61	56	
	49	R 5-33-49		60	56	
	50	R 5-33-50		59	56	
	51	R 5-33-51		60	56	
	52	R 5-33-52		60	56	
	53	R 5-33-53		60	56	
	54	R 5-33-54		60	56	
	55	R 5-33-55		63	57	
	56	R 5-33-56		60	56	
	57	R 5-33-57		65	58	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	58	R 5-33-58		66	58	
	59	R 5-33-59		66	58	
	60	R 5-33-60		66	58	
	61	R 5-33-61		59	56	
	62	R 5-33-62		58	56	
	63	R 5-33-63		58	56	
	64	R 5-33-64		58	56	
	65	R 5-33-65		57	56	
	66	R 5-33-66		59	56	
	67	R 5-33-67		59	56	
	68	R 5-33-68		59	56	
	69	R 5-33-69		58	56	
	70	R 5-33-70		69	60	
	71	R 5-33-71		70	60	
	72	R 5-33-72		71	60	
	73	R 5-33-73		71	60	
	74	R 5-33-74		71	60	
	75	R 5-33-75		71	60	
	76	R 5-33-76		70	60	
	77	R 5-33-77		66	58	
	78	R 5-33-78		65	58	
	79	R 5-33-79		67	59	
	80	R 5-33-80		62	57	
	81	R 5-33-81		61	57	
	82	R 5-33-82		66	58	
	83	R 5-33-83		60	56	
	84	R 5-33-84		65	58	
	85	R 5-33-85		67	58	
	86	R 5-33-86		67	58	
	87	R 5-33-87		65	57	
	88	R 5-33-88		66	58	
	89	R 5-33-89		63	57	
	90	R 5-33-90		63	57	
	91	R 5-33-91		61	57	
	92	R 5-33-92		59	56	
	93	R 5-33-93		59	56	
	94	R 5-33-94		58	56	
	95	R 5-33-95		59	56	
	96	R 5-33-96		60	56	
	97	R 5-33-97		59	56	
	98	R 5-33-98		58	56	
	99	R 5-33-99		62	57	
	100	R 5-33-100		60	57	
	101	R 5-33-101		60	56	
	102	R 5-33-102		60	56	
	103	R 5-33-103		60	56	
	104	R 5-33-104		59	56	
	105	R 5-33-105		59	56	
	106	R 5-33-106		59	56	
	107	R 5-33-107		59	56	
	108	R 5-33-108		58	56	
	109	R 5-33-109		60	56	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	110	R 5-33-110		59	56	
	111	R 5-33-111		57	56	
	112	R 5-33-112		57	56	
	113	R 5-33-113		58	56	
	114	R 5-33-114		68	58	
	115	R 5-33-115		67	58	
	116	R 5-33-116		65	57	
	117	R 5-33-117		64	56	
	118	R 5-33-118		61	56	
	119	R 5-33-119		60	56	
	120	R 5-33-120		70	59	
	121	R 5-33-121		70	59	
	122	R 5-33-122		69	59	
	123	R 5-33-123		69	59	
	124	R 5-33-124		67	59	
	125	R 5-33-125		65	58	
	126	R 5-33-126		64	56	
	127	R 5-33-127		58	55	
	128	R 5-33-128		59	56	
	129	R 5-33-129		66	57	
	130	R 5-33-130		64	57	
	131	R 5-33-131		62	56	
	132	R 5-33-132		64	57	
	133	R 5-33-133		61	56	
	134	R 5-33-134		63	56	
	135	R 5-33-135		62	56	
	136	R 5-33-136		62	56	
	137	R 5-33-137		62	56	
	138	R 5-33-138		61	56	
	139	R 5-33-139		61	56	
	140	R 5-33-140		61	56	
	141	R 5-33-141		60	56	
	142	R 5-33-142		61	56	
	143	R 5-33-143		60	56	
	144	R 5-33-144		60	56	
	145	R 5-33-145		62 (37)	57 (32)	
	146	R 5-33-146		62 (37)	58 (33)	
	147	R 5-33-147		62 (37)	57 (32)	
	148	R 5-33-148		59	57	
	149	R 5-33-149		60	57	
	150	R 5-33-150		60	57	
	151	R 5-33-151		61	57	
	152	R 5-33-152		59	57	
	153	R 5-33-153		60	57	
	154	R 5-33-154		60	57	
	155	R 5-33-155		65	58	
	156	R 5-33-156		67	58	
	157	R 5-33-157		63	57	
	158	R 5-33-158		62	57	
	159	R 5-33-159		59	56	
	160	R 5-33-160		59	56	
	161	R 5-33-161		58	56	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	162	R 5-33-162		58	56	
	163	R 5-33-163		65	57	
	164	R 5-33-164		63	56	
	165	R 5-33-165		65	57	
	166	R 5-33-166		61	56	
	167	R 5-33-167		59	56	
	168	R 5-33-168		59	56	
	169	R 5-33-169		59	56	
	170	R 5-33-170		60	56	
	171	R 5-33-171		65	58	
	172	R 5-33-172		59	56	
	173	R 5-33-173		58	56	
	174	R 5-33-174		57	56	
	175	R 5-33-175		66	59	
	176	R 5-33-176		62	56	
	177	R 5-33-177		58	56	
	178	R 5-33-178		57	55	
	179	R 5-33-179		57	56	
	180	R 5-33-180		57	56	
	181	R 5-33-181		57	56	
	182	R 5-33-182		57	55	
	183	R 5-33-183		57	56	
	184	R 5-33-184		63	59	
	185	R 5-33-185		62	59	
	186	R 5-33-186		57	56	
	187	R 5-33-187		57	56	
	188	R 5-33-188		64	60	
	189	R 5-33-189		66	60	
	190	R 5-33-190		66	61	
	191	R 5-33-191		66	61	
	192	R 5-33-192		66	62	
	193	R 5-33-193		66	62	
	194	R 5-33-194		66	62	
	195	R 5-33-195		67	63	
	196	R 5-33-196		67	63	
	197	R 5-33-197		68	64	
	198	R 5-33-198		67	64	
	199	R 5-33-199		67	65	
	200	R 5-33-200		57	55	
	201	R 5-33-201		56	55	
	202	R 5-33-202		56	55	
	203	R 5-33-203		57	56	
	204	R 5-33-204		57	55	
	205	R 5-33-205		57	55	
	206	R 5-33-206		57	55	
	207	R 5-33-207		57	55	
	208	R 5-33-208		57	56	
	209	R 5-33-209		56	56	
	210	R 5-33-210		57	56	
	211	R 5-33-211		56	56	
	212	R 5-33-212		56	55	
	213	R 5-33-213		56	56	

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	214	R 5-33-214		61	61	
	215	R 5-33-215		64	63	
	216	R 5-33-216		57	56	
	217	R 5-33-217		57	56	
	218	R 5-33-218		57	56	
	219	R 5-33-219		61	61	
	220	R 5-33-220		64	62	
	221	R 5-33-221		65	63	
	222	R 5-33-222		65	63	
	223	R 5-33-223		64	63	
	224	R 5-33-224		63	62	
	225	R 5-33-225		80	71	✓
	226	R 5-33-226		75	60	
5-34A	1	R 5-34-1		65	60	
	2	R 5-34-2		66	60	
	3	R 5-34-3		64	59	
	4	R 5-34-4		63	59	
	5	R 5-34-5		62	59	
	6	R 5-34-6		61	58	
	7	R 5-34-7		65	63	
	8	R 5-34-8		63	62	
	9	R 5-34-9		62	59	
	10	R 5-34-10		61	58	
	11	R 5-34-11		60	58	
	12	R 5-34-12		60	57	
	13	R 5-34-13		66	60	
	14	R 5-34-14		71	62	
	15	R 5-34-15		73	62	
	16	R 5-34-16		74	63	✓
	17	R 5-34-17		72	61	
	18	R 5-34-18		71	61	
	19	R 5-34-19		70	60	
	20	R 5-34-20		62	59	
	21	R 5-34-21		62	59	
	22	R 5-34-22		66	60	
	23	R 5-34-23		66	60	
	24	R 5-34-24		61	58	
	25	R 5-34-25		60	58	
	26	R 5-34-26		59	58	
	27	R 5-34-27		62	58	
	28	R 5-34-28		64	59	
	29	R 5-34-29		63	58	
	30	R 5-34-30		59	57	
	31	R 5-34-31		59	57	
	32	R 5-34-32		60	57	
	33	R 5-34-33		61	57	
	34	R 5-34-34		68	60	
	35	R 5-34-35		71	61	
	36	R 5-34-36		72	62	
	37	R 5-34-37		71	61	
	38	R 5-34-38		69	60	
	39	R 5-34-39		65	59	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	40	R 5-34-40		67	59	
	41	R 5-34-41		68	60	
	42	R 5-34-42		68	60	
	43	R 5-34-43		67	59	
	44	R 5-34-44		65	59	
	45	R 5-34-45		66	59	
	46	R 5-34-46		66	59	
	47	R 5-34-47		64	58	
	48	R 5-34-48		66	59	
	49	R 5-34-49		66	59	
	50	R 5-34-50		67	59	
	51	R 5-34-51		66	59	
	52	R 5-34-52		71	60	
	53	R 5-34-53		70	61	
	54	R 5-34-54		67	60	
	55	R 5-34-55		68	60	
	56	R 5-34-56		70	62	
	57	R 5-34-57		73	64	
	58	R 5-34-58		65	59	
	59	R 5-34-59		64	59	
	60	R 5-34-60		63	59	
	61	R 5-34-61		65	59	
	62	R 5-34-62		66	60	
	63	R 5-34-63		70	62	
	64	R 5-34-64		64	58	
	65	R 5-34-65		62	58	
	66	R 5-34-66		64	59	
	67	R 5-34-67		65	59	
	68	R 5-34-68		68	61	
	69	R 5-34-69		65	59	
	70	R 5-34-70		67	60	
	71	R 5-34-71		62	57	
	72	R 5-34-72		63	58	
	73	R 5-34-73		68	60	
	74	R 5-34-74		65	59	
	75	R 5-34-75		64	58	
	76	R 5-34-76		61	57	
	77	R 5-34-77		71	64	
	78	R 5-34-78		69	63	
	79	R 5-34-79		67	62	
	80	R 5-34-80		66	62	
	81	R 5-34-81		64	61	
	82	R 5-34-82		62	59	
	83	R 5-34-83		73	68	
	84	R 5-34-84		72	68	
	85	R 5-34-85		71	68	
	86	R 5-34-86		70	68	
	87	R 5-34-87		69	67	
	88	R 5-34-88		67	66	
	89	R 5-34-89		72	64	
	90	R 5-34-90		74	66	✓
5-32C	1	R5-32C-01		77	66	✓

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	2	R5-32C-02		75	63	✓
	3	R5-32C-03		68	60	
	4	R5-32C-04a		67	57	
	5	R5-32C-04b	*	69	57	
	6	R5-32C-04c	*	70	58	
	7	R5-32C-04d	*	70	59	
	8	R5-32C-04e	*	70	60	
	9	R5-32C-05a		72	65	
	10	R5-32C-05b	*	76	66	
	11	R5-32C-05c	*	77	68	✓
	12	R5-32C-05d	*	77	69	✓
	13	R5-32C-05e	*	77	70	✓
	14	R5-32C-06a		61	56	
	15	R5-32C-06b	*	64	57	
	16	R5-32C-06c	*	68	57	
	17	R5-32C-06d	*	69	59	
	18	R5-32C-06e	*	70	60	
	19	R5-32C-07a		63	57	
	20	R5-32C-07b	*	67	57	
	21	R5-32C-07c	*	70	57	
	22	R5-32C-07d	*	71	59	
	23	R5-32C-07e	*	71	60	
	24	R5-32C-08b	*	67	57	
	25	R5-32C-08c	*	69	58	
	26	R5-32C-08d	*	71	59	
	27	R5-32C-08e	*	72	60	
	28	R5-32C-09b	*	66	56	
	29	R5-32C-09c	*	67	57	
	30	R5-32C-09d	*	68	57	
	31	R5-32C-09e	*	69	58	
	32	R5-32C-10b	*	63	58	
	33	R5-32C-10c	*	65	58	
	34	R5-32C-10d	*	65	59	
	35	R5-32C-10e	*	66	59	
5-32A	1	R 5-32A-1		70	70	✓
	2	R 5-32A-2		64	64	
	3	R 5-32A-3		61	61	
5-32	1	R 5-32-1		70	64	
	2	R 5-32-2		72	63	✓
	3	R 5-32-3		67	62	
5-31	1	R 5-31-01		62	60	
	2	R 5-31-02		62	60	
	3	R 5-31-03		63	60	
	4	R 5-31-04		63	60	
	5	R 5-31-05		64	60	
	6	R 5-31-06		65	60	
	7	R 5-31-07		66	61	
	8	R 5-31-08		67	61	
	9	R 5-31-09		71	62	✓
	10	R 5-31-10		70	61	
	11	R 5-31-11		71	62	✓
	12	R 5-31-12		70	61	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	13	R 5-31-13		68	61	
	14	R 5-31-14		67	60	
	15	R 5-31-15		66	60	
	16	R 5-31-16		65	59	
	17	R 5-31-17		67	60	
	18	R 5-31-18		66	60	
	19	R 5-31-19		66	60	
	20	R 5-31-20		64	59	
	21	R 5-31-21		62	59	
	22	R 5-31-22		64	58	
	23	R 5-31-23		66	59	
	24	R 5-31-24		64	58	
	25	R 5-31-25		63	58	
	26	R 5-31-26		64	58	
	27	R 5-31-27		67	60	
	28	R 5-31-28		65	60	
	29	R 5-31-29		61	58	
	30	R 5-31-30		62	59	
	31	R 5-31-31		62	59	
	32	R 5-31-32		68	61	
	33	R 5-31-33		69	61	
	34	R 5-31-34		66	60	
	35	R 5-31-35		65	60	
	36	R 5-31-36		64	60	
	37	R 5-31-37		62	58	
	38	R 5-31-38		62	59	
	39	R 5-31-39		62	59	
	40	R 5-31-40		66	60	
	41	R 5-31-41		67	64	
	42	R 5-31-42		68	64	
	43	R 5-31-43		65	63	
	44	R 5-31-44		64	62	
	45	R 5-31-45		64	61	
	46	R 5-31-46		63	61	
	47	R 5-31-47		61	60	
	48	R 5-31-48		63	61	
	49	R 5-31-49		61	59	
	50	R 5-31-50		62	60	
	51	R 5-31-51		63	61	
	52	R 5-31-52		62	60	
	53	R 5-31-53		62	59	
5-30	1	R 5-30-01		69	64	
	2	R 5-30-02		70	64	
	3	R 5-30-03		74	65	
	4	R 5-30-04		76	65	
	5	R 5-30-05		76	66	
	6	R 5-30-06		77	66	✓
	7	R 5-30-07		62	59	
	8	R 5-30-08		63	59	
	9	R 5-30-09		64	60	
	10	R 5-30-10		66	61	
	11	R 5-30-11		67	61	

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	12	R 5-30-12		71	63	
	13	R 5-30-13		74	66	
	14	R 5-30-14		74	65	
	15	R 5-30-15		74	65	
	16	R 5-30-16		73	64	
	17	R 5-30-17		73	65	
	18	R 5-30-18		74	65	
	19	R 5-30-19		74	64	
	20	R 5-30-20		73	65	
	21	R 5-30-21		71	64	
	22	R 5-30-22		71	66	
	23	R 5-30-23		57	57	
	24	R 5-30-24		57	57	
	25	R 5-30-25		59	57	
	26	R 5-30-26		60	57	
	27	R 5-30-27		60	58	
	28	R 5-30-28		60	59	
	29	R 5-30-29		62	60	
	30	R 5-30-30		64	63	
	31	R 5-30-31		65	64	
	32	R 5-30-32		64	62	
	33	R 5-30-33		65	64	
	34	R 5-30-34		61	60	
	35	R 5-30-35		63	62	
	36	R 5-30-36		64	63	
	37	R 5-30-37		64	64	
5-29	1	R 5-29-1		65	62	
	2	R 5-29-2		64	61	
	3	R 5-29-3		64	61	
	4	R 5-29-4		60	58	
	5	R 5-29-5		66	60	
	6	R 5-29-6		64	60	
	7	R 5-29-7		80	63	✓
	8	R 5-29-8		66	61	
	9	R 5-29-9		68	63	
	10	R 5-29-10		57	56	
	11	R 5-29-11		56	55	
	12	R 5-29-12		67	62	
	13	R 5-29-13		66	60	
	14	R 5-29-14		66	59	
	15	R 5-29-15		69	64	
	16	R 5-29-16		77	65	
	17	R 5-29-17		78	67	
	18	R 5-29-18		79	68	
	19	R 5-29-19		79	69	
	20	R 5-29-20		79	68	
	21	R 5-29-21		79	67	
	22	R 5-29-22		79	65	
	23	R 5-29-23		79	64	
	24	R 5-29-24		77	62	
	25	R 5-29-25		75	62	
	26	R 5-29-26		74	61	

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	27	R 5-29-27		73	61	
	28	R 5-29-28		72	61	
	29	R 5-29-29		73	61	
	30	R 5-29-30		73	60	
	31	R 5-29-31		77	62	
	32	R 5-29-32		78	63	
	33	R 5-29-33		76	62	
	34	R 5-29-34		74	62	
	35	R 5-29-35		74	62	
	36	R 5-29-36		76	63	
	37	R 5-29-37		73	62	
	38	R 5-29-38		73	63	
	39	R 5-29-39		72	63	
	40	R 5-29-40		71	63	
	41	R 5-29-41		72	63	
	42	R 5-29-42		75	64	
	43	R 5-29-43		74	64	
	44	R 5-29-44		68	60	
	45	R 5-29-45		64	59	
	46	R 5-29-46		62	58	
	47	R 5-29-47		60	58	
	48	R 5-29-48		60	57	
	49	R 5-29-49		59	58	
	50	R 5-29-50		62	58	
	51	R 5-29-51		66	59	
	52	R 5-29-52		69	59	
	53	R 5-29-53		66	58	
	54	R 5-29-54		61	57	
	55	R 5-29-55		61	57	
	56	R 5-29-56		62	57	
	57	R 5-29-57		62	57	
	58	R 5-29-58		68	60	
	59	R 5-29-59		66	59	
	60	R 5-29-60		67	61	
	61	R 5-29-61		63	57	
	62	R 5-29-62		61	57	
	63	R 5-29-63		60	56	
	64	R 5-29-64		62	57	
	65	R 5-29-65		60	57	
	66	R 5-29-66		66	59	
	67	R 5-29-67		64	58	
	68	R 5-29-68		61	57	
	69	R 5-29-69		59	57	
	70	R 5-29-70		57	56	
	71	R 5-29-71		57	56	
	72	R 5-29-72		56	56	
	73	R 5-29-73		63	58	
	74	R 5-29-74		62	57	
	75	R 5-29-75		61	57	
	76	R 5-29-76		61	57	
	77	R 5-29-77		64	58	
	78	R 5-29-78		71	61	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	79	R 5-29-79		73	61	
	80	R 5-29-80		75	63	
	81	R 5-29-81		76	65	
	82	R 5-29-82		77	65	
	83	R 5-29-83		75	62	
	84	R 5-29-84		75	62	
	85	R 5-29-85		76	64	
	86	R 5-29-86		74	63	
	87	R 5-29-87		75	63	
	88	R 5-29-88		74	63	
	89	R 5-29-89		72	62	
	90	R 5-29-90		70	61	
	91	R 5-29-91		69	61	
	92	R 5-29-92		69	61	
	93	R 5-29-93		61	57	
	94	R 5-29-94		60	57	
	95	R 5-29-95		59	56	
	96	R 5-29-96		60	58	
	97	R 5-29-97		61	57	
	98	R 5-29-98		59	57	
	99	R 5-29-99		56	56	
	100	R 5-29-100		56	56	
	101	R 5-29-101		56	56	
	102	R 5-29-102		57	56	
	103	R 5-29-103		59	57	
	104	R 5-29-104		60	58	
	105	R 5-29-105		59	57	
	106	R 5-29-106		58	57	
	107	R 5-29-107		70	61	
	108	R 5-29-108		66	60	
	109	R 5-29-109		57	56	
	110	R 5-29-110		56	56	
	111	R 5-29-111		59	58	
	112	R 5-29-112		58	57	
	113	R 5-29-113		58	57	
	114	R 5-29-114		59	58	
	115	R 5-29-115		66	61	
	116	R 5-29-116		63	61	
	117	R 5-29-117		63	61	
	118	R 5-29-118		63	61	
	119	R 5-29-119		62	60	
	120	R 5-29-120		60	59	
	121	R 5-29-121		60	58	
	122	R 5-29-122		60	59	
	123	R 5-29-123		60	59	
	124	R 5-29-124		61	59	
	125	R 5-29-125		72	62	
5-28	1	R 5-28-1		63	62	
	2	R 5-28-2		62	62	
	3	R 5-28-3		62	61	
	4	R 5-28-4		61	59	
	5	R 5-28-5		61	61	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	6	R 5-28-6		60	60	
	7	R 5-28-7		57	57	
	8	R 5-28-8		56	57	
	9	R 5-28-9		59	58	
	10	R 5-28-10		62	62	
	11	R 5-28-11		61	61	
	12	R 5-28-12		61	61	
	13	R 5-28-13		61	61	
	14	R 5-28-14		59	58	
	15	R 5-28-15		60	60	
	16	R 5-28-16		59	59	
	17	R 5-28-17		58	58	
	18	R 5-28-18		58	58	
	19	R 5-28-19		59	58	
	20	R 5-28-20		60	58	
	21	R 5-28-21		61	59	
	22	R 5-28-22		60	59	
	23	R 5-28-23		58	59	
	24	R 5-28-24		60	58	
	25	R 5-28-25		64	59	
	26	R 5-28-26		66	60	
	27	R 5-28-27		77	63	
	28	R 5-28-28		60	58	
	29	R 5-28-29		79	70	✓
	30	R 5-28-30		61	58	
	31	R 5-28-31		70	61	
	32	R 5-28-32		74	61	
	33	R 5-28-33		65	59	
	34	R 5-28-34		66	60	
	35	R 5-28-35		65	60	
	36	R 5-28-36		65	60	
	37	R 5-28-37		67	60	
	38	R 5-28-38		71	62	
	39	R 5-28-39		75	63	
	40	R 5-28-40		72	63	
	41	R 5-28-41		59	58	
	42	R 5-28-42		73	61	
	43	R 5-28-43		70	61	
	44	R 5-28-44		70	62	
	45	R 5-28-45		78	66	
	46	R 5-28-46		70	65	
	47	R 5-28-47		73	63	
	48	R 5-28-48		69	61	
	49	R 5-28-49		70	60	
	50	R 5-28-50		67	60	
	51	R 5-28-51		63	58	
	52	R 5-28-52		59	57	
	53	R 5-28-53		61	58	
	54	R 5-28-54		58	57	
	55	R 5-28-55		62	58	
	56	R 5-28-56		61	58	
	57	R 5-28-57		59	58	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	58	R 5-28-58		61	60	
	59	R 5-28-59		59	59	
	60	R 5-28-60		62	61	
	61	R 5-28-61		69	60	
	62	R 5-28-62		64	60	
	63	R 5-28-63		67	62	
5-27	1	R 5-27-1		64	64	✓
	2	R 5-27-2		64	64	✓
	3	R 5-27-3		62	62	
	4	R 5-27-4		61	61	
	5	R 5-27-5		62	62	
	6	R 5-27-6		62 (37)	62 (37)	
	7	R 5-27-7		64	64	✓
5-26	1	R 5-26-1		65	65	✓
	2	R 5-26-2		65	65	✓
	3	R 5-26-3		58	58	
5-25	1	R 5-25-1		61	58	✓
5-24	1	R 5-24-1		65	57	
	2	R 5-24-2		68	57	
	3	R 5-24-3		69	57	✓
	4	R 5-24-4		67	60	
	5	R 5-24-5		66	59	
	6	R 5-24-6		63	57	
	7	R 5-24-7		61	57	
	8	R 5-24-8		65	58	
	9	R 5-24-9		65	59	
	10	R 5-24-10		66	59	
	11	R 5-24-11		67	60	
	12	R 5-24-12		63	57	
	13	R 5-24-13		66	60	
	14	R 5-24-14		67	60	
	15	R 5-24-15		61	58	
	16	R 5-24-16		61	58	
	17	R 5-24-17		66	60	
	18	R 5-24-18		66	60	
	19	R 5-24-19		66	60	
	20	R 5-24-20		65	58	
5-23[6]	1	R 5-23-1		58	58	
	2	R 5-23-2		59	59	
	3	R 5-23-3		59	59	
	4	R 5-23-4		61	61	
	5	R 5-23-5		61	61	
	6	R 5-23-6		63	63	
	7	R 5-23-7		64	64	
	8	R 5-23-8		65	65	✓
	9	R 5-23-9		65	65	✓
	10	R 5-23-10		60	60	
	11	R 5-23-11		59	59	
	12	R 5-23-12		59	59	
	13	R 5-23-13		57	57	
	14	R 5-23-14		63	63	
5-22	1	R 5-22-1		65	60	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	2	R 5-22-2		66	59	
	3	R 5-22-3		71	60	✓
	4	R 5-22-4		64	58	
	5	R 5-22-5		62	58	
	6	R 5-22-6		63	58	
	7	R 5-22-7		64	59	
	8	R 5-22-8		62	60	
	9	R 5-22-9		62	59	
	10	R 5-22-10		62	60	
	11	R 5-22-11		63	59	
5-19	1	R 5-19-1		65	58	
	2	R 5-19-2		65	59	
	3	R 5-19-3		66	59	
	4	R 5-19-4		67	59	
	5	R 5-19-5		68	60	
	6	R 5-19-6		69	60	
	7	R 5-19-7		61	57	
	8	R 5-19-8		62	57	
	9	R 5-19-9		62	57	
	10	R 5-19-10		62	57	
	11	R 5-19-11		65	58	
	12	R 5-19-12		66	58	
	13	R 5-19-13		68	59	
	14	R 5-19-14		65	59	
	15	R 5-19-15		63	58	
	16	R 5-19-16		60	57	
	17	R 5-19-17		59	57	
	18	R 5-19-18		59	57	
	19	R 5-19-19		63	58	
	20	R 5-19-20		61	57	
	21	R 5-19-21		60	57	
	22	R 5-19-22		57	56	
	23	R 5-19-23		61	57	
	24	R 5-19-24		62	57	
	25	R 5-19-25		61	58	
	26	R 5-19-26		59	57	
	27	R 5-19-27		60	57	
	28	R 5-19-28		60	57	
	29	R 5-19-29		62	58	
	30	R 5-19-30		63	58	
	31	R 5-19-31		63	59	
	32	R 5-19-32		64	59	
	33	R 5-19-33		60	57	
	34	R 5-19-34		60	57	
	35	R 5-19-35		61	57	
	36	R 5-19-36		59	57	
	37	R 5-19-37		60	57	
	38	R 5-19-38		62	58	
	39	R 5-19-39		61	57	
	40	R 5-19-40		60	57	
	41	R 5-19-41		60	57	
	42	R 5-19-42		59	57	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	43	R 5-19-43		60	57	
	44	R 5-19-44		59	57	
	45	R 5-19-45		63	58	
	46	R 5-19-46		64	58	
	47	R 5-19-47		66	60	
	48	R 5-19-48		67	60	
	49	R 5-19-49		68	60	
	50	R 5-19-50		67	60	
	51	R 5-19-51		65	60	
	52	R 5-19-52		68	60	
	53	R 5-19-53		62	58	
	54	R 5-19-54		72	61	✓
	55	R 5-19-55		71	61	
5-18	1	R 5-18-1		65	58	
	2	R 5-18-2		67	59	
	3	R 5-18-3		69	60	
	4	R 5-18-4		59	57	
	5	R 5-18-5		61	58	
	6	R 5-18-6		63	58	
	7	R 5-18-7		64	58	
	8	R 5-18-8		73	61	
	9	R 5-18-9		68	60	
	10	R 5-18-10		75	63	✓
5-21	1	R 5-21-1		66	61	
	2	R 5-21-2		65	59	
	3	R 5-21-3		62	58	
	5	R 5-21-5		72	62	
	6	R 5-21-6		70	62	
	7	R 5-21-7		73	63	
	8	R 5-21-8		73	63	
	9	R 5-21-9		73	63	
	10	R 5-21-10		75	64	
	11	R 5-21-11		71	62	
	12	R 5-21-12		76	64	✓
	13	R 5-21-13		67	60	
	14	R 5-21-14		62	58	
	15	R 5-21-15		60	58	
	16	R 5-21-16		63	58	
	17	R 5-21-17		63	59	
	18	R 5-21-18		62	59	
	19	R 5-21-19		61	58	
	20	R 5-21-20		60	58	
	21	R 5-21-21		58	57	
	22	R 5-21-22		64	64	
5-20	1	R 5-20-1		69	63	
	2	R 5-20-2		70	63	
	3	R 5-20-3		74	64	
	4	R 5-20-4		74	64	
	5	R 5-20-5		76	65	✓
	6	R 5-20-6		76	65	✓
	7	R 5-20-7		75	65	
	8	R 5-20-8		65	60	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	9	R 5-20-9		64	59	
	10	R 5-20-10		63	59	
	11	R 5-20-11		65	60	
	12	R 5-20-12		63	59	
	13	R 5-20-13		66	60	
	14	R 5-20-14		64	59	
	15	R 5-20-15		63	58	
	16	R 5-20-16		61	58	
	17	R 5-20-17		64	61	
	18	R 5-20-18		64	60	
	19	R 5-20-19		65	61	
	20	R 5-20-20		60	58	
5-17	1	R 5-17-1		73	65	
	2	R 5-17-2		74	65	
	3	R 5-17-3		75	66	
	4	R 5-17-4		76	65	
	5	R 5-17-5		79	65	✓
	6	R 5-17-6		73	63	
	7	R 5-17-7		69	61	
	8	R 5-17-8		66	60	
	9	R 5-17-9		67	61	
	10	R 5-17-10		70	62	
	11	R 5-17-11		73	64	
	12	R 5-17-12		76	64	
	13	R 5-17-13		71	63	
	14	R 5-17-14		68	62	
	15	R 5-17-15		67	61	
	16	R 5-17-16		66	61	
	17	R 5-17-17		68	62	
	18	R 5-17-18		69	63	
	19	R 5-17-19		73	64	
	20	R 5-17-20		70	63	
	21	R 5-17-21		69	62	
	22	R 5-17-22		67	61	
	23	R 5-17-23		66	61	
	24	R 5-17-24		70	62	
	25	R 5-17-25		71	63	
	26	R 5-17-26		73	64	
	27	R 5-17-27		63	59	
	28	R 5-17-28		61	59	
	29	R 5-17-29		61	59	
	30	R 5-17-30		61	58	
	31	R 5-17-31		60	58	
	32	R 5-17-32		61	58	
	33	R 5-17-33		60	58	
	34	R 5-17-34		64	60	
	35	R 5-17-35		67	60	
	36	R 5-17-36		67	62	
	37	R 5-17-37		66	60	
	38	R 5-17-38		63	59	
	39	R 5-17-39		65	61	
	40	R 5-17-40		64	59	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers)[2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers)[4,5]	Maximum Noise Level within NSA
	41	R 5-17-41		64	59	
	42	R 5-17-42		62	58	
5-16	1	R 5-16-1		63	62	✓
	2	R 5-16-2		63	63	✓
	3	R 5-16-3		63	63	✓
5-15	1	R 5-15-1		69	63	
	2	R 5-15-2		69	63	
	3	R 5-15-3		70	63	
	4	R 5-15-4		69	64	
	5	R 5-15-5		70	63	
	6	R 5-15-6		69	61	
	7	R 5-15-7		71 (36)	63 (28)	✓
	8	R 5-15-8		64	61	
	9	R 5-15-9		65	60	
	10	R 5-15-10		65	59	
	11	R 5-15-11		65	61	
	12	R 5-15-12		64	60	
	13	R 5-15-13		63	60	
	14	R 5-15-14		61	58	
	15	R 5-15-15		67	60	
	16	R 5-15-16		60	58	
	17	R 5-15-17		59	57	
	18	R 5-15-18		59 (24)	57 (22)	
	19	R 5-15-19		68	59	
	20	R 5-15-20		61	58	
	21	R 5-15-21		61	59	
	22	R 5-15-22		64 (29)	63 (28)	
	23	R 5-15-23		62	61	
5-13	1	R 5-13-1		66	60	✓
	2	R 5-13-2		65	60	
	3	R 5-13-3		63	59	
5-12	1	R 5-12-1		58	57	
	2	R 5-12-2		79	63	
	3	R 5-12-3		78	63	
	4	R 5-12-4		78	62	
	5	R 5-12-5		78	62	
	6	R 5-12-6		77	62	
	7	R 5-12-7		77	63	
	8	R 5-12-8		77	64	
	9	R 5-12-9		77	64	
	10	R 5-12-10		79	65	
	11	R 5-12-11		78	64	
	12	R 5-12-12		67	61	
	13	R 5-12-13		59	58	
	14	R 5-12-14		73	61	
	15	R 5-12-15		67	59	
	16	R 5-12-16		63	58	
	17	R 5-12-17		61	58	
	18	R 5-12-18		57	56	
	19	R 5-12-19		59	57	
	20	R 5-12-20		62	58	
	21	R 5-12-21		59	57	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	22	R 5-12-22		60	57	
	23	R 5-12-23		58	57	
	24	R 5-12-24		58	57	
	25	R 5-12-25		58	57	
	26	R 5-12-26		57	57	
	27	R 5-12-27		57	56	
	28	R 5-12-28		61	59	
	29	R 5-12-29		62	60	
	30	R 5-12-30		66	61	
	31	R 5-12-31		58	57	
	32	R 5-12-32		60	58	
	33	R 5-12-33		66	61	
	34	R 5-12-34		58	57	
	35	R 5-12-35		58	58	
	36	R 5-12-36		72	63	
	37	R 5-12-37		73	64	
	38	R 5-12-38		73	65	
	39	R 5-12-39		68	61	
	40	R 5-12-40		64	60	
	41	R 5-12-41		61	59	
	42	R 5-12-42		60	59	
	43	R 5-12-43		60	58	
	44	R 5-12-44		61	58	
	45	R 5-12-45		65	60	
	46	R 5-12-46		69	62	
	47	R 5-12-47		65	61	
	48	R 5-12-48		63	60	
	49	R 5-12-49		62	60	
	50	R 5-12-50		67	63	
	51	R 5-12-51		66	63	
	52	R 5-12-52		64	61	
	53	R 5-12-53		62	59	
	54	R 5-12-54		61	58	
	55	R 5-12-55		61	58	
	56	R 5-12-56		64	60	
	57	R 5-12-57		68	64	
	58	R 5-12-58		60	58	
	59	R 5-12-59		62	59	
	60	R 5-12-60		60	58	
	61	R 5-12-61		66	62	
	62	R 5-12-62		60	56	
	63	R 5-12-63		59	57	
	64	R 5-12-64		58	56	
	65	R 5-12-65		61	59	
	66	R 5-12-66		61	59	
	67	R 5-12-67		69	63	
	68	R 5-12-68		62	59	
	69	R 5-12-69		69	63	
	70	R 5-12-70		58	57	
	71	R 5-12-71		59	57	
	72	R 5-12-72		59	58	
	73	R 5-12-73		59	58	

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	74	R 5-12-74		59	58	
	75	R 5-12-75		59	58	
	76	R 5-12-76		60	59	
	77	R 5-12-77		60	59	
	78	R 5-12-78		61	59	
	79	R 5-12-79		61	59	
	80	R 5-12-80		59	58	
	81	R 5-12-81		60	59	
	82	R 5-12-82		60	59	
	83	R 5-12-83		62	60	
	84	R 5-12-84		61	59	
	85	R 5-12-85		62	59	
	86	R 5-12-86		62	60	
	87	R 5-12-87		62	59	
	88	R 5-12-88		62	59	
	89	R 5-12-89		63	59	
	90	R 5-12-90		63	60	
	91	R 5-12-91		63	59	
	92	R 5-12-92		67	61	
	93	R 5-12-93		67	65	
	94	R 5-12-94		67	64	
	95	R 5-12-95		68	64	
	96	R 5-12-96		71	66	
	97	R 5-12-97		74	68	
	98	R 5-12-98		77	65	
	99	R 5-12-99		82	61	✓
	100	R 5-12-100		78	63	
	101	R 5-12-101		74	63	
	102	R 5-12-102		73	63	
5-14	1	R 5-14-1		72	67	✓
5-11	1	R 5-11-01		58	58	
	2	R 5-11-02		76 (41)	76 (41)	
	3	R 5-11-03		74	66	
	4	R 5-11-04		73	66	
	5	R 5-11-05		77(42)	67 (32)	✓
	6	R 5-11-06		76	66	
5-10	1	R 5-10-01		69	62	
	2	R 5-10-02		73	65	✓
	3	R 5-10-03		68 (33)	67 (32)	
5-09	1	R 5-09-01		60	57	
	2	R 5-09-02		59	57	
	3	R 5-09-03	*	59	57	
	4	R 5-09-04	*	59	58	
	5	R 5-09-05	*	59	59	
	6	R 5-09-06	*	59	59	
	7	R 5-09-07	*	60	60	
	8	R 5-09-08	*	61	61	
	9	R 5-09-09	*	61	60	
	10	R 5-09-10	*	62	62	
	11	R 5-09-11		66	59	✓
	12	R 5-09-12	*	64	60	
	13	R 5-09-13	*	62	58	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers)[2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers)[4,5]	Maximum Noise Level within NSA
	14	R 5-09-14	*	59	56	
	15	R 5-09-15	*	57	55	
	16	R 5-09-16	*	58	56	
	17	R 5-09-17	*	66	60	✓
	18	R 5-09-18	*	62	56	
	19	R 5-09-19	*	55	55	
	20	R 5-09-20	*	55	55	
	21	R 5-09-21	*	55	55	
	22	R 5-09-22	*	55	55	
	23	R 5-09-23	*	55	55	
	24	R 5-09-24	*	55	55	
	25	R 5-09-25	*	55	55	
	26	R 5-09-26	*	56	55	
	27	R 5-09-27	*	55	55	
	28	R 5-09-28	*	55	55	
	29	R 5-09-29	*	55	55	
	30	R 5-09-30	*	55	55	
	31	R 5-09-31	*	55	55	
	32	R 5-09-32	*	56	55	
	33	R 5-09-33	*	56	55	
5-08	1	R 5-08-01		62	62	
	2a	R 5-08-02a		60	60	
	2b	R 5-08-02b	*	65	65	
	2c	R 5-08-02c	*	67	67	
	2d	R 5-08-02d	*	67	67	
	3	R 5-08-03		62	62	
	4a	R 5-08-04a		60	60	
	4b	R 5-08-04b	*	66	66	
	4c	R 5-08-04c	*	67	67	
	4d	R 5-08-04d	*	68	68	
	5a	R 5-08-05a		60	60	
	5b	R 5-08-05b	*	66	66	
	5c	R 5-08-05c	*	67	67	
	5d	R 5-08-05d	*	68	68	
	6a	R 5-08-06a		60	60	
	6b	R 5-08-06b	*	67	67	
	6c	R 5-08-06c	*	68	68	
	6d	R 5-08-06d	*	68	68	
	7a	R 5-08-07a		62	62	
	7b	R 5-08-07b	*	69	69	
	7c	R 5-08-07c	*	70	70	
	7d	R 5-08-07d	*	70	70	
	8a	R 5-08-08a		70	70	
	8b	R 5-08-08b	*	71	71	✓
	8c	R 5-08-08c	*	71	71	✓
	8d	R 5-08-08d	*	71	71	✓
	9	R 5-08-09		59	56	
	10a	R 5-08-10a		58	56	
	10b	R 5-08-10b	*	63	56	
	10c	R 5-08-10c	*	64	57	
	10d	R 5-08-10d	*	65	61	
	11a	R 5-08-11a		58	56	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	11b	R 5-08-11b	*	63	56	
	11c	R 5-08-11c	*	64	57	
	11d	R 5-08-11d	*	64	61	
	12a	R 5-08-12a		60	57	
	12b	R 5-08-12b	*	66	60	
	12c	R 5-08-12c	*	66	61	
	12d	R 5-08-12d	*	67	65	
	13b	R 5-08-13b	*	62	56	
	13c	R 5-08-13c	*	64	57	
	13d	R 5-08-13d	*	64	59	
	14a	R 5-08-14a		58	56	
	14b	R 5-08-14b	*	62	56	
	14c	R 5-08-14c	*	64	57	
	14d	R 5-08-14d	*	64	59	
	15a	R 5-08-15a		60	56	
	15b	R 5-08-15b	*	65	57	
	15c	R 5-08-15c	*	66	58	
	15d	R 5-08-15d	*	67	61	
	16a	R 5-08-16a		60	57	
	16b	R 5-08-16b	*	66	58	
	16c	R 5-08-16c	*	67	59	
	16d	R 5-08-16d	*	68	63	
	17	R 5-08-17		61	57	
5-07	1	R 5-07-1		74	64	
	2	R 5-07-2		70	62	
	3	R 5-07-3		76	70	✓
	4	R 5-07-4		61	58	
	5	R 5-07-5		63	59	
	6	R 5-07-6		60	59	
	7	R 5-07-7		60	60	
	8	R 5-07-8		59	58	
	9	R 5-07-9		62	59	
	10	R 5-07-10		61	59	
	11	R 5-07-11		59	59	
	12	R 5-07-12		60	58	
	13	R 5-07-13		58	57	
	14	R 5-07-14		59	57	
	15	R 5-07-15		60	58	
	16a	R 5-07-16a	*	62	59	
	16b	R 5-07-16b	*	63	60	
	17a	R 5-07-17a		59	57	
	17b	R 5-07-17b	*	60	58	
	17c	R 5-07-17c	*	61	58	
	17d	R 5-07-17d	*	62	59	
	18a	R 5-07-18a		57	56	
	18b	R 5-07-18b	*	58	57	
	18c	R 5-07-18c	*	58	57	
	18d	R 5-07-18d	*	59	58	
	19a	R 5-07-19a		60	57	
	19b	R 5-07-19b	*	61	58	
	20	R 5-07-20		66	65	
5-06	1	R 5-06-1		58	56	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	2	R 5-06-2		63	59	
	3	R 5-06-3		67	59	
	4	R 5-06-4		65	59	
	5	R 5-06-5		61	58	
	6	R 5-06-6		64	59	
	7	R 5-06-7		66	59	
	8	R 5-06-8		65	60	
	9	R 5-06-9		61	58	
	10	R 5-06-10		62	58	
	11	R 5-06-11		65	59	
	12	R 5-06-12		66	60	
	13	R 5-06-13		55	55	
	14	R 5-06-14		57	56	
	15a	R 5-06-15a		66	60	
	15b	R 5-06-15b	*	67	61	
	15c	R 5-06-15c	*	68	62	
	15d	R 5-06-15d	*	69	64	
	15e	R 5-06-15e	*	69	65	
	15f	R 5-06-15f	*	70	66	
	15g	R 5-06-15g	*	70	68	
	16a	R 5-06-16a		67	60	
	16b	R 5-06-16b	*	68	61	
	16c	R 5-06-16c	*	69	62	
	16d	R 5-06-16d	*	69	64	
	16e	R 5-06-16e	*	70	65	
	16f	R 5-06-16f	*	70	67	
	16g	R 5-06-16g	*	70	68	
	16h	R 5-06-16h	*	71	68	✓
5-03	1	R 5-03-01		76 (41)	76 (41)	✓
5-04	1	R 5-04-01		65	65	✓
	2	R 5-04-02	*	61	61	
5-02	1	R 5-02-1		62	62	
	2	R 5-02-2		61	61	
	3	R 5-02-3		67	62	
	4	R 5-02-4		70	63	
	5	R 5-02-5		80	65	✓
	6	R 5-02-6		67	60	
	7	R 5-02-7		74	61	
	8	R 5-02-8		75	63	
	9	R 5-02-9		78	65	
	10	R 5-02-10		69	59	
	11	R 5-02-11		80	66	✓
	12	R 5-02-12		80	67	✓
	13	R 5-02-13		62	62	
	14	R 5-02-14		62	62	
	15	R 5-02-15		63	63	
	16	R 5-02-16		64	63	
	17	R 5-02-17		64	64	
	18	R 5-02-18		59	58	
	19	R 5-02-19		64	63	
	20	R 5-02-20		65	62	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	21	R 5-02-21		56	56	
	22	R 5-02-22		63	60	
	23	R 5-02-23		59	57	
	24	R 5-02-24		60	57	
	25	R 5-02-25		60	60	
	26	R 5-02-26		60	59	
	27	R 5-02-27		57	57	
	28	R 5-02-28		62	61	
	29	R 5-02-29		62	58	
	30	R 5-02-30		61	58	
	31	R 5-02-31		66	63	
	32	R 5-02-32		56	56	
	33	R 5-02-33		65	64	
	34	R 5-02-34		69	67	
	35	R 5-02-35		62	62	
	36	R 5-02-36		62	62	
	37	R 5-02-37		62	62	
	38	R 5-02-38		62	62	
	39	R 5-02-39		62	61	
5-01	1	R 5-01-1		62	60	
	2	R 5-01-2		63	60	
	3	R 5-01-3		64	61	
	4	R 5-01-4		68	63	
	5	R 5-01-5		69	63	
	6	R 5-01-6		68	62	
	7	R 5-01-7		69	63	
	8	R 5-01-8		67	62	
	9	R 5-01-9		69	63	
	10	R 5-01-10		67	62	
	11	R 5-01-11		68	63	
	12	R 5-01-12		67	63	
	13	R 5-01-13		66	63	
	14	R 5-01-14		66	63	
	15	R 5-01-15		64	62	
	16	R 5-01-16		63	61	
	17	R 5-01-17		64	62	
	18	R 5-01-18		64	62	
	19	R 5-01-19		64	62	
	20	R 5-01-20		65	62	
	21	R 5-01-21		64	61	
	22	R 5-01-22		62	60	
	23	R 5-01-23		65	61	
	24	R 5-01-24		58	57	
	25	R 5-01-25		69	63	
	26a	R 5-01-26a		65	61	
	26b	R 5-01-26b	*	69	63	
	26c	R 5-01-26c	*	71	65	
	27a	R 5-01-27a		57	56	
	27b	R 5-01-27b	*	57	56	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers)[2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers)[4,5]	Maximum Noise Level within NSA
	27c	R 5-01-27c	*	60	58	
	28a	R 5-01-28a		61	58	
	28b	R 5-01-28b	*	63	60	
	28c	R 5-01-28c	*	64	61	
	29a	R 5-01-29a		57	56	
	29b	R 5-01-29b	*	58	57	
	29c	R 5-01-29c	*	64	61	
	30a	R 5-01-30a		61	57	
	30b	R 5-01-30b	*	65	58	
	30c	R 5-01-30c	*	67	60	
	30d	R 5-01-30d	*	70	66	
	31a	R 5-01-31a		58	57	
	31b	R 5-01-31b	*	60	57	
	31c	R 5-01-31c	*	62	58	
	31d	R 5-01-31d	*	67	64	
	32a	R 5-01-32a		56	56	
	32b	R 5-01-32b	*	59	57	
	32c	R 5-01-32c	*	62	57	
	32d	R 5-01-32d	*	65	58	
	33a	R 5-01-33a		56	56	
	33b	R 5-01-33b	*	57	56	
	33c	R 5-01-33c	*	58	56	
	33d	R 5-01-33d	*	60	57	
	34a	R 5-01-34a		61	59	
	34b	R 5-01-34b	*	69	64	
	34c	R 5-01-34c	*	73	66	
	34d	R 5-01-34d	*	74	68	
	35a	R 5-01-35a		59	58	
	35b	R 5-01-35b	*	67	63	
	35c	R 5-01-35c	*	70	65	
	35d	R 5-01-35d	*	71	66	
	36a	R 5-01-36a		71	62	
	36b	R 5-01-36b	*	76	64	
	36c	R 5-01-36c	*	77	69	
	36d	R 5-01-36d	*	78	75	
	37a	R 5-01-37a		64	59	
	37b	R 5-01-37b	*	70	60	
	37c	R 5-01-37c	*	73	62	
	37d	R 5-01-37d	*	74	66	
	38a	R 5-01-38a		60	57	
	38b	R 5-01-38b	*	65	60	
	38c	R 5-01-38c	*	67	62	
	39a	R 5-01-39a		57	56	
	39b	R 5-01-39b	*	57	57	
	39c	R 5-01-39c	*	59	58	
	40	R 5-01-40		75	64	
	41a	R 5-01-41a		61	57	
	41b	R 5-01-41b	*	66	58	
	41c	R 5-01-41c	*	69	59	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	41d	R 5-01-41d	*	71	61	
	42a	R 5-01-42a		58	57	
	42b	R 5-01-42b	*	60	57	
	42c	R 5-01-42c	*	63	57	
	42d	R 5-01-42d	*	65	58	
	43a	R 5-01-43a		66	59	
	43b	R 5-01-43b	*	71	61	
	43c	R 5-01-43c	*	74	63	
	43d	R 5-01-43d	*	74	70	
	44a	R 5-01-44a		61	57	
	44b	R 5-01-44b	*	66	58	
	44c	R 5-01-44c	*	68	59	
	44d	R 5-01-44d	*	70	61	
	45a	R 5-01-45a		67	60	
	45b	R 5-01-45b	*	72	61	
	45c	R 5-01-45c	*	74	64	
	45d	R 5-01-45d	*	75	71	
	46a	R 5-01-46a		62	58	
	46b	R 5-01-46b	*	67	58	
	46c	R 5-01-46c	*	69	59	
	46d	R 5-01-46d	*	70	62	
	47a	R 5-01-47a		71	61	
	47b	R 5-01-47b	*	75	63	
	47c	R 5-01-47c	*	76	68	
	47d	R 5-01-47d	*	77	74	
	48a	R 5-01-48a		64	59	
	48b	R 5-01-48b	*	70	60	
	48c	R 5-01-48c	*	72	62	
	48d	R 5-01-48d	*	73	66	
	49	R 5-01-49		75	64	
	50a	R 5-01-50a		67	60	
	50b	R 5-01-50b	*	74	61	
	50c	R 5-01-50c	*	76	65	
	50d	R 5-01-50d	*	77	74	
	51a	R 5-01-51a		61	58	
	51b	R 5-01-51b	*	66	59	
	51c	R 5-01-51c	*	70	60	
	51d	R 5-01-51d	*	72	64	
	52a	R 5-01-52a		71	59	
	52b	R 5-01-52b	*	74	60	
	52c	R 5-01-52c	*	74	64	
	52d	R 5-01-52d	*	75	72	
	53a	R 5-01-53a		63	58	
	53b	R 5-01-53b	*	67	58	
	53c	R 5-01-53c	*	68	59	
	53d	R 5-01-53d	*	70	64	
	54	R 5-01-54		60	57	
	55	R 5-01-55		60	58	
	56	R 5-01-56		57	57	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	57	R 5-01-57		57	57	
	58	R 5-01-58		58	57	
	59	R 5-01-59		60	58	
	60	R 5-01-60		62	59	
	61	R 5-01-61		59	58	
	62	R 5-01-62		58	57	
	63	R 5-01-63		57	57	
	64	R 5-01-64		57	57	
	65	R 5-01-65		69	63	
	66	R 5-01-66		67	62	
	67a	R 5-01-67a		66	61	
	67b	R 5-01-67b	*	80	61	
	67c	R 5-01-67c	*	81	67	✓
	67d	R 5-01-67d	*	81	78	✓
	68a	R 5-01-68a		68	61	
	68b	R 5-01-68b	*	81	62	✓
	68c	R 5-01-68c	*	81	67	✓
	68d	R 5-01-68d	*	81	80	✓
	69a	R 5-01-69a		63	59	
	69b	R 5-01-69b	*	69	59	
	69c	R 5-01-69c	*	70	60	
	69d	R 5-01-69d	*	71	65	
	70a	R 5-01-70a		59	58	
	70b	R 5-01-70b	*	61	58	
	70c	R 5-01-70c	*	65	59	
	70d	R 5-01-70d	*	68	60	
	71a	R 5-01-71a		68	60	
	71b	R 5-01-71b	*	75	61	
	71c	R 5-01-71c	*	76	65	
	71d	R 5-01-71d	*	77	74	
	72a	R 5-01-72a		63	58	
	72b	R 5-01-72b	*	68	58	
	72c	R 5-01-72c	*	70	59	
	72d	R 5-01-72d	*	71	62	
	73a	R 5-01-73a		75	63	
	73b	R 5-01-73b	*	77	65	
	73c	R 5-01-73c	*	77	73	
	73d	R 5-01-73d	*	77	76	
	74a	R 5-01-74a		70	60	
	74b	R 5-01-74b	*	72	61	
	74c	R 5-01-74c	*	73	65	
	74d	R 5-01-74d	*	74	70	
	75a	R 5-01-75a		70	61	
	75b	R 5-01-75b	*	72	63	
	75c	R 5-01-75c	*	73	65	
	75d	R 5-01-75d	*	74	69	
	76a	R 5-01-76a		70	62	
	76b	R 5-01-76b	*	71	63	
	76c	R 5-01-76c	*	72	66	

Table B-2: Predicted Build Noise Levels for Phase 1 South

NSA	Map Receptor Number	TNM Receptor Number[1]	Elevated Receptor (*)	2045 Preferred Alternative Sound Levels (dB(A)) (assuming no existing or proposed noise barriers) [2,3,4,5]	2045 Preferred Alternative Sound Levels (dB(A)) (with existing and analyzed noise barriers) [4,5]	Maximum Noise Level within NSA
	76d	R 5-01-76d	*	73	70	
	77a	R 5-01-77a		76	64	
	77b	R 5-01-77b	*	78	66	
	77c	R 5-01-77c	*	78	73	
	77d	R 5-01-77d	*	78	77	
	78a	R 5-01-78a		76	65	
	78b	R 5-01-78b	*	78	67	
	78c	R 5-01-78c	*	79	73	
	78d	R 5-01-78d	*	79	77	

1. A Receptor Number beginning with "M" represents a measured location and a Receptor Number beginning with "R" represents a modeled receptor only.

2. Build noise levels in bold and colored red are impacted for the specific land use category.

3. Build noise levels highlighted are greater than or equal to 75 dB(A)

4. Interior sound levels are shown in parenthesis () where applicable.

5. For the receptors in Maryland, a background sound level of 55 dB(A) was added to the TNM results, since TNM does not account for background noise.

6. Since there were no impacts behind the existing barriers for NSAs 2-04A, 2-05A, and 5-23, the building sound levels without the barrier were not predicted.

OP•LANES™
MARYLAND

I-495 & I-270 Managed Lanes Study

APPENDIX L
FINAL NOISE ANALYSIS TECHNICAL REPORT

APPENDIX C
NATIONAL PARK SERVICE CORRESPONDENCE

June 2022

U.S. Department of Transportation
Federal Highway Administration

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

November 9, 2020

9043.1
ER20/0292

Jeanette Mar
Environmental Program Manager
Federal Highway Administration - Maryland Division
George H. Fallon Federal Building 31
Hopkins Plaza, Suite 1520
Baltimore, Maryland 21201

Lisa B. Choplin
Project Director
I–495 & I–270 Project Office
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Re: I-495 and I-270 Managed Lanes Study Draft Environmental Impact Statement and Draft Section 4(f) Evaluation

Dear Ms. Mar and Ms. Choplin,

The Department of the Interior (DOI or Department) has reviewed the I-495 & I-270 Managed Lanes Study Draft Environmental Impact Statement (DEIS) and draft Section 4(f) evaluation and submits the following comments on behalf of the National Park Service (NPS) and the U.S. Fish and Wildlife Service (FWS).

The Federal Highway Administration (FHWA), in conjunction with the Maryland Department of Transportation State Highway Administration (MDOT SHA), has released the DEIS and draft Section 4(f) Evaluation to analyze the potential environmental impacts of alternatives that address congestion within the specific study scope of I–495 from south of the American Legion Bridge in Fairfax County, Virginia, to east of the Woodrow Wilson Bridge and on I–270 from I–495 to I–370, including the east and west I–270 spurs in Montgomery and Prince George's Counties, Maryland. The purpose of the project is to develop travel demand management solutions that address congestion, improve trip reliability on I-495 and I-270 within the study limits, and enhance existing and planned multimodal mobility and connectivity.

This project, if implemented, has the potential to affect approximately 86 acres of NPS lands within six units of the national park system. The affected NPS units are: the Baltimore-Washington Parkway (BW Parkway); Greenbelt Park; Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP); and Suitland Parkway and the George Washington Memorial Parkway (GW Memorial Parkway), which also includes the Clara Barton Parkway. The purposes, values, and significance of these affected units are explained below. Due to the direct effects to park land and the need for the project to receive approvals from the NPS, the NPS has been identified as a cooperating agency for this study and has coordinated closely with the FHWA and MDOT SHA up to the release of the DEIS.

The following discussion outlines the Department's concerns regarding the impacts that would occur from the proposed actions evaluated in the DEIS, especially those associated with the BW Parkway. The body of this letter provides the Department's general comments on the DEIS and Section 4(f) evaluation. More detailed comments are provided in the attached matrix.

As discussed in more detail in the following section, the Department is concerned that despite close coordination between MDOT SHA and the NPS throughout the planning process, the DEIS does not include the evaluation of previously discussed alternatives that are acceptable to the NPS. The NPS has advocated for alternatives that avoided direct access to the GW Memorial Parkway and BW Parkway, which would avoid most of the physical and visual impacts to the Parkways and their component landscapes.

We view MDOT SHA's decision to not include analysis of the NPS's recommended alternative for the BW Parkway as potentially precluding the project from complying with the Parkway's enabling legislation, which states:

> *The parkway shall be constructed, developed, operated, and administered as a limited access road primarily to provide a protected, safe, and suitable approach for passenger-vehicle traffic to the National Capital and for an additional means of access between the several Federal establishments adjacent thereto and the seat of government in the District of Columbia. To avoid impairment of this purpose, the Secretary of the Interior, with the concurrence of the Secretary of Commerce, shall control the location, limit the number of access points, and regulate the use of said parkway by various classes or types of vehicles or traffic.* (P.L. 81-643)

The NPS Organic Act, as amended and supplemented, requires the NPS to leave park resources and values "unimpaired for the enjoyment of future generations" and prohibits it from authorizing any activities "in derogation of the values and purposes for which the System units have been established." 54 U.S.C. 100101. NPS thus may not authorize any activity that impairs park resources and values. This is a substantive prohibition.

As is further described in NPS Management Policies, impacts are most likely to cause impairment when they harm resources or values that are necessary to fulfill specific purposes identified in a park unit's establishing legislation. As noted above, the BW Parkway's status as a limited access road is one such core purpose, which the Secretary of the Interior (through NPS) is specifically directed not to impair, both by the Organic Act and the BW Parkway's legislation itself. The DEIS only includes build alternatives that add two new access points to the BW Parkway. Moreover, those access points would take the form of elevated ramps, which would cause far greater impacts than any current access points (as detailed below). Other impacts to park resources and values of concern are also detailed below.

It is thus important to highlight the project's effects on park resources and values that may affect the NPS's ability to provide required authorizations for the project. The current build alternatives for the project appear to threaten impairment of the BW Parkway's limited access status and the park's cultural landscape and contributing features, which NPS cannot allow. Alternatives are needed that explore avoidance or significant minimization of impacts to NPS properties, as currently all the build alternatives proposed have identical impacts to all park resources. In addition, further analysis of impacts to park resources is needed so that NPS has the information it needs to avoid impairment of those resources. For example, additional detail is needed regarding what impacts are permanent versus temporary, details are needed regarding what is being proposed at each park, and additional studies that are currently being undertaken need to be completed and in some cases adjusted to capture NPS data needs, and analyzed. Additional, specific examples are provided in the following discussion and comment matrix. NPS will not ultimately be able to provide the required authorizations unless the final selected project alternative can be shown not to cause impairment.

THE BALTIMORE-WASHINGTON PARKWAY

The BW Parkway was established by Congress on August 3, 1950, Public Law 81-643 (quoted in part above), and opened in 1954. The 19-mile scenic highway connects Baltimore, Maryland, and Washington, D.C., and was designed to blend with the natural topography and preserve a scenic, forested transportation corridor between Washington, D.C., and Baltimore, Maryland. It is one of four parkways in the nation's capital that integrates a majestic parkway design and serves as a scenic entry to the capital city. The BW Parkway was listed on the National Register of Historic Places in 1991. It is a cultural landscape, intended to retain a combination of thick woodland forest and grassy lawn within the median in accordance with the landscape standards of mid-20th century parkway construction. The native forests provide scenic views for visitors, including drivers and passengers, and serve as an increasingly important corridor for wildlife, from forest-dwelling species to migratory birds.

The BW Parkway exemplifies the last period of construction for this type of park and is the only fully developed parkway of its kind in Maryland. The enabling legislation cited above stipulates that the BW Parkway is to be considered an extension of the park system of the District of Columbia and its environs. Since the parkway opened in 1954, maintenance on road and park land has been aimed at the preservation of five aesthetic qualities with the objective of not only minimizing negative impacts, but also of enhancing parkway character wherever possible. Features to be preserved include: right-of-way with heavy slope vegetation; opposing roadways separated by a variable-width median; curvilinear road alignments; stone-faced bridge abutments; and contour grading fit to the topography. The BW Parkway includes a multitude of contributing elements of landscape architecture and approximately 125 contributing structures, including eighteen bridges and numerous culverts with decorated headwalls.

The build alternatives described in the DEIS include modifications to contributing elements of the BW Parkway to accommodate new interchange modifications that allow for two additional, elevated, direct access ramps to and from I-495 and the BW Parkway and replacing the existing bridges carrying the parkway over I-495, resulting in new access points; contrary to the intent of the Parkway's enabling legislation. They provide for constructing, operating, and maintaining stormwater management facilities; constructing a noise wall; vegetation removal, grading changes, and realignment of the existing BW Parkway mainline; replacing the bridge carrying Greenbelt Road over the BW Parkway; and providing access for construction vehicles and materials. This would increase congestion during construction and, once completed, on the BW Parkway itself. Other new structures would include flyover ramps, electronic signs, sound walls, and stormwater management facilities that would not align with the historic parkway character and overall purpose as described in Public Law 81-643.

Approximately 69 acres of the BW Parkway would be impacted by this project and the effects of the build alternatives will diminish the integrity of the BW Parkway's setting and association as a designed scenic parkway. The addition of new infrastructure would impact the visitor experience of driving on a historic parkway. Impacts to wetlands and vegetation would damage the native forests that provide scenic views for visitors and fragment wildlife habitat.

The DEIS states noise walls will be located on NPS lands (DEIS pp. 4-47). The DEIS does not describe details regarding the proposed location of the noise wall along the BW Parkway. Currently no noise barriers are in place along the length of the BW parkway. Any construction of noise barriers within the BW Parkway or viewshed is inconsistent with the current architecture of this listed property.

The DEIS does not include a build alternative that avoids direct access from the managed lanes system to and from the BW Parkway at I-495, as discussed above. The only mention of why the alternative was not further considered is on page 6-8 of the DEIS which offers a summary that states: *"To address NPS comments about having no direct access to BW Parkway, a traffic analysis was completed to determine traffic implications of no direct access on I-495 and BW Parkway. Results showed that direct access was needed to meet the Study's Purpose and Need."* No further rationale as to why the alternative would not meet the overall purpose and need for the project was provided in the DEIS and no analysis was included in the Appendix F: Section Draft Section 4(f).

From the DEIS, the effects to NPS land are significant and threaten NPS's ability to approve its portion of the project. Considering the potential impacts to the BW Parkway and NPS's responsibilities and authorities (discussed above), , MDOT SHA needs to explore alternatives that avoid and minimize impacts to NPS properties, separate out permanent from temporary impacts, and complete field data collections to inform the analysis regarding wetlands, floodplain, rare and threatened plants, invertebrates, and forest cover.

Under any of the build alternatives presented in the DEIS, MDOT SHA would need a permit to construct the necessary improvements and a Highway Easement Deed (HED) to acquire use of NPS property. The impacts associated with the build alternatives would be significant and as proposed are inconsistent with the purpose of the BW Parkway as provided for in the BW Parkway enabling legislation. If additional alternatives are not explored to avoid or minimize impacts and the current build alternatives are found to impair the BW Parkway's resources and values, the NPS will not be able to provide a construction permit or a HED allowing direct managed lanes access to and from the BW Parkway. The NPS therefore renews its suggestion that the NPS alternatives provided that avoid direct access to the BW Parkway be considered. We request that a full analysis or discussion on the NPS "no direct access" alternative be evaluated and provided to NPS as soon as practicable.

The DEIS should discuss (most likely within section 4.22 or Appendix O), the interrelationship of this project with the high-speed superconducting magnetic levitation (SCMAGLEV) system between Washington, DC, and Baltimore, Maryland, which is being proposed by the Federal Railroad Administration (FRA) and the Maryland Department of Transportation (MDOT), and the effects of these projects together on the BW Parkway. A DEIS is being prepared for the SCMAGLEV project by FRA and MDOT with a projected public release in January 2021. The Administrative DEIS was provided to cooperating agencies in October 2020. As proposed, six miles of continuous elevated railway to support the SCMAGLEV system would run parallel to the BW Parkway, significantly impacting the historic character and overall visitor experience on the BW Parkway. Proposed flyover ramps and their supporting piers are intended for the same areas in which planned SCMAGLEV underground tunnels will be constructed, potentially requiring changes to one or both projects, which is not considered in this DEIS. With the combined impacts of the actions proposed in the I-495 & I-270 Managed Lanes Study and the impacts associated with the proposed SCMAGLEV project, we do not believe that the BW Parkway will remain consistent with the original intent of its enabling legislation and the purpose for which it was created. Attached is a map that indicates the limit of disturbance (LOD) for this project and a draft potential LOD for two alternatives of the SCMAGLEV project.

In addition, several other major projects are proposed along the narrow BW Parkway corridor between MD-410 and MD 32 and should be included in the impact analysis, such as The Loop, Purple Line, MD 198 Interchange improvements, and the MD 175 Interchange Expansion.

The NPS requests that the MDOT SHA include an analysis that looks at this I-495 & I-270 Managed Lanes project and provides a detailed assessment of the impacts of this project with reasonably foreseeable future actions to the BW Parkway, and how the proposals comport with the BW Parkway's enabling legislation, the significance of which has also been cited as justification for the BW Parkway's placement on the National Register of Historic Places as "a major scenic artery within the park and parkway system of the nation's capital, a formal entrance to the city of Washington, D.C., a defense/military route among suburban federal installations and the city, and a contributing element to the commercial and residential development of the Baltimore-Washington corridor. The Parkway maintains original integrity of setting, design, and associations characteristic of the earliest parkways designed for pleasure motoring, including the preservation of natural topography and vegetation for scenic purposes".

CHESAPEAKE AND OHIO CANAL NATIONAL HISTORICAL PARK

The C&O Canal NHP became a unit of the National Park System as a national monument in 1961 and was then established as a national historical park by Congress in 1971, through Public Law 91-664. Its stated purposes are preserving and interpreting the 19th century transportation canal and its associated scenic, natural, and cultural resources; and providing opportunities for education and appropriate outdoor recreation. The C&O Canal NHP stretches along the Potomac River from Rock Creek at Georgetown in Washington, D.C., to Cumberland, Maryland, for 184.5 miles. The C&O Canal NHP is listed on the National Register of Historic Places and contains more than 1,300 historic structures, including one of the largest collections of 19th century canal features and buildings in the national park system. The towpath and canal cross underneath I-495 at the American Legion Bridge, in Bethesda, Maryland.

Effects of the build alternatives on the C&O Canal NHP will result from the construction of the new American Legion Bridge; removal of the existing bridge; construction staging; access for construction vehicles; the construction, operation, and maintenance of the realigned ramp from I-495 northbound to Clara Barton Parkway; the construction of a trail connection between a shared use path on the east side of the new American Legion Bridge and the C&O Canal towpath; and the construction, operation, and maintenance of linear stormwater management features beneath the shoulders of the I-495 mainline south of the towpath.

Replacement of the American Legion bridge would require new piers to be constructed, which would require access to the shoreline on the eastern side of the Potomac River. This access would result in the construction of a haul road down to the river that would be used for the transport of materials and large equipment to and from the work site; removal of vegetation; loss of wetlands; the realignment of Rock Run; and potential impacts to hundreds of rare species and natural communities. This four to five-year construction timeframe will have significant impacts to the recreational opportunities currently provided by the C&O Canal NHP. Park visitors will be greatly impacted by the increased noise, presence of construction equipment, temporary closures of the towpath, trail detours, and the overall uneasiness some may feel as they try to circumvent this active construction area.

Overall, approximately 15 acres of the C&O Canal NHP will be impacted by this project, which will result in an adverse effect on the C&O Canal NHP from the visual and physical intrusions within the C&O Canal NHP, resulting in a diminishment of the setting, feeling, and association of its cultural landscape. In addition, two archeological sites will either completely or partially be destroyed. Further coordination with the NPS is required to ensure that the removal of existing piers, which are currently directly adjacent to historic structures, and the construction of new piers for the American Legion bridge do not further impact park historic structures. New piers will need to be sited away from historic structures and outside the park. During construction, use of the towpath by visitors will need to be maintained throughout the period of construction. If towpath closure is needed, MDOT SHA will be required to develop an appropriate detour for pedestrians and bicycles. It will be necessary for MDOT SHA to coordinate with the NPS on further minimization and mitigation. The American Legion bridge crosses through the Potomac Gorge, which includes hundreds of rare species and natural communities, including rare groundwater invertebrates, and supports the highest concentration of rare plants in Maryland. Survey work for wetlands, bats, invertebrates, and rare plants is now taking place and we request that MDOT SHA evaluate impacts to individual park resources. In addition, the current American Legion bridge has poor drainage, which causes pitting and damage to the C&O Canal NHP towpath, which lies below it. Several cyclists using the towpath have been harmed due to the rough path beneath the bridges caused by bridge drainage issues. This stormwater also introduces oil, chemicals, and other contaminants to the towpath and canal. Any new bridge design will need to include measures for drainage to prevent run-off onto park resources.

GEORGE WASHINGTON MEMORIAL PARKWAY (INCLUDING THE CLARA BARTON PARKWAY)

The GW Memorial Parkway was established by Congress on May 29, 1930, through Public Law 71-284, known as the Capper-Cramton Act. This enabling legislation requires that the GW Memorial Parkway (as well as other land acquired by the act), serve to prevent pollution of Rock Creek and the Potomac and Anacostia Rivers, to preserve forests and natural scenery in and about Washington, D.C., and to provide for the comprehensive and continuous development of park, parkway, and playgrounds of the National Capital Area. The GW Memorial Parkway runs along the Potomac River through two states, Virginia and Maryland, as well as the District of Columbia, protecting the landscape and natural shoreline of the river while offering magnificent scenic vistas of Washington, D.C., and the Potomac Gorge. Along its route, the GW Memorial Parkway also connects several important historic sites, memorials, and scenic and recreation areas in the Washington, D.C., metropolitan area. The portion of the GW Memorial Parkway that runs along the Maryland side of the Potomac River is the Clara Barton Parkway which also became part of the national park system through the Capper-Cramton Act (originally as the Maryland portion of the GW Memorial Parkway). The GW Memorial Parkway and Clara Barton Parkway are on the National Register of Historic Places for its association with twentieth-century parkway design, engineering, landscape architecture, park planning and conservation, commemoration, and an association with George Washington.

The build alternatives will affect the GW Memorial Parkway due to use by construction vehicles building the new American Legion bridge structure and removing the existing structure; the construction, operation, and future maintenance of new direct access ramps to the managed lanes on I-495; and the installation, operation, and future maintenance of electrical signs that would not align with the historic parkway character and overall purpose. The effects on the Clara Barton Parkway will result from construction access and the construction and maintenance of stormwater management features.

In addition, the build alternatives propose using a large area within GW Memorial Parkway southeast of the American Legion Bridge to construct a switchback road that will be used to maneuver construction vehicles up and down the steep grade along the bank of the Potomac River while erecting the new bridge. This use would have a significant and long-lasting effect on the natural features of the Potomac Gorge as well as to the Dead Run Ridges Archeological District, which was just determined eligible for listing on the National Register of Historic Places on September 10, 2020. These effects and the duration that it would take for the forest to recover are not captured in the DEIS, a gap that needs to be resolved for NPS to make an authorization decision.

Approximately 14 acres (12 acres of the GW Memorial Parkway and 1.5 acres of the Clara Barton Parkway) would be impacted by this project. The effects of the build alternatives will diminish the integrity of the GW Memorial Parkway’s setting and association as a designed scenic parkway due to the addition of new infrastructure intrusions and electrical signage; the removal of vegetation; loss of wetlands; and potential impacts on hundreds of rare species and natural communities, including the rare groundwater invertebrates found within the Potomac Gorge. The DEIS does not discuss how to maintain visitor services, including access to trails and roadways, during construction. In addition, the impacts to the viewsheds of the GW Memorial Parkway and Clara Barton Parkway were not analyzed in the DEIS. The visual analysis in the DEIS is performed solely from the perspective from the I-495 corridor. The visual analysis does not evaluate the effects of the new infrastructure on significant views from NPS properties as no viewpoints from NPS properties were included in the analysis. Such analysis is needed by NPS to determine impacts to the GW Memorial Parkway and make determinations regarding use of NPS land. As mentioned previously, the enabling legislation for both these NPS units requires the preservation of natural scenery which is being affected by this project. The project would have an adverse effect on these historic properties’ cultural landscapes, historic structures, and viewsheds, with long-lasting impacts to park values and the Potomac Gorge.

The NPS requested an alternative be included in the DEIS that did not include additional direct access from I-495 to the GW Memorial Parkway, which would have limited the direct visual and physical impacts to the GW Memorial Parkway. The coordination that is outlined in the Applied Minimization section on page 30 of the Section 4(f) evaluation suggests NPS has agreed to the nested ramp option, which is not accurate. The NPS requests alternatives be evaluated that do not expand existing direct access to the GW Memorial Parkway.

We believe there are avoidance and minimization options such as those provided by the Virginia Department of Transportation (VDOT) on its I-495 Northern Extension project (I-495 Next), a companion project that connects to the MDOT SHA project at the American Legion Bridge. VDOT coordinated closely with NPS regarding the effects of new infrastructure on the GW Memorial Parkway which resulted in a design that requires minimal parkland and a reduced amount of required signage. The Managed Lanes Study could benefit from VDOT's model and reduce impacts to parkland for both roadway infrastructure and signage.

GREENBELT PARK

Greenbelt Park was established by Congress on August 3, 1950, through Public Law 81-643 together with the BW Parkway, which traverses the park. Greenbelt Park is part of the comprehensive and continuous development of the park system of the national capital. The park provides high quality camping, picnicking, and hiking in wooded areas and along stream corridors, preserving forests and contributing to the protection of water quality in the Anacostia River watershed. The park features a 174-site campground, nine miles of trails, and three picnic areas. Many local residents come to camp, hike, picnic, and run. The park provides them all the experiences of traditional parks, close to home. Greenbelt is determined eligible for the National Register of Historic Places.

The build alternatives' effects on Greenbelt Park are from the widening of I-495, the realignment of the ramp from eastbound Greenbelt Road to southbound BW Parkway, augmentation and repair of an existing storm drain outfall, and access for construction vehicles. Work within the park includes tree removal, grading, augmentation of storm drain outfall pipes, construction of a retaining wall, and access for construction equipment and materials. A portion of the perimeter trail may need to be relocated near the ramps from Greenbelt Road to the southbound BW Parkway.

Although a small urban park, approximately 130,000 recreational visitors a year come to Greenbelt Park. The impacts to this area from this project will greatly affect the visitor experience of these users and has not been sufficiently evaluated in the DEIS. Greenbelt Park contains a popular campground used by 20,000 visitors a year, which would be affected by the increase in noise and removal of vegetation as well as the aforementioned trail relocation. Impacts to wetlands and vegetation would damage the native forests that provide scenic views for visitors, and fragment wildlife habitat.

SECTION 4(F) EVALUATION

With regard to the draft Section 4(f) evaluation, the DOI understands that there will likely be no feasible and prudent alternatives that avoid use of at least some of the Section 4(f) properties identified. Even with that understanding, we find the Avoidance Analysis presented in Section 3 of the Section 4(f) evaluation to be insufficient in its overall analysis. It applies an all-or-nothing approach to the avoidance of all the Section 4(f) resources, concluding that all avoidance of all Section 4(f) resources would involve new alignments and tunneling at the cost of tens of billions of dollars. This approach supports an argument that avoidance is neither feasible nor prudent, where analysis of specific individual measures could avoid some Section 4(f) properties or provide substantial minimization options while still meeting the purpose and need. What limited location specific avoidance analysis is included does not evaluate avoidance of each Section 4(f) property equally. There is, for example, no analysis of an alternative that does not provide direct access to the BW and GW parkways.

Pursuant to 23 CFR 774.3(c)(1), if the avoidance analysis determines that there is no feasible and prudent avoidance alternative, then only the alternative that causes the least overall harm may be approved. And pursuant to 23 CFR 774.3(c)(2), the alternative selected must include all possible planning to minimize harm to Section 4(f) property. The Section 4(f) evaluation could take a broader approach to the avoidance analysis for Section 4(f) properties and supplement the least harm analysis to include additional measures, such as those proposed by NPS. Currently the least harm analysis assumes that the existing Section 4(f) properties were already impacted by the development and subsequent expansions of I-495 and that impacts from this project are therefore inconsequential, which is not the case.

To minimize harm, the FHWA and MDOT MDSHA should consider additional alternatives that are feasible and prudent before making decisions regarding whether "all possible planning" to minimize harm has been met, as defined in 23 CFR 774.17. The information gathered through continued planning as part of the I-495 & I-270 Managed Lanes' Section 106 consultation process, resolution of the range of alternatives, and other related Section 4(f) coordination activities will help inform the Section 4(f) evaluation and guide the selection of the alternative that causes least harm. DOI and NPS look forward to continued coordination with this effort.

WILDLIFE COMMENTS

This project is within the range of the federally threatened northern long-eared bat (NLEB; *Myotis septentrionalis*). The NLEB is a temperate, insectivorous migratory bat that hibernates in mines and caves during the winter. The NLEB spends summers in wooded areas and has been known to use highway bridges as roost sites. Based on the completed *NLEB 4(d) Rule Streamlined Consultation Form* submitted by FHWA, this project may rely on use of the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation requirement. The FWS will continue to coordinate with FHWA to develop voluntary Section 7(a)(1) measures to further the conservation of the NLEB.

In addition, the DEIS Bat acoustic surveys conducted between 2016 and 2018 by Virginia Tech suggests the federally endangered Indiana bat (*Myotis sodalis*) may also be present near the project area. The Indiana bat is also a temperate, insectivorous migratory bat that hibernates in mines and caves during the winter, spends summers in wooded areas, and has been known to roost in highway bridges. Appendix L of the DEIS (Sec 2.10.2.A, pg. 155-156) states that during summer 2020, MDOT SHA proposed and conducted an acoustic and visual bridge survey. That survey is now complete, and it has been determined that Indiana bat are not present along the project corridor, so no further Section 7 consultation for the Indiana bat is required.

GENERAL COMMENTS

The DEIS states that stormwater management facilities will be located on NPS lands (DEIS pp. 4-19). The NPS has requested that no stormwater management features be proposed on NPS units. On page 6-8, the DEIS more accurately reflects this understanding: *"In response to NPS comments, all stormwater management surface facilities were removed from NPS property except for scuppers on the American Legion Bridge, which are needed due to the profile change from the Clara Barton Parkway to the Potomac River. MDOT SHA explained that a much longer bridge would be needed to avoid the use of scuppers but committed to planning the locations of the scuppers to minimize impact to NPS property."* The NPS approval of the use of NPS lands for MDOT MDSHA stormwater features will require that these scuppers on the bridge be designed to avoid to the extent practicable directly impacting the NPS-administered properties below the bridge. Stormwater facilities that are not directly associated with the park management needs are inconsistent with the purpose of these NPS units.

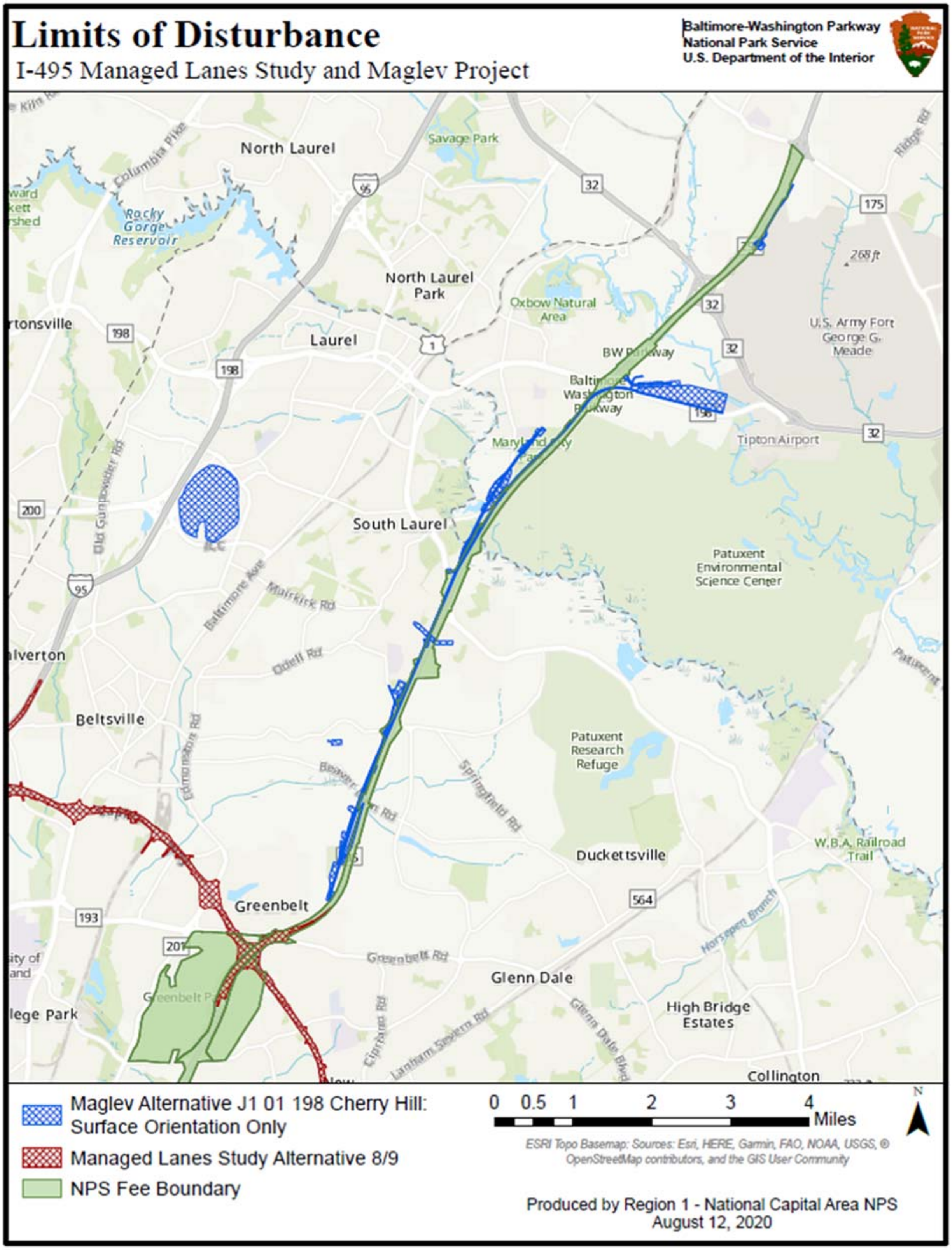
The DEIS analyzes viewsheds and visual impacts from the point of view of someone traveling along the interstate rather than from a visitor within a park and NPS needs to evaluate how the new interstate infrastructure affects views or vistas towards the I-495 corridor from NPS lands. The NPS can provide a list of viewpoints to be considered. The visual impacts for each of the NPS-administered units affected by the project will vary, as impacts from new infrastructure will vary based on location and the amount of disturbance from the project.

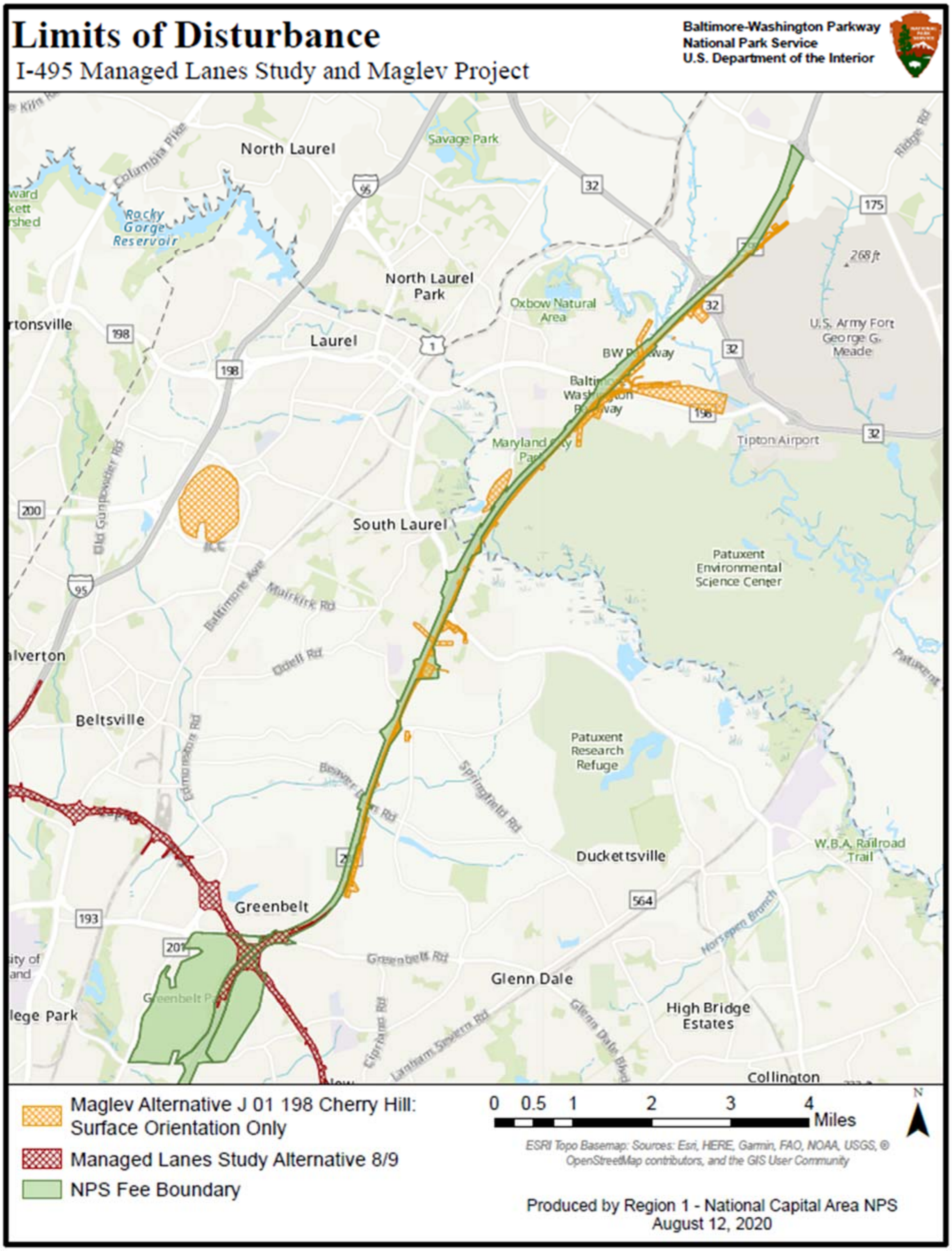
We appreciate the close coordination FHWA and MDOT SHA have had with the NPS and the Department on this project and are confident, through close collaboration, that those issues we have identified in this letter can be resolved in a manner acceptable to all. For further coordination, please contact: Tammy Stidham, National Park Service, Region 1 – National Capital Area, Deputy Associate Area Director, Lands and Planning at 202-438-0038 or tammy_stidham@nps.gov.

Sincerely,

John V. Nelson
Regional Environmental Officer

cc: Tammy Stidham, NPS
Ray Li, FWS


Limits of Disturbance
I-495 Managed Lanes Study and Maglev Project
Baltimore-Washington Parkway
National Park Service
U.S. Department of the Interior
North Laurel
Savage Park
Rocky Gorge Reservoir
North Laurel Park
Oxbow Natural Area
Laurel
BW Parkway
Baltimore Washington Parkway
U.S. Army Fort George G. Meade
Tipton Airport
South Laurel
Patuxent Environmental Science Center
Beltsville
Patuxent Research Refuge
Duckettsville
W.B.A. Railroad Trail
Greenbelt
Glenn Dale
High Bridge Estates
Collington
Maglev Alternative J1 01 198 Cherry Hill: Surface Orientation Only
Managed Lanes Study Alternative 8/9
NPS Fee Boundary
0 0.5 1 2 3 4 Miles
ESRI Topo Basemap: Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
Produced by Region 1 - National Capital Area NPS
August 12, 2020


Limits of Disturbance
I-495 Managed Lanes Study and Maglev Project
Baltimore-Washington Parkway
National Park Service
U.S. Department of the Interior
North Laurel
Savage Park
Rocky Gorge Reservoir
North Laurel Park
Oxbow Natural Area
Laurel
U.S. Army Fort George G. Meade
Tipton Airport
Maryland City Park
South Laurel
Patuxent Environmental Science Center
Beltsville
Patuxent Research Refuge
Duckettsville
W.B.A. Railroad Trail
Greenbelt
Glenn Dale
High Bridge Estates
Collington
Maglev Alternative J 01 198 Cherry Hill: Surface Orientation Only
Managed Lanes Study Alternative 8/9
NPS Fee Boundary
0 0.5 1 2 3 4 Miles
ESRI Topo Basemap: Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
Produced by Region 1 - National Capital Area NPS
August 12, 2020

I-495 & I-270 MLS DEIS (July 2020)

NPS Detailed Comments - DEIS

ID	Page	Section	Comment
1	General	Overall Comment	Effects: on the B-W parkway must be considered when assessing impact of direct access ramps from Managed lanes. Five major private, state and federal projects are proposed along the narrow B-W Parkway corridor between MD-410 and MD 32. These projects include the Boring Company Transit project, MDOT's Purple Line project, MDOT's Managed lane project, the federal/state MAGLEV project and Dept of Treasury Beltsville facility project affecting Powder Mill Road interchange.
2	General	Overall Comment	The need to acquire parkland as part of this project is missing from Chapter 4 sections that discuss property acquisitions required for build alternatives. Table 4-4 is a good example of this as it only includes property acquisitions that include business and residential properties. Parks should be included in this list as well as in the discussion in section 4-5. In section 4-5 there is no mention of the need to acquire parkland as part of this project. Table 4-7 is also missing the parkland acquisitions required
3	General	General	It is unclear from the DEIS how much of the LOD is permanent vs. temporary.
4	General	Overall Comment	The DEIS should include information regarding the NPS Federal Lands to Parks Program (FLP), the NPS' oversight role to enforce deed restrictions in transferred parkland and the Federal government's reserved reversionary interest in certain local parks in the project area. ***additional background below
5	General	Overall Comment	Any impacts to FLP-transferred land will need to be mitigated. NPS would determine the mitigation measures in collaboration between the current owners of the properties and other agencies involved in the project, and the course of action would be subject to approval of the General Services Administration. The NPS is responsible for ensuring compliance and mitigation and amending the relevant property deeds if needed (See Federal Management Regulation 102-75.680 and 102-75.685). Therefore, the NPS FLP Program coordinators should be included in collaboration and discussions regarding the affected parks.
6	General	Overall Comment	Four parks listed in the Draft EIS were deeded in full or part through the NPS FLP to the Maryland National Capital Park and Planning Commission. These parks (or portions) are restricted to public park and recreation use in perpetuity. Cherry Hill Road Park, 42.91 acres, was deeded in two transactions in 4/22/1980 and 1/14/1992; 42.11 acres remain deeded for public parks and recreation (see below). A portion of Hollywood Park, 6.37 acres, was deeded 11/14/1975. Sunnyside Park, 8.84 acres, was deeded in two parcels on 6/06/1977 and 2/26/1992. Powder Mill Park, 18.9 acres (part of Paint Branch Creek Park Unit 3 in the DEIS) was deeded 11/14/1975.
7	General	Overall Comment	Cherry Hill Road Park: NPS believes all of Cherry Hill Road Park is under the NPS FLP requirements. The DEIS does not reference the deed requirements for parks and recreation, the reverter in the deed, nor the NPS role in compliance, all of which should be captured. The DEIS indicates a small portion of the park will likely be impacted and therefore mitigation under the NPS FLP Program will be needed.
4	ES-18		Construction SUPs are not the only action from NPS. Highway easement is missing.
5		Chapter 2	The alternative screening process discussed at the start of chapter 2 seems to have occurred with no consideration to 4(f).
6	p.2-6		The “environmental” element to purpose and need seems misleading, as it was not included during the alternative screening process.
7	pg 4-5		The land use map does not accurately reflect the boundaries of the George Washington Memorial Parkway and the Clara Barton Pkwy and Potomac River, as they show quite a bit of brown shading (residential) that is actually parkland. Also, the maps show NPS property within the study area as park/open space instead of NPS lands which is dark green.
8	Pg 4-10	4.2.3	What does increase telework do to revenue model and the financial viability?
9	pg. 4-16		The NPS disagrees with the following generalization that, based on the content of the DEIS, is not supported by appropriate analysis: "The views from adjacent properties, including residential properties, commercial enterprises, parkland/ open space properties, and a number of community resources would experience an impact; however, impacts would generally be consistent with existing views of the study corridors as the surrounding area is adjacent to the existing interstate facilities and the surrounding area is urban in nature." The potential impacts to currently forested areas and wholesale removal of this vegetation would dramatically change the views and appearance of the area and views from the NPS lands.
10	pg. 4-19	4.4.2	Correct name - Chesapeake and Ohio Canal National Historical Park
11	pg. 4-19	4.4.2	Clara Barton Parkway is missing - Review Chapter 5, Figures 5-1 through 5-3 and Appendix D
12	pg. 4-19	4.4.3	Correct name the NPS park names - Chesapeake and Ohio Canal National Historical Park and <u>add</u> Clara Barton Parkway when discussing the larger area property impacts.
13	pg. 4.19		Locations for the proposed SWM structures need to be identified. DEIS states the following, "Stormwater management was eliminated from NPS property to the maximum extent practicable. At certain locations stormwater management facilities are required on NPS property because there is no other viable location to treat stormwater, such as at the American Legion Bridge and Baltimore Washington Parkway." NPS has not been provided any details related to stormwater facilities on parkland. Placement of Stormwater Management facilities on NPS properties in support of this project requires NPS approval. Any placement of SWM measures on NPS property would result in NPS receiving MDE "credits".

ID	Page	Section	Comment
14	pg 4-19		The Baltimore Washington Parkway should be called out as the other NPS parkways in the paragraph listing properties.
15	Pg 4-19	4.4.2	Para 3: Add Baltimore Washington Parkway to list of largest parks in CEA analysis area.
16	Pg 4-20	4.4.4	Recommended mitigations to affected property owners may fall outside the immediate area with impacts but still within a particular watershed.
17	pg 4-29+	4.6	Visual and Aesthetic Resources doesn't include cultural landscape/visual attributes of GWMP (incl CLBA Pkwy) purpose of protecting the natural scenery of the gorge of the Potomac as defined in the Capper-Cramton legislation; nor is it included under Section 4.7 which seems to address cultural resources/historic properties.
18	Pgs 4-29 to 4-35	Section 4.6	This section focuses on viewshed impacts to I-495 and I-270. However more significant viewshed impacts from this project will affect historic NPS properties. There is no mention of impacts to the Baltimore Washington parkway and Greenbelt Park. Visual impact assessments are also required for these properties.
19	pg. 4-34	4.6.3	DEIS States, "Where new direct access at-grade auxiliary lanes or ramps would be constructed, visual impacts would be readily apparent, but would not contribute to a change in the character of the existing viewsheds. These impacts would include widened roadways, increased amounts of pavement, and new ramps and elevated structures adjacent to the existing study corridors. However, views outside of the study corridors and to the periphery would not be affected. In sum, the viewsheds following construction of a Build Alternative would generally be consistent with existing viewsheds associated with the study corridors." - The visual impacts will be very apparent and substantial. Views from NPS lands to the project need to be considered.
20	pg. 4-34	4.6.3	A Visual Impact Assessment only documents the impacts, it does not mitigate them. Avoidance is more the preference, in addition to Context Sensitive design and reflected in the analysis.
21	pg 4-34		More specificity and detail are required for tree removal on NPS properties.
22	pg. 4-35	4.6.4	Mitigation is not just for tree impacts, but also the understory, soil and flora and fauna impacts for the biodiverse Potomac River Gorge area.
23	pg. 4-35	4.6.4	The NPS appreciates that Maryland law requires on-site planting and that aesthetic treatments are considered mitigation. However, the NPS has a no net loss policy when it comes to trees on NPS land and would require that the specific amount of DBH impacted would need to be replaced and not a tree for tree replacement and not necessarily within the area affected. Also the NPS does not consider aesthetic treatments as mitigation for tree loss.
24	pg. 4-34	4.6 Visual and Aesthetic Resources, 4.6.3	DEIS states, "Construction would require the removal of vegetation to varying degrees throughout the study corridors. Larger areas of tree removal near the American Legion Bridge on NPS property will be needed for construction and cannot be accommodated elsewhere due to the steep slopes. As a result of the vegetation removal, the wider interstates, added ramps, retaining walls, and noise barriers would become more visible and prominent from both the dynamic and static views. The static views from adjacent properties, including residential properties, commercial enterprises, parkland/open space properties, and a number of community resources would experience an impact. In general, however, impacts would be consistent with existing views along the majority of the study corridors because of the dominant presence of the existing interstate facilities and the surrounding area's urbanized nature." - It is not clear how this broad generalization is correct given the lack of supporting analysis and the expected large areas of tree removal near the ALB on NPS property needed for construction. Acknowledge the sensitive nature of the resource that has finally recovered from the impacts of the original construction in the early 1960s.
25	pg 4-35+	4.7	Discussion of historic structures and archeological sites does not adequately treat cultural landscapes/view sheds for GWMP (incl. CLBA Parkway).
26	p. 4-38		Should also include NPS comments on the potential archeological district, not just VDHR's. Needs to include NPS NRHP opinion from the Keeper's office that there appears to be a NRHP Archeological District present but needs a robust statement of significance to render a DOE; also follow through with same on P. 4-43 and on PP. 4-54 - 55, and 4-56
27	pg. 4-44		Beyond setting and feeling, the proposal will affect the design, workmanship, and materials of the identified resources specifically, the BAWA.
28	Pg 4-44	Table 4-11	For NPS properties add viewshed impacts.
29	Pg 4-47	4.7.3.A.a	For the B-W Parkway significant changes to earlier design proposals are identified and once understood will likely increase impacts previously voiced. This design change includes the addition of a noise wall, replacement of the existing bridge over I-495, and realignment of the interchange area and replacement of the Greenbelt Road bridge. The discussion does not adequately describe the increased signage extending beyond the impact area which has been an area of concern expressed in previous meetings with the project team.
30	pg 4-48		GWMP/Clara Barton Pkwy entry - needs more introductory description; specifically, the Capper-Cramton Act protecting the natural scenery of the gorge of the Potomac language and acknowledgement that a purpose was to protect gorge from development

ID	Page	Section	Comment
31	pg. 4-48		Under c. it says to build two new American Legion bridge structures, but under b. it mentions just one replacement of the ALB. please clarify
32	pg. 4-48	4.7.3 B.c. GWMP	The construction access has not been decided upon. This should be stated. In consultation with the National Park Service, various access routes and options are being discussed. The narrative as written gives the impression that the approach is a given. More discussion specific to access routes and methodology for doing the work.
33	Apr-48	4.7.3 CHOH	This section states that "These activities would require the temporary closure of the canal towpath for the construction and removal of the grade separated crossings that would be in place during construction of the new American Legion Bridge, which is anticipated to last between four and five years." The project will be required to work with the NPS to develop a detour for the users to access the trail and then completely rehabilitate the area.
34	pg 4-49		Concerning the reference to a "linear stormwater management facility that will extend onto Clara Barton Parkway," is this a new design element? Stormwater structures on NPS properties has not been discussed with the NPS.
35	pg. 4-49		Official name is "Clara Barton Parkway" not "Clara Barton Memorial Parkway"
36	Pg 4-50	4.7.3.A.e	For Greenbelt Park additional impacts should be included such as reduced vegetation buffer between the park and a significant roadway. In addition, the NPS believes there will be significant noise impacts from this reduced buffer as well as elevated roadways on and off the parkway. With the realignment of Perimeter trail, the trail will likely be squeezed next to a major road in the park and the new park boundary. In these instances, features within the park <u>would be</u> physically affected.
37	pg 4-55+		DEIS says very little regarding mitigation. Additional coordination with the NPS is required to determine proper mitigations.
38	pg 4-55+		Mitigation section 4.7.4 does not really speak to the historic property cultural landscape/visual attributes of GWMP (incl CLBA Pkwy) purpose of protecting the natural scenery of the gorge of the Potomac.
39	Pg 4-63 and on	General	For 4.9 Noise, the criteria for "noise" is described as above 75dB(A), but what is the current noise level experienced by park visitors during full and minimal foliage periods? Consider that any increase beyond current levels is a negative impact. To mitigate noise in areas 16 and 17 (page 4-69), elevated barriers rising up to 21 feet along the B-W Parkway interchange have been proposed. Currently no noise barriers are in place along the length of the parkway. Any construction of noise barriers is inconsistent with current architecture on this listed property. Recommend reconsideration of need for elevated direct access ramps onto and exiting the parkway.
40	pg. 4-67	Noise Barriers	The placement of noise barriers on NPS lands is new to the NPS. NPS would want the placement of any noise barriers to be within MDOT existing ROW
41	pg 4-80		Table 4-19 add the number of acres of each feature type.
42	pg 4-81		Table 4-20 define abbreviations in table headers "square feet and acres?"
43	Page 91		Dead Run should be on this list of streams that may be impacted, and added to appendix M. Please clarify if otherwise.
44	pg. 4-96	Floodplains	Add Dead Run to the list. APE includes the bridge over Dead Run
45	Page 98		The discussion on forests should reflect a review, with citation, of: Fleming, G.P. 2007. Ecological communities of the Potomac Gorge in Virginia: composition, floristics, and environmental dynamics. Natural Heritage Tech. Rep. 07-12. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond. Unpublished report submitted to the National Park Service. 341 pp. plus appendices. It discusses the rare plant communities of Turkey Run Park that could be impacted by this project.
47	Pg 4-100	Table 4-26	Previous section has noted tree removal along the B-W Parkway, in particular the median area. If direct access ramps were no longer pursued, what is the impact to the tree canopy?
48	4-100	Table 4-26	Table notes that tree canopy impacts to Greenbelt are .8 acres but noted on table 4-5 pg 4-20, the entire park impacts are .6 acres. How are the tree impacts higher than the overall impacts? Also, tree impacts to C&O are noted as 16.6 acres while overall park impacts are 15 acres. Please clarify.

ID	Page	Section	Comment
49	Page 101		"Data on wildlife habitat….. " this should include the numerous journal articles (backed up with museum specimens) provided in previous reviews (**listed below). With the abundance of published information there is no reason for data to be based on "incidental observations." Chapter 10, which includes the list of literature reviewed for the preparation of the EIS does not include any of the 22 references provided in previous reviews of the EIS (these are provided again below). Please add all of these to Chapter 10. All of the papers are available on-line or you can email brent_steury@nps.gov to receive copies. The Potomac Gorge is one of the most studied natural areas in North America. Between the studies conducted on Plummers Island by the Washington Biologist Field Club dating back over 100 years and the more recent studies conducted by GWMP, the Potomac Gorge is one of the most important long-term biological study sites in North America.
50	Page 101		There is no mention of invertebrates (arthropods and gastropods) - one of the best studied and most numerous life forms in the project area.
51	pg 4-106		Table 4-28 Add Dead Run.
52	pg. 4-114	4.19. Rare, Threatened, and Endangered Species SSPRA	The sensitivity of the Potomac River Gorge needs to be considered.
53	pg 4-144+	4.22	ICE and P4-148 Section 4.22.2 Past & Present Land Use do not address land protection measures inherent in the GWMP purposes in accordance with Capper-Cramton.
54	pg 4-153 Section 4.7, Table 4-40 & 4-41		Echoing comments above re: cultural landscapes, several of these properties (e.g. GW Parkway, CB Parkway) are documented cultural landscapes with character-defining features that need to be considered, just as with other types cultural resources.
55	pg. 4-154		Cultural landscapes should be identified under the Cultural Resources section.
56	pg 6-8		Section 4(f) states the following: "In response to NPS comments, all stormwater management surface facilities were removed from NPS property except for scuppers on the American Legion Bridge, which are needed due to the profile change from the Clara Barton Parkway to the Potomac River. MDOT SHA explained that a much longer bridge would be needed to avoid the use of scuppers but committed to planning the locations of the scuppers to minimize impact to NPS property." However, in the DEIS in multiple locations it describes actions on NPS lands to include stormwater facilities. On page 4-19 it states that, "At certain locations stormwater management facilities are required on NPS property because there is no other viable location to treat stormwater, such as at the American Legion Bridge and Baltimore Washington Parkway." This discrepancy needs to be resolved.
57	pg 6-8		In addition to the SUP and highway authorities mentioned, NPS authority and responsibility under its Organic Act should be included: The NPS Organic Act, as amended and supplemented, requires NPS to leave park resources "unimpaired for the enjoyment of future generations" and prohibits it from authorizing any activities "in derogation of the values and purposes for which the System units have been established." 54 U.S.C. 100101. NPS will not ultimately be able to provide the required authorizations unless the final selected project can be shown not to cause such impairment. Impacts are not purely a NEPA analysis issue but could pose a substantive obstacle preventing NPS from authorizing its part of the project.
58	Appendix F	sec 2.1.24 pg 76	Cherry Hill Road Park is 42.1 acres, acquired from the Federal government in 1980. In actuality, the NPS FLP program originally transferred 42.91 acres for the park in two actions in 1980 and 1992, with 0.8 acres reverted in 1985 for road widening purposes, leaving 42.11 acres under the FLP program. While the DEIS references a section of the original deed citing authority to take a portion of the property for road widening, further research is needed to affirm whether this authority was limited to and exercised in the 1985 reversion of 0.8 acres.
59	Appendix F	Table 2.1 pg 24	The DEIS identifies Hollywood Park as 22.3 acres. While the FLP data base lists only 6.37 acres are subject to the FLP program deed restrictions, our files confirm the land is adjacent to the I-495 Beltway and the FLP acres may therefore be impacted and require mitigation for a conversion of use.
60	Appendix F	Table 2.4 pg 27	Powder Mill Park, 18.9 acres transferred through the NPS FLP Program, was not identified in the DEIS but appears to be part of DEIS-listed Paint Branch Stream Valley Park Unit 3. Although Appendix F, Table 2.4, page 27 states there will be no use or impact to the park, NPS has concerns because the FLP parcel is adjacent to I-95.

ID	Page	Section	Comment
61	Appendix F	Table 2.4 pg 27	Sunnyside Park, 8.84 acres: Appendix F, Table 2.4, page 27 states there will be no use or impact. The DEIS did not identify the role of the NPS FLP Program in this park nor the perpetual deed requirements and reverter clause.
62	Appendix L	Sec 2.8.1 pg. 107	This section of the appendix implies that U.S. Department of the Interior Solicitor's Opinion M-37050 applies to the Bald and Golden Eagle Protection Act (BGEPA). Bald eagles are protected by the BGEPA and the Migratory Bird Treaty Act (MBTA). However, Opinion M-37050 is specific to the MBTA and does not apply to the BGEPA.
63	Appendix L	Sec 2.8.1 pg. 107	For purposes of citation, the full list of prohibited acts under the Bald Eagle and Golden Eagle protection Act (BGEPA) is provided at 16 U.S.C. 668, whereas the definition of 'disturb' is found in BGEPA's implementing regulation (50 CFR 22.3) and not within the statute.

**literature review for comment #49 ----------

1) Barrows, E.M. & D.R. Smith. 2014. Sawflies (Hymenoptera, Symphyta) of three Mid-Atlantic Parks in the George Washington Memorial Parkway, U.S.A. Journal of Hymenoptera Research 39:17-31. 115 species of sawflies in Turkey Run Park. One species, Kerita fidala, is NEW TO

2) Brattain, M. R., B. W. Steury, A. F. Newton, M. K. Thayer, and J. D. Holland. 2019. The rove beetles (Coleoptera: Staphylinidae) of the George Washington Memorial Parkway, with a checklist of regional species. Banisteria 53: 27-71. 125 species of rove beetles in Turkey Run Park. 25 species

3) Cavey, J.F., B.W. Steury, & E.T. Oberg. 2013. Leaf beetles (Coleoptera: Bruchidae, Chrysomelidae, Orsodacnidae) from the George Washington Memorial Parkway, Fairfax County, Virginia. Banisteria 41:71-79. 41 species of leaf beetles in Turkey Run Park.

4) Cohn, J.P. 2004. The wildest urban river: Potomac River Gorge. BioScience 54:8-14. This would be an excellent paper to cite in the Existing

5) Evans, A.V. & B.W. Steury. 2012. The Cicada Parasite beetles (Coleoptera: Rhipiceridae) of Virginia. Banisteria 39:65-70. 2 species of cicada parasite beetles in Turkey Run Park. One species, Sandalus petrophya, is NEW TO VIRGINIA.

6) Flint, O.S., Jr. 2011. Trichoptera from the Great Falls and Turkey Run units of the George Washington Memorial Parkway, Fairfax Co., Virginia,

7) Steury, B.W. 2014. Aquatic snails (Gastropoda) from national park sites in northern Virginia and adjacent Maryland, with an updated checklist of regional species. Banisteria 44:13-18. 6 species of aquatic snails in Turkey Run Park, including the only GWMP record of the limpit Laevapex fuscus 8)Steury, B.W. 2017. First record of the rove beetle Trigonodemus striatus LeConte (Coleoptera: Staphylinidae) from Virginia and additional new park records (Coleoptera: Anthicidae, Buprestidae, Carabidae, Cerambycidae, Chrysomelidae) for the George Washington Memorial Parkway.

9) Steury, B. W. 2018. Annotated checklist of some fungivorous beetles (Coleoptera: Anamorphidae, Biphyllidae, Derodontidae, Endomychidae, Erotylidae, and Tetratomidae) of the George Washington Memorial Parkway. Banisteria 50: 21-28. 27 species of fungus beetles in Turkey Run Park. Four species, Tritoma erythrocephala, Microsternus ulkei, Tritoma mimetica and Hallomenus scapularis, are NEW TO VIRGINIA.

10) Steury, B. W. 2018. Four longhorned beetles (Coleoptera: Cerambycidae) new to Virginia and additional new park records (Coleoptera:

11) Steury, B. W. 2019. The ant-like leaf beetles (Coleoptera, Aderidae) of the George Washington Memorial Parkway, Fairfax County, Virginia. Banisteria 52: 46-49. Four species of ant-like leaf beetles from Turkey Run Park including the FIRST VIRGINIA RECORD of Aderus brunnipennis.

12) Steury, B.W., J. Glaser, & C.S. Hobson. 2007. A survey of macrolepidopteran moths of Turkey Run and Great Falls National Parks, Fairfax County, Virginia. Banisteria 29:17-31. 222 moth species documented from Turkey Run Park including the FIRST VIRGINIA RECORD of Abrostola

13) Steury, B. W. & J. M. Leavengood, Jr. 2018. Annotated Checklist of Checkered Beetles from the George Washington Memorial Parkway,

Virginia (Coleoptera, Cleridae). Banisteria 51: 52-58. Ten species of Checkered Beetles from Turkey Run Park.

14) Steury, B.W. & P.W. Messer. 2014. Twelve Ground Beetles New to Virginia or the District of Columbia and an Annotated Checklist of the Geadephaga (Coleoptera, Adephaga) from the George

Washington Memorial Parkway. Banisteria 43:40-55. 110 species of ground beetle in Turkey Run Park. Two species, Scarites vicinus and

15) Steury, B.W. & T.A. Pearce. 2014. Land Snails and Slugs (Gastropoda: Caenogastropoda and Pulmonata) of two National Parks along the Potomac River near Washington, District of Columbia. Banisteria 43:3-20. 22 species of land snails and slugs in Turkey Run Park.

16) Steury, B.W. & T.C. MacRae. 2014. The longhorned beetles (Insecta: Coleoptera: Cerambycidae) of the George Washington Memorial Parkway.

Banisteria 44:7-12. 37 species of longhorned beetles in Turkey Run Park. Four species, Centrodera decolorata, Trachysida mutabilis, Clytus ruricola,

17) Steury, B.W., T.C. MacRae, & E.T. Oberg. 2012. Annotated list of the metallic wood-boring beetles (Insecta: Coleoptera: Buprestidae) of the George Washington Memorial Parkway, Fairfax County, Virginia. Banisteria 39:71-75. Five species of metallic wood-boring beetle are documented the George Washington Memorial Parkway. The Maryland Entomologist 7:11-27. 14 species of soldier beetles in Turkey Run Park. Seven species are

First Records for Virginia.

19) Flint, O.S., Jr. & K.M. Kjer. 2011. A new species of Neophylax from northern Virginia, USA (Trichoptera: Uenoidae). Proceedings of the Entomological Society of Washington 113:7-13. A new species of caddisfly from Turkey Run Park, Neophylax virginica.

Columbia, Maryland, and Virginia. Pp. 261-276 In S. M. Roble and J. C. Mitchell (eds.). A Lifetime of Contributions to Myriapodology and the Natural History of Virginia: A Festschrift in Honor of Richard L. Hoffman's 80th Birthday. Virginia

Museum of Natural History Special Publication No. 16, Martinsville, VA. Documents a new species of amphipod from Turkey Run Park, Stygobromus sextarius.
21) Mathis, W. N., K.V. Knutson & W.L. Murphy. 2009. A new species of the snail-killing fly of the genus Dictya Meigen from the Delmarva States (Diptera: Sciomyzidae). Proceedings of the Entomological Society of Washington 111(4): 785-794. A new species of fly from Turkey Run Park,
22) Mathis, W. N. & T. Zatwarnicki. 2010. New species and other taxonomic modifications for shore flies from the Delmarva States (Diptera:

***The NPS FLP Program deeds former surplus Federal land to local government entities solely for public parks and recreation use in perpetuity under authority of 40 U.S.C. 550 (b) and (e). If transferred lands are not used accordingly or in the case of the I-495/I-270 Expansion project, they are needed for another purpose, the lands are subject to reversion back to federal ownership as stated in the property deeds. However, the NPS may consider other compliance remedies before exercising reversion. Typically affected park lands may be replaced with land that has equal or greater fair market value and recreational utility (similar to the requirement of the Land and Water Conservation Fund grant requirements), or less frequently, deed requirements may be abrogated with payment of fair market value. Another option to explore potentially is to amend the terms of the transfer and deed to another federal “public benefit conveyance” program. We are not familiar enough with 40 USC 1304(b) for “Widening of Public Roads” to advise whether this could be applied to this project.

I-495 & I-270 MLS NPS DEIS COMMENT DISCUSSION
MEETING SUMMARY

Date / Time:	**12/14/2020**
Location:	**Conference call (C) / Microsoft Teams**
Meeting Purpose:	**To discuss NPS's DEIS comments**

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1. The record herein is considered to be an accurate depiction of the discussion and/or decisions made during the meeting unless written clarification is received within three (3) working days upon receipt of this meeting record.

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Handouts: Agenda, NPS DEIS Comments, Direct Access at BW Parkway Handout, Direct Access at GWMP Handout

Outstanding Action Items or Deliverables:

Item#	Action Item or Deliverable	Responsible Party	Target Date
2020.12.14-01	Organize a strike-team to review impacts to the ALB, BWP, and GWMP	MDOT SHA	**12/30/2020**
2020.12.14-02	Schedule meetings with strike-team, FHWA, and NPS.	MDOT SHA	**1/13/2021**
2020.12.14-03	Verify total acreage detailed in Section 4(f) analysis – Is I-495 (roadway and shoulder pavement) included in the impact acreage?	MDOT SHA	**1/13/2021**
2020.12.14-04	Review and address NPS's comments on visualizations.	MDOT SHA	**1/13/2021**
2020.12.14-05	Review and address NPS's comments on property boundaries. Once reviewed, schedule a follow-up meeting.	MDOT SHA	**1/13/2021**
2020.12.14-06	Schedule a meeting with Federal Agencies to discuss ROD and approval	FHWA	**1/13/2021**

Agenda:

- **A. Introduction**
- **B. DEIS Comments**
    - **Direct Access**
        - **Baltimore Washington Parkway**
            - DEIS Comment: *Under any of the build alternatives presented in the DEIS, MDOT SHA would need a permit to construct the necessary improvements and a Highway Easement Deed (HED) to acquire use of NPS property. The impacts associated with the build alternatives would be significant and as proposed are inconsistent with the purpose of the BW Parkway as provided for in the BW Parkway enabling legislation. If additional alternatives are not explored to avoid or minimize impacts and the current build alternatives are found to impair the BW Parkway's resources and values, the NPS will not be able to provide a construction permit or a HED allowing direct managed lanes access to and from the BW Parkway. The NPS therefore renews its suggestion that the NPS alternatives provided that avoid direct access to the BW Parkway be considered. We request that a full analysis or discussion on the NPS "no direct access" alternative be evaluated and provided to NPS as soon as practicable.*

- **George Washington Memorial Parkway**

    - DEIS Comment: *The NPS requested an alternative be included in the DEIS that did not include additional direct access from I-495 to the GW Memorial Parkway, which would have limited the direct visual and physical impacts to the GW Memorial Parkway. The coordination that is outlined in the Applied Minimization section on page 30 of the Section 4(f) evaluation suggests NPS has agreed to the nested ramp option, which is not accurate. The NPS requests alternatives be evaluated that do not expand existing direct access to the GW Memorial Parkway.*

- **Section 4(f)**

    - *Section 4(f) evaluation to be insufficient in its overall analysis. It applies an all-or-nothing approach to the avoidance of all the Section 4(f) resources, concluding that all avoidance of all Section 4(f) resources would involve new alignments and tunneling at the cost of tens of billions of dollars.*
    - *What limited location specific avoidance analysis is included does not evaluate avoidance of each Section 4(f) property equally. There is, for example, no analysis of an alternative that does not provide direct access to the BW and GW parkways.*
    - *The Section 4(f) evaluation could take a broader approach to the avoidance analysis for Section 4(f) properties and supplement the least harm analysis to include additional measures, such as those proposed by NPS. Currently the least harm analysis assumes that the existing Section 4(f) properties were already impacted by the development and subsequent expansions of I-495 and that impacts from this project are therefore inconsequential, which is not the case.*
    - *To minimize harm, the FHWA and MDOT MDSHA should consider additional alternatives that are feasible and prudent before making decisions regarding whether "all possible planning" to minimize harm has been met, as defined in 23 CFR 774.17.*

C. Visualizations

D. Administrative DEIS Property Handouts

Summary:

A. Introductions

- The meeting began with roll call of all attendees. The Maryland Department of Transportation State Highway Administration (MDOT SHA) and Federal Highway Administration (FHWA) provided a summary of the meeting intent and issues to be discussed.
- FHWA thanked the National Park Service (NPS) for the discussion held last week regarding Plummers Island and the American Legion Bridge (ALB). FHWA noted that NPS's concerns regarding avoidance and minimization at the ALB were heard loud and clear. FHWA and MDOT SHA are putting together a strike-team to review the engineering at the ALB and work to further reduce impacts. FHWA and MDOT SHA believe they have worked to avoid and reduce impacts to a great extent near the ALB while balancing the need to maintain sufficient limit of disturbance to construct a major bridge. The proposed strike team effort is not to diminish these previous efforts, however, it will have new representatives on the team to provide a fresh perspective. The strike-team will include representatives from MDOT SHA and FHWA that have not been previously involved in the engineering and design efforts to get a new and expanded review. FHWA asked NPS to meet with the team and be a part of the discussion. NPS commented they welcome working with the team but want to avoid rehashing previously coordination efforts. MDOT SHA noted that the team will get started as soon as possible with a kickoff meeting in early-mid January 2021.

B. DEIS Comments

- **Direct Access Discussion – Baltimore Washington Parkway:**
  - FHWA reviewed NPS' DEIS comments and asked for further clarification.
  - NPS responded that coordination efforts between NPS and MDOT SHA have been ongoing for a long time and NPS's message throughout has been no direct access at the Baltimore Washington Parkway (BWP). NPS commented that the DEIS and 4(f) did not explore the option of no direct access. NPS noted that they prefer to not have direct access at BWP, however, if it is required then a significant reduction in impacts needs to occur.
  - NPS noted that certain elements proposed in the DEIS were never discussed with NPS prior to the release of the DEIS such as realignment of the mainline, bridge over MD 193 (south of BWP), and noise walls. NPS noted that MDOT SHA does not show any minimization in this area of BWP. NPS commented if noise walls were mentioned in previous meetings, then it would have been known they are not acceptable. NPS expressed significant concern that this area is like that of the ALB with a lot of impacts and minimal minimization efforts.
  - FHWA responded that the Limits of Disturbance (LOD) have not changed in over a year in these areas and that it is the same LOD that was presented in the Administrative DEIS versions. FHWA noted that there were several opportunities to comment on the LOD previously. FHWA asked if direct access at BWP can occur but with significant minimization.
  - NPS noted that the message has been consistent and the number of impacts remain significant. NPS commented this topic has been elevated and that "impairment" (related to the Organic Act) will be the issue at BWP.
  - FHWA asked if the Managed Lane Study (MLS) could mitigate for the impairment finding. NPS commented one cannot mitigate for the impairment issue. When there is an

impairment finding there must be a significant reduction in impacts and a new alternative at the BWP interchange should be considered.

- NPS commented that the BWP regulations state that BWP can only have limited access and this project provided more access to BWP. In summer of 2019, the NPS coordination meeting reviewed all presented direct access options, but the option of no direct access was not included as it does not meet the project's purpose and need. An option for no direct access at BWP was not included in the DEIS.
- MDOT SHA noted that there were several meetings regarding BWP and George Washington Memorial Parkway (GWMP) and various alternatives were discussed in full detail at the coordination meetings.
- FHWA noted the concerns surrounding direct access at BWP and stated NPS's position that significant changes need to occur for direct access to be permittable at BWP. FHWA asked NPS if there have been previous impairment findings. NPS responded that in the late 1990s there was an impairment finding for snowmobile use in Yellowstone National Park. MDOT SHA commented that more recently they thought there was an impairment finding on the Dangerfield Island project. In the research completed by MDOT SHA, when an impairment finding existed and was litigated, the courts referred to the Section 4(f) determination.
    - NPS noted that section 4(f) and impairment are not similar.
- MDOT SHA asked how the MLS gets to non-impairment at BWP. NPS referred to Section 1.4 of NPS's policy (*Management Policies 2006*). MDOT SHA commented that if there is a possibility to reduce impacts and come to non-impairment at BWP than it would be helpful to understand what MDOT SHA must accomplish. MDOT SHA asked if there is a range of impacts NPS is looking for. MDOT SHA and FHWA would appreciate guidance from NPS to move the discussion forward. NPS commented that there is no set range of impacts but rather looking for minimization. NPS noted that MDOT SHA must sharpen their pencils and get back to work on the direct access and treat the parkway as a park.
- FHWA noted that in the legislation it states FHWA must concur on NPS's findings and at this time FHWA does not agree with NPS. NPS commented that FHWA does not have a veto in this case.
- MDOT SHA commented that the BWP and the I-495 beltway interchange is a major safety concern and that the traffic analysis shows safety improvements. NPS's position is that additional direct access at BWP makes safety worse.

- **Direct Access Discussion – George Washington Memorial Parkway:**
    - FHWA reviewed NPS' DEIS comments and asked for further clarification.
    - FHWA asked if NPS's positions is the same at GWMP as it is at BWP. NPS commented it is the same for GWMP as BWP.
    - NPS commented they have worked with Virginia Department of Transportation (VDOT) from the beginning and VDOT was able to reduce impacts. NPS also noted that MDOT SHA has worked closely with the Maryland-National Capital Park and Planning Commission (M-NCPPC) and significantly reduced impacts to select M-NCPPC parks.

- MDOT SHA has worked with NPS to reduce and discuss impacts in the same manner as M-NCPPC. MDOT SHA explained that each resource is different and resources of M-NCPPC cannot be compared to those of NPS, as the each hold separate values and opportunities for minimization.
- MDOT SHA noted that access to both BWP and GWMP from the I-495 exists today and the options that have been previously presented should be further discussed. Impairment findings can only be used within context and in this case both BWP and GWMP are used as highways (transportation use). MDOT SHA also noted that mitigation can occur in many different ways and should be considered.
- FHWA commented that the MLS has the same, if not better, relationship with NPS than M-NCPPC and has coordinated with NPS on several levels throughout the entirety of the MLS effort.
- NPS noted that one cannot mitigate for impairment findings. Impacts can be reduced significantly which may change the impairment finding but an impairment finding cannot be mitigated.
- FHWA asked NPS if phasing the Section 404 / Section 401 permit would help with the outstanding issues.
  - NPS commented that the phased permitting will not help with the outstanding issue as compliance is with the entire MLS and not just Phase 1 South.
- MDOT SHA asked what compliance looks like in this context and how it is defined.
  - NPS's position is that the phased permitting is for construction only and NPS will not sign the ROD on a project that has compliance issues with impairment findings. NPS noted that impairment is defined in the Organic Law and is a substantive law, not a process law like NEPA.
- FHWA asked if NPS could sign the ROD knowing that further NEPA analysis will need to be completed for future phases of the project (which includes BWP).
  - NPS responded that they will not sign a full ROD with impairment findings, and it would have to be a phased ROD for Phase 1 South to proceed.
  - FHWA explained that the MLS will have a single ROD that all Federal Agencies will sign. A phased ROD will not be an option.
- NPS explained that it is the details of the project and impacts that are the issue such as, park impacts, tree impacts, interchange design, etc. MDOT SHA noted that the MLS is a part of a Public-Private Partnership (P3) program, and that the project follows the design build process. MDOT SHA noted the first developer will be for the P3 development Phase 1 South and will work on final design only. The goal of the developer would be to further reduce impacts. NPS responded that they have been through this before with Virginia Route 66 and impacts increased. NPS indicated they were not involved in the supplemental NEPA process for Route 66.
- FHWA asked NPS to take other aspects into consideration. NPS indicated you cannot save trees in one area and have an impairment finding in another. MDOT SHA commented that unfortunately with little guidance from NPS, MDOT SHA does not know what to work

towards for non-impairment. NPS commented to look at new alternatives, new access, and new lesser impacts.

- NPS noted that signage at GWMP is a concern. MDOT SHA commented that there have been several coordination efforts on signage and it was clearly detailed in the DEIS. NPS commented that MDOT SHA should look at what VDOT has done and indicated VDOT's signage does not go onto the parkway like MDOT SHA's signage and that VDOT has been able to stay within VDOT right-of-way (ROW). MDOT SHA responded that it is not a fair comparison given the length of the ramps needed on the Maryland side and the fact that the ALB is the responsibility of MDOT SHA and not VDOT.
- MDOT SHA further stated that the ALB (which is reaching the end of its usable life) could not be replaced as-is to meet current design standards without impacts to NPS property.

- **Section 4(f):**
  - NPS indicated concerns surround the section 4(f) analysis. For example, the analysis mentioned a Greenbelt tunnel that was never discussed previously. The Section 4(f) analysis also did not discuss no direct access at BWP and GWMP.
  - NPS asked if the acreage detailed in the Section 4(f) included existing I-495 pavement. MDOT SHA will verify and get back to NPS.
  - FHWA asked when temporary and permanent impacts will be determined for the MLS. MDOT SHA responded that they are working on this as the process moves towards the FEIS. MDOT SHA also noted that if there are changes in design at the ALB, BWP, and GWMP that the temporary vs permanent impacts in this area will be delayed given further analysis will be needed on the revised designs.
  - FHWA also clarified that the current use of BWP and GWMP is transportation use and an existing highway and thus not subject to Section 4(f).
  - MDOT SHA noted that both the BWP and GWMP concerns will be added to the ALB strike-team and investigated. FHWA concurred and indicated they will be heavily involved in this team.
  - MDOT SHA asked if the Section 4(f) comments were purely a documentation issue. MDOT SHA commented that no direct access was not included in the analysis because it does not meet the MLS purpose and need and that was made clear in previous coordination meetings.
  - NPS commented in general that their preference is to have no direct access at these interchanges but if they are required than impacts must be significantly reduced.
  - Further understanding is needed regarding MDOT SHA use of the parkways as roadways (i.e., permit vs easement).
  - NPS further stated that the Secretary of the Interior is required to limit the number of access points (to parkways) and access must be consistent with the park use and NPS values.

C. Visualizations:

- NPS indicated that they sent comments on the visualization package a week or two ago and sent them to FHWA. NPS requests more visualizations, as detailed in their formal comments. MDOT SHA noted that they just received the comments and will review shortly.

D. Administrative DEIS Property Handout:

- NPS commented that they provided comments on the property boundaries and that there are still outstanding discrepancies. MDOT SHA noted they will review the comments and get back to NPS. FHWA asked MDOT SHA that once NPS's comments are addressed to schedule a meeting including NPS for further discussion.

E. Action Items and Next Steps

1. Action items were reviewed as noted in the table above.