TRANSFORM I-66: INSIDE THE BELTWAY
Eastbound Widening
Environmental Assessment

NOVEMBER 2016
ERRATA NOTICE

Following the November 18, 2016 publication of the Environmental Assessment (EA) for the Transform Interstate 66: Inside the Capital Beltway, Eastbound Widening project, an additional new noise barrier was identified to be preliminarily feasible and reasonable for Common Noise Environment (CNE) P, which is just east of North Sycamore Street. This additional new noise barrier was not previously identified in the Preliminary Noise Analysis (VDOT, 2016g). As a result, the project limits of disturbance (LOD) have been revised to include this additional new noise barrier area and the following technical corrections to the EA, tabulated below, are necessitated. The location of the expanded LOD area associated with the additional new noise barrier is shown in the figure that accompanies this errata notice. These changes, and any others that may be required in response to comments received during the public comment period, will be reflected in a revised EA that the Virginia Department of Transportation will furnish to the Federal Highway Administration prior to requesting a decision to be made under the National Environmental Policy Act of 1969 (NEPA).

Summary of Technical Corrections

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<tr>
<td>3-32</td>
<td>Table 3-1, Row 9</td>
<td>The reported total length of noise barrier preliminarily identified as needing to be replaced, and feasible and reasonable to attenuate for noise impacts is 19,490 linear feet. A total of 512 receptor units are anticipated to be benefited and the barrier cost is assumed to be approximately $7.2 million.</td>
</tr>
<tr>
<td>3-34</td>
<td>Table 3-2, Row 1</td>
<td>The total area for the Build Alternative noise barriers is 11.5 acres and the total LOD is 54 acres.</td>
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<tr>
<td>3-34</td>
<td>Table 3-2, Row 14</td>
<td>Under the No Build Alternative, 236 noise receptors are predicted to be impacted, and 349 are predicted to be impacted under the Build Alternative condition.</td>
</tr>
<tr>
<td>3-34</td>
<td>Table 3-2, Row 21</td>
<td>6.68 acres of wooded areas are anticipated to be impacted as a result of the Build Alternative noise barriers, for a total of 12.39 acres of impacts.</td>
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<tr>
<td>3-34</td>
<td>Table 3-2, Row 22</td>
<td>Within the existing right of way, the total acres of wooded areas within the noise barrier portion of the LOD for the Build Alternative are 6.60 acres and the total wooded areas in the existing right of way within the Build Alternative LOD are 11.49 acres.</td>
</tr>
<tr>
<td>3-59</td>
<td>Section 3.10, Paragraph 7</td>
<td>Existing noise levels range from 35 to 78 dBA $L_{eq}$. A total of 95 residential and 57 recreational receptors approach or exceed the Noise Abatement Criteria (NAC).</td>
</tr>
<tr>
<td>3-59</td>
<td>Table 3-15, Row 1</td>
<td>Under the existing condition, there are 178 residential (NAC B) noise impacts for a total of 234 impacts.</td>
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<td>3-59</td>
<td>Table 3-15, Row 2</td>
<td>Under the No Build Alternative, there are 179 predicted residential (NAC B) noise impacts for a total of 236 impacts.</td>
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<tr>
<td>3-59</td>
<td>Table 3-15, Row 3</td>
<td>Under the Build Alternative, there are 288 predicted residential (NAC B) noise impacts for a total of 349 impacts.</td>
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<tr>
<td>3-59</td>
<td>Section 3.10.1, Paragraph 1</td>
<td>Under the No Build Alternative, noise levels range from 34 to 78 dBA $L_{eq}$. A total of 95 residential and 57 recreational receptors are predicted to be above the NAC.</td>
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<tr>
<td>3-59 to 3-60</td>
<td>Section 3.10.2, Paragraph 1</td>
<td>Under the Build Alternative, noise levels range from 35 to 79 dBA $L_{eq}$. A total of 150 residential and 61 recreational receptors are predicted to be above the NAC.</td>
</tr>
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</table>
| 3-60 | Section 3.10.2, Paragraph 7 | 15 CNEs where noise impacts were predicted were evaluated to determine if noise barriers were feasible or reasonable to provide acoustical abatement. A total of approximately 231,707 square feet of noise barrier was preliminarily
## Errata Notice

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<td>3-64</td>
<td>Table 3-17, Row 1</td>
<td>The portion of the LOD associated with noise barrier area that is within existing right of way is 11.17 acres; the total LOD area is 53.95 acres.</td>
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<td>Section 3.14.2, Paragraph 1</td>
<td>There are 11.49 acres of wooded and semi-wooded areas within the existing VDOT right of way that may potentially be impacted by the Build Alternative.</td>
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Location of Additional New Noise Barrier Limits of Disturbance
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
VIRGINIA DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL ASSESSMENT

Transform Interstate 66: Inside the Capital Beltway, Eastbound Widening
Fairfax and Arlington Counties, Virginia
State Project Number: 0066-96A-417, P101, R201, C501; UPC: 108424
Federal Project Number: NHPP-066-1(356)
From: Exit 67 Dulles Airport Access Road (Route 267)
To: Exit 71 Fairfax Drive (Route 237)

Submitted Pursuant to 42 U.S.C. 4332(2) (C)

Approved for Public Availability:

11/17/16
Date

John Simkins
Division Administrator
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<td>American Community Survey</td>
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Chapter 1.0 PURPOSE AND NEED

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA), is evaluating improvements along approximately four miles of Interstate 66 (I-66) inside of the Interstate 495 (I-495) Capital Beltway from the Dulles Connector Road (Route 267) in Fairfax County to Fairfax Drive (Route 237) in the Ballston area of Arlington County, Virginia. Pursuant to the National Environmental Policy Act of 1969, as amended, (NEPA) and in accordance with FHWA regulations\(^1\), this Environmental Assessment (EA) has been prepared to analyze and document the potential social, economic, and environmental effects associated with the improvements being evaluated.

1.1 STUDY AREA

The study area for the project is located in Fairfax and Arlington Counties, just north of the City of Falls Church, Virginia. As illustrated in Figure 1-1, the study area extends approximately four miles in length, along the I-66 corridor and is bounded by the Dulles Connector Road to the west and Fairfax Drive to the east. The geographic limits for the study area encompass the portion of I-66 inside I-495 in which the needs, described in the sections that follow, have been identified, improvements are being considered, environmental resources have been inventoried, and potential impacts are being analyzed. The limits of analysis for some resources, including traffic and resource-specific indirect effects and cumulative impacts, extend beyond the overall study area limits.

The I-66 corridor and the surrounding area inside of I-495, which is also referred to as the Capital Beltway, contain a complex mix of transportation facilities and services. East of I-495, I-66 currently has three eastbound travel lanes (two general purpose lanes and one auxiliary) from the Dulles Connector Road to the exit ramp to Lee Highway (Route 29)/Washington Boulevard (Route 237) at Exit 69 and two eastbound travel lanes from Exit 69 to the Theodore Roosevelt Bridge.

All eastbound lanes on I-66 east of I-495 are currently restricted to high occupancy vehicles (HOV) of two or more occupants per vehicle (HOV-2) during the peak morning period from 6:30 am to 9:00 am. All westbound lanes on I-66 from the Theodore Roosevelt Bridge over the Potomac River to I-495 are restricted to HOV-2 in the peak evening period between 4:00 pm and 6:30 pm with some authorized exceptions including emergency responders and bus transit services. The study area parallels primary arterials that serve non-HOV travel during the peak periods, when single-occupancy vehicles are restricted from using I-66 in the peak direction. These east-west roadway facilities include Arlington Boulevard (Route 50), Lee Highway (Route 29), Washington Boulevard (Route 237), and Wilson Boulevard (Route 613). Mass transit options within the corridor include Metrorail’s Orange and Silver Lines, as well as local and express bus service. The corridor also includes a network of on- and off-road bicycle and pedestrian facilities. Bicyclists and pedestrians can travel along the I-66 corridor using two primary parallel off-road routes: the Washington and Old Dominion (W&OD) Trail and the Custis Trail.

\(^1\) NEPA and FHWA’s regulations for Environmental Impact and Related Procedures can be found at 42 USC § 4332(c), as amended, and 23 CFR § 771, respectively.
Along the length of I-66 in the study area, land use is characteristic of the urban development that defines much of the Washington, D.C. metropolitan region, comprised primarily of dense single- and multi-family residential neighborhoods, along with commercial, retail, and community facilities interspersed throughout. The existing right of way along the I-66 corridor within the study area ranges from approximately 140 feet to 380 feet in width.

1.2 HISTORY OF I-66

I-66 was primarily developed to serve east-west travel from I-81 near Strasburg, Virginia, in the west, to Washington, D.C., in the east. Initial planning for the 76-mile corridor began in 1956, and the first segments west of I-495 were opened between 1958 and 1964. Inside of I-495, I-66 was originally conceptualized as an eight-lane interstate facility, for which preliminary planning and study began in 1962 to identify a location for I-66 through Fairfax and Arlington Counties. In 1962, right of way acquisition and construction were initiated on portions of the I-66 corridor inside of I-495. However, in April 1972, work was suspended until an Environmental Impact Statement (EIS) was completed, pursuant to NEPA and Section 4(f) of the Department of Transportation Act of 1966, to consider the social and environmental impacts of the project. Following extensive environmental review and consideration of
numerous alternative solutions, I-66 was ultimately approved in 1977 as a multi-modal transportation concept that included a four-lane interstate facility with a dedicated median right of way for the construction of the Metrorail transit system for part of its length\(^2\).

I-66 opened inside of I-495 in 1982 as one of the first interstates in the United States limited to HOV-only traffic during peak weekday travel periods. At its outset, on all lanes between I-495 and Washington, D.C., I-66 functioned as a HOV-restricted facility for carpools with four or more occupants during weekday peak periods. Rush hour occupancy requirements were reduced to three or more in 1983 and again reduced to two or more in 1995. Drivers of hybrid vehicles were once permitted to use the HOV-restricted lanes even without meeting minimum rider requirements; however, in response to rising congestion in the I-66 corridor during HOV-restricted hours, regulations changed to require that only vehicles with hybrid license plates issued prior to July 2011 could legally use the HOV lanes on I-66 without meeting the occupancy requirements during the restricted periods.

1.3 PROJECT BACKGROUND

In an effort to better understand the increasingly congested travel conditions in the I-66 corridor, several studies have been undertaken. In 2009, the Virginia Department of Rail and Public Transportation (DRPT) conducted the \emph{I-66 Transit/Transportation Demand Management (TDM) Study}, which focused on the overall I-66 corridor from Route 15 to downtown Washington, D.C. and recommended a variety of services and infrastructure improvements to increase mobility in the corridor. Upon completion of this 2009 study, the corridor was divided into two sections for more detailed analysis of the recommendations. The western section between Route 15 and I-495 and the eastern sections between I-495 and Washington, D.C. were identified as logical endpoints for future studies of transportation and mobility improvements, based on identified travel demand patterns, concentrations of transit and carpool markets, and corridor constraints for transit, highway, and bicycle and pedestrian improvement options.

In 2012, VDOT and DRPT completed the \emph{I-66 Multimodal Study Inside the Beltway}, followed by a 2013 Supplemental Report, which examined several alternatives for the corridor and developed a recommended package of improvements. The combination of these studies and their specific findings and recommendations formed the basis of the planned multimodal changes for the Transform 66: Inside the Beltway improvements program. Comprehensively, these changes include the following components:

- Converting I-66 inside of I-495 to dynamically-priced toll lanes during peak travel periods (construction initiated Summer 2016, anticipated project opening 2017);
- Applying toll revenue to the development of improved multimodal transit options including enhanced bus service, enhanced carpool, and other TDM strategies throughout the corridor; and
- Widening of I-66 eastbound from the Dulles Connector Road to Fairfax Drive in Ballston.

Chapter 1.0 Purpose and Need

Each of these individual components of the overall Transform I-66: Inside the Beltway improvements program was included in the Metropolitan Washington Council of Government’s (MWCOG) approved Financially Constrained Long-Range Transportation Plan (CLRP) for the National Capital Region. Although identified as a package of programmed improvements, each component consists of an individual project(s) with independent utility to be implemented in a specific sequential progression to address a variety of distinct needs along I-66 inside of I-495 in the near-, mid-, and long-term future, as funding is identified. Included among the identified needs are overarching goals such as enhance connectivity, improve transit service, increase travel options, and reduce roadway congestion. The distinct project components of the Transform I-66: Inside the Beltway improvements program are intended to specifically address these identified needs, independently from one another.

The needs for the widening component of the Transform I-66: Inside the Beltway program improvements initiative were initially identified in the I-66 Multimodal Study Inside the Beltway report but have been further considered through the detailed evaluations described in the following sections. Based on these detailed evaluations, the immediate needs are more pronounced along eastbound I-66 in the study area, which have informed the development of improvements for consideration. As a result, the eastbound portion of I-66 within the study area is the focus of this study. Following the implementation of other components of the Transform I-66: Inside the Beltway program, improvements along westbound I-66 will be evaluated as part of the progression of Transform I-66: Inside the Beltway improvements.

1.4 NEEDS FOR THE PROJECT

Inside of I-495, I-66 is functionally classified as an urban interstate arterial and serves as one of the main thoroughfares into Washington, D.C. and the surrounding metropolitan region from points west. The section of I-66 east of I-495 is one of the two interstate highways that lead directly into Washington, DC, the nation’s capital. Interstate 395 is the other interstate highway. This section of I-66 is a heavily traveled route for a growing number of reverse commuters who live in Arlington, Alexandria and the District of Columbia and commute to jobs in the Tysons area and the Dulles Corridor. In addition, this section of I-66 serves as a primary route for many people who live and/or work in Northern Virginia who are bound for destinations in Washington, D.C. The current HOV restrictions limit travel during the AM peak period, but traffic volumes and demands are high for most of the day, notably from 9 AM to 10 PM (outside the HOV restriction).

In the majority of the study area, there are only two lanes (2.7 miles), with one auxiliary lane within a portion of the project study area (1.3 miles), in the eastbound direction on I-66 that carry the high eastbound traffic volumes generated from the following feeder roads and trip origination points:

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3 Functional classification is the process by which streets and highways are grouped into classes (i.e. arterial, collector, local), or systems, according to the character of traffic service that they are intended to provide (e.g. mobility and access). Interstates are the highest classification of arterials, designed and constructed with mobility and long-distance travel in mind. In contrast, minor arterials are intended to provide a high level of access to adjoining properties and offer service trips for only moderate lengths. The American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (commonly referred to as the Green Book) explicitly recognizes the relationship between highway functional classification and design. It states, “The first step in the design process is to define the function that the facility is to serve. The level of service required to fulfill this function for the anticipated volume and composition of traffic provides a rational and cost-effective basis for the selection of design speed and geometric criteria within the range of values available.”
Chapter 1.0 Purpose and Need

- I-495 and points south via the I-66/I-495 interchange;
- I-66, west of I-495, from points west;
- I-495 and points north via the Dulles Connector Road (Route 267);
- the Washington Dulles International Airport and points west via the Dulles International Airport Access Highway and the Dulles Connector Road (Route 267);
- from points west via the Dulles Greenway and the Dulles Connector Road (VA Route 267);
- from Leesburg Pike (Route 7) and the Tysons and Vienna areas; and
- Dolley Madison Boulevard (Route 123) and the Tysons and McLean areas north via I-495.

Just outside of the study area, approximately one mile east of I-495, traffic along I-66 eastbound is already compressed from three lanes into two and Leesburg Pike merges into this eastbound facility. Where the Dulles Connector Road merges into I-66, there is a third lane until it drops at the Lee Highway/Washington Boulevard (Route 29) exit ramp and I-66 continues east toward Washington, D.C. as a two-lane facility. Effectively, the two eastbound travel lanes of I-66 through the study area are fed by traffic from over seven inbound travel origins. As demonstrated in the discussions that follow, the need for improvements inside of I-495 are most pronounced beginning where I-66 and the Dulles Connector merge and the travel demands of the corridor exceed the carrying capacity of eastbound I-66. Added capacity to roadway facilities beyond the study area, including the additional lane widening along I-66 outside of I-495 are anticipated to proportionally contribute to the volumes adding to the capacity needs downstream on I-66 inside of I-495.

Based on these conditions, the segment of I-66 eastbound between the Dulles Connector Road and Fairfax Drive is frequently congested, and for longer periods of the day. A high rate of crashes is experienced in the study area by vehicular traffic along the mainline as well as pedestrians and bicyclists utilizing parallel and perpendicular travel facilities. As a result, and as described in the sections that follow, there is a need to reduce congestion and address safety issues along I-66 eastbound between the Dulles Connector Road and Fairfax Drive.

**1.4.1 Reduce Congestion and Improve Traffic Operations**

**Existing Conditions**

**Traffic Volumes and Travel Demand**

Traffic volumes (representing travel demand) along I-66 within the study area are among the highest statewide for a facility of its type. Based on VDOT’s published 2015 traffic data, I-66 inside of I-495, in spite of having fewer lanes, carries similar daily traffic volumes as other congested urban interstate highways, such as Interstate 64, which is four lanes in Newport News. Existing (2016) traffic volumes, measured by the average daily traffic (ADT) in the study area, are listed in **Table 1-1**.
## Table 1-1. Average Daily Traffic and Peak Period Volumes for Existing and No Build Conditions

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Location From</th>
<th>To</th>
<th>Existing (2016)</th>
<th>Interim Year No Build (2025)</th>
<th>Percent Increase (2016 to 2025)</th>
<th>Design Year No Build (2040)</th>
<th>Percent Increase (2016 to 2040)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-66 Eastbound</td>
<td>Leesburg Pike (Route 7)</td>
<td>Dulles Connector Road (Route 267)</td>
<td>39,350</td>
<td>48,800</td>
<td>24%</td>
<td>45,000</td>
<td>14%</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Dulles Connector Road (Route 267)</td>
<td>North Westmoreland Street</td>
<td>71,840</td>
<td>79,600</td>
<td>11%</td>
<td>77,300</td>
<td>8%</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>North Westmoreland Street</td>
<td>Washington Boulevard/ Lee Highway (Route 29)</td>
<td>67,860</td>
<td>76,000</td>
<td>12%</td>
<td>73,500</td>
<td>8%</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Washington Boulevard/ Lee Highway (Route 29)</td>
<td>North Sycamore Street</td>
<td>56,110</td>
<td>59,800</td>
<td>7%</td>
<td>56,600</td>
<td>1%</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>North Sycamore Street</td>
<td>North George Mason Drive/ Fairfax Drive</td>
<td>63,430</td>
<td>64,600</td>
<td>2%</td>
<td>61,300</td>
<td>-3%</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>North George Mason/ Fairfax Drive</td>
<td>North Glebe Road (Route 120)</td>
<td>49,295</td>
<td>49,000</td>
<td>-1%</td>
<td>47,200</td>
<td>-4%</td>
</tr>
</tbody>
</table>

### I-66 Eastbound Ramps

| I-66 Ramp | I-66 Eastbound General Purpose | North Westmoreland Street/ North Winchester Street | 3,980 | 3,600 | -10% | 3,800 | -5% |
| I-66 Ramp | I-66 Eastbound General Purpose | Fairfax Drive/ Lee Highway (Route 29) | 11,750 | 16,200 | 38% | 16,900 | 44% |
| I-66 Ramp | North Sycamore Street | I-66 Eastbound General Purpose | 7,320 | 4,800 | -34% | 4,700 | -36% |
| I-66 Ramp | I-66 Eastbound General Purpose | North Fairfax Drive | 14,135 | 15,600 | 10% | 14,100 | 0% |
ADT represents the total volume of traffic passing a point or segment of a highway facility in the identified travel direction. Generally speaking, a single traffic lane carries approximately 20,000 vehicles per day, based on the Transportation Research Board’s (TRB) 2010 *Highway Capacity Manual*. Thus, the design capacities for a two-lane directional freeway section and a three-lane directional freeway section would be 40,000 vehicles per day and 60,000 vehicles per day, respectively. The traffic volumes in Table 1-1 show that that two-lane section between Washington Boulevard/Lee Highway (Route 29) and Fairfax Drive carry between approximately 56,000 and 63,000 ADT, greater than 16,000 vehicles per day over a desirable daily traffic volume for a two-lane section. The three-lane section between the on-ramp from the Dulles Connector Road and the off-ramp to Washington Boulevard/Lee Highway (Route 29) carries between 70,000 and 75,000 ADT, which is between 10,000 to 15,000 vehicles per day higher than the desirable capacity.

Travel demand also can be represented by peak period volumes measured by vehicles per hour (vph), separated by roadway segment in the study area. The peak period is the part of the day during which traffic congestion on the roadway facility is at its highest. The existing peak period travel on I-66 inside of I-495 currently ranges from 6:30 AM to 9:00 AM in the morning and 3:00 PM to 7:00 PM in the afternoon. As demonstrated in Figure 1-2, existing traffic volumes remain generally consistent during both the morning and afternoon peak travel periods, exceeding the existing capacity of the roadway facility.

**Figure 1-2. AM and PM Eastbound Peak Period Demand Volumes (vph)**

The distribution of high eastbound traffic volumes, exceeding the existing roadway capacity, extends beyond the identified peak morning and afternoon travel periods, as illustrated in Figure 1-3. This figure reflects the average weekday hourly volumes on eastbound I-66, observed along the three lane section between the Dulles Connector Road and Lee Highway/Washington Boulevard (Route 29) as well as the two lane section between North Sycamore and Fairfax Drive. As depicted, on average, traffic volumes remain consistently high, ranging from approximately 3,500 to 4,700 and 3,300 to 3,700 vph between 5 AM and 8 PM on the three and two lane sections, respectively. Approximately 85 percent of the total average daily flow occurs during this 15-hour period.
While high traffic volumes are relatively consistent in both the existing morning and afternoon peak travel period during average conditions throughout the year, there also is no noticeable peaking in summer months and no discernible reduction in winter months. Instead, the corridor exhibits traffic volumes beyond the current roadway capacity consistently throughout the average weekday, at all times of the year, as well as on many Saturdays and Sundays, at all times of the year. As a result of the consistently high traffic volumes utilizing the capacity-constrained eastbound corridor of I-66, congestion is often experienced throughout the year.

**Traffic Operations**
Traffic operations are often expressed in terms of flow and congestion, which are calculated based on quantitative performance metrics of traffic densities and travel speeds, as they relate to the travel demand on the roadway facility. As traffic volumes (representing travel demand) increase, the density of vehicles per lane mile of highway increases. As a result, the speed of vehicles on the highway decreases and the flow rate of vehicles decreases, along with the capacity of the highway facility to serve current or forecasted travel demand. Where travel demand exceeds the service capacity of the roadway facility (i.e. roadway supply), congestion occurs.

Congestion can be qualitatively characterized as low, low/moderate, moderate/heavy, heavy or severe based on traffic flow. **Table 1-2**, summarizes the ranges of congestion associated with volume density levels for the types of freeway and ramp segments present within the I-66 study area.
Table 1-2. Level of Congestion Descriptions

<table>
<thead>
<tr>
<th>Level of Congestion</th>
<th>Description</th>
<th>Density (vh/mi/ln)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Free traffic flow with low volumes and high speeds. Speeds controlled by driver desires, speed limits, and physical roadway conditions. Vehicles almost completely unimpeded in their ability to maneuver within the traffic stream.</td>
<td>Freeway: 0 – 11, Ramps: &lt;= 10</td>
</tr>
<tr>
<td></td>
<td>Stable traffic flow, with operating speeds remaining near free flow. Drivers still have reasonable freedom to maneuver with only slight restrictions within the traffic stream.</td>
<td>Freeway: &gt; 11 – 18, Ramps: &gt; 10 – 20</td>
</tr>
<tr>
<td></td>
<td>Stable flow, but with higher volumes, more closely controlled speed and maneuverability that is noticeably restricted.</td>
<td>Freeway: &gt; 18 – 26, Ramps: &gt; 20 – 28</td>
</tr>
<tr>
<td></td>
<td>Approaching unstable flow with tolerable operating speeds maintained, but considerably affected by changes in operating conditions. Freedom to maneuver within the traffic stream is more noticeably limited.</td>
<td>Freeway: &gt; 26 – 35, Ramps: &gt; 28 – 35</td>
</tr>
<tr>
<td></td>
<td>Unstable flow with low speed and momentary stoppages. Operations are at capacity with no usable gaps within the traffic stream.</td>
<td>Freeway: &gt; 35 – 45, Ramps: &gt; 35</td>
</tr>
<tr>
<td></td>
<td>Forced flow with low speed. Traffic volumes exceed capacity and stoppages for long periods are possible.</td>
<td>Freeway: &gt; 45, Demand exceeds capacity</td>
</tr>
</tbody>
</table>


As described in Table 1-2, low to moderate congestion reflects free flow traffic conditions with minimal delays and vehicles unimpeded in their ability to maneuver, and severe to heavy congestion reflects low speed conditions with high delays and volumes exceeding capacity. Based on the context of the roadway corridor, varying degrees of congestion are considered to be acceptable. Moderate to heavy congestion is considered to be the minimum acceptable design-year congestion level for an urban area like Northern Virginia outside of heavily developed sections of metropolitan areas, such as greater Washington, D.C.4

Existing (2016) congestion levels are shown in Table 1-3 for both the AM and PM peak periods when the I-66 eastbound corridor inside of I-495 is most congested. Additional details regarding the traffic volumes used to derive the existing and forecasted congestion levels are provided in the Traffic and Transportation Technical Report (VDOT, 2016i).

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### Table 1-3. Congestion Levels for Existing and No Build Conditions (AM and PM Peak Periods)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Location From</th>
<th>Location To</th>
<th>Traffic Volume Density (vehicles/mile/lane)†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Existing Year (2016) AM</td>
</tr>
<tr>
<td><strong>Mainline</strong></td>
<td></td>
<td></td>
<td>AM</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Leesburg Pike (Route 7)</td>
<td>Dulles Connector Road (Route 267)</td>
<td>14.6</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Dulles Connector Road (Route 267)</td>
<td>North Westmoreland Street</td>
<td>33.3</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>North Westmoreland Street</td>
<td>Washington Boulevard/Lee Highway (Route 29)</td>
<td>40.4</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Washington Boulevard/Lee Highway (Route 29)</td>
<td>North Sycamore Street</td>
<td>47.3</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>North Sycamore Street</td>
<td>North George Mason Drive/Fairfax Drive</td>
<td>34.6</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>North George Mason Drive/Fairfax Drive</td>
<td>North Glebe Road (Route 120)</td>
<td>29.6</td>
</tr>
<tr>
<td><strong>Ramps</strong></td>
<td></td>
<td></td>
<td>AM</td>
</tr>
<tr>
<td>I-66 Off-Ramp</td>
<td>I-66 Eastbound</td>
<td>North Westmoreland Street/North Winchester Street</td>
<td>51.0</td>
</tr>
<tr>
<td>I-66 Off-Ramp</td>
<td>I-66 Eastbound</td>
<td>Fairfax Drive/Lee Highway (Route 29)</td>
<td>40.4</td>
</tr>
<tr>
<td>I-66 On-Ramp</td>
<td>North Sycamore Street</td>
<td>I-66 Eastbound</td>
<td>43.2</td>
</tr>
<tr>
<td>I-66 Off-Ramp</td>
<td>I-66 Eastbound</td>
<td>North Fairfax Drive</td>
<td>28.6</td>
</tr>
</tbody>
</table>

† Densities represented by vehicles per mile per number of lanes (vh/mi/ln), with future years represented by simulated model results. Shading corresponds to qualitative congestion levels as shown in Table 1–2.
These results are graphically illustrated in Figure 1-4, which demonstrates the traffic densities and levels of congestion, relative to the number of lanes along I-66 within the study area. As shown, moderate to severe levels of congestion are currently experienced throughout the study area; however, congestion is most severe for the two-mile segment of I-66 eastbound between the Dulles Connector Road merge and North Sycamore Street, most notably in the afternoon peak travel period. These congested conditions can be attributed to the existing volumes exceeding the current carrying capacity on I-66 eastbound.

Figure 1-4. AM and PM Peak Congestion Levels per Roadway Segment

Another quantitative measure that influences traffic operations is travel speeds, which can be compared to the travel speed designed and designated for the roadway facility. I-66 inside of I-495 is posted for 55 miles per hour (MPH) speed limit. However, as illustrated in Figure 1-5, which reflects the existing average of 250 non-holiday weekdays in 2015, travel speeds are below 45 MPH, which is a desirable speed corresponding to low/moderate congestion, for approximately 38.5% of the day. Congestion, as indicated by average travel speed on I-66 east of I-495, is most pronounced during the PM peak period, when there are no HOV restrictions in effect for eastbound I-66 inside of I-495. Speed comparisons during the identified peak periods are shown in Figure 1-6.
Figure 1-5. Speed for I-66 Eastbound Between Dulles Connector Road (Route 267) and Fairfax Drive (Route 237)

I-66 Eastbound AM Peak Period Speed Comparison

<table>
<thead>
<tr>
<th>Time</th>
<th>Speed Color Scale (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15 AM</td>
<td>Existing</td>
</tr>
<tr>
<td>7:30 AM</td>
<td>Existing</td>
</tr>
<tr>
<td>7:45 AM</td>
<td>Existing</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Existing</td>
</tr>
</tbody>
</table>

I-66 Eastbound PM Period Hour Speed Comparison

<table>
<thead>
<tr>
<th>Time</th>
<th>Speed Color Scale (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15 AM</td>
<td>Existing</td>
</tr>
<tr>
<td>7:30 AM</td>
<td>Existing</td>
</tr>
<tr>
<td>7:45 AM</td>
<td>Existing</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Existing</td>
</tr>
</tbody>
</table>

Figure 1-6. AM and PM Peak Period Speed Comparisons
**Future Conditions**

**Traffic Volumes and Travel Demand**
As illustrated in Table 1-1, overall average future traffic volumes are anticipated to increase by an average of four percent by the year 2040, beyond the existing volumes on the mainline of eastbound I-66 in the study area, which is over capacity today. Between the Dulles Connector Road and Washington Boulevard/Lee Highway, this increase is anticipated to be approximately eight percent over existing 2016 conditions. In the interim year, overall demand in the study area is anticipated to increase by an average of nine percent, based on a comparison of forecasted 2025 traffic volumes to existing volumes.

Although the overall traffic volumes and travel demand are anticipated to increase, the AM and PM peak period traffic volumes are anticipated to generally decrease by 2040, compared to existing peak period conditions. This peak period volume reduction is expected to result from the implementation of tolling on I-66 between 5:30 AM to 9:30 AM and 3:00 PM to 7:00 PM by 2040, and the reduction of HOV violators due to tolling, elimination of the hybrid vehicle exemption during peak periods, and the expansion of HOV restrictions to HOV-3 by 2021 (upon completion of the I-66 Outside the Beltway project). However, the immediate need for increased capacity is more pronounced during the peak periods in 2025, especially in the afternoon. As shown in Figure 1-2, 2025 PM peak period travel demand is anticipated to approach approximately 5,000 vph on I-66 eastbound between the Dulles Connector Road and Lee Highway/Washington Boulevard. Although the implementation of lane management measures by 2040 may alleviate some demand during the peak travel periods, travel patterns are anticipated to change and the overall travel demand is expected to remain high throughout the day even beyond peak period restrictions, with redistribution of traffic more evenly across the peak periods.

**Traffic Operations**
These anticipated future conditions are expected to exacerbate operational deficiencies along the I-66 eastbound corridor, including further continued congestion, as listed in Table 1-3. Increased congestion is particularly noticeable during the lengthy future afternoon peak travel periods, with densities exceeding the severe congestion level threshold of 45 vehicles per lane per mile by nearly 150% in 2025. Elsewhere, moderate to heavy levels of congestion are anticipated throughout the study area in 2025 and 2040. These diminished operational conditions can be attributed to the volumes on I-66 eastbound exceeding the existing capacity. These results are graphically illustrated in Figure 1-4, which demonstrates the future traffic densities and anticipated future levels of congestion, relative to the number of lanes along I-66 within the study area. This congestion is anticipated to result in further future travel delays, particularly when there are no tolling or HOV restrictions and traffic volumes are anticipated to remain above the existing capacity of the facility.
1.4.2 Address Safety

Existing Conditions
As a result of existing traffic volumes and operational conditions, safety is among the concerns for I-66 eastbound within the study area. Compared to the statewide average fatality and injury crashes in 2013 for interstate facilities within Virginia, I-66 exhibits an approximately 21% greater crash rate. Of the 439 number of crashes reported within the study area between 2011 and 2015, the predominant crash type along the I-66 corridor is rear-end-type crashes. The following three segments of eastbound I-66 experience the highest number of rear-end crashes:

- Between MP 68.3 and MP 68.8 (124 crashes)
- Between MP 67.8 and MP 68.3 (71 crashes)
- Between MP 67.3 and MP 67.8 (39 crashes)

Each of these segments is located between the Dulles Connector Road (Route 267) and Sycamore Street where two separate lane drops occur that contribute to increased turbulence in the eastbound traffic stream. The increased turbulence through these segments of eastbound I-66 creates the potential for rear-end crashes to occur due to the stop-and-go nature of traffic operations in this area.

In addition, as a result of the diverging traffic from I-66, multiple incidents have been reported at ramp intersections, where conflicts occur from queuing at intersections and non-motorized travelers interfacing with traffic exiting I-66. For example, as a result of the vehicles exiting I-66 at North Washington Street/Lee Highway (Route 29), there have been three reported pedestrian and five reported bicycle crashes over a five-year period of analysis at the crossing of the WO&D Trail and Route 29, which is located near the eastbound I-66 exit to Lee Highway/Washington Blvd (Exit 69).

Future Conditions
As congestion and multi-modal use in the study area continue to increase, these incidences are anticipated to consequently worsen. As a result there is a need to improve safety along I-66 inside of I-495.

1.5 PROJECT PURPOSE

Based on the elements of identified need and their relation to capacity along the I-66 eastbound corridor that are detailed in the previous sections, the purpose of the project is to increase capacity in order to improve traffic operations and reduce congestion issues, as well as address safety needs between the Dulles Connector Road and Fairfax Drive.
Chapter 2.0 ALTERNATIVES

In order to address the capacity issues identified within the study area limits and meet the established elements of need, VDOT is evaluating roadway widening improvements along the approximately four-mile eastbound section of I-66 between the Dulles Connector Road in Fairfax County and Fairfax Drive/Glebe Road in the Ballston area of Arlington County. The development of these improvements was based on initial project scoping and screening efforts, previous studies and the identification of preliminary engineering issues, and the ability to meet the Purpose and Need. In addition to the widening improvements being considered as the Build Alternative for evaluation in this EA, a No Build Alternative has also been retained for analysis. This chapter describes the alternative development process and the factors considered in the evaluation of alternatives. Detailed descriptions of the No Build and Build Alternative carried forward for evaluation are included in the sections that follow.

2.1 ALTERNATIVES DEVELOPMENT

To address the identified Purpose and Need as described in Chapter 1.0, a single lane widening alternative was the only Build Alternative evaluated in detail in this study. In an effort to minimize and reduce impacts to the extent practicable, the preliminary design for the Build Alternative was developed largely within the existing right of way. The preliminary design for the Build Alternative has been influenced by input received from May and June 2016 public information meetings as well as extensive coordination with interested agencies, localities, and stakeholders. Additional improvements intended to address other distinct needs along I-66 would be implemented as individual components of the overall Transform I-66: Inside the Beltway program. These programmed improvements are included as part of the No Build Alternative, summarized in Section 2.2.1.

2.2 ALTERNATIVES CARRIED FORWARD FOR DETAILED STUDY

2.2.1 No Build Alternative

In accordance with the implementing regulations for NEPA (40 CFR § 1502.14(d)), the No Build Alternative has been retained for detailed study and serves as a benchmark for comparison with the Build Alternative. The No Build Alternative would retain the existing configuration of I-66 through the study area except for those modifications to the roadway network that have been programmed and approved for implementation by 2040, as identified in the most recent CLRP. Prepared by the National Capital Region Transportation Planning Board (NCRTPB), which is the designated Metropolitan Planning Organization for the Washington, D.C. region under the MWCOG, the current CLRP includes projected transit and traffic, demographic, and air quality conditions through the 2040 horizon year. The most recent 2040 CLRP was adopted in October 2015 but includes amendments through 2016.

The regional planned and programmed transportation projects in close vicinity to the study area that could influence the improvements being evaluated include the following:

- Tolling along I-66 between the I-495 Capital Beltway in Fairfax County to Lee Highway (Route 29) near the Rosslyn area of Arlington County. During morning and evening commutes, this segment of I-66 is currently restricted to carpools (with 2 or more people), vehicles with authorized clean special fuel license plates, Dulles Airport travelers, and law enforcement. The
HOV restrictions are enforced between 6:30-9:00 AM (all eastbound travel lanes) and 4:00-6:30 PM (all westbound travel lanes). With the I-66 Inside the Beltway tolling program, carpools and vanpools (with 2 or more people, until a regional change to HOV-3+ goes into effect in 2020), transit, on-duty law enforcement, and first responders will continue to use the lanes for free. Solo drivers will be given the opportunity to use the interstate during the restricted period by paying a toll. The tolling program will extend the restricted period to 5:30-9:30 AM (all eastbound travel lanes) and 3:00-7:00 PM (all westbound travel lanes) and is anticipated to be implemented by 2017.

- I-66 Spot Improvements – Spot 3, which include construction of an auxiliary lane extension connecting the on-ramp from Exit 72 Lee Highway/Spout Run (Route 29) to the off-ramp to North Glebe Road (Route 120) on westbound I-66. The project is expected to be completed in 2020.
- Construction of two express lanes in either direction along I-66 between James Madison Highway (Route 15) in Haymarket to the I-495 Capital Beltway, while maintaining three general purpose lanes in each direction and providing a number of travel choices including express transit buses and park and ride facilities along the corridor.
- Leesburg Pike (Route 7) widening from six to eight lanes between Chain Bridge Road (Route 123) and I-495 and from four to six lanes between I-495 and I-66.
- On I-66, the vehicle occupancy requirement for all HOV/high occupancy toll (HOT) restrictions will change from two or more (2+) to three or more (3+) in 2020. The exemption for clean fuel and hybrid vehicles to use HOV lanes will also expire by 2020.

Other transit-oriented transportation improvements included in the CLRP include new priority bus routes on I-66, Route 29, and Route 50; Metrorail station improvements at Ballston and East Falls Church; and service enhancements for numerous bus routes inside the I-495 Capital Beltway.

2.2.2 Build Alternative

As shown in Figure 2-1, the Build Alternative would include the construction of one additional lane in the eastbound direction beginning at approximately mile post 67.7, just east of the convergence of I-66 eastbound and the Dulles Connector Road. The widening would continue for a total of approximately 3.3 miles to mile post 71.0, where the Fairfax Drive/Glebe Road exit ramp diverges from eastbound I-66. To avoid and minimize the potential impacts of the improvements under consideration, a variety of typical sections have been developed to incorporate the widening largely within the existing VDOT right of way. Figure 2–2 illustrates the typical cross sections throughout the study area corridor that add space for the new lane from the inside of the existing roadway along the existing median, to the outside along the existing shoulder, and along both shoulders in transition areas.
Figure 2-1. Build Alternative
The widening would primarily occur to the inside of the roadway throughout the majority of the project improvement length (approximately 2.3 miles) with the exception of one location: just west of Patrick Henry Drive to exit 71 at Fairfax Drive and Glebe Road (approximately 0.9 miles from mileposts 70.1 to 71.0). In this location, the widening would transition, utilizing Typical Section 3, from the median to the outside of the roadway along the existing shoulder in order to accommodate for adequate and safe sight distance along the mainline of eastbound I-66 and to avoid impacts to the WMATA Metrorail. At mile post 71.0, the eastern project terminus, the additional lane would tie in to the existing mainline lane configuration.
In addition to modifications along existing I-66, the Build Alternative improvements would include modifications to existing I-66 as well as to existing intersecting roadways and bridges, existing drainage systems, and storm water management facilities. The Build Alternative will include sound barriers at locations meeting the federal criteria and supported by adjacent benefited property owners.

**Interchanges**
Consistent with the existing configuration of I-66 within the study area limits, the Build Alternative would maintain access from eastbound I-66 onto the surrounding roadway network at North Westmoreland Street, Fairfax Drive and Lee Highway/Washington Boulevard, and Fairfax Drive/Glebe Road. Likewise, access onto eastbound I-66 would be maintained from North Sycamore Street. As the preliminary design for the Build Alternative was developed, each of the I-66 eastbound ingress and egress points was evaluated to determine if the traffic demand or capacity at these ramps influenced the elements of traffic operations, congestion, or safety along the study area corridor. At two locations, interchange improvements and modifications were determined to be appropriate.

**Exit 69: Fairfax Drive and Lee Highway/Washington Boulevard**
At the exit ramp from I-66 eastbound onto Fairfax Drive at Lee Highway/Washington Boulevard, the existing traffic volumes and travel demand are exceedingly high, particularly in the PM peak period, compared to other ramps within the study area or in close proximity, such as the off ramp to North Westmoreland Street or Leesburg Pike (Route 7). As a result, the existing volume densities result in heavy congestion on the ramp, which can cause queuing and backups that influence traffic operations and safety along the mainline of I-66 eastbound. Currently, the existing configuration includes a one-lane off ramp that directly feeds a dedicated left turn lane onto Lee Highway/Washington Boulevard. The off ramp also merges into Fairfax Drive, where a left turn/thru lane, dedicated thru, and dedicated right turn lane are provided at the intersection with Lee Highway/Washington Boulevard. The existing configuration also results in large numbers of vehicles weaving within the short 300-foot segment of Fairfax Drive between the I-66 eastbound off ramp merge onto Fairfax Drive and the intersection with Lee Highway/Washington Boulevard, which further influences potential backups onto mainline I-66. As traffic volumes are anticipated to increase by approximately 44 percent (86 percent in the PM peak period) by 2040, ramp congestion is expected to worsen. By the interim year 2025, traffic volumes on the off ramp are anticipated to increase by 112 percent, particularly during the PM peak period, contributing to operational and safety issues along the mainline resulting from congestion on the ramp.

To address the existing and anticipated future travel demand and congestion issues on the ramp, VDOT evaluated five configurations of ramp modifications and improvement options that are detailed in the *Traffic and Transportation Technical Report* (VDOT, 2016i). In general these five options included:

- Existing configuration;
- Additional left-turn lane added from the off-ramp to the intersection of Fairfax Drive and Lee Highway/Washington Boulevard;
- Two-lane off-ramp configuration with lane drop along Fairfax Drive;
- Two-lane off-ramp configuration with no lane drop along Fairfax Drive; and
- One-lane off-ramp with lane drop along Fairfax Drive.
As a result of these analyses, the preliminary design for the Build Alternative includes the third option, which would retain the existing intersection footprint at the intersection of Fairfax Drive and Lee Highway/Washington Boulevard, with the provision of a widened off-ramp to support two lanes. Fairfax Drive will be reduced from a two-lane section to a one-lane section before the merge point with the eastbound I-66 off-ramp. The additional lane would add storage capacity and facilitate the movement of traffic off of the interstate to improve conditions along the mainline.

Further contributing to the operational and safety issues at Exit 69 is the interface of bicycle and pedestrian traffic with vehicular traffic exiting I-66 onto Fairfax Drive and turning onto Lee Highway/Washington Boulevard. In order to facilitate improved operational movements and increase safety, a grade-separated pedestrian overpass of the W&OD Trail is included as part of the Build Alternative to alleviate pedestrian and traffic conflicts at the intersection.

Exit 71: Fairfax Drive/Glebe Road
Similar to the analysis conducted for Exit 69, the exit ramp from I-66 onto Fairfax Drive/Glebe Road was evaluated as it relates to operations, congestion, and safety along the mainline. Two lane configurations at the eastbound Exit 71 off-ramp were analyzed:

- Existing single-lane off-ramp configuration; and
- Two-lane off-ramp configuration.

As a result of this ramp analysis, the Build Alternative preliminary design includes the addition of a one lane on the exit ramp for a total of two lanes along the off-ramp up to Fairfax Drive to increase queue storage and reduce the potential for operational conflicts and safety incidents on the mainline of eastbound I-66. The two-lane configuration was identified as a cost-effective measure to mitigate the queuing conditions onto the eastbound I-66 mainline caused by the congestion at downstream arterial intersections that are anticipated to occur in the horizon years until the 2040 tolling operations scenario is implemented. The details and results of this evaluation are included in the *Traffic and Transportation Technical Report* (VDOT, 2016i).

**Bridge Structures**
To accommodate the capacity improvements associated with the Build Alternative, the following bridges are anticipated to require expansion:

- I-66 bridge over Williamsburg Boulevard at mile post 68.35;
- I-66 bridge over North Westmoreland Street at mile post 68.55;
- I-66 bridge over North Sycamore Street at the East Falls Church Metrorail Station at mile post 69.25; and
- I-66 bridge over the Custis Trail at mile post 70.45.

Furthermore, due to the proximity of the bridge pier to the roadway, pier relocation is anticipated at the following location:

- Pedestrian/bicyclist bridge over I-66 at mile post 69.50.
**Chapter 2.0 Alternatives**

**Preliminary Costs**

In support of the EA and based on the preliminary design elements of the Build Alternative improvements described above, preliminary cost opinions were developed using VDOT’s Project Cost Estimating System. These cost estimates are based on the anticipated right of way acquisition for the Build Alternative, as well as the predicted costs for preliminary engineering and construction:

- Preliminary engineering: $8,000,000.00
- Construction: $9,000,000.00
- Right of way acquisition: $108,000,000.00
- Total opinion of probable cost: $125,000,000.00

2.2.3 Environmental Study Area and Limits of Disturbance

For the purposes of developing a Build Alternative to address the identified Purpose and Need, as well as inventory resources along the I-66 corridor to be analyzed in this EA, a study area was established for the eastbound widening improvements. As previously described in Section 1.1, the study area encompasses the geographic area in which improvements could reasonably be developed to meet the Purpose and Need. The resources that are discussed and analyzed in Chapter 3.0 were identified within the study area limits. Generally, the study area includes an approximate 50-foot buffer from the existing VDOT right of way along the I-66 corridor between the project limits. In some locations, in order to accommodate considerations for interchange improvements or widening through constrained portions of the corridor, the study area extends further outside of the existing right of way.

As the preliminary design for the Build Alternative progressed, a more detailed understanding of the preliminary construction limits of the improvements was determined. As a result, in order to accurately reflect the anticipated impacts of the Build Alternative, Limits of Disturbance (LOD) have been estimated to calculate predicted direct effects of the project. The LOD is based on preliminary engineering and design, which has been developed to include both temporary and permanent impacts, including stormwater management facilities and construction access. This method provides a more realistic estimate for impacts that may occur from the implementation of the proposed project, as opposed to assuming all of the environmental resources inventoried along the entire extent of the study area would be affected. As the project advances into the detailed stages of engineering and design, the anticipated impacts to environmental resources may be subject to change as opportunities to avoid or minimize impacts to resources or reduce cost are recognized.

2.3 ABILITY OF ALTERNATIVES TO MEET PURPOSE AND NEED

As documented in Chapter 1.0, the purpose of the project improvements under evaluation are based on the following primary need elements: increase capacity, improve traffic operations, reduce congestion, and address safety. Based on these elements of need, Table 2‒1 documents the measures of effectiveness that have been identified for the purposes of evaluating alternatives and their ability to meet the identified Purpose and Need.
This section describes the ability of the No Build and Build Alternatives to address the identified components of the project Purpose and Need, based on the measures of effectiveness listed above. The Build Alternative described in the preceding sections has been retained for evaluation in this EA based on its ability to meet the identified transportation needs in the study area by effectively addressing the measures identified to meet those needs. As described below, the No Build Alternative would not address the identified Purpose and Need as effectively as the Build Alternative. Impacts of the No Build and Build Alternative to various environmental resources are described in Chapter 3.0.

2.3.1 Increase Capacity

As identified in Section 1.4, the existing and forecasted future travel demand exceeds the available carrying capacity of I-66 eastbound inside I-495. Travel demand is most notably high during the PM peak travel periods in the 2025 interim year. The additional lane included as part of the Build Alternative would address the capacity issues identified in the Purpose and Need by allowing for greater throughput of vehicles and the included ramp improvements would reduce the queuing vehicles exiting I-66 from the mainline. The No Build Alternative would not address the need for additional capacity on eastbound I-66 in the study area and would not provide the vehicle throughputs to meet demand as effectively as the Build Alternative. In 2025, the Build Alternative is anticipated to provide an average throughput of approximately 1020 vph greater than the No Build on the I-66 eastbound mainline in the study area. By the 2040 design year, the Build Alternative would provide an average of approximately 949 vph greater than the No Build conditions. Figure 2-3 and Figure 2-4 illustrate the ability of the Build Alternative to allow for increased throughput over the No Build Alternative and address anticipated travel demand, particularly in the 2025 peak travel periods when demand is expected to increase the most. As shown, under the No Build condition throughput is anticipated to be below that of existing conditions, demonstrating the No Build Alternative’s inability to address current and future travel demand and provide adequate throughput in the study area.
Under the Build Alternative, lane continuity and interchange ramp configurations also would be improved, eliminating bottleneck conditions and lengthy ramp queues.
2.3.2 Reduce Congestion and Improve Traffic Operations

As demonstrated in Section 2.3.1, the Build Alternative would notably provide greater throughput and more effectively address anticipated travel demand compared to the No Build Alternative. As a result, the Build Alternative would improve traffic operations, reduce congestion, and would provide increased travel times compared to the No Build, particularly in the 2025 condition prior to the implementation of HOT-3 restrictions in the off-peak direction. As a result of the reduced congestion and improved travel speeds, vehicular traffic operations and existing and planned transit services utilizing the I-66 eastbound mainline are expected to be benefitted. The anticipated future conditions under the Build Alternative compared to the operational deficiencies along the I-66 eastbound corridor under the No Build Alternative are listed in Table 2–1. Figure 2-5 shows the anticipated travel speeds of the Build Alternative compared to existing conditions and the No Build Alternative.

2.3.3 Address Safety

Between 2011 and 2015, the congested I-66 eastbound corridor inside the study area has experienced an average of 76 crashes per year. Under the No Build Alternative, the predicted crashes by 2040 are anticipated to be similar to existing conditions (71 crashes per year). The Build Alternative would more effectively address safety by providing an anticipated 20% reduction in yearly crashes (61 crashes per year).

At the intersection of Washington Boulevard/Lee Highway (Route 29) and Fairfax Drive, a review of the crashes reported between 2011 and 2015 revealed that there were eight reported crashes involving bicycles or pedestrians. These crashes were related to pedestrians and bicyclists using the W&OD Trail and crossing at the at-grade pedestrian crosswalk across the southern leg of the intersection, specifically across Washington Boulevard/Lee Highway (Route 29). Provision of a pedestrian-bicycle overpass for the W&OD trail over Route 29 will produce notable safety benefits at this intersection. Specifically, seven of the eight reported crashes would not have occurred if there had been a pedestrian overpass. The construction of an overpass will produce a substantial reduction in the probability of a pedestrian or bicycle crash at this intersection. Field observations and data revealed that most of the pedestrians and bicyclists who cross the at-grade crosswalk are people who are already using the W&OD trail. Approximately 1,300 to 2,500 people and bicyclists are projected to use the overpass on a daily basis, including a large number of commuters who ride bicycles.
Table 2-2. Congestion Levels for No Build Alternative and Build Alternative Conditions (AM and PM Peak Periods)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Location</th>
<th>Traffic Volume Density (Vehicles/mile/lane)†</th>
<th>Existing Year (2016)</th>
<th>Interim Year No-Build (2025)</th>
<th>AM</th>
<th>PM</th>
<th>AM</th>
<th>PM</th>
<th>AM</th>
<th>PM</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mainline</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Leesburg Pike to Dulles Connector Rd (2 Lanes)</td>
<td></td>
<td>14.6</td>
<td>24.3</td>
<td>12.5</td>
<td>67.7</td>
<td>19.3</td>
<td>24.3</td>
<td>12.7</td>
<td>9.5</td>
<td>19.7</td>
<td>12.6</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Dulles Con Rd to N. Westmoreland St (3 Lanes)</td>
<td></td>
<td>33.3</td>
<td>124.2</td>
<td>18.9</td>
<td>110.4</td>
<td>19.8</td>
<td>28.0</td>
<td>19.8</td>
<td>20.5</td>
<td>21.2</td>
<td>19.4</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>N. Westmoreland St to Washington Blvd/ Lee Highway (Route 29) (3 Lanes)</td>
<td></td>
<td>40.4</td>
<td>102.3</td>
<td>17.5</td>
<td>101.5</td>
<td>18.4</td>
<td>28.8</td>
<td>17.8</td>
<td>22.2</td>
<td>20.6</td>
<td>19.5</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>Washington Blvd/Lee Highway (Route 29) to N. Sycamore St (2 Lanes)</td>
<td></td>
<td>47.3</td>
<td>110.8</td>
<td>22.6</td>
<td>109.6</td>
<td>21.1</td>
<td>29.5</td>
<td>22.6</td>
<td>18.4</td>
<td>21.7</td>
<td>17.3</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>N. Sycamore St to N. George Mason Dr./Fairfax Dr (2 Lanes)</td>
<td></td>
<td>34.6</td>
<td>34.8</td>
<td>25.8</td>
<td>34.5</td>
<td>22.9</td>
<td>40.8</td>
<td>27.6</td>
<td>21.6</td>
<td>24.4</td>
<td>19.3</td>
</tr>
<tr>
<td>I-66 Eastbound</td>
<td>N. George Mason Dr./Fairfax Dr to North Glebe Rd (Route 120) (2 Lanes)</td>
<td></td>
<td>29.6</td>
<td>26.5</td>
<td>21.3</td>
<td>25.4</td>
<td>26.8</td>
<td>34.9</td>
<td>21.7</td>
<td>14.2</td>
<td>29.0</td>
<td>19.7</td>
</tr>
<tr>
<td><strong>Ramps</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-66 Off-Ramp</td>
<td>I-66 Eastbound</td>
<td></td>
<td>51.0</td>
<td>118.8</td>
<td>19.7</td>
<td>110.8</td>
<td>20.3</td>
<td>28.9</td>
<td>23.7</td>
<td>21.4</td>
<td>22.4</td>
<td>19.9</td>
</tr>
<tr>
<td>I-66 Off-Ramp</td>
<td>I-66 Eastbound</td>
<td></td>
<td>40.4</td>
<td>102.3</td>
<td>17.5</td>
<td>101.5</td>
<td>18.4</td>
<td>28.8</td>
<td>17.8</td>
<td>22.2</td>
<td>20.6</td>
<td>19.5</td>
</tr>
<tr>
<td>I-66 On-Ramp</td>
<td>North Sycamore Street</td>
<td></td>
<td>43.2</td>
<td>68.6</td>
<td>23.6</td>
<td>58.8</td>
<td>21.2</td>
<td>32.1</td>
<td>25.7</td>
<td>20.3</td>
<td>22.7</td>
<td>17.9</td>
</tr>
<tr>
<td>I-66 Off-Ramp</td>
<td>I-66 Eastbound</td>
<td></td>
<td>28.6</td>
<td>30.4</td>
<td>21.7</td>
<td>30.0</td>
<td>23.4</td>
<td>48.4</td>
<td>23.2</td>
<td>18.6</td>
<td>25.3</td>
<td>19.6</td>
</tr>
</tbody>
</table>

† Densities represented by vehicles per mile per number of lanes, with future years represented by simulated model results. Shading corresponds to qualitative congestion levels as shown in Table 1–2.
Figure 2-5. AM and PM Peak Period Speed Comparisons
Chapter 3.0  ENVIRONMENTAL CONSEQUENCES

3.1  INTRODUCTION AND OVERVIEW OF ENVIRONMENTAL ISSUES

Transportation projects have the potential to affect social, economic, and natural resources; therefore, it is essential that the existing environmental conditions and potential impacts related to the improvements under evaluation are identified and understood. The following chapter provides an inventory of resources along the I-66 corridor inside the environmental study area and provides an analysis of the potential environmental consequences resulting from the No Build and Build Alternatives. The environmental resources and conditions within the study area and their relevance to the project are alphabetically listed and summarized in Table 3-1. Resources that have a reasonable potential for direct effects, indirect effects and/or cumulative impacts are described in detail, along with any appropriate mitigation measures, in the sections that follow.

Table 3-1. Summary of Environmental Considerations

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Resource Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>In accordance with VDOT and FHWA guidance, as well as requirements established by the U.S. Environmental Protection Agency (EPA), a quantitative carbon monoxide (CO) screening analysis and quantitative analysis of mobile source air toxics (MSATs) has been conducted. The results of the analysis show that the worst-case CO concentrations for the Build Alternative scenario are predicted to be well below the National Ambient Air Quality Standards (NAAQS) for CO in both the Interim/Opening Year Build (2025) and Design Year Build (2040) for each of the worst-case locations analyzed along the proposed project corridor. Although MSAT pollutant emissions are anticipated to increase between 2025 and 2040, overall pollutant emissions are expected to be substantially lower than existing conditions as a result of EPA’s vehicle and fuel regulations, despite the projected growth in vehicle miles traveled (VMT), and would not result in any adverse impacts to human health and welfare. The Build Alternative was not determined to be one of air quality concern for particulate matter (PM$_{2.5}$). See Section 3.9 and the Air Quality Technical Report (VDOT, 2016a) for additional regulatory context, methodologies for conducting the study, and findings of the air quality analysis.</td>
</tr>
<tr>
<td>Coastal Zones</td>
<td>The project is located in both Fairfax and Arlington Counties, which are within Virginia’s Coastal Zone, regulated by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended, and the National Oceanic and Atmospheric Administration regulations for ensuring consistency with the state’s federally approved Coastal Zone Management Program (CZMP), promulgated under 15 CFR §930. With implementation of appropriate mitigation measures, the Build Alternative would not impair resources protected by the Virginia Coastal Zone Enforceable Policies, including wetlands, nonpoint source pollution control and aquatic animals, and is anticipated to be consistent with the state CZMP. The project would be designed and constructed in accordance with the Virginia Erosion and Sediment Control Law and the terms and conditions of water quality permits required by the U.S. Army Corps of Engineers (USACE), the Virginia Department of Environmental Quality (VDEQ), the Virginia Marine Resources Commission, and the Virginia Department of Conservation and Recreation (VDCR). Additional discussion of Coastal Zone Management is included in the Natural Resources Technical Report (VDOT, 2016f).</td>
</tr>
</tbody>
</table>
## Chapter 3.0 Environmental Consequences

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Resource Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communities and Community</td>
<td>Within the study area, community facilities including schools, religious institutions, parks, and transit facilities have been identified. In addition, there are numerous trails, bicycle and pedestrian facilities throughout the study area and surrounding vicinity. Impacts to existing community facilities are anticipated to be minimal; however, the Build Alternative improvements include enhancements two park facilities that would also incorporate modifications to existing trails. Communities and community facilities as well as potential impacts associated with the Build Alternative are identified in Section 3.3 and detailed in the <em>Socioeconomic and Land Use Technical Report</em> (VDOT, 2016h). Additional discussion of parks protected under Section 4(f) of the Department of Transportation Act of 1966 is included in Section 3.8.</td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Historic architectural and archaeological surveys have been conducted to identify resources that meet the criteria for National Register of Historic Places (NRHP) eligibility and that could potentially affected by the Build Alternative. A summary of identified resources evaluated are included in the <em>Phase I Archaeological Survey of the Interstate 66 Inside the Beltway Eastbound Widening in Fairfax and Arlington Counties, Virginia: Management Summary</em> (VDOT, 2016b) and <em>Phase I Architectural Survey of the Interstate 66 Inside the Beltway Eastbound Widening in Fairfax and Arlington Counties, Virginia: Management Summary</em> (VDOT, 2016c). VDOT finds that the Build Alternative improvements would not have an adverse effect on architectural resources within the project LOD and vicinity. Information regarding cultural resource eligibility and VDOT’s effect determinations is described in Section 3.7. VDOT has requested that the State Historic Preservation Office (SHPO) in Virginia, Virginia Department of Historic Resources (VDHR), concur with the findings included herein and is committed to additional coordination with VDHR as the project progresses and additional information is known about the Build Alternative design and anticipated impacts.</td>
</tr>
<tr>
<td>Floodplains</td>
<td>Executive Order 11988, and the amendments included in Executive Order 13690, regulates the management of floodplains to minimize the impacts of floods, preserve the natural and beneficial values of floodplains, and increase infrastructure resilience against flooding. Encroachments on floodplains designated by the Federal Emergency Management Agency (FEMA) would be minimal for the Build Alternative, occurring almost entirely within the existing right of way. Federal regulations and VDOT roadway design standards would minimize potential effects to floodplains, as described in Section 3.13. The identification and potential impact analysis of 100-year floodplains proximal to the project study area is included in the <em>Natural Resources Technical Report</em> (VDOT, 2016f).</td>
</tr>
<tr>
<td>Hazardous Materials</td>
<td>A search of federal and state databases identified hazardous materials sites of recognized environmental concern within proximity to the project. However, the listed pollution control cases within the environmental study area are either reported closed or remediated. There are no hazardous materials sites or facilities identified within the project’s preliminary LOD. Additional detail is included in Section 3.16 as well as the <em>Hazardous Materials Technical Memorandum</em> (VDOT, 2016d).</td>
</tr>
<tr>
<td>Invasive Species</td>
<td>Invasive species may exist within the project study area but future establishment during construction of the Build Alternative would be minimized following the provisions in VDOT’s Road and Bridge Specifications. A brief description of invasive species potentially existing within the study area and treatment during construction to avoid these species is included in Section 3.14 and the <em>Natural Resources Technical Report</em> (VDOT, 2016f).</td>
</tr>
<tr>
<td>Land Use</td>
<td>The study area is primarily comprised of public land dedicated to existing transportation uses along the I-66 corridor, surrounded by dense urban residential development with commercial uses interspersed throughout. Minor permanent and temporary right of way acquisition associated with the Build Alternative would occur.</td>
</tr>
<tr>
<td>Environmental Resource</td>
<td>Resource Summary</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Noise</td>
<td>Residential and outdoor recreational or institutional land uses (e.g. parks, active sport areas, places of worship, and medical facilities) are the predominant noise receptors along the study area. Both the No Build and Build Alternatives are predicted to result in noise impacts. Under the Build Alternative, a total of 18,750 linear feet of noise barrier have been preliminarily identified as needing to be replaced or feasible and reasonable to attenuate for noise impacts. These noise barriers would benefit approximately 502 receptor units and are assumed to cost approximately $5.3 million. <strong>Section 3.10</strong> summarizes the preliminary noise analysis that was conducted for this study and the Preliminary Noise Analysis (VDOT, 2016g) documents the methodologies and findings of this analysis in detail.</td>
</tr>
<tr>
<td>Section 4(f)</td>
<td>Public parks, recreational facilities, and historic properties protected under Section 4(f) of the U.S. Department of Transportation Act of 1966 have been identified within the study area; however, the involvement of Section 4(f) resources as part of the Build Alternative improvements is expected to be <em>de minimis</em>. Additional detail is included in <strong>Section 3.8</strong> and <strong>Appendix A.</strong></td>
</tr>
<tr>
<td>Section 6(f)</td>
<td>The W&amp;OD Trail is a protected property under the Land and Water Conservation Fund Act and is, therefore, subject to Section 6(f) requirements. The Build Alternative is not anticipated to alter the use or primary function of the W&amp;OD Trail as a recreational bicycle and pedestrian facility. Throughout the duration of construction, bicycle and pedestrian traffic would be maintained. As a result, no permanent or temporary non-conforming use of the resource is anticipated, and no formal coordination is required.</td>
</tr>
<tr>
<td>Prime Farmland and Soils</td>
<td>There are no farmland or farmland soils within the study area; therefore, the Build Alternative would not result in any potential conversion of farmland regulated by the Farmland Protection Policy Act of 1981.</td>
</tr>
<tr>
<td>Right of Way and Relocations</td>
<td>Minor permanent and temporary right of way acquisition associated with the construction of the Build Alternative would occur. To the extent practicable, the project improvements have been designed to be largely within the existing right of way. No residential or commercial relocations would occur under the Build Alternative. A discussion of property impacts under the Build Alternative is included in <strong>Section 0.</strong></td>
</tr>
<tr>
<td>Socioeconomics and Environmental Justice</td>
<td>An evaluation of population demographics and economics within the study area has been conducted to support this EA. Additionally, this project has been evaluated in accordance with Title VI of the Civil Rights Act of 1964, as amended, and other applicable nondiscrimination statutes and authorities. Minority populations have been identified within the study area but are not expected to experience disproportionately high and adverse effects as a result of the Build Alternative improvements. <strong>Section 3.6</strong> describes the Environmental Justice (EJ) analysis conducted for this study and is detailed in the <strong>Socioeconomics and Land Use Technical Report</strong> (VDOT, 2016f).</td>
</tr>
<tr>
<td>Threatened and Endangered Species</td>
<td>A review of the U.S. Fish and Wildlife Service’s (USFWS) Online Information, Planning, and Conservation (IPaC) system, as well as state maintained databases, indicate that there are three species that are either federally or state-listed threatened or endangered species, or designated special status potentially proximal to the study area. The federally listed species, the northern long-eared bat (NLEB), may be affected by the project. However, the project is within a highly-developed urban area, which the USFWS indicates is extremely unlikely to be suitable NLEB habitat. Coordination with agencies and final effect determinations would be conducted as part of the final design and permitting process for the Build Alternative. <strong>Section 3.15</strong> and the <strong>Natural Resources Technical Report</strong> (VDOT, 2016f) include a detailed discussion of threatened and endangered species relative to the Build Alternative.</td>
</tr>
<tr>
<td>Water Quality</td>
<td>In accordance with the Clean Water Act Section 303(d) (40 CFR §130.7(b)), the VDEQ identifies three impaired stream segments within the project study area. Further water quality degradation resulting from the Build Alternative would be minimized through the implementation of stormwater management facilities and best management practices (BMPs), consistent with VDOT’s Road and Bridge Standards and Specifications. Additional detail regarding potential water quality impacts and mitigation practices are described in Section 3.12 and the <strong>Natural Resources Technical Report</strong> (VDOT, 2016f).</td>
</tr>
</tbody>
</table>
Waters of the U.S., including Wetlands

Wetlands and streams have been identified within the project study area and anticipated impacts to these aquatic resources are anticipated to occur primarily within the existing VDOT right of way. The predominant wetland type is palustrine emergent (PEM) associated with existing VDOT stormwater management facilities. Potential opportunities to avoid and minimize impacts to these aquatic resources may be identified through the final design and permitting process; however, suitable mitigation would be provided, as required, for unavoidable impacts. Waters of the U.S. that have received a preliminary jurisdictional determination from the USACE and the potential impacts WOUS resulting from the Build Alternative are described in Section 3.11 and detailed in the Natural Resources Technical Report (VDOT, 2016f).

Visual Quality

Aesthetic and visual resources are perceived landscape features that contribute to the overall quality and the public enjoyment of the environment. Changes to visual quality within the project study area are anticipated to be negligible, as the Build Alternatives would include improvements along an existing interstate corridor and the visual elements of the Build Alternative would be consistent with the highly-developed setting of the project study area.

The assessment of potential impacts to environmental resources focuses on the preliminary engineering and design plans for the Transform I-66: Inside the Beltway, eastbound improvement project. In order to inform the development of the design for the eastbound widening improvements, a study area was initially established to generally include an approximate 50-foot buffer from the existing VDOT right of way along the I-66 corridor, including the mainline and interchange areas, between the identified project termini. The study area represents the geographic extent within which improvements have been considered, environmental resources have been inventoried, preliminary design has been developed, and potential impacts have been analyzed.

To develop a more detailed understanding of the potential impacts associated with the Build Alternative improvements, an anticipated LOD has been developed based on the preliminary design and anticipated impacts have been calculated for resources that fall within the design LOD. The LOD includes both temporary and permanent impacts that are anticipated to result from the implementation of the Build Alternative’s preliminary design features. The Build Alternative improvements would include modifications to existing I-66 as well as to existing intersecting roadways and bridges, existing drainage systems, and storm water management facilities, all of which are encompassed within preliminary design LOD. Temporary construction access necessary for the implementation of the Build Alternative is accommodated within the preliminary design LOD. New noise barriers and modifications of existing barriers have been incorporated into the LOD at locations meeting the federal criteria.

Table 3-2 provides a summary of the anticipated impacts of the Build Alternative, based on the extent of the preliminary design LOD, and compares the impacts to those of the No Build Alternative described in Section 2.2.1. Construction of new noise barriers or modification of existing noise barriers that were identified to meet the federal criteria, described in Section 3.10, comprise a substantial portion of the total area required for construction of the Build Alternative. As a result, the impacts associated with the LOD for noise barriers identified in the preliminary design noise analysis are tabulated separately from the roadway improvements. This method provides a more realistic estimate for impacts that may occur from the implementation of the proposed project, as opposed to assuming all of the environmental resources inventoried along the entire extent of the study area would be affected. This method also allows for a
better understanding of potential impacts that may be avoided or further minimized, as the project design advances and a detailed review of the project components, including noise barrier constructability, is completed.

**Table 3-2. Summary of Resources Inventoried and Potential Preliminary Design Impacts**

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Study Area</th>
<th>Potential Impacts</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No Build Alt.</td>
<td>Roadway</td>
</tr>
<tr>
<td><strong>Total Area (acres)</strong></td>
<td>209.2</td>
<td>--</td>
<td>42.5</td>
</tr>
<tr>
<td>Permanent Right of Way Acquisition (acres)</td>
<td>--</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Permanent Proposed Right of Way Easement (acres)</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Temporary Proposed Right of Way Easement (acres)</td>
<td>--</td>
<td>0</td>
<td>2.9</td>
</tr>
<tr>
<td>Residential Land Use Conversion (acres)</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Commercial-Industrial Land Use Conversion (acres)</td>
<td>--</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Public Land Use Conversion (acres)</td>
<td>--</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Community Facilities (no.)</td>
<td>14</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Minority Population Census Block Group (no.)</td>
<td>16</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Low-income Census Block Group (no.)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Historic Properties Adversely Affected (no.)</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Section 4(f) Properties (acres)</td>
<td>6.6</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>NAAQs Violated (no.)</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Impacted Noise Receptors (no.)</td>
<td>1,454</td>
<td>231</td>
<td></td>
</tr>
<tr>
<td>Streams (linear feet)</td>
<td>2,482</td>
<td>0</td>
<td>92.9</td>
</tr>
<tr>
<td>Perennial Streams Within Existing Right of Way (lf)</td>
<td>--</td>
<td>0</td>
<td>52.1</td>
</tr>
<tr>
<td>Perennial Streams Within Permanent Proposed Right of Way (linear feet)</td>
<td>--</td>
<td>0</td>
<td>4.6</td>
</tr>
<tr>
<td>Perennial Streams Within Temporary Proposed Right of Way Easement (linear feet)</td>
<td>--</td>
<td>0</td>
<td>36.2</td>
</tr>
<tr>
<td>Wetlands (acres)</td>
<td>0.66</td>
<td>0</td>
<td>0.6</td>
</tr>
<tr>
<td>Palustrine Emergent Within Existing Right of Way (acres)</td>
<td>--</td>
<td>0</td>
<td>0.6</td>
</tr>
<tr>
<td>Wooded Areas (acres)</td>
<td>0</td>
<td>5.71</td>
<td>6.34</td>
</tr>
<tr>
<td>Within Existing Right of Way (acres)</td>
<td>0</td>
<td>4.89</td>
<td>6.26</td>
</tr>
<tr>
<td>Within Permanent Proposed Right of Way (acres)</td>
<td>0</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Within Temporary Proposed Right of Way Easement (acres)</td>
<td>0</td>
<td>0.79</td>
<td>0.05</td>
</tr>
<tr>
<td>100-Year Floodplains (acres)</td>
<td>6.11</td>
<td>0</td>
<td>0.22</td>
</tr>
<tr>
<td>Hazardous Materials Sites (no.)</td>
<td>27</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
3.2 LAND USE AND PROPERTY IMPACTS

Land use within the project vicinity and environmental study area was identified based on Geographic Information System (GIS) data compiled by Fairfax County (2016). Information on land use was also gathered from local comprehensive and land use plans (Fairfax County, 2016a), aerial photos, input from local and regional planning officials, and field reconnaissance. Arlington County zoning GIS data (2016) is used in this analysis to compute the land use within the county and study area. The zoning codes correspond with land use based on the 2015 Arlington County General Land Use Plan.

Of the approximately 209.2 acres in the study area, land use is primarily composed of public land use (82.7 percent), with the majority constituting the I-66 right of way. Residential land use accounts for 12.0 percent of the study area. Lesser land uses include mixed use (2.7 percent), open space (1.3 percent), and commercial-industrial (1.3 percent). There is no agricultural land use in the study area.

3.2.1 No Build Alternative

The No Build Alternative requires no right of way acquisition; therefore, it would have no direct impact on land use. It is assumed that any locality approved projects and land uses would continue to develop, as planned.

3.2.2 Build Alternative

Table 3-3 shows the proportion of land uses converted to transportation under the Build Alternative. The Build Alternative would require approximately 4.9 acres of total temporary or permanent property easements or acquisitions as a direct impact from construction of the Build Alternative. For the purposes of this analysis, only permanent property acquisition or easements are considered to be a conversion of land from its present use to transportation as a result of the expansion of adjacent transportation facility. Temporary access easements required for the construction of the Build Alternative would be short-term and returned to the existing land use once construction is completed. As shown in Table 3-3, the total permanent land use conversion would be approximately 0.16 acres. The remainder of land use impacts would be temporary in nature and primarily along the south side of I-66 in the study area.

Table 3-3. Land Use Conversion of the Build Alternative

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percent of Study Area Total</th>
<th>Acres Converted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>12%</td>
<td>0</td>
</tr>
<tr>
<td>Commercial-Industrial</td>
<td>1.3%</td>
<td>0.06</td>
</tr>
<tr>
<td>Public</td>
<td>82.7%</td>
<td>0.1</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>2.7%</td>
<td>0</td>
</tr>
<tr>
<td>Open Space</td>
<td>1.3%</td>
<td>0</td>
</tr>
<tr>
<td>Total Acres</td>
<td>100%</td>
<td>0.16</td>
</tr>
</tbody>
</table>

The acquisition of property would be conducted in accordance with all applicable Federal laws, regulations and requirements, including but not limited to 23 CFR §710, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (49 CFR §49, as amended). All property owners affected by Federally-assisted projects will be treated fairly, consistently, and equitably so that they do not experience disproportionate effects as a result of projects that are designed for the benefit of
the public as a whole. VDOT would provide relocation resources to all businesses and entities potentially affected by the Build Alternative improvements without discrimination.

## 3.3 COMMUNITIES AND COMMUNITY FACILITIES

Inside of the environmental study area, I-66 is a major transportation corridor that passes through communities within east Fairfax County and west Arlington County, providing connections between I-495 and Washington, D.C. The City of Falls Church is located south of the western terminus of the study area. Fairfax and Arlington Counties, as well as the City of Falls Church, have comprehensive overarching plans guiding community development, and in some cases, more focused individual neighborhood plans, that were reviewed to develop an understanding of communities and community cohesion along the project corridor. Community facilities were also identified through a review of locality planning documents as well as available mapping, aerial photography, and GIS data. Detailed written descriptions and mapping of communities and community facilities located along the project corridor are provided in the *Socioeconomic and Land Use Technical Report* (VDOT, 2016h).

### 3.3.1 Communities

The communities along the I-66 study area were well established at the time I-66 was constructed in the late 1970s and early 1980s, as well as when the Metrorail was built in the median in 1986. The only Metro stop in the I-66 study area is the East Falls Church Metro Station at North Sycamore Street. The portion of the study area within Fairfax County is located in Planning Area II, McLean Planning District, and Pimmit and Kirby Planning Sectors, which include the West Falls Church and Brilyn Park communities, respectively. Within Arlington County, eight communities are adjacent to the environmental study area: Arlington – East Falls Church, Highland Park – Overlee Knolls, Madison Manor, Westover Village, Dominion Hills, Bluemont, Waycroft – Woodlawn, and Ballston – Virginia Square.

### 3.3.2 Community Facilities, including Parks and Bicycle/Pedestrian Facilities

Within each of these communities there are a number of community facilities that provide services to neighborhoods in and around the study area. These facilities include four schools, two religious institutions, one Metrorail transit station, one pool, and seven parks. These community facilities, their location, and relation to I-66 and the communities along the I-66 corridor are listed in Table 3-4 and are illustrated in Figure 3-1.

### Table 3-4. Community Facilities within the Environmental Study Area

<table>
<thead>
<tr>
<th>Facility</th>
<th>Address</th>
<th>Community</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mt. Daniel School</td>
<td>2328 N Oak St. Falls Church, VA 22046</td>
<td>West Falls Church</td>
<td>Access via Route 7 north on N West Street and turn onto N Oak Street.</td>
</tr>
<tr>
<td>St. Ann School</td>
<td>980 N Frederick St. Arlington, VA 22205</td>
<td>Bluemont</td>
<td>Access via N Harrison Street and N George Mason Drive onto 10th Street N and then onto Frederick Street.</td>
</tr>
</tbody>
</table>
### Chapter 3.0 Environmental Consequences

#### Environmental Assessment

#### November 2016

<table>
<thead>
<tr>
<th>Facility</th>
<th>Address</th>
<th>Community</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Religious Institutions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington Elm Church</td>
<td>6901 Haycock Rd. Falls Church, VA 22043</td>
<td>Brilyn Park</td>
<td>Access via driveway off Haycock Road.</td>
</tr>
<tr>
<td>Arlington Spanish SDA Church</td>
<td>6624 Locust St. Falls Church, VA 22046</td>
<td>West Falls Church</td>
<td>Access via Great Falls Street and turn on Locust Street. Access also available via Williamsburg Boulevard and north onto Meridian Street.</td>
</tr>
<tr>
<td><strong>Metro Stations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parks and Recreation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Falls Church Park</td>
<td>1730 Roosevelt St. Arlington, VA 22205</td>
<td>Arlington - East Falls Church</td>
<td>Access via N Sycamore Street that turns into N Roosevelt Street south of I-66.</td>
</tr>
<tr>
<td>Ballston Pond Park</td>
<td>4747 Fairfax Dr. Arlington, VA 22201</td>
<td>Bluemont</td>
<td>Access via Fairfax Drive and N Glebe Road.</td>
</tr>
<tr>
<td>Benjamin Banneker Park</td>
<td>6620 N 18th St. Arlington, VA 22205</td>
<td>Arlington - East Falls Church</td>
<td>Access to 18th St N from both N Washington Street and N Sycamore Street and onto N Westmoreland Street.</td>
</tr>
<tr>
<td>High Point Pool</td>
<td>6840 Woodland Dr. Falls Church, VA 22046</td>
<td>West Falls Church</td>
<td>Access from Great Falls Street via Woodland Drive.</td>
</tr>
</tbody>
</table>

(Arlington County, 2016b and Fairfax County, 2016a) *Park amenities detailed in Table 3-5.*
Of the identified park and recreational facilities, there are seven publicly-owned parks that are within the environmental study area. Table 3-5 provides a description of the park sizes and amenities.

Table 3-5. Study Area Park Sizes and Amenities

<table>
<thead>
<tr>
<th>Park</th>
<th>Amenities</th>
<th>Size (Acres)</th>
<th>Acres Within Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madison Manor Park</td>
<td>Picnic Area, Playground, Softball/Baseball Field, Tennis Courts, Basketball Court, Path, Access to Custis Trail, and Historic Brandymore Castle</td>
<td>13.1</td>
<td>0.7</td>
</tr>
<tr>
<td>East Falls Church Park</td>
<td>Basketball Court, Multi-purpose Field, Green Space, Stream</td>
<td>4.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Westover Park</td>
<td>Picnic Area, Playground, Softball/Baseball Fields, Basketball Courts, Volleyball Courts, Multi-purpose Field, Access to Custis Trail</td>
<td>3.9</td>
<td>0.1</td>
</tr>
<tr>
<td>Bluemont Junction Park</td>
<td>Paved walking trail, Bluemont Junction Caboose, Recreational Space, Multi-purpose Field</td>
<td>23.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Ballston Pond Park</td>
<td>Pond, Wildlife Observation</td>
<td>6.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Bon Air Park</td>
<td>Rose Garden, Ornamental Tree Gardens, Playgrounds, Volleyball Courts, Basketball Courts, Picnic Areas, Path</td>
<td>21.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Benjamin Banneker Park</td>
<td>Four Mile Run Access, W&amp;OD and Custis Trails Access, Picnic Areas, Playground, Multi-purpose Field, Dog Park</td>
<td>12.3</td>
<td>0.2</td>
</tr>
</tbody>
</table>

In addition to park facilities located along the study area, the I-66 corridor and surrounding communities include a complex system of recreational trails and bicycle/pedestrian facilities. Recreational trails (multi-use), bike lanes (designated lanes for bicycles), and bike routes (recommended routes for safest cycling) in the study area are listed in Table 3-6 and shown in Figure 3-2. Two bike routes cross the study area in Fairfax County. In Arlington County, eight trails, five bike routes, and four bike lanes cross the study area. The Fairfax County Bicycle Master Plan (Fairfax County, 2014) recommends a bike lane on Great Falls Street. In the study area, the Bicycle Element of the Arlington Master Transportation Plan (Arlington County, 2008) proposed bike routes along Williamsburg Boulevard, Westmoreland Street, and Harrison Street. The most recent County bicycle network map (Arlington County, 2016a) shows that these routes have been added since the 2008 Bicycle Element was completed.

Table 3-6. Bicycle/Recreational Trails in the Study Area

<table>
<thead>
<tr>
<th>Trail/Route/Lane</th>
<th>Location</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluemont Junction Trail Connector</td>
<td>West side of Ballston Pond Park</td>
<td>Access at N Glebe Road, Washington Boulevard, and Fairfax Drive.</td>
</tr>
<tr>
<td>Bluemont Junction Trail</td>
<td>Bluemont Junction Park</td>
<td>Access at Fairfax Drive, N Buchanan Street, and N George Mason Drive.</td>
</tr>
<tr>
<td>Bon Air Park Trail</td>
<td>Bon Air Park</td>
<td>Access via Custis Trail and N Lexington Street.</td>
</tr>
<tr>
<td>Custis Trail</td>
<td>Adjacent to I-66 corridor from crossing of Patrick Henry Drive and continues east through study area.</td>
<td>Several access points through study area</td>
</tr>
</tbody>
</table>
Chapter 3.0 Environmental Consequences

<table>
<thead>
<tr>
<th>Trail/Route/Lane</th>
<th>Location</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four Mile Run Trail</td>
<td>East Fall Church Park and Madison Manor Park</td>
<td>Access from W &amp; OD Trail and N Sycamore Street.</td>
</tr>
<tr>
<td>Neighborhood Trail, Custis Mirror</td>
<td>South side of I-66 near N Harrison Street crossing</td>
<td>Access from Custis Trail and N Harrison Street.</td>
</tr>
<tr>
<td>W&amp;OD Connector</td>
<td>Generally located on the north side I-66 near Madison Manor Park</td>
<td>Several access points in area.</td>
</tr>
<tr>
<td>W&amp;OD Trail</td>
<td>Located along I-66 corridor from N Washington Street to Patrick Henry Drive where it continues southeast</td>
<td>Several access points in study area.</td>
</tr>
<tr>
<td>Bike Route</td>
<td>Great Falls Street</td>
<td>From Dolly Madison Boulevard southeast to N Washington Street.</td>
</tr>
<tr>
<td>Bike Route</td>
<td>Haycock Road</td>
<td>From Westmoreland Street southwest to W Broad Street and on to Shreve Road.</td>
</tr>
<tr>
<td>Bike Route</td>
<td>Westmoreland Street</td>
<td>From Kirby Road south to W &amp; OD Trail.</td>
</tr>
<tr>
<td>Bike Route</td>
<td>Harrison Street</td>
<td>From Lee Highway to Wilson Boulevard.</td>
</tr>
<tr>
<td>Bike Route</td>
<td>McKinley Street</td>
<td>From Lexington Street south to Custis Trail.</td>
</tr>
<tr>
<td>Bike Lane</td>
<td>Williamsburg Boulevard</td>
<td>From Glebe Road southwest to N West Street.</td>
</tr>
<tr>
<td>Bike Lane</td>
<td>Sycamore Street</td>
<td>From Williamsburg Boulevard south to Roosevelt Street.</td>
</tr>
<tr>
<td>Bike Lane</td>
<td>Ohio Street</td>
<td>From Washington Boulevard south to Wilson Boulevard.</td>
</tr>
<tr>
<td>Bike Lane</td>
<td>Patrick Henry Drive</td>
<td>From Washington Boulevard south to Wilson Boulevard.</td>
</tr>
</tbody>
</table>
Figure 3-2. Bicycle/Recreational Trails
3.3.3 No Build Alternative

The transportation infrastructure projects assumed under the No Build Alternative are not anticipated to have direct physical impact on communities in the environmental study area. In the absence of the Build Alternative improvements, continued capacity demand and congestion along eastbound I-66 inside I-495 would increasingly hamper community mobility. Impacts to identified community facilities and park resources within the environmental study area, or changes to existing recreational trails, bike lanes, and/or bike routes are not anticipated under the No Build Alternative.

3.3.4 Build Alternative

Compared to the No Build Alternative, the Build Alternative would result in additional capacity, improved congestion relief and increased safety along eastbound I-66 inside I-495, benefiting adjacent communities. The improvements to I-66 within Fairfax and Arlington Counties are limited to widening the eastbound lane from the Dulles Connector Road (Route 267) to Fairfax Drive (Route 237) and associated ancillary improvements; therefore, the majority of the right-of-way impacts would be minor and consist of strip takes outside of the existing right of way, primarily on the south side of I-66 and where noise barriers have been identified to meet the federal criteria. Impacts to communities, community facilities, recreational facilities/parks, and bicycle/recreational trails resulting from the Build Alternative improvements under consideration are described below:

**W&OD Trail**

In order to facilitate improved operational movements and increase safety, a grade-separated overpass of the W&OD Trail is included as part of the Build Alternative to alleviate pedestrian and traffic conflicts at the intersection of Washington Boulevard/Lee Highway (Route 29) and Fairfax Drive. The new structure at Washington Boulevard/Lee Highway (Route 29), in the vicinity of the Arlington-East Falls Church community, would provide safer access across the roadway for bicycle and pedestrian users of the W&OD Trail. This beneficial improvement is not anticipated affect the function of the recreational facility.

In order to accommodate the implementation of the grade-separated overpass, approximately 1.2 acres of property owned by the Northern Virginia Regional Park Authority (NVRPA) are anticipated to be temporarily impacted by the construction of the trail improvements. This particular at-grade crossing has been previously identified by the NVRPA as a dangerous intersection and VDOT and NVRPA have worked closely to develop a trail crossing that would meet the NVRPA’s bridge guidelines. The NVRPA finds that by removing the at-grade crossing will be beneficial for the trail by enhancing safety for all trail users. VDOT is committed to continue working with the NVRPA to find a design solution that is aesthetically pleasing and one that provides a safe crossing. Short-term impacts to the recreational trails, bike lanes, and/or bike routes could include temporary detours during construction; however the overall function of the facility is not anticipated to be affected.

**Bon Air Park and Custis Trail**

The Build Alternative would result in greater transportation mobility and reduced congestion along the I-66 corridor inside the Capital Beltway, allowing for improving access to community facilities, all of which are accessible within close proximity to I-66. In order to accommodate for adequate and safe sight distance along the mainline of eastbound I-66 just east of Patrick Henry Drive, the widening would occur
along the outside shoulder and would require minor right of way acquisition and temporary construction easements from the Bon Air Park community facility. As a result, the adjacent Custis Trail would need to be realigned. The preliminary design for the trail realignment has been developed to improve sight lines for bicyclists and pedestrians utilizing the Custis Trail and crossing underneath I-66 at Bon Air Park. The right of way required to accommodate the widening and trail enhancements would be minimal and are not anticipated to affect the function or access of the community facilities. Approximately 0.07 acres of right of way would be permanently acquired and approximately 1.22 acres of temporary easement for construction would be required from Arlington County at Bon Air Park in the vicinity of the Bluemont Community.

On the north side of I-66, across from Bon Air Park, temporary construction impacts may occur as a result of the installation of noise barriers identified in the preliminary design phase to meet federal requirements for attenuation of noise impacts from the Build Alternative improvements. During construction, short-term impacts to the Custis Trail could include temporary detours during construction; however the overall function of the facility is not anticipated to be affected. In the Bon Air Park facility and along the Custis Trail, areas affected by temporary construction activities would be revegetated and returned to similar existing conditions.

In accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (49 CFR §49, as amended), affected property owners would be fairly compensated and the Build Alternative improvements are anticipated to enhance the function of existing recreational facilities. The improvements along eastbound I-66 would not create new physical barriers to intercommunity connectivity or cohesion. As such, there would be minimal direct effects to communities and community cohesion under the Build Alternative.

### 3.4 DEMOGRAPHICS AND HOUSING CHARACTERISTICS

Population and housing characteristics have been identified based on the 2010 US Decennial Census (US Census Bureau, 2010) and American Community Survey (ACS) 5-Year 2010-2014 data (ACS, 2016), available online at American Factfinder. Data was gathered for the census block groups within and immediately adjacent to the study area and compared to similar data for Fairfax County, Arlington County, and Virginia. ACS data is based on sample survey that can have large margins of error at the census block group level; however, where ACS data is used the census block group data in this study, it represents the best available information at the time and/or is more reflective of existing conditions in the study area. Existing conditions were reviewed by local cooperating agencies during development of the EA. Population projections are based on Metropolitan Washington Council of Governments (MWCOG) Round 8.4 data for Transportation Analysis Zones (TAZ) (MWCOG, 2015), located within and immediately adjacent to the study area. The study area contains 18 census block groups and is encompassed by nine TAZs.

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5 [http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml](http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml)
3.4.1 Population

The US Decennial Census (1980 and 2010) reported that the total resident population in Fairfax County has increased from 596,901 persons in 1980 to 1,081,726 persons in 2010 (an 81.2 percent increase). Arlington County has increased from 152,599 residents in 1980 to 207,453 in 2010 (a 35.9 percent increase). In the same period, Virginia has increased from 5,346,818 residents to 8,001,024 residents (a 49.6 percent increase). The year 1980 was selected as a starting point for the identification of population growth to correspond with the completion of I-66 in 1982.

Table 3-7 summarizes the census block group populations of the study area and Table 3-8 compares the total population to that of Fairfax County, Arlington County, and Virginia. According to the 2010 US Decennial Census data, the resident population of the study area census block groups is approximately 19,999 persons. Of these, 3,373 persons (16.9 percent) reside in census block groups located in Fairfax County and 16,626 persons (83.1 percent) are located in Arlington County. The study area census block group population is less than 1.0 percent of the total population of Virginia. Census tract 4710.00, block group 1 is the most populated (2,106 residents) and is located at the western terminus of the study area. Census tract 1010.00, block group 4 is the least populated (729 residents) and is located in the Highland Park – Overlee Knolls community of Arlington County.

Table 3-7: Study Area 2010 Census Block Groups Population

<table>
<thead>
<tr>
<th>Locality</th>
<th>Geographic Area/Census Block Group</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arlington County</td>
<td>Census Tract 1001.00, Block Group 1</td>
<td>1,098</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1001.00, Block Group 4</td>
<td>1,692</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1007.00, Block Group 3</td>
<td>735</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1009.00, Block Group 3</td>
<td>845</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1009.00, Block Group 4</td>
<td>1,125</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1010.00, Block Group 3</td>
<td>796</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1010.00, Block Group 4</td>
<td>729</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1011.00, Block Group 2</td>
<td>952</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1011.00, Block Group 3</td>
<td>1,370</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1011.00, Block Group 4</td>
<td>916</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1011.00, Block Group 5</td>
<td>979</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1012.00, Block Group 2</td>
<td>905</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1012.00, Block Group 3</td>
<td>790</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1013.00, Block Group 1</td>
<td>973</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1014.01, Block Group 1</td>
<td>1,225</td>
</tr>
<tr>
<td></td>
<td>Census Tract 1014.03, Block Group 3</td>
<td>1,496</td>
</tr>
<tr>
<td>Fairfax County</td>
<td>Census Tract 4709.00, Block Group 5</td>
<td>1,267</td>
</tr>
<tr>
<td></td>
<td>Census Tract 4710.00, Block Group 1</td>
<td>2,106</td>
</tr>
<tr>
<td>Study Area Block Groups Total</td>
<td></td>
<td>19,999</td>
</tr>
</tbody>
</table>

(US Census Bureau, 2010)
MWCOG projects population per TAZ from 2015 to 2040. The current MWCOG Round 8.4 projections indicate that by 2040, the resident population of the study area TAZs will increase from 26,173 to 31,436 persons, a 20.1 percent increase (Figure 3-5). In comparison, the MWCOG Round 8.4 projections anticipate the resident population of Fairfax County will increase from 1,158,653 to 1,406,187 persons (a 21.4 percent increase), and Arlington County will increase from 222,213 to 282,998 residents (a 27.4 percent increase) over the same period. The Weldon Cooper Center for Public Service Demographics Research Group (University of Virginia, 2012) projects the statewide resident population will increase from 8,382,993 in 2015 to 10,530,228 persons in 2040, a 25.6 percent increase (Figure 3-3).

**Figure 3-3: Study Area TAZ, Fairfax, and Arlington Counties Projected Populations (2015-2040)**

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Area Block Groups Total</td>
<td>19,999</td>
</tr>
<tr>
<td>Arlington County</td>
<td>207,627</td>
</tr>
<tr>
<td>Fairfax County</td>
<td>1,081,726</td>
</tr>
<tr>
<td>Virginia</td>
<td>8,001,024</td>
</tr>
</tbody>
</table>

(US Census Bureau, 2010)
3.4.2 Housing

Table 3-9 summarizes the housing characteristics in the study area census block groups and Table 3-10 compares similar data for the two counties and statewide. An estimated 8,885 housing units are in the study area census block groups, of which 8,417 (94.7 percent) are occupied. Census block group 1014.03 BG 3 has the most occupied housing units (857) and 1007.00 BG 3 has the least (251). Within the study area census block groups, there is a 68.9 percent owner occupancy rate. In comparison, Fairfax County has a 95.8 percent total occupancy rate and a 68.2 percent owner occupancy rate; Arlington County has an 89.1 percent total occupancy rate and a 44.8 percent owner occupancy rate; and Virginia has an 89.4 percent total occupancy rate and a 66.7 percent owner occupancy rate. Fairfax and Arlington Counties account for 15.2 percent of the total housing units in Virginia.

Table 3-9: Study Area Census Block Groups, Counties, and State Housing Summary

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Total Housing Units</th>
<th>Total Occupied Housing Units</th>
<th>Total Occupied Housing (%)</th>
<th>Owner Occupied Units</th>
<th>Renter Occupied Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Area Block Groups Total</td>
<td>8,885</td>
<td>8,417</td>
<td>94.7%</td>
<td>5,801</td>
<td>2,616</td>
</tr>
<tr>
<td>Arlington County</td>
<td>108,021</td>
<td>96,264</td>
<td>89.1%</td>
<td>43,157</td>
<td>53,107</td>
</tr>
<tr>
<td>Fairfax County</td>
<td>409,108</td>
<td>391,794</td>
<td>95.8%</td>
<td>267,156</td>
<td>124,638</td>
</tr>
<tr>
<td>Virginia</td>
<td>3,403,241</td>
<td>3,041,710</td>
<td>89.4%</td>
<td>2,028,244</td>
<td>1,013,466</td>
</tr>
</tbody>
</table>

(ACS, 2016)
### 3.4.3 No Build Alternative

The No Build Alternative would not result in any property acquisitions or project-related construction and therefore no impacts to population or housing would occur.

### 3.4.4 Build Alternative

The Build Alternative would result in minimal right of way acquisition adjacent to the existing I-66 right of way. Approximately 0.16 acres of permanent residential right of way would be acquired or placed under permanent easement and 4.7 acres of temporary easements would be needed for construction. No residential or commercial property relocations would occur; therefore, no long-term physical effects to population or housing would result.

### 3.5 Economics

According to ACS 5-Year 2010 – 2014 median household income data of persons residing in the study area census block groups, the study area median household income is $148,438. The study area median household income is greater than that of Fairfax County ($112,102), Arlington County ($105,120), and Virginia ($64,792). According to the ACS 5-Year 2010 – 2014 data, approximately 97.6 percent of the work force in the study area census block groups is employed. This is greater than the employment rate in Fairfax County (94.9 percent), Arlington County (96.5 percent), and Virginia (93.2 percent). The current unemployment rates for Fairfax County (3.6 percent), Arlington County (2.8 percent), and Virginia (4.4 percent) are the lowest since 2008.

Within the study area census tracts, there are 29,659 workers age 16 and older within the study area census tracts. The majority (63.8 percent) of the employed civilian population in the study area census tracts work in the professional, scientific, management, administrative, and waste management (29.1 percent); educational services, health care, and social assistance (17.3 percent); and public administration (17.4 percent). Approximately one-third of workers over 16 years of age within the study area census tracts work “locally” within their county of residence and the remainder have to travel outside the county or state for their job.

In Arlington County, the mean travel time to work is 27.8 minutes and 50.7 percent of workers travel 29 minutes or less to work. In Fairfax County, the mean travel time to work is 32.1 minutes and 45.9 percent of workers travel 29 minutes or less to work. In Virginia, the mean travel time to work is 27.8 minutes and 59.7 percent of workers travel 29 minutes or less to work. Within the study area census tracts, the

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**Table 3-10: Study Area Census Block Groups, Counties, and State Housing Summary**

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Total Housing Units</th>
<th>Total Occupied Housing Units</th>
<th>Total Occupied Housing (%)</th>
<th>Owner Occupied Units</th>
<th>Renter Occupied Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Area Block Groups Total</td>
<td>8,885</td>
<td>8,417</td>
<td>94.7%</td>
<td>5,801</td>
<td>2,616</td>
</tr>
<tr>
<td>Arlington County</td>
<td>108,021</td>
<td>96,264</td>
<td>89.1%</td>
<td>43,157</td>
<td>53,107</td>
</tr>
<tr>
<td>Fairfax County</td>
<td>409,108</td>
<td>391,794</td>
<td>95.8%</td>
<td>267,156</td>
<td>124,638</td>
</tr>
<tr>
<td>Virginia</td>
<td>3,403,241</td>
<td>3,041,710</td>
<td>89.4%</td>
<td>2,028,244</td>
<td>1,013,466</td>
</tr>
</tbody>
</table>

(ACS, 2016)
mean travel time to work is 28.1 minutes and 50.6 percent of the workers travel 29 minutes or less to work.

Within the five zip codes that encompass the study area, 2,462 businesses have been identified according to the US Census Bureau’s Business Patterns 2014 data (US Census Bureau, 2016a and 2016b). The top five business sectors in the study area zip codes are: professional, scientific, and technical services (24.9 percent); health care and social assistance (14.5 percent); other services (10.8 percent); accommodation and food services (8.6 percent); and retail trade (8.0 percent). Over half these businesses have one to four employees (54.0 percent) and five businesses have 1,000 or more employees (0.2 percent). The total annual payroll for businesses in the study area zip codes is approximately $3.5 billion (US Census Bureau, 2016a).

3.5.1 No Build Alternative

The No Build Alternative would not address the identified Purpose and Need as effectively as the Build Alternative, and thus would not provide the extent of beneficial transportation improvements that may affect income, employment, or business. Any impact on income, employment, or business as a result of the No Build Alternative in anticipated to be minimal.

3.5.2 Build Alternative

The Build Alternative would not have a major effect on income or the distribution of the business establishments and industries located within the study area. No business or commercial property relocations would occur. The reduced congestion expected under this alternative could improve access to businesses within the study area as well as improve commute times of study area census tract residents and business delivery times.

The potential for temporary jobs during construction would increase under the Build Alternative for the duration of construction. The extent and duration of temporary job increases would be proportional to the project construction cost.

Impacts to businesses during construction would be minimized through careful planning during future phases of this study. Ongoing coordination with area businesses, particularly those located adjacent to proposed improvements or detour routes, would occur to prevent or minimize both short and long-term disruptions.

3.6 ENVIRONMENTAL JUSTICE

Title VI of the Civil Rights Act of 1964, as amended, requires no person in the United States shall, on the ground of race, color, or national origin (including individuals with Limited English Proficiency), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. Title VI bars intentional discrimination, but also unjustified disparate impact discrimination. Disparate impacts result from policies and practices that are neutral on their face (i.e., there is no evidence of intentional discrimination) but have the effect of discrimination on protected groups.
The FHWA Title VI Program is broader than the Title VI statute and encompasses other nondiscrimination statutes and authorities, including:

- Section 162 (a) of the *Federal-Aid Highway Act of 1973* (23 USC 324) providing protection against gender-based discrimination,
- The *Age Discrimination Act of 1975* prohibiting discrimination on the basis of age,
- Section 504 of the *Rehabilitation Act of 1973/Americans with Disabilities Act of 1990* providing disabled individuals equal opportunities to participate in and have access to federal programs, benefits and services,
- Executive Order 13166 – *Improving Access to Services for Persons with Limited English Proficiency* requiring federal agencies to identify any need for services to those with limited understanding of the English language, and
- Executive Order 12898 – *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (1994) to ensure federal programs do not result in disproportionately high and adverse environmental or health impacts to these populations.

Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority and Low-Income Populations requires all federal agencies to:

“…promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities’ access to public information on, and an opportunity for public participation in, matters relating to human health or the environment.”

An EJ analysis has been prepared to support this EA in accordance with the definitions, methodologies, and guidance provided in Executive Order 12898; the Council on Environmental Quality (CEQ) *Environmental Justice Guidance Under the National Environmental Policy Act* (1997); US Department of Transportation (USDOT) Order 5610.2(a) *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (2012 revision); FHWA EJ Order 6640.23A *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (2012); FHWA memorandum Guidance on Environmental Justice and NEPA (2011); and the FHWA *Environmental Justice Reference Guide* (2015). The strategies developed under Executive Order 12898 and the USDOT/FHWA policies on EJ take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal transportation projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law, while ensuring EJ communities are proactively provided meaningful opportunities for public participation in project development and decision-making. Details of the EJ analysis and methodologies are outlined in the *Socioeconomic and Land Use Technical Report* (VDOT, 2016h) and the results are briefly summarized below.

### 3.6.1 Minority Populations

Of the 18 census block groups within the study area, 16 are determined to meet the definition of racial minority populations based upon the “meaningfully greater” threshold established for identifying racial minority population (9.5 percent based on census tract 1010.00, block group 4, with the lowest total minority population of 8.6 percent). The “meaningfully greater” threshold for Hispanic/Latino populations was set at 5.0 percent based on census tract 1011.00, block group 4, with the lowest
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Hispanic/Latino population of 4.5 percent. Based on this threshold, 15 of the 18 study area census block groups meet the definition of a Hispanic/Latino population.

3.6.2 Low-Income

According to 2014 HHS poverty guidelines, the poverty threshold for a four-person family is $23,850. All 18 study area census block groups have a median household income greater than the $23,850. Therefore, there are no low-income populations in the study area census block groups and an assessment of potential impacts to low-income populations is not required.

3.6.3 No Build Alternative

The No Build Alternative is not expected to result in any property acquisitions or impacts to minority or low-income populations. Evaluation of the potential effects to EJ communities may be required if programmed improvements under the No Build Alternative involve major new construction with federal funding. Potential effects to minority populations would be addressed by the respective project sponsors.

3.6.4 Build Alternative

All of the Build Alternative study area census block groups were identified to include minority populations that meet the established thresholds for EJ populations; none of these populations qualify as low-income. No relocations would occur under this alternative and therefore, no physical impacts to EJ populations are anticipated to occur. The transportation benefits of the Build Alternative improvements would be experienced by all users of I-66. The improved transportation mobility and reduced congestion within the study area would include the census block groups containing EJ populations.

Temporary easements for construction are anticipated to be short-term and would not preclude access to or impact use of properties; therefore, potential temporary right of way effects during construction are not considered high and adverse to minority populations present in the study area.

3.7 CULTURAL RESOURCES

In accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, (16 USC §470) and the Advisory Council on Historic Preservation’s regulations for compliance with Section 106 (36 CFR §800), the potential effects to archaeological and architectural resources that are on, eligible for, or potentially eligible for listing on the NRHP have been analyzed within the Area of Potential Effects (APE) identified for the Transform I-66: Inside the Beltway, eastbound improvement project.

The APE for direct effects to cultural resources is defined by the Build Alternative’s preliminary design LOD, while the APE for indirect effects includes tax parcels immediately adjacent to and outside of the direct effects APE and any parcels abutting those parcels. VDHR, the SHPO in Virginia, concurred with the definition of the project’s APE in September 2016.
3.7.1 Archaeological Resources

Within the APE, pedestrian surveys and shovel testing was performed in an effort to identify historic archaeological resources. Based on these survey efforts and previous investigations associated with projects in the I-66 corridor, no archaeological materials or features were observed and no archaeological resources were determined to be located within the project APE, as summarized in the *Phase I Archaeological Survey of the Interstate 66 Inside the Beltway Eastbound Widening in Fairfax and Arlington Counties, Virginia: Management Summary* (VDOT, 2016b). VDHR confirmed in September 2016 that none of the archaeological findings meet eligibility criteria set for in the NRHP and no further work associated with archaeological resources is necessary.

3.7.2 Architectural Resources

Within the APE, a records review, background research, and visual survey were conducted to identify historic architectural properties. No newly identified architectural properties were found to meet any of the NRHP evaluation criteria as individual historic resources. However, four previously documented properties that are eligible for or are already listed on the NRHP were identified within the APE for architectural resources. *Table 3-11* summarizes the architectural resources that are either recommended potentially eligible, eligible, or listed on the NRHP within the architectural APE. VDHR concurred with this eligibility determination in October 2016.

*Table 3-11. Surveyed Resources Located Within the Architectural APE that are Recommended Potentially Eligible, Eligible, or NRHP Listed*

<table>
<thead>
<tr>
<th>VDHR Number</th>
<th>Name/Property Address</th>
<th>Year Built</th>
<th>Description</th>
<th>Previous Eligibility Determination</th>
<th>Current Eligibility Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-4211</td>
<td>Madison Manor Neighborhood Historic District</td>
<td>1947-1960</td>
<td>Residential suburban historic district, period of significance, 1947-60</td>
<td>Not Evaluated</td>
<td>Potentially Eligible</td>
</tr>
<tr>
<td>000-4212</td>
<td>Dominion Hills Historic District</td>
<td>1945-1948</td>
<td>Historic district, period of significance, 1945-48</td>
<td>NRHP Listed</td>
<td>NRHP Listed</td>
</tr>
<tr>
<td>000-4906</td>
<td>Brockwood-Kearney’s Addition Historic District</td>
<td>1940-1952</td>
<td>Residential suburban historic district, period of significance, 1940-52</td>
<td>Not Evaluated</td>
<td>Potentially Eligible</td>
</tr>
<tr>
<td>053-0276</td>
<td>Washington and Old Dominion Railroad Historic District</td>
<td>Ca. 1855</td>
<td>Linear resource</td>
<td>Eligible</td>
<td>Remains Eligible</td>
</tr>
</tbody>
</table>

The Benjamin Elliot’s Coal Trestle (053-0276-0006) was designated as an Arlington County Historic District but was not previously documented with VDHR. Although VDHR agreed with VDOT’s recommendation that the Coal Trestle is not individually eligible for listing to the NRHP due to its loss of integrity, it is recommended as a contributing resource to the W&OD Railroad Historic District (053-0276) due to its location and association with the rail line.
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3.7.3  No Build Alternative

The No Build Alternative is not anticipated to have any effect on historic resources. An additional evaluation of the study area’s cultural resources may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors.

3.7.4  Build Alternative

In accordance with 36 CFR 800.5(a), VDOT has applied the criteria of adverse effect to historic properties within the project’s APE. The regulations implementing Section 106 of the NHPA of 1966, as amended, define an effect as an “alteration to the characteristics of a historic property qualifying it for inclusion in or eligible for the National Register” {36 CFR §800.16(i)}. The effect is adverse when the alteration of a qualifying characteristic occurs in a “manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling or association” {36 CFR 800.5(a)}. Based on the preliminary design, VDOT has determined that the Build Alternative will have no adverse effect on historic properties. In a November 2016 letter, VDOT has requested VDHR confirm VDOT’s effect determination for the Build Alternative.

The Build Alternative is anticipated to have no adverse effect on the adjacent historic districts along the project’s APE. Additionally, VDOT finds that the improvements in the W&OD Railroad Historic District, described in Section 3.3.4, will not diminish the historic characteristics of the resource, specifically its association with historic patterns of transportation and commerce, and would have no adverse effect on the W&OD Railroad Historic District as a whole. Within the W&OD Railroad Historic District, in the vicinity of the Benjamin Elliott’s Coal Trestle (053-0276-0006), VDOT has refined the Build Alternative to completely avoid the resource. VDOT concludes that the project would have no adverse effect on the Benjamin Elliott’s Coal Trestle, conditioned upon the commitment to avoid the resource and ensure the VDHR has an opportunity to review and comment on the final plans in this area.

Based upon the current preliminary design, modifications to existing noise barriers and construction of new barrier locations would be included as part of the project improvements. The LOD associated with noise barrier construction are anticipated to be fully located within the existing public right of way. As previously noted and confirmed by VDHR, the LOD is defined as the basis for the APE for direct effects to cultural resources. Additional coordination with VDHR will be conducted as the project progresses and additional information is known about the specifics of the design and anticipated impacts; however the noise barrier construction is not anticipated to potentially affect any historic resources.

3.8  SECTION 4(F)

Under the provisions of Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC § 303(c)), FHWA may approve the use of land from publicly owned parks or recreation areas, publicly owned wildlife or waterfowl refuges, or historic sites that are listed in, or eligible for listing in, the NRHP for federal-aid highway projects if it determines that there is no feasible and prudent avoidance alternative and the action includes all possible planning to minimize harm to the property. FHWA also may approve the use of land from such properties if it determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures)
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committed to by the applicant, will have a *de minimis* impact, as identified in 23 CFR § 774.17, on the property. A “use” of a Section 4(f) property occurs:

(1) when land is permanently incorporated into a transportation facility;
(2) when there is a temporary occupancy of land that is adverse in terms of the statute’s preservation purpose; or,
(3) when there is a constructive use of a Section 4(f) property.

Existing public parks, recreational areas, wildlife and waterfowl refuges, and public and private historical sites were identified through a review of locality planning documents as well as available mapping, aerial photography, and GIS data.

3.8.1  No Build Alternative

Impacts to identified Section 4(f) resources within the environmental study area are not anticipated under the No Build Alternative.

3.8.2  Build Alternative

A total of 19 Section 4(f) resources were identified within the environmental study area. Anticipated impacts to the Section 4(f) resources within the project study area are shown in Table 3-12 below.

<table>
<thead>
<tr>
<th>Section 4(f) Resource</th>
<th>Function of the Resource</th>
<th>Anticipated Area of Section 4(f) Use</th>
<th>Anticipated Section 4(f) Use/Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madison Manor Park</td>
<td>Park</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>East Falls Church Park</td>
<td>Park</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Westover Park</td>
<td>Park</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Bluemont Junction Park</td>
<td>Park</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Ballston Pond Park</td>
<td>Park</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Bon Air Park</td>
<td>Park</td>
<td>1.3 acres</td>
<td>De Minimis</td>
</tr>
<tr>
<td>Benjamin Banneker Park</td>
<td>Park</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Bluemont Junction Trail Connector</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Bluemont Junction Trail</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Bon Air Park Trail</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Custis Trail</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Four Mile Run Trail</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Neighborhood Trail, Custis Mirror</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>W&amp;OD Connector</td>
<td>Trail</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>W&amp;OD Trail</td>
<td>Trail/Historic Resource</td>
<td>1.2 acres</td>
<td>De Minimis</td>
</tr>
<tr>
<td>Madison Manor Neighborhood Historic District</td>
<td>Historic Resource</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Dominion Hills Historic District</td>
<td>Historic Resource</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>Brockwood-Kearney’s Addition Historic District</td>
<td>Historic Resource</td>
<td>0</td>
<td>No Impact</td>
</tr>
<tr>
<td>W&amp;OD Dominion Railroad Historic District</td>
<td>Historic Resource</td>
<td>0</td>
<td>No Impact</td>
</tr>
</tbody>
</table>

(Arlington County, 2016b and Fairfax County, 2016)
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Under the regulations implementing Section 4(f) 23 CFR § 774.17, FHWA intends to make a de minimis impact finding with respect to the project’s Section 4(f) involvement with both the Bon Air Park and W&OD Trail resources, identified above. The officials with jurisdiction over the affected resources will be asked to concur, following an opportunity for public comment, that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. The public will be given opportunity at the public hearing to review and comment on the proposed project and the proposed de minimis finding. Additional details on Section 4(f) properties within the corridor can be found in Appendix A: Section 4(f) Technical Memorandum.

3.9 AIR QUALITY

Under NEPA, federal agencies must consider the effects of their decisions on the environment before making any decisions that commit resources to the implementation of those decisions. Changes in air quality, and the effects of such changes on human health and welfare, are among the effects to be considered. A project-level air quality analysis is performed to assess the potential air quality impacts of the project, document the findings of the analysis, and make the findings available for review by the public and decision-makers.

Pursuant to the Federal Clean Air Act of 1970 (CAA), the EPA is required to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and welfare. Federal actions must not cause or contribute to any new violation of any standard, increase the frequency or severity of any existing violation, or delay timely attainment of any standard or required interim milestone. EPA designates geographic regions that do not meet the NAAQS for one or more criteria pollutants as “non-attainment areas.” Areas previously designated as non-attainment, but subsequently re-designated to attainment because they no longer violate the NAAQS, are reclassified as “maintenance areas” subject to maintenance plans to be developed and included in a state’s SIP. The project study area is located in the DC-Maryland-Northern Virginia air quality control region (AQCR), which is designated as marginal non-attainment for the 2008 8-hour ozone standard and attainment/maintenance for the 1997 annual PM$_{2.5}$ standard. Because of these designations, the project is subject to regional transportation conformity requirements under the CAA pertaining to ozone and (until October 24, 2016) PM$_{2.5}$.

In order for a project within an ozone non-attainment AQCR to be consistent with the transportation conformity requirements under the CAA, there must be a currently conforming transportation plan and program at the time of project approval, and the project must be included in the conforming plan and program (or otherwise meet criteria specified in 40 CFR 93.109(b)).

In accordance with EPA’s rulemaking for PM$_{2.5}$, a project-level hot-spot transportation conformity analysis must typically be completed to demonstrate that a project within a non-attainment or

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6 On August 24, 2016, EPA issued a final rule (81 FR 58010), effective October 24, 2016, on “Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements” that stated, in part: “Additionally, in this document the EPA is revoking the 1997 primary annual standard for areas designated as attainment for that standard because the EPA revised the primary annual standard in 2012 “. Therefore, effective October 24, 2016 the region will no longer be classified as attainment-maintenance for the 1997 primary annual PM$_{2.5}$ standard, and the associated EPA regulatory requirements for conformity for PM$_{2.5}$ will be eliminated for northern Virginia.
maintenance area would be in conformity with the requirements under the CAA when the project is anticipated to have a significant volume of diesel vehicle traffic. Although the EPA revoked the 1997 annual PM$_{2.5}$ NAAQs, effective October 24, 2016, at the time of preparation of this EA, the DC-Maryland-Northern Virginia AQCR was designated as maintenance for the PM$_{2.5}$ ambient air quality standards. Therefore, VDOT consulted with an interagency group of regional experts and regulatory agencies to determine whether or not the project would be one of local air quality concern for PM$_{2.5}$ for conformity purposes. Based on the current and forecasted traffic conditions for the No Build and Build Alternative scenarios (including the prohibition of diesel trucks) as well as the regional achievement of PM$_{2.5}$ NAAQs, the project was not identified as one of local air quality concern for PM$_{2.5}$. No comments to the contrary were received in interagency consultation for conformity purposes for this project.

In addition to the transportation conformity requirements promulgated by the CAA, FHWA requires that the project’s effect on CO and MSATs be assessed, either qualitatively or quantitatively, depending upon the type of project. The methodologies and assumptions for addressing the type of analysis for each pollutant is consistent with EPA and FHWA guidance, along with the latest version of the VDOT Project-Level Air Quality Resource Document (VDOT, April 2016). The details of the methodologies and analyses for each pollutant are presented in the *Air Quality Technical Report* (VDOT, 2016a).

### 3.9.1 No Build Alternative

**Transportation Conformity**

The projects included as part of the No Build Alternative would be in conformance with the NCRTPB CLRP and associated Transportation Improvement Program (TIP), and the associated regional conformity analysis.

**PM$_{2.5}$ Analysis**

As indicated previously, the improvements evaluated as part of the Transform I-66: Inside the Beltway, eastbound widening project were not found to be ones of air quality concern for PM$_{2.5}$, and no comments to the contrary were received during VDOT’s interagency consultation efforts. Therefore, a detailed quantitative assessment of potential impacts associated with PM$_{2.5}$ emissions of the No Build Alternative was not required.

**Carbon Monoxide Analysis**

Modeling of the No Build Alternative scenario for the project-level air quality analysis for CO is not required, per the FHWA-VDOT 2009 Agreement for No Build Analyses. Based on that Agreement, modeling of a No-Build scenario is not required for projects that qualify for an EA under NEPA.

A base year analysis was completed using existing 2016 emission rates, the number of lanes indicative of the No Build scenario, and the same assumptions are indicated for the Build scenario in the sections that follow.

**Mobile Source Air Toxics Analysis**

Based on the traffic projects for the analysis years, a quantitative MSAT analysis was conducted consistent with the latest guidance developed by FHWA. These include the 2012 *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA* and the FHWA guidance for addressing a quantitative MSAT analysis using EPA’s Motor Vehicle Emissions Simulator (MOVES) software, titled...

The results of the quantitative MSAT analysis for both the No Build and Build Alternatives are presented in Table 3-13. In all cases, the magnitude of the MSAT emissions is small in the projection years and substantially lower than exists today. EPA's vehicle and fuel regulations are expected to result in substantially lower MSAT levels in the future than exist today due to cleaner engine standards coupled with fleet turnover. The magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area will be substantially lower in the future than they are today.

### Table 3-13. Annual MSAT Emissions by Year, Scenario and Pollutant

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>2016 (Tons Per Year [TPY])</th>
<th>2025 (TPY)</th>
<th>2040 (TPY)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>No Build</td>
<td>Build</td>
</tr>
<tr>
<td>1,3 Butadiene</td>
<td>0.26</td>
<td>0.054</td>
<td>0.055</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.23</td>
<td>0.078</td>
<td>0.079</td>
</tr>
<tr>
<td>Benzene</td>
<td>2.95</td>
<td>1.188</td>
<td>1.207</td>
</tr>
<tr>
<td>Diesel PM</td>
<td>18.00</td>
<td>4.464</td>
<td>4.524</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>3.49</td>
<td>1.481</td>
<td>1.502</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>0.39</td>
<td>0.142</td>
<td>0.144</td>
</tr>
<tr>
<td>Polycyclic Organic Matter</td>
<td>0.21</td>
<td>0.069</td>
<td>0.069</td>
</tr>
<tr>
<td><strong>VMT (million annual vehicle-miles)</strong></td>
<td>1,448</td>
<td>1,562</td>
<td>1,599</td>
</tr>
</tbody>
</table>

### 3.9.2 Build Alternative

**Transportation Conformity**

The NCRTPB is currently updating its CLRP and associated TIP, and the Transform 66 project will be included in the associated regional conformity analysis.

**PM$_{2.5}$ Analysis**

For PM$_{2.5}$, EPA regulations and guidance, as well as the technical criterion specified in the VDOT Resource Document, which was subjected to interagency consultation for conformity in December 2015, were followed to determine that the Build Alternative does not represent a project of air quality concern.

Notwithstanding that interagency consultation for conformity purposes was already conducted on the VDOT Resource Document, on which the models, methods and assumptions were based, interagency consultation was conducted for this project in September 2016. No comments were received that would suggest the project should be considered one of regional air quality concern.
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Carbon Monoxide Analysis
Using EPA’s MOVES2014a and CAL3AHC dispersion model, a quantitative CO hot-spot screening analysis was performed for the Build Alternative. Based on the 2040 Build Alternative traffic results, the top three worst-case intersections were analyzed for the CO screening analysis:

- VA-123 & Lewinsville Rd;
- Idylwood Road & VA-7; and
- Pimmit Dr & VA-7.

In addition, the interchange of I-66 & the Dulles Toll Road exhibited the highest volumes in the corridor and was considered to be the worst-case interchange and therefore also selected for analysis.

A CO screening analysis was performed using worst-case traffic and meteorological inputs to identify in order to determine if CO exceedances could occur as a result of the proposed improvements. The results of the analysis show that the worst-case CO concentrations for the Build scenarios are predicted to be well below the CO NAAQS in both the Interim/Opening Year Build (2025) and Design Year Build (2040) scenarios for each of the worst-case locations analyzed along the proposed project corridor. This screening analysis included the worst-case signalized intersections and the worst-case interchange. Therefore, it is expected that all other locations within the project corridor will remain well below the CO NAAQS and no mitigation measures are required.

Mobile Source Air Toxics Analysis
Table 3-14 shows the change in emissions between the Build Alternative and No Build Alternative and between the Build Alternative and Existing scenarios. These tables show that all of the MSAT emissions are expected to increase slightly for both the 2025 and 2040 Build scenarios when compared to the corresponding No Build scenario. However, when compared to the 2016 Existing conditions, emissions of all pollutants in the Build scenarios show substantial decreases. These reductions occur despite projected increases in VMT from 2016 to the 2025 and 2040 Build scenarios of 10% and 17%, respectively. In 2025, the increased emissions from the No-Build to the Build scenario are between 1.3 - 1.8% with a corresponding 2.4% increase in VMT. In 2040, the increased emissions from the No-Build to the Build scenario are between 1.1 – 1.5% with a corresponding 2.8% increase in VMT. The results of the quantitative MSAT analysis demonstrate that there would be no long-term adverse impacts associated with the Build Alternative, and that future MSAT emissions across the entire study area are expected to be substantially below existing conditions.

Table 3-14. Change in Annual MSAT Emissions by Year, Scenario and Pollutant from No-Build and from Existing Emissions

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Change from No-Build</th>
<th>Change from Existing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2025 Build</td>
<td>2040 Build</td>
</tr>
<tr>
<td>1,3 Butadiene</td>
<td>0.001</td>
<td>0.000</td>
</tr>
</tbody>
</table>
### 3.0 Environmental Consequences

#### 3.10 NOISE

Existing and anticipated future noise levels within the study area under the No Build and Build Alternatives was evaluated in accordance with FHWA’s Procedures for Abatement of highway Traffic Noise and Construction Noise (23 CFR §772) and VDOT’s Highway Traffic Noise Impact Analysis Guidance Manual (updated July 2015). All traffic noise modeling for this study was conducted using the latest version of the FHWA Traffic Noise Model (TNM). The FHWA TNM incorporates state-of-the-art sound emissions and sound propagation algorithms, based on well-established theory or on accepted international standards.

To determine the degree of impact noise will have on human activity, the FHWA established Noise Abatement Criteria (NAC) for different categories of land use. If noise levels are predicted to approach or exceed the absolute FHWA/VDOT NAC for the design year build scenario at any receptor, than an impact is said to occur and a noise abatement evaluation is warranted. VDOT defines the word “approach” in “approach or exceed” as within 1 decibel. The NAC are measured in decibels and denoted as dBA. The study area was determined to include the following NAC categories:

- **Category B** - exterior residential. For uses included within Category B, noise impact would occur wherever project noise levels are expected to approach within one decibel or exceed 67 dBA;
- **Category C** - exterior recreational or institutional, including areas such as campgrounds, libraries, parks, active sport areas, places of worship, and medical facilities. For uses included within Category C, noise impact would occur wherever project noise levels are expected to approach within one decibel or exceed 67 dBA day;
- **Category D** - interior institutional uses which may be noise sensitive, such as auditoriums, day care centers, institutional structures and public meeting rooms. For Category D uses, noise impact would occur where predicted project-related interior noise levels approach or exceed 52; and
- **Category E** - exterior commercial areas, including hotels, restaurants and bars, offices, and similar developed lands, properties or activities. For Category E (commercial) land use, noise impact is assumed to occur where predicted exterior noise levels approach or exceed 72 dBA.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Change from No-Build</th>
<th>Change from Existing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2025 Build</td>
<td>2040 Build</td>
</tr>
<tr>
<td></td>
<td>TPY</td>
<td>%</td>
</tr>
<tr>
<td>Acrolein</td>
<td>0.001</td>
<td>1.4%</td>
</tr>
<tr>
<td>Benzene</td>
<td>0.018</td>
<td>1.6%</td>
</tr>
<tr>
<td>Diesel PM</td>
<td>0.060</td>
<td>1.3%</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.021</td>
<td>1.4%</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>0.002</td>
<td>1.5%</td>
</tr>
<tr>
<td>Polycyclic Organic Matter</td>
<td>0.001</td>
<td>1.3%</td>
</tr>
<tr>
<td>VMT (million annual vehicle-miles)</td>
<td>37</td>
<td>2.4%</td>
</tr>
</tbody>
</table>
In order to evaluate existing noise conditions and predict future noise levels under the No Build and Build Alternative, the study area was separated into 18 Common Noise Environments (CNE). CNEs are groupings of noise-sensitive receptor sites that, by location, form distinct communities within 500 feet of the project study area and contain receptors with similar exposures to noise. These areas are used to evaluate traffic noise impacts and potential noise abatement options for communities as a whole, and to assess the feasibility and reasonableness of possible noise abatement measures for those areas. Areas without noise-sensitive land uses are not identified within CNE boundaries.

Within the CNEs, site visits were conducted to thoroughly review the study area and identify major sources of acoustic shielding (e.g. terrain lines, building rows, existing noise barriers, privacy fences, etc.). During these site visits, noise monitoring was performed at 28 locations. Information gathered during the site visits and monitoring data was included in the noise modeling effort that was conducted for 1,426 additional receptor sites. Monitored receptor sites were used solely for noise model validation and not for the purposes of predicting Existing (2016) and Design Year (2040) noise impacts.

Noise impacts are considered to occur where noise sensitive land uses exceed the FHWA NAC or wherever project-related noise levels cause a substantial increase over existing noise levels for all noise-sensitive exterior activity categories. VDOT considers an increase of 10 dBA or more to be “substantial”. Based on anticipated traffic volumes, vehicle composition, and travel speeds in addition to considerations of Metrorail noise, loudest-hour noise levels were predicted for the Existing (2016) scenario and for the No Build and Build Alternatives during the Design Year (2040).

Overall under existing conditions, the interior and exterior noise levels range from 35 to 78 dBA $L_{eq}$. A total of 93 residential and 57 recreational receptors approach or exceed the NAC.

Table 3-15. Existing and Predicted Noise Impacts

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Ext. Residential (NAC B)</th>
<th>Ext. Recreational (NAC C)</th>
<th>Int. Institutional (NAC D)</th>
<th>Ext. Commercial (NAC E)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>175</td>
<td>56</td>
<td>0</td>
<td>0</td>
<td>231</td>
</tr>
<tr>
<td>No Build</td>
<td>174</td>
<td>57</td>
<td>0</td>
<td>0</td>
<td>231</td>
</tr>
<tr>
<td>Build</td>
<td>281</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>342</td>
</tr>
</tbody>
</table>

3.10.1 No Build Alternative

Overall, predicted future Design Year (2040) No Build Alternative noise levels range from 34 to 78 dBA $L_{eq}$. Noise levels under the No Build Alternative are predicted to remain approximately the same during the loudest-hour of the day, relative to the existing levels. This is anticipated to result from increased congestion predicted during the loudest-hour travel periods slowing travel speeds. A total of 92 residential and 57 recreational receptors are predicted to be above the NAC, similar to existing conditions.

3.10.2 Build Alternative

Predicted 2040 Build Alternative exterior $L_{eq}$s are slightly higher than the Existing and No Build Alternative noise levels, and range from 35 to 79 dBA. On average for all receptors, sound levels are
predicted to increase from Existing to Build conditions by approximately one dBA. This increase is due primarily to the roadway improvements allowing slightly higher traffic volumes in the loudest-hour periods. A total of 145 residential and 61 recreational receptors were above the NAC.

In order to mitigate for the predicted increases in noise under the Build Alternative scenario, the preliminary feasibility and reasonableness of noise barriers were evaluated as an abatement measure in locations where noise impact is predicted to occur.

To be considered “feasible”, a noise barrier must be:

- Effective, reducing noise levels at impacted noise sensitive locations by at least 5 decibels, thereby “benefiting” at least 50% of the impacted receptors in the area; and
- Constructible, accounting for safety, barrier height, topography, drainage, utilities, maintenance of the barrier, and access to adjacent properties.

In order to be considered “reasonable”, a noise barrier must be:

- Cost-effective, requiring less than 1600 square feet per benefited receptor;
- Able to meet VDOT’s noise reduction design goal of 7 decibels for at least one of the impacted receptors; and
- Agreeable to the majority of benefited receptors. Community views are surveyed in the final design phase of the project.

As part of the barrier analysis, 14 CNEs where noise impacts were predicted were evaluated to determine if noise barriers were feasible or reasonable to provide acoustical abatement. A total of approximately 225,000 square feet of noise barrier was preliminarily determined to be feasible and reasonable over the extent of the study area. Existing concrete noise barriers were evaluated and determined to be feasible and reasonable for CNE F. The existing concrete noise barrier for CNE E was evaluated and will be replaced using VDOT’s Highway Traffic Noise Impact Analysis Guidance Manual “in-kind” replacement as detailed in Section 6.3.6. Existing metal noise barriers were evaluated and determined to preliminarily be feasible and reasonable for CNE L and CNE M. The existing metal noise barrier for CNE C was determined to be in disrepair and was removed from all future noise level predictions. A new preliminarily feasible and reasonable noise barrier was identified for CNE C. New noise barriers were evaluated and determined to preliminarily be both feasible and reasonable for CNE C (Barrier C1), CNE D (Barrier System D1-D2), CNE H (Barrier H1 Extension East), (CNE N (Barrier N1), CNE O (Barrier O Extension West) and CNE O (Barrier O Extension East). Further study is required in Final Design to refine the abatement options and no commitments on noise abatement are made until the Final Design phase of the project. Additional details of the barrier analysis and results are included in the Preliminary Design Noise Analysis (VDOT, 2016g).

3.11 STREAMS AND WETLANDS

The entire project study area is located within the Potomac-Shenandoah River Basin, which encompasses a total of approximately 5,702 square miles in Virginia and extends into adjacent states, including portions of Maryland, Pennsylvania, West Virginia, and Washington, D.C. This larger drainage area can be further subdivided into hierarchical hydrologic units. Within this river basin, the corridor is entirely
within one eight-digit hydrologic unit code (HUC) boundary; the Middle Potomac-Anacostia-Occoquan subbasin (HUC 02070010). Included within the subbasin are more localized watersheds and subwatersheds. Portions of the following three 12-digit HUC subwatersheds are within the study area:

- Pimmit Run-Potomac River (HUC 020700100103);
- Four Mile Run-Potomac River (HUC 020700100301); and
- Cameron Run (HUC 020700100302).

I-66 crosses two named streams in the project study area, Four Mile Run and Lubber Run, primarily via box culverts. A bridge crossing is provided in one location where a tributary of Four Mile Run crosses under I-66 alongside the Custis Trail. A total of approximately 2,482 linear feet of streams are located within the study area. Additionally, approximately 0.36 acres of Palustrine Open Water (POW) are also located in the survey area within the Fairfax Drive (Route 237) / Glebe Road (Route 120) interchange area.

A total of approximately 0.66 acre of wetlands are found in the study area, as shown in Error! Reference source not found., which describes the wetland acreages by type. The predominant wetland type is PEM. The majority of these wetlands (0.64 acre) are located within existing VDOT stormwater management facilities.

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Acreage within Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palustrine Forested</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Palustrine Scrub Shrub</td>
<td>0.00</td>
</tr>
<tr>
<td>Palustrine Emergent</td>
<td>0.66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.66</strong></td>
</tr>
</tbody>
</table>

These hydrologic features were field verified by qualified biologists, and verified by the USACE, within the project study area to develop a more informed understanding of the potential impacts to wetlands and streams.

3.11.1 No Build Alternative

The No Build Alternative is not anticipated to require alteration of any streams or wetlands along the corridor.

3.11.2 Build Alternative

The LOD for the Build Alternative have been used to calculate predicted direct effects of the project. The LOD is based on preliminary engineering and design, which has been developed to include both temporary and permanent impacts, including stormwater management facilities and construction access.

The locations of delineated streams and ponds within the environmental study area are shown in Figure 3-5, and Table 3-17 lists the potential impacts to streams and ponds for the Build Alternative. As indicated in Table 3-17, approximately 96.7 linear feet of perennial stream are located within the existing VDOT right of way within the LOD. In addition, 4.6 linear feet of perennial stream would potentially be
impacted within the LOD that is proposed new additional right of way, and 36.2 linear feet of stream are located within the area of temporary easements that would be required during the construction phase of the project. The 0.36 acres of POW located in the survey area within the Fairfax Drive (Route 237) / Glebe Road (Route 120) interchange area would also be impacted by the Build Alternative. As listed in Table 3-17, there are no impacts to wetlands in areas of new proposed right of way under the Build Alternative.

Opportunities to avoid and minimize these potential impacts may be identified as the proposed limits of grading for the Build Alternative are refined during detailed project design stages and permitting. Mitigation for unavoidable wetland and stream impacts would be provided, typically based on standard mitigation ratios within the same eight-digit HUC watershed; however mitigation requirements vary depending on existing stream conditions and level of disturbance. Any impacts to wetlands and streams will require submittal of a Joint Permit Application for permitting from the USACE and VDEQ. Use of credits from an approved mitigation bank or payments to the Virginia Aquatic Resources Trust Fund is the anticipated form of mitigation for the project.
Figure 3-5. Water Resources
### Table 3-17. Potential Impacts to Water Resources within Limits of Disturbance of Build Alternative

<table>
<thead>
<tr>
<th>Category</th>
<th>Existing Right of Way</th>
<th>Proposed Right of Way</th>
<th>Temporary Easement</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Roadway LOD</td>
<td>Noise Wall LOD</td>
<td>Roadway LOD</td>
<td>Noise Wall LOD</td>
</tr>
<tr>
<td>LOD Area (acres)</td>
<td>39.74</td>
<td>10.27</td>
<td>0.12</td>
<td>0.03</td>
</tr>
<tr>
<td>Number of Streams</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Length of Streams (linear feet)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Ephemeral</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Intermittent</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Perennial</td>
<td>52.1</td>
<td>44.6</td>
<td>4.6</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>52.1</td>
<td>44.6</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Wetlands (acres)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palustrine Forested</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Palustrine Shrub Scrub</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Palustrine Emergent</td>
<td>0.6</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>0.6</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Palustrine Freshwater Ponds (acres)</td>
<td>0.36</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Floodplains (acres)</td>
<td>0.22</td>
<td>0.17</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
3.12 WATER QUALITY

Section 305(b) of the Clean Water Act requires each state to submit a report to EPA every two years describing the status of its surface and ground waters. Under Section 303(d) of the Clean Water Act, states are required to develop lists of impaired waters. Both human activities and natural processes can cause impaired water quality. All human-caused impaired waters in Virginia are placed on the federally mandated 303(d) impaired waters list. Waters designated as “impaired” are those that do not support one or more uses, which include aquatic life use, fish consumption use, shellfishing use, recreation use (swimming, boating), public water supply, and wildlife use. States are allowed to report on all of their assessed water under Section 305(b) and those that are impaired under Section 303(d) in a single integrated report.

Of the water resources within the environmental study area, three impaired stream segments are included in Virginia’s 2016 305(b)/303(d) Water Quality Assessment Integrated Report, issued annually by VDEQ. These impaired waterbodies and their cause of impairment are listed in Table 3-18.

Table 3-18. Impaired Waterbodies within 1.0 Mile of Study Area

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Impaired Use</th>
<th>County</th>
<th>Reason for Impairment</th>
<th>Impairment Source</th>
<th>Orientation to Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimmit Run</td>
<td>Recreation</td>
<td>Fairfax County</td>
<td>Bacteria (E.coli)</td>
<td>Point/Nonpoint Source</td>
<td>Within 1.0 mile</td>
</tr>
<tr>
<td>Tripps Run</td>
<td>Aquatic Life; Recreation</td>
<td>Fairfax County; City of Falls Church</td>
<td>Benthic Macroinvertebrates; Bacteria (E.coli)</td>
<td>Point/Nonpoint Source</td>
<td>Within 1.0 mile</td>
</tr>
<tr>
<td>Four Mile Run</td>
<td>Recreation</td>
<td>Fairfax</td>
<td>Bacteria (E. coli)</td>
<td>Point/Nonpoint Source</td>
<td>Crossed</td>
</tr>
</tbody>
</table>

(Source: VDEQ, 2016)

Chesapeake Bay Total Maximum Daily Load (TMDL)

All of the streams within the vicinity of the project study area drain into the Potomac River, and via the Potomac River, they are part of the watershed of Chesapeake Bay. Excessive nutrients in the Chesapeake Bay and its tidal tributaries promote a number of undesirable water quality conditions, such as excessive algal growth, low dissolved oxygen, and reduced water clarity, which impacts the necessary conditions for healthy aquatic life. The excessive amounts of nutrients (nitrogen and phosphorous) and sediment washing into the Bay from its major tributaries result from agricultural operations, urban and suburban stormwater runoff, wastewater facilities, air pollution and other sources, including onsite septic systems.

Since a 1987 Chesapeake Bay Agreement, EPA, the District of Columbia, and the six states in the Chesapeake Bay watershed have implemented various programs to improve the health of the Chesapeake Bay, so that it will meet the requirements of the Clean Water Act. In order to meet the requirements, a TMDL was established to limit the amount of nutrients and sediment allowed to flow into the Chesapeake Bay. State and county requirements have been implemented in an effort to achieve the TMDL goals.
Public Drinking Water
According to Virginia Department of Health (VDH), there are no public drinking water surface resource watersheds or public groundwater wells are located within a 2,000-foot-wide corridor surrounding I-66 between the Dulles Connector Road to Fairfax Drive/Glebe Road (Exit 71). The study area is not within the drainage area of any public surface water intakes.

3.12.1 No Build Alternative
Under the No Build Alternative, stormwater runoff from the existing I-66 roadway will continue to transport sediments and roadway contaminants to local waterbodies, including impaired streams, and the existing water quality conditions are anticipated to either remain or become further exacerbated. The No Build Alternative is not anticipated to notably increase the total pollutant load in the Chesapeake Bay nor would it impact public drinking water supplies.

3.12.2 Build Alternative
The implementation of the Build Alternative improvements could incrementally increase impervious surface area within the LOD, potentially resulting in increased stormwater runoff volumes and roadway contaminants received by impaired waters. Short-term impacts include increased sedimentation, increased turbidity from potential in-stream work, and possible spills or non-point source pollutants entering groundwater or surface water from storm runoff. Increases in impervious surfaces can potentially increase stormwater flows long-term, thus increasing sedimentation and turbidity problems in downstream waters. However, there are no waters impaired for aquatic life, for which increased sedimentation and turbidity are of particular water quality concern, within 1.0 mile of the project corridor that are downstream of the existing and proposed right of way areas. Of the three impaired waters within 1.0 mile of the corridor, only Tripps Run is impaired for aquatic life. Tripps Run is part of the Cameron Run Watershed, which is adjacent to the environmental study area; however, the existing and proposed right of way areas do not drain into this subwatershed and therefore Tripps Run would be unaffected by the Build Alternative. The Build Alternative also is not expected to increase bacteria levels within Pimmit Run or Four Mile Run. The sources of bacterial contamination for these waters are permitted point sources, sanitary sewer and septic systems, wildlife and pets. The Build Alternative improvements would not introduce or cause an increase in any of these sources.

During construction, the contractor would adhere to standard erosion and sediment control measures outlined in the Virginia Erosion and Sediment Control Regulations, the Virginia Stormwater Management Law and regulations, and VDOT’s Road and Bridge Standards and Specifications. This project was approved by VDEQ for stormwater grandfathering under the Part C II technical criteria of 9VAC25-870-93.

Stormwater management measures, such as detention basins, vegetative controls, and other measures, including underground BMPs, will be implemented in accordance with Federal, state, and local regulations to minimize potential water quality impacts. These measures will reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of water bodies in the project vicinity.
**Chesapeake Bay TMDL**

Although the Build Alternative improvements would increase impervious surface area and traffic volumes, the project’s contribution to the total impervious surface area within the Chesapeake Bay watershed, as well as the project’s pollutant contributions to the total pollutant load in the Chesapeake Bay, are anticipated to be minimal. Stormwater management and mitigation pre- and post-construction would minimize potential downstream water quality impacts. The I-66 improvements would be constructed under the VDEQ Construction General Permit (VAR10); it would become a part of VDOT’s Municipal Separate Storm Sewer System (MS4) permit, both of which take into consideration TMDL requirements and it will be required to comply with the applicable water quality requirements contained in the VSMP Regulations.

**Public Drinking Water**

Construction and implementation of the proposed project is not expected to impact public drinking water supplies, and in their scoping response, VDH confirmed that there are no apparent impacts to public drinking water sources due to this project.

As noted above, potential short-term and long-term water quality impacts from release of sediments and other pollutants into surface and groundwater within the project vicinity will be minimized with implementation of appropriate erosion, sediment, and pollutant control practices during project construction and through incorporation of stormwater management BMPs in project design.

### 3.13 FLOODPLAINS

In order to reduce the risk of flood loss and to minimize the impact of floods on human safety, while preserving the natural beneficial values of floodplains, Executive Order 11988, *Floodplain Management*, requires that Federally-aided projects provide an assessment of hazards for any action occurring within a floodplain. A floodplain is the lowland area adjacent to a river, lake, or stream that may become inundated during a rare flooding occurrence. Executive Order 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, issued on January 30, 2015, amends Executive Order 11988 to include a new Federal Flood Risk Management Standard “…to increase resilience against flooding and help preserve the natural values of floodplains.” The new standard gives agencies the flexibility to select one of three approaches for establishing the flood elevation and hazard area they use in siting, design, and construction. They can:

- Use data and methods informed by best-available, actionable climate science;
- Build two feet above the 100-year (1%-annual-chance) flood elevation for standard projects, and three feet above for critical buildings like hospitals and evacuation centers; or
- Build to the 500-year (0.2%-annual-chance) flood elevation.

In order to inform the development of the project design and identify potential floodplain impacts, based on best-available information provided in FEMA Flood Boundary and Floodway maps. According to FEMA data, there are two 100-year floodplains located within the project study area, associated with Four Mile Run and Lubber Run. **Table 3-19** provides a listing and general information on the 100-year floodplains within the 2,000-foot-wide corridor surrounding I-66. Floodplains within the study area also are illustrated in **Figure 3-5**. Approximately 38.92 acres of 100-year floodplain are located within the 2,000-foot-wide corridor.
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#### Table 3-19. 100-Year Floodplains within the Study Area

<table>
<thead>
<tr>
<th>Associated Stream</th>
<th>Floodplain Acres</th>
<th>County</th>
<th>Orientation to I-66</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four Mile Run</td>
<td>6.1</td>
<td>Fairfax/Arlington</td>
<td>Perpendicular Crossing and Parallel to South</td>
</tr>
<tr>
<td>Lubber Run</td>
<td>0.01</td>
<td>Arlington</td>
<td>Perpendicular Crossing</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>6.11</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.13.1 No Build Alternative

Under the No Build Alternative, no floodplain changes are anticipated as a result of Interstate improvements in the study area. An additional evaluation of the study area’s floodplains may be required if any programmed improvements under the No Build Alternative involve major new construction, that is not currently anticipated, with federal funding. These effects would be addressed by the respective project sponsors.

### 3.13.2 Build Alternative

As indicated in Table 3-17, the potential impacts to floodplains are 0.39 acres for the Build Alternative. These potential impacts primarily correspond to the acreage of 100-year floodplains associated with Four Mile Run within the existing right of way. Based on the preliminary design LOD, encroachment on the Lubber Run 100-year floodplain is not anticipated. There are no 100-year floodplains within the proposed right of way. For the purpose of this impact analysis, it is assumed that all 100-year floodplain areas within the LOD have the potential to be impacted by the Build Alternative.

The project design for the Build Alternative will be consistent with federal policies and procedures for the location and hydraulic design of highway encroachments on floodplains contained in 23 CFR 650 Subpart A. The proposed project would not, therefore, increase flood levels and would not increase the probability of flooding or the potential for property loss and hazard to life. Further, the proposed project would not be expected to have substantial effects on natural and beneficial floodplain values. The proposed project will be designed so as not to encourage, induce, allow, serve, support, or otherwise facilitate incompatible base floodplain development. It is anticipated that the potential floodplain encroachments would not be a “significant encroachment” (as defined in 23 CFR 650.105(q)) because:

- It would pose no significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or that provides a community's only evacuation route;
- It would not pose significant flooding risks; and
- It would not have significant adverse impacts on natural and beneficial floodplain values.

Sections 107 and 303 of VDOT’s specifications require the use of stormwater management practices to address concerns such as post-development storm flows and downstream channel capacity. These standards require that stormwater management be designed to reduce stormwater flows to preconstruction conditions for up to a 10-year storm event. As a part of these regulations, the capture and treatment of the first half inch of run-off in a storm event is required, and all stormwater management facilities must be maintained in perpetuity. During project design, a detailed hydraulic survey and study would evaluate
specific effects on stormwater discharges. This evaluation would adhere to the aforementioned specifications to prevent substantial increases of flood levels.

### 3.14 WILDLIFE AND HABITAT

The I-66 corridor within the project limits is primarily urban in nature with dense residential and commercial development along both sides of the road. Within the I-66 right of way, trees and shrubs are scarce due to the extent of the paved areas and the Metrorail corridor in the I-66 median. There are occasional tree plantings, however, within the median between the I-66 and Metrorail rights of way. For example, cedar trees line the median of I-66 eastbound where the roadway parallels Bon Air Park and near the Harrison Street crossing.

The development adjacent to the I-66 corridor is interspersed with several parks within which there are small wooded, semi-wooded, and grass areas. Tree species include sycamore, elm, southern red oak, pin oak, silver maple, red maple, persimmon, locust, black cherry, magnolia, mulberry, walnut, and Virginia pine. Residential areas contain typical landscaping tree and shrub species, e.g. crape myrtle, red maple, Bradford pear, forsythia, azalea, and burning bush. Wildlife along the corridor includes species adapted to urban conditions, such as rabbits, whitetail deer, eastern grey squirrels, red fox, and a number of common bird species. Aquatic habitat is present in Four Mile Run, which parallels the south side of the project corridor for approximately 2.5 miles.

According to the VDCR’s Department of Natural Heritage (DNH), natural heritage resources are present within two miles of the study area. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations. There are no Natural Heritage Conservation Sites or Stream Conservation Units are located within proximity to the study area; however, there is one General Location Area identified within 2,000 feet of the environmental study area. General Location Areas for natural heritage resources represent the approximate locations of documented natural heritage resource occurrences that were not incorporated into Conservation Sites, either because they are poor quality, their location was not precisely identified, or they have not been reverified in over 25 years.

Some of the highly invasive plant species found in the Piedmont region where the project is located that may occur along the I-66 corridor include tree-of-heaven (*Ailanthus altissima*), winged burning bush (*Euonymus alata*), multiflora rose (*Rosa multiflora*), Japanese honeysuckle (*Lonicera japonica*), mile-a-minute (*Persicaria perfoliata*), garlic mustard (*Alliaria petiolata*), and Japanese stilt grass (*Microstegium vimineum*).

### 3.14.1 No Build Alternative

The No Build Alternative is not expected to notably change terrestrial habitat or wildlife within the study area. An additional evaluation of the study area’s terrestrial wildlife and habitat may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors. The No Build Alternative would not impact natural heritage resources.
3.14.2 Build Alternative

The Build Alternative would result in removal of wildlife habitat, including wooded areas. The potential permanent conversion of wooded areas within the proposed right of way for the Build Alternative is 0.06 acre, as shown in Figure 3-6. In addition, there are 11.15 acres of wooded and semi-wooded areas within the existing VDOT right of way and 0.84 acre within areas of temporary easements that may potentially be impacted by the Build Alternative. Habitat loss would generally occur within small isolated habitat patches or along edges of habitats that are already considerably fragmented. No potential corridors for wildlife movement would be substantially disrupted because impacts would take place along the existing I-66 roadway.

Within the anticipated LOD for the Build Alternative, to the extent practicable, temporary construction impacts to wooded areas would be revegetated, according to VDOT’s Road and Bridge Standards.

The Build Alternative is not anticipated to adversely impact natural heritage resources due to the scope of the activity and the distance to the resources.

In accordance with Executive Order 13112, Invasive Species, the potential for the establishment of invasive animal or plant species during construction of the proposed project would be minimized by following provisions in VDOT’s Road and Bridge Standards. These provisions require prompt seeding of disturbed areas with seeds that are tested in accordance with the Virginia Seed Law and VDOT’s standards and specifications to ensure that seed mixes are free of noxious species. In addition, in order to prevent the introduction of new invasive species and to prevent the spread of existing populations, BMPs would be followed, including washing machinery before it enters the area, minimizing ground disturbance, and reseeding of disturbed areas. While the right of way is vulnerable to colonization by invasive plant species from adjacent properties, implementation of the stated provisions would reduce the potential for the establishment and proliferation of invasive species within highway right of way. Consistent with scoping input provided by VDCR DNH, species used for revegetation will not include crown vetch (Securigera varia), tall fescue (Festuca arundinacea), autumn olive (Elaeagnus umbellata), or other plants listed on VDCR’s Virginia Invasive Plant Species List (Heffernan et al, 2014).
Figure 3-6. Wooded Areas Within Build Alternative LOD
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3.15 THREATENED AND ENDANGERED SPECIES

The USFWS is responsible for listing, protecting, and managing federally-listed threatened and endangered Species under the Endangered Species Act of 1973, as amended (ESA). The USFWS defines an endangered species as one that is in danger of extinction throughout all or in a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Federally or state-listed threatened or endangered species, as well as those with designated special status are included in Table 3-20.

Table 3-20. Threatened and Endangered Species Potentially Occurring Within Project Study Area

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood turtle</td>
<td>Glyptemys insculpta</td>
<td>State-listed Threatened</td>
<td>Forested floodplains, fields, wet meadows, and farmland, with nearby streams</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern long-eared bat</td>
<td>Myotis septentrionalis</td>
<td>Federally listed Threatened</td>
<td>Caves and cave-like structures (hibernacula), forests, trees (roosting and foraging)</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>Haliaeetus leucocephalus</td>
<td>Not Listed, Protected By Bald and Golden Eagle Protection Act</td>
<td>Nest in tall hardwood trees with open canopies in close proximity to water bodies where they forage.</td>
</tr>
</tbody>
</table>

3.15.1 No Build Alternative

The No Build Alternative would not require removal of potential habitat for federal or state listed species or those with special status; however, water quality within wood turtle habitats will continue to be affected by the transport of sediments and roadway contaminants via stormwater runoff. An additional evaluation of the study area’s threatened, endangered, or special status species may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors.

3.15.2 Build Alternative

There are no known NLEB hibernacula in the vicinity of the project. Nor are there any known occurrences of summer roosting or foraging NLEBs in the vicinity of the project (VDOT, 2016f). While wooded areas near the project corridor could potentially provide summer roosting and foraging habitat for the species, the quality of such habitat is poor due to fragmentation from urban development. Tree removal associated with the implementation of the Build Alternative would directly disturb forested habitat within the highly-developed urban areas that characterize the project study area. These wooded areas could serve as potential summer roosting habitat for the NLEB. The USFWS issued a 4(d) Rule for the NLEB (50 CFR Part 17) on January 14, 2016, which prohibits incidental take resulting from tree removal if it 1) occurs within 0.25 mile radius of known NLEB hibernacula; or 2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known maternity tree during the pup season (June 1 through July 31). Incidental take of NLEBs from activities not prohibited by the 4(d) rule were evaluated within the USFWS’s Programmatic Biological Opinion for the Final 4(d)
Rule for the NLEB and Activities Excepted from Take Prohibitions. The Biological Opinion concluded that such activities are not likely to jeopardize the continued existence of the NLEB. Federal agencies may rely on the Biological Opinion to fulfill their project-specific Section 7 consultation responsibilities (USFWS, 2016b). On August 8, 2016, the USFWS concurred with a “may affect” determination for the NLEB, and with relying on the findings of the Programmatic Biological Opinion for the Final 4(d) Rule on the NLEB for the proposed project (USFWS, 2016c). As a result, VDOT, on behalf of FHWA, has completed the appropriate coordination and due diligence under Section 7 of the ESA and no further action or coordination is required.

Roadway widening at stream crossings under the Build Alternative would directly disturb aquatic habitat that may potentially support wood turtles. As noted above, widening of I-66 could potentially result in short-term and long term water quality effects including increased sedimentation and turbidity from in-stream work and from additional impervious surfaces. Potential short-term impacts of the proposed project will be minimized with implementation of appropriate erosion and sediment control practices in accordance with the Virginia Erosion and Sediment Control Regulations, the Virginia Stormwater Management Law and regulations, and VDOT’s Road and Bridge Specifications. Potential long term impacts will be minimized via stormwater management measures, such as detention basins, vegetative controls, and other measures, in accordance with Federal, state, and local regulations. These measures will reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of aquatic habitats.

Fragmentation of terrestrial habitats and vehicle collisions are additional concerns for the wood turtle. The proposed project would result in minor loss of wooded and stream habitats, which are currently fragmented by the existing I-66 facility. Impacts from additional habitat loss adjacent to the existing roadway would be incremental and would not newly fragment blocks of habitat. The existing I-66 facility represents a collision hazard for turtles that would not be noticeably worsened with implementation of the Build Alternative. VDGIF and VDCR will be consulted during project design and permitting to identify avoidance and minimization measures to incorporate into project design for state-listed species.

The Build Alternative is not expected to affect bald eagles because there are no bald eagle concentration areas along the project corridor and the nearest nest is well over 660 feet from the proposed right of way.

3.16 HAZARDOUS MATERIALS

Hazardous materials are substances that are defined and regulated by the U.S. Department of Transportation in 49 CFR §171.8 and §172.101 (49 USC §5103). Hazardous wastes are regulated by the EPA and defined in 40 CFR §261. Materials are considered hazardous if they are specifically listed by regulations, exhibit hazardous characteristics, or are universal (e.g. batteries, pesticides, mercury-containing equipment) or mixed wastes. Concerns associated with these materials include health risks, environmental damages, liability issues, potentially high costs of clean-up, and project delay. Hazardous materials sites can include gas stations, industrial sites, businesses that use hazardous materials in commercial operations, aboveground and underground storage tanks, disposal sites, spill sites, and others.

A search of federal and state regulatory agency databases were performed to identify hazardous materials sites of recognized environmental concern within proximity to the project. Based on this database records search, 27 hazardous materials sites/facilities have been identified within the environmental study area.
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The majority of the sites are petroleum registered facilities/petroleum release sites or spills reported to federal and state agencies and all but two cases have been closed. There are two sites listed as active within the environmental study area, where a leaky underground storage tank has been removed and environmental remediation efforts have been undertaken. Additional listings of hazardous materials sites and their respective case status are documented in the Hazardous Materials Technical Memorandum (VDOT, 2016d).

A search of available online mapping revealed that Naturally Occurring Asbestos is not present in any soils within the environmental study area.

3.16.1 No Build Alternative

The No Build Alternative would not disturb soil or groundwater that might have been impacted by any of the hazardous material sites in the environmental study area and project vicinity. An additional evaluation of hazardous material sites/facilities may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors prior to construction.

3.16.2 Build Alternative

There are no hazardous materials sites or facilities that have been identified within the preliminary LOD of the Build Alternative. Of the sites in close proximity to the project, encompassed within the environmental study area, all of the listed sites have either been remediated or are closed cases. While it is difficult to determine based on available database records the extent of substances released and whether hazardous materials have been completely removed or remediated to the satisfaction of jurisdictional agencies, any potential for impact of the Build Alternative related to hazardous material sites or facilities is anticipated to be minimal.

Any additional hazardous materials discovered during construction of the Build Alternative would be characterized and the site remediated in compliance with all applicable federal, state, and local regulations. Prior to or during right of way acquisition, a Phase I environmental site assessment consistent with the American Society for Testing and Materials (ASTM) method E1527-13 will be performed. Findings from ASTM Phase I will be used to determine the applicability of ASTM Phase II, or method E1903-11. All necessary remediation would be conducted in compliance with applicable federal, state, and local environmental laws and would be coordinated with the EPA, VDEQ, and other federal, state, or local agencies as necessary. Prior to, during, and after construction, the contractor would be required to comply with all applicable federal, state, and local regulations.

3.17 INDIRECT EFFECTS AND CUMULATIVE IMPACTS

NEPA legislation does not mention indirect effects or cumulative impacts; however, the CEQ regulations for implementing NEPA address federal agency responsibilities applicable to indirect and cumulative considerations, analysis, and documentation (40 CFR 1508.25) in the content requirements for the environmental consequences section of an EIS (40 CFR 1502.16) (FHWA, 2014). In addition to CEQ’s regulations, indirect effects and cumulative impacts assessment is conducted in accordance with the requirements and processes outlined in 23 CFR Part 771, FHWA Interim Guidance: Indirect and Cumulative Impacts in NEPA (2003), FHWA Position Paper on Secondary and Cumulative Impact
Chapter 3.0  Environmental Consequences


3.17.1 Indirect Effects

CEQ defines indirect effects as “…effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable” (40 CFR 1508.8b)). Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR 1508.8(b)).

For the purposes of this EA, the methodology followed for analyzing indirect effects is prescribed in the TRB’s NCHRP Report 466, Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (TRB, 2002). For additional information and details on the analysis, see the Indirect Effects and Cumulative Impacts Technical Report (VDOT, 2016e).

No Build Alternative

The No Build Alternative would result in increased traffic congestion and associated lost productivity that could cause some individuals or businesses to leave the communities and commercial centers along the I-66 corridor, analyzed in the Indirect Effects and Cumulative Impacts Technical Report (VDOT, 2016e) as the socioeconomic study area. This could result in impacts to community cohesion and loss of business and employment in the study area. As the improvements associated with the No Build Alternative would be marginal, no indirect effects to natural resources or historic properties are anticipated to occur under this alternative. Minimal growth could continue to occur along the I-66 corridor, but it would not be expected to be induced by the improvements associated with the No Build Alternative. As this alternative is the baseline against which the Build Alternatives are compared to assess environmental effects, no mitigation measures are proposed for the No Build Alternative.

Build Alternative

Socioeconomic Resources

The Build Alternative would improve traffic congestion along the I-66 study corridor that would result in moderate reductions in lost productivity due to congestion. The Build Alternative would not result in residential, business, or community facility relocations as the required right of way would be minimal strip acquisitions adjacent to the existing I-66 corridor. Therefore, any indirect effects to community cohesion under the Build Alternative are not anticipated to be substantial.

Temporary indirect effects to socioeconomic resources from temporary road closures, detours and loss of parking during construction would be minimized by informing the affected communities and businesses in advance of when such circumstances would occur, and working with stakeholders and the community to potentially adjust schedules and identify alternative access.
Natural Resources

Potential indirect effects to water resources have been estimated for water resources in the study area analyzed for indirect effects and cumulative impacts to natural resources. The study area was sized to match the extent of potentially impacted watersheds or habitat features. Modern temporary and permanent stormwater management measures, including stormwater management ponds, sediment basins, vegetative controls, and other measures would be implemented to minimize potential degradation of water quality due to increased impervious surface, drainage alteration, and soil disturbance. These measures would reduce or detain discharge volumes and remove many pollutants before discharging into receiving bodies of water separated from the direct impacts project area. To this end, all VDOT projects must comply with the Virginia ESC Law and Regulations, the Virginia SWM Law and Regulations, the most current version of the VDOT Annual ESC and SWM Specifications and Standards, and the project-specific ESC and SWM plans.

VDOT’s practice is generally to maintain both water quality and quantity post-development equal to or better than pre-development, as described in the current guidance, Minimum Requirements for the Engineering, Plan Preparation and Implementation of Post Development Stormwater Management Plans (Instructional and Informational Memorandum Number: IIM-LD-195.8, VDOT – Location and Design Division). Indirect impacts to water quality from contaminant loadings would be reduced through highway design that incorporates runoff pre-treatment, including vegetated medians and swales, and stormwater BMPs.

All roadway crossings would utilize culverts and structures designed to adequately pass design floods and accommodate passage of aquatic organisms. Re-alignment, re-sizing, and replacement of existing culverts can reduce overall current stream quality degradation upstream and downstream of the direct impacts area. Potential indirect effects to wetlands, streams, and floodplains would be minimized by local, state, and federal regulations governing construction impacts in these areas. These regulations require avoidance, minimization, and compensatory mitigation. Implementation of strict erosion and sediment control measures during construction should minimize temporary, indirect effects to wetlands and waters.

The indirect effects to wildlife from habitat loss, fragmentation, and degradation due to reduced water quality or altered hydrology under the Build Alternative should be minimized and mitigated by the measures discussed above for water resources. Design modifications to culverts and bridges, mindful of maintaining natural stream bottoms and natural shoreline preservation would be incorporated to reduce adverse indirect effects to aquatic wildlife. Restoration of wetland and riparian vegetation would reduce potential indirect effects to aquatic and terrestrial wildlife from loss of habitat, habitat fragmentation, and potentially reduced water quality.

Habitat restoration would reduce indirect effects to wildlife from habitat loss, fragmentation, and degradation. Restricting the timing and duration of some construction activities relative to specific species needs would also minimize potential indirect effects to wildlife and protected species feeding, migration, breeding, nesting, and spawning.

Invasive plant species management techniques, as previously described would minimize the indirect effects to wildlife and wildlife habitat from the introduction and spread of invasive species posed by construction of the Build Alternative. VDOT’s Roadside Development Specification 244 and Roadside...
Vegetation Management Policy includes these and other measures to manage invasive plant species. These provisions require prompt seeding of disturbed areas with mixes that are tested in accordance with the Virginia Seed Law and VDOT’s standards and specifications to ensure that seed mixes are free of noxious species.

Additionally, some indirect effects of the Build Alternative to wildlife can be reduced through use of design measures, such as bridging, and countersinking culverts. Using bridges for crossings of streams and associated riparian corridors serves to maintain some existing wildlife movement pathways, while fill with cross-pipes provides a deterrent to movement of certain wildlife species. These measures would be fully considered during design/permitting of the Build Alternative. Temporary construction impacts to fish and macroinvertebrates would be reduced through strict adherence to erosion and sedimentation controls.

The potential indirect effects to threatened and endangered species under the Build Alternative could be reduced using the same measures as discussed above for wildlife habitat. Mitigation measures would be further developed as necessary following additional coordination with VDGIF and USFWS prior to construction. Through the consultation process under the ESA, indirect effects are taken into account and appropriate mitigation measures identified. Consultation would occur before the permit decision, as any mitigation measures, conditions, or restrictions determined necessary by the USFWS would be conditions of any permit issued. Mitigation measures may include use of time-of-year restrictions on construction, contractor training in recognizing and avoiding threatened and endangered species and their habitats, and restoration of habitat. Surveys for species may be required if potential habitat is identified. While many of these mitigation actions would be incorporated to offset direct impacts, they also would mitigate indirect effects outside of the area of direct impact.

**Historic Resources**
No indirect adverse effects to historic properties are anticipated under the Build Alternative.

**Induced Growth**
The Build Alternative has the potential to induce minimal growth or infill development around the existing interchanges and major feeder roads along the I-66 study corridor. Because induced growth is anticipated to occur as infill or redevelopment around existing interchanges in previously developed areas, and such growth would occur primarily in areas allowing that type of development as identified in planning and zoning, it is anticipated that the indirect effects of induced growth to socioeconomic, natural and historic resources would not be substantial.

### 3.17.2 Cumulative Impacts

CEQ defines cumulative effects (or impacts) as “...the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR §1508.7). To document cumulative impacts for this study, the analysis followed the five-part evaluation process outlined in Fritiofson v. Alexander, 772 F.2d 1225 (5th Cir., 1985), as described in FHWA’s Guidance: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process (FHWA, 2014). For additional information and
details on the analysis, see the *Indirect Effects and Cumulative Impacts Technical Report* (VDOT, 2016e).

**No Build Alternative**

Past and present growth and development has increased the standards of living for communities along the I-66 corridor that benefited community cohesion, and provided community facilities and recreational resources. Such growth and development has benefited local economies by improving access to markets and customers. Some past and present developments have resulted in large-scale residential, community facility, and business relocations that adversely affected community cohesion, such as construction of the interstate system and other major freeways. The No Build Alternative would include minimal improvements to the I-66 study corridor and therefore is not anticipated would not result in any incremental impact to community cohesion, community facilities, recreational resources, land use, local economies, or EJ populations in the Cumulative Impacts Study Area.

Past growth and development actions analyzed for cumulative impacts have been primarily adverse to natural resources. Intensification of land use in the Washington, D.C. region has resulted in reduced water quality with many waters impaired for human and wildlife use; loss of wetlands, streams, and floodplains; substantial wildlife population loss from overexploitation and loss of habitat; fragmented habitat; and degraded habitat quality. These past actions also have limited and/or degraded the quality of habitat for existing species. Under the No Build Alternative, the existing fragmented and limited aquatic and wildlife habitat existing within, and adjacent to, the study corridor would continue to degrade, consistent with past and foreseeable future conditions.

With human occupation of the Capitol Region extending thousands of years into the past and ongoing today, archaeological and architectural historic properties have been continuously created and destroyed by succeeding developments over time in the Historic Resources ICE Study Area. Since 1982, this pattern has occurred more extensively and is expected to continue into the future. Transportation improvements and other actions potentially adversely affect archaeological and architectural historic properties by destruction or altering the integrity of their historically important characteristics. Federal and state laws requiring agencies to take into account effects to historic properties have slowed the loss of historic properties.

**Build Alternative**

Past and present actions have shaped the current state of land use and socioeconomic, natural, and historic resources within the Cumulative Impacts Study Area. These actions have been both beneficial and adverse to land use, socioeconomic, natural, and historic resources within the Cumulative Impacts Study Area. Future actions would be both beneficial and adverse to socioeconomic resources and land use, and primarily adverse to natural and historic resources. Coupled with past, present and future actions, the overall cumulative effects of the Build Alternative should be beneficial to socioeconomic resources. Overall cumulative effects of the Build Alternative in combination with past, present and foreseeable future actions to natural and historic resources would be primarily adverse.
Chapter 4.0  COORDINATION AND COMMENTS

VDOT, in cooperation with FHWA, has coordinated extensively with local, state, and federal entities, as well as engaged in an extensive public involvement effort, throughout development of the I-66 Inside the Beltway, Eastbound Widening project in order to provide information and solicit feedback.

4.1 AGENCY SCOPING

Agencies were contacted early in the study and asked to assist in determining and clarifying issues relative to the study. The public was notified about the study and invited to provide comments about transportation needs, potential alternative solutions, and environmental issues within the study area. The agency and public feedback received in response to these coordination efforts was used in the development of the purpose and need, potential alternatives, and environmental issues and methodologies included in this EA. The federal, state, and local agencies, and additional entities listed below, were contacted during the project scoping to obtain pertinent information and to identify key issues regarding the potential environmental impacts for this project.

- Advisory Council on Historic Preservation
- Arlington County
  - Manager’s Office
  - Office of Transportation
- Fairfax County
  - Department of Transportation
  - Office of the County Executive
- Faith Bible Presbyterian Church
- Federal Emergency Management Agency, Region III
- City of Falls Church
- Commonwealth Transportation Board
- Kingdom Hall Jehovah's Witness
- Loudoun County Department of Transportation and Capital Infrastructure
- Metropolitan Washington Council of Governments
- National Trust for Historic Preservation
- Northern Virginia Regional Park Authority
- Saint Ann Catholic Church
- United States Army Corps of Engineers
- United States Department of Agriculture
  - Forest Service
  - Natural Resources Conservation Service
- United States Department of Housing and Urban Development
- United States Department of the Interior
  - Fish and Wildlife Service
  - National Park Service
  - Office of Environmental Policy and Compliance
- United States Department of Transportation
  - Federal Railroad Administration
  - Federal Transit Administration
- United States Environmental Protection Agency
- Virginia Department of Agricultural and Consumer Services
- Virginia Department of Conservation and Recreation
- Virginia Department of Consumer Services
- Virginia Department of Emergency Services
- Virginia Department of Environmental Quality
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Health
- Virginia Department of Historic Resources
- Virginia Department of Housing and Community Development
## Chapter 4.0 Coordination and Comments

| Virginia Department of Mines, Minerals, and Energy |
| Virginia Department of Rail and Public Transportation |
| Virginia Economic Development Partnership |
| Virginia Marine Resources Commission |
| Virginia Outdoors Foundation |
| Virginia State Police Department |
| Washington Metropolitan Area Transit Authority |
| Office of Metrobus Planning, Scheduling, and Customer Facilities |
| Office of Planning |
| Environmental Planning and Compliance |
| Office of Bus Planning, Scheduling and Customer Facilities |

In response to the scoping letters, VDOT received responses from 24 agencies identifying transportation needs, environmental resources, and other relevant factors to be analyzed in this EA. Agency scoping responses can be found in *Appendix B: Agency Correspondence*.

### 4.2 COORDINATION PLAN

This EA was developed in accordance with the procedures in 23 U.S.C §139 and the lead agencies established a formalized approach for coordinating agency (Federal Lead, Joint Lead, Cooperating, and Participating) and public participation, including comment, during the environmental review process. VDOT and FHWA’s formal Coordination Plan defined the approach for coordinating collaborative agency involvement in the development of the EA, and outlined the points and methods through which VDOT, in cooperation with FHWA, would communicate project-related information and solicit comments.

Cooperating Agencies include those government and regulatory agencies with jurisdiction by law (e.g., with permitting or land transfer authority) or special expertise with respect to any environmental impact or resource involved in an environmental review or alternative for study. For the purposes of this study, the EPA and USACE accepted the role of Cooperating Agency. Cooperating Agencies were given the responsibility to participate in the NEPA process, including during the scoping process, and especially with regard to defining the purpose and need, determining the range of alternatives to be considered, methodologies, and the level of detail for the analysis of alternatives. Cooperating Agencies assisted in the identification of any issues regarding potential environmental or socioeconomic impacts.

Participating Agencies include any Federal, State, tribal, regional, and local agencies that have an interest in the project and the environmental review process. Arlington County, the City of Falls Church, DRPT, Fairfax County, FTA, Loudoun County, NVR, NVTA, and WMATA were invited to act as participating agencies. VDEQ and MWAA were also included as participants in the development of the study. Participating Agencies were asked to participate in the NEPA review process, starting during the scoping process, and especially with regard to defining the purpose and need, determining the range of alternatives to be considered, methodologies, and the level of detail for the analysis of alternatives. Participating Agencies assisted in the identification of any issues regarding potential environmental or socioeconomic impacts.
Sections of the EA were provided to Cooperating and Participating Agencies for review and comment as they were preliminarily completed. Two Agency Coordination Meetings were held at VDOT, one in August and another in November. At these meetings, Cooperating and Participating Agencies provided comments on the development of the EA that were incorporated into the document.

4.3 PUBLIC INVOLVEMENT

Public involvement efforts for the I-66 Inside the Beltway, Eastbound Widening project include both Citizen Information Meetings (CIM) and Public Hearings. VDOT uses these meetings as public participation tools for complex EAs as a way to keep the public informed of study updates and to provide the public a chance to raise questions and speak with VDOT representatives.

4.3.1 Citizen Information Meeting
VDOT held CIMs for this study on May 9, 2016 at Washington-Lee High School in Arlington, and on May 11, 2016 at Mary Ellen Henderson Middle School in Falls Church to inform the public about the study and to solicit input from the public and other stakeholders. Pursuant to federal and state regulatory requirements and in accordance with VDOT’s Policy Manual for Public Participation in Transportation Projects (VDOT, 2014), the meeting was advertised in local newspapers, on the study website, and via a press release. The open house format for the CIMs included a presentation and display boards depicting general information on the study, including the study schedule and purpose of the study. Comment sheets and informational handouts were provided at the meeting and also made available on the study website. VDOT representatives were available to discuss the study and answer questions. All comments received during the CIM and public comment period have become part of the study record.

4.3.2 Design Public Hearing
Following the release of this EA, VDOT will hold Design Public Hearings for the study. The Hearings are scheduled for December 5, 2016 at Washington-Lee High School in Arlington and on December 8, 2016 at Mary Ellen Henderson Middle School in Falls Church. These meetings will provide stakeholders another opportunity for public participation. Pursuant to federal and state regulatory requirements and in accordance with VDOT’s Policy Manual for Public Participation in Transportation Projects (VDOT, 2014k), the meeting will be advertised in local newspapers, on the study website, and via a press release. Additionally, Public Hearing notification letters have been sent out to all property owners within or adjacent to the study area 30 days prior to the scheduled hearing date per the Code of Virginia §33.1-223.2:30. The Design Public Hearing will afford the opportunity to present the findings of this EA and associated technical documents, provide a discussion forum between the public and study team, and solicit input and comments from the community. In addition, a public comment period will follow the publication of the EA. All comments received during the public hearing and public comment period will become part of the study record.

4.3.3 Additional Coordination Efforts
In addition to the coordination previously discussed and outside of the formalized coordination process for the environmental review, numerous other meetings and coordination efforts were conducted with federal, state, and local agencies throughout the study process. These meetings were primarily focused on the design elements of the Build Alternative and included coordination with project stakeholders such as NVRPA, Dominion Power, and NVRC.
4.3.4 Other Public Outreach

*Mailing List*
A study mailing list was developed, and property access letters were mailed pursuant to §33.1-94 of the Code of Virginia. VDOT mailed property owners within the study area notification that an agent of VDOT may need to access their property to locate property lines and utilities; locate and review physical features and existing conditions; take photographs; talk to property owners; verify property tax information; perform environmental resource surveys; investigate potential environmental impacts; and conduct all testing and sampling, including, but not limited to shovel tests, soil samples, and borings. The letter included contact information for the VDOT Project Manager, should letter recipients have questions or concerns.

*Website*
Information for the study, including the EA and all technical documentation, is made available to the public through the following VDOT website: [http://inside.transform66.org/](http://inside.transform66.org/). The website has been updated as new information has become available, and allows interested members of the public to join the mailing list to receive Transform I-66: Inside the Beltway improvement program information by email. All meeting materials, including comment forms, are available on the website.
Chapter 5.0 REFERENCES


Chapter 5.0 References


Chapter 5.0 References


Chapter 5.0 References


APPENDIX A

SECTION 4(F) MEMORANDUM
1. INTRODUCTION

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA), is evaluating improvements along approximately four miles of eastbound Interstate 66 (I-66) between the Dulles Connector Road (Route 267) in Fairfax County to Fairfax Drive (Route 237) in the Ballston area of Arlington County, Virginia (see Figure 1-1).

The purpose of the improvements under consideration is to increase capacity in order to improve traffic operations, reduce congestion, and address safety needs. Pursuant to the National Environmental Policy Act of 1969, as amended, (NEPA) and in accordance with FHWA regulations, VDOT is preparing an Environmental Assessment (EA) to analyze the potential social, economic, and environmental effects associated with the improvements being considered. As part of the EA being prepared, VDOT is evaluating the environmental consequences of the No Build Alternative and one Build Alternative. In support of that effort, this purpose of this technical memorandum is to describe the potential hazardous materials sites along the I-66 corridor and identify potential impacts that could result from implementation of the improvements. Information in this memorandum will support discussions presented in the EA.

1.1 HISTORY OF I-66

I-66 was primarily developed to serve east-west travel from I-81 near Strasburg, Virginia, on the west, to Washington, D.C., in the east. Initial planning for the 76-mile corridor began in 1956, and the first segments west of I-495 were opened between 1958 and 1964. Inside of I-495, I-66 was originally conceptualized as an eight-lane interstate facility, for which preliminary planning and study began in 1962 to identify a location for I-66 through Fairfax and Arlington Counties. In 1962, right of way (ROW) acquisition and construction were initiated on portions of the I-66 corridor inside of I-495. However, in April 1972, work was suspended until an Environmental Impact Statement was completed, pursuant to NEPA and Section 4(f) of the Department of Transportation Act of 1966, to consider the social and environmental impacts of the project. Following extensive environmental review and consideration of numerous alternative solutions, I-66 was ultimately approved in 1977 as a multi-modal transportation concept that included a four-lane interstate facility with a dedicated median ROW for the construction of the Metrorail transit system for part of its length.

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Figure 1-1. Project Location
I-66 opened inside of I-495 in 1982 as one of the first interstates in the United States limited to high occupancy vehicle (HOV)-only traffic during peak weekday travel periods. At its outset, on all lanes between I-495 and Washington, D.C., I-66 functioned as a HOV-restricted facility for carpools with four or more occupants during weekday peak periods. Rush hour occupancy requirements were reduced to three or more in 1983 and again reduced to two or more in 1995. Drivers of hybrid vehicles were once permitted to use the HOV-restricted lanes even without meeting minimum rider requirements; however, in response to rising congestion in the I-66 corridor during HOV-restricted hours, regulations changed to require that only vehicles with clean special fuels license plates issued prior to July 2011 could legally use the HOV lanes on I-66 without meeting the occupancy requirements during the restricted periods.

1.2 PROJECT HISTORY

In an effort to better understand the increasingly congested travel conditions in the I-66 corridor, several studies have been undertaken. In 2009, the Virginia Department of Rail and Public Transportation (DRPT) conducted the I-66 Transit/Transportation Demand Management (TDM) Study, which focused on the overall I-66 corridor from Route 15 to downtown Washington, D.C. and recommended a variety of services and infrastructure improvements to increase mobility in the corridor. Upon completion of this 2009 study, the corridor was divided into two sections for more detailed analysis of the recommendations. The western section between Route 15 and I-495 and the eastern sections between I-495 and Washington, D.C. were identified as logical endpoints for future studies of transportation and mobility improvements, based on identified travel demand patterns, concentrations of transit and carpool markets, and corridor constraints for transit, highway, and bicycle and pedestrian improvement options.

In 2012, VDOT and DRPT completed the I-66 Multimodal Study Inside the Beltway, followed by a 2013 Supplemental Report, which examined several alternatives for the corridor and developed a recommended package of improvements. The combination of these studies and their specific findings and recommendations formed the basis of the planned multimodal changes for the Transform 66: Inside the Beltway improvements program. Comprehensively, these changes include the following components:

- Converting I-66 inside of I-495 to dynamically-priced toll lanes during peak travel periods (construction initiated Summer 2016, anticipated project opening 2017);
- Applying toll revenue to the development of improved multimodal transit options including enhanced bus service, enhanced carpool, and other TDM strategies throughout the corridor; and
- Widening of I-66 eastbound from the Dulles Connector Road to Fairfax Drive in Ballston.

Each of these individual components of the overall Transform I-66: Inside the Beltway improvements program was included in the Metropolitan Washington Council of Government’s (MWCOG) approved Financially Constrained Long-Range Transportation Plan (CLRP) for the National Capital Region. Although identified as a package of programmed improvements, each component consists of an individual project(s) with independent utility to be implemented in a specific sequential progression to address a variety of distinct needs along I-66 inside of I-495 in the near-, mid-, and long-term future, as funding is identified. Included among the identified needs are overarching goals such as enhance connectivity, improve transit service, increase travel options, and reduce roadway congestion. The distinct project components of the Transform I-66: Inside the Beltway improvements program are intended to specifically address these identified needs, independently from one another.
The needs for the widening component of the Transform I-66: Inside the Beltway program improvements initiative were initially identified in the I-66 Multimodal Study Inside the Beltway report but have been further considered through the detailed evaluations described in the following sections. Based on these detailed evaluations, the immediate needs are more pronounced along eastbound I-66 in the study area, which have informed the development of improvements for consideration. As a result, the eastbound portion of I-66 within the study area is the focus of this study. Following the implementation of other components of the Transform I-66: Inside the Beltway program, improvements along westbound I-66 will be evaluated as part of the progression of Transform I-66: Inside the Beltway improvements.

1.3 ALTERNATIVES CARRIED FORWARD FOR DETAILED STUDY

1.3.1 No Build Alternative

In accordance with the implementing regulations for NEPA (40 CFR § 1502.14(d)), the No Build Alternative has been retained for detailed study and serves as a benchmark for comparison with the Build Alternative. The No Build Alternative would retain the existing configuration of I-66 through the study area except for those modifications to the roadway network that have been programmed and approved for implementation by 2040, as identified in the most recent CLRP. Prepared by the National Capital Region Transportation Planning Board, which is the designated Metropolitan Planning Organization for the Washington, D.C. region under the Metropolitan Washington Council of Governments (MWCOG), the current CLRP includes projected transit and traffic, demographic, and air quality conditions through the 2040 horizon year. The most recent 2040 CLRP was adopted in October 2015 but includes amendments through 2016.

The regional planned and programmed transportation projects in close vicinity to the study area that could influence the improvements being evaluated include the following:

- Tolling along I-66 between the I-495 Capital Beltway in Fairfax County to Lee Highway (Route 29) near the Rosslyn area of Arlington County. During morning and evening commutes, this segment of I-66 is currently restricted to carpools (with 2 or more people), vehicles with authorized clean special fuel license plates, Dulles Airport travelers, and law enforcement. The HOV restrictions are enforced between 6:30-9:00 AM (all eastbound travel lanes) and 4:00-6:30 PM (all westbound travel lanes). With the I-66 Inside the Beltway tolling program, carpools and vanpools (with 2 or more people, until a regional change to HOV-3+ goes into effect in 2020), transit, on-duty law enforcement, and first responders will continue to use the lanes for free. Solo drivers will be given the opportunity to use the interstate during the restricted period by paying a toll. The tolling program will extend the restricted period to 5:30-9:30 AM (all eastbound travel lanes) and 3:00-7:00 PM (all westbound travel lanes) and is anticipated to be implemented by 2017.

- I-66 Spot Improvements – Spot 3, which include construction of an auxiliary lane extension connecting the on-ramp from Exit 72 Lee Highway/Spout Run (Route 29) to the off-ramp to North Glebe Road (Route 120) on westbound I-66. The project is expected to be completed in 2020.

- Construction of two express lanes in either direction along I-66 between James Madison Highway (Route 15) in Haymarket to the I-495 Capital Beltway, while maintaining three general purpose lanes in each direction and providing a number of travel choices including express transit buses and park and ride facilities along the corridor.
Leesburg Pike (Route 7) widening from six to eight lanes between Chain Bridge Road (Route 123) and I-495 and from four to six lanes between I-495 and I-66.

On I-66, the vehicle occupancy requirement for all HOV/high occupancy toll (HOT) restrictions will change from two or more (2+) to three or more (3+) in 2020. The exemption for clean fuel and hybrid vehicles to use HOV lanes will also expire by 2020.

Other transit-oriented transportation improvements included in the CLRP include new priority bus routes on I-66, Route 29, and Route 50; Metrorail station improvements at Ballston and East Falls Church; and service enhancements for numerous bus routes inside the I-495 Capital Beltway.

1.3.2 Build Alternative

The Build Alternative would include the construction of one additional lane in the eastbound direction beginning at approximately mile post 67.7, just east of the convergence of I-66 eastbound and the Dulles Connector Road. The widening would continue for a total of approximately 3.3 miles to mile post 71.0, where the Fairfax Drive/Glebe Road exit ramp diverges from eastbound I-66. To avoid and minimize the potential impacts of the improvements under consideration, a variety of typical sections have been developed to incorporate the widening largely within the existing VDOT right of way.

The widening would primarily occur to the inside of the roadway throughout the extent of the study area with the exception of one location: just west of Patrick Henry Drive to exit 71 at Fairfax Drive and Glebe Road (approximately mile posts 70.1 to 71.0). In this location, the widening would transition, utilizing Typical Section 3, from the median to the outside of the roadway along the existing shoulder. At mile post 71.0, the eastern project terminus, the additional lane would tie in to the existing mainline lane configuration. The Build Alternative will include sound barriers at locations meeting the federal criteria and supported by adjacent benefited property owners. The improvements also would include modifications to existing intersecting roadways and bridges as well as to existing drainage systems including inlets, roadside ditches, culverts, storm sewer systems, and stormwater management facilities.
2. REGULATORY CONTEXT AND METHODOLOGY

Under the provisions of Section 4(f) of the US Department of Transportation Act of 1966 (49 USC § 303(c)), FHWA may approve the use of land from publicly owned parks or recreation areas, publicly owned wildlife or waterfowl refuges, or historic sites that are listed in, or eligible for listing in, the National Register of Historic Places (NRHP) for federal-aid highway projects if it determines that there is no feasible and prudent avoidance alternative and the action includes all possible planning to minimize harm to the property. FHWA also may approve the use of land from such properties if it determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a de minimis impact, as identified in 23 CFR § 774.17, on the property. A “use” of a Section 4(f) property occurs:

(4) when land is permanently incorporated into a transportation facility;
(5) when there is a temporary occupancy of land that is adverse in terms of the statute’s preservation purpose; or,
(6) when there is a constructive use of a Section 4(f) property.

Existing public parks, recreational areas, wildlife and waterfowl refuges, and public and private historical sites were identified through a review of locality planning documents as well as available mapping, aerial photography, and geographic information systems (GIS) data.

3. SECTION 4(f) RESOURCES

3.1 KNOWN SITES WITHIN INVENTORY CORRIDOR

A total of 19 Section 4(f) resources were identified within the environmental study area. Additional details on these properties can be found in the Socioeconomic and Land Use Technical Report (VDOT, 2016b) and the Hazardous Materials Technical Memorandum (VDOT, 2016a).

3.1.1 Parks and Recreation Areas

There are seven publicly-owned parks within the environmental study area. The amenities offered by each of these parks, their location, and additional information are identified below in Table 3-1.

Table 3-1. Study Area Park Sizes and Amenities

<table>
<thead>
<tr>
<th>Park</th>
<th>Address</th>
<th>Amenities</th>
<th>Size (Acres)</th>
<th>Acres Within Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madison Manor Park</td>
<td>6225 12th Rd. N, Arlington, VA 22205</td>
<td>Picnic Area, Playground, Softball/Baseball Field, Tennis Courts, Basketball Court, Path, Access to Custis Trail, and Historic Brandymore Castle</td>
<td>13.1</td>
<td>0.7</td>
</tr>
<tr>
<td>East Falls Church Park</td>
<td>1730 Roosevelt St, Arlington, VA 22205</td>
<td>Basketball Court, Multi-purpose Field, Green Space, Stream</td>
<td>4.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Westover Park</td>
<td>1001 N Kennebec St, Arlington, VA</td>
<td>Picnic Area, Playground, Softball/Baseball Fields</td>
<td>3.9</td>
<td>0.1</td>
</tr>
</tbody>
</table>
### Table 3-2. Bicycle/Recreational Trails in the Study Area

<table>
<thead>
<tr>
<th>Trail</th>
<th>Location</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluemont Junction Connector</td>
<td>West side of Ballston Pond Park</td>
<td>Access at N Glebe Road, Washington Boulevard, and Fairfax Drive.</td>
</tr>
<tr>
<td>Bluemont Junction Trail</td>
<td>Bluemont Junction Park</td>
<td>Access at Fairfax Drive, N Buchanan Street, and N George Mason Drive.</td>
</tr>
<tr>
<td>Bon Air Park Trail</td>
<td>Bon Air Park</td>
<td>Access via Custis Trail and N Lexington Street.</td>
</tr>
<tr>
<td>Custis Trail</td>
<td>Adjacent to I-66 corridor from crossing of Patrick Henry Drive and continues east through study area.</td>
<td>Several access points through study area.</td>
</tr>
<tr>
<td>Four Mile Run Trail</td>
<td>East Fall Church Park and Madison Manor Park</td>
<td>Access from W &amp; OD Trail and N Sycamore Street.</td>
</tr>
<tr>
<td>Neighborhood Trail, Custis Mirror</td>
<td>South side of I-66 near N Harrison Street crossing</td>
<td>Access from Custis Trail and N Harrison Street.</td>
</tr>
<tr>
<td>W&amp;OD Connector</td>
<td>Generally located on the north side I-66 near Madison Manor Park</td>
<td>Several access points in study area.</td>
</tr>
</tbody>
</table>
W&OD Trail

<table>
<thead>
<tr>
<th>Location</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Located along I-66 corridor from N Washington Street to Patrick Henry Drive where it continues southeast</td>
<td>Several access points in study area.</td>
</tr>
</tbody>
</table>

3.1.2 Wildlife and Waterfowl Refuges

There are no wildlife or waterfowl refuges within the study area.

3.1.3 Historic Properties

Four previously documented properties that are eligible for or are already listed on the NRHP were identified within the study area, and are considered Section 4(f) resources for the purposes of this study. Table 3-3 summarizes the architectural resources that are either recommended potentially eligible, eligible, or listed on the NRHP within the study area.

**Table 3-3. Surveyed Resources Located within the Architectural Area of Potential Effects that are Recommended Potentially Eligible, Eligible, or NRHP Listed**

<table>
<thead>
<tr>
<th>VDHR Number</th>
<th>Name/Property Address</th>
<th>Year Built</th>
<th>Description</th>
<th>Previous Eligibility Determination</th>
<th>Current Eligibility Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-4211</td>
<td>Madison Manor Neighborhood Historic District</td>
<td>1947-1960</td>
<td>Residential suburban historic district, period of significance, 1947-60</td>
<td>Not Evaluated</td>
<td>Potentially Eligible</td>
</tr>
<tr>
<td>000-4212</td>
<td>Dominion Hills Historic District</td>
<td>1945-1948</td>
<td>Historic district, period of significance, 1945-48</td>
<td>NRHP Listed</td>
<td>NRHP Listed</td>
</tr>
<tr>
<td>000-4906</td>
<td>Brockwood-Kearney’s Addition Historic District</td>
<td>1940-1952</td>
<td>Residential suburban historic district, period of significance, 1940-52</td>
<td>Not Evaluated</td>
<td>Potentially Eligible</td>
</tr>
<tr>
<td>053-0276</td>
<td>W&amp;OD Railroad Historic District</td>
<td>Ca. 1855</td>
<td>Linear resource</td>
<td>Eligible</td>
<td>Remains Eligible</td>
</tr>
</tbody>
</table>

3.2 Sites Impacted by Alternatives

3.2.1 No Build Alternative

Impacts to identified Section 4(f) resources within the environmental study area are not anticipated under the No Build Alternative.
3.2.2 Build Alternative

Of the 19 qualifying Section 4(f) resources identified within the study area, a total of two resources are anticipated to be impacted under the Build Alternative. Impacts to these resources are described in further detail below.

W&OD Trail

In order to facilitate improved operational movements and increase safety, a grade-separated overpass of the W&OD Trail is included as part of the Build Alternative to alleviate pedestrian and traffic conflicts at the intersection of Washington Boulevard/Lee Highway (Route 29) and Fairfax Drive. The new structure at Washington Boulevard/Lee Highway (Route 29), in the vicinity of the Arlington-East Falls Church community, would provide safer access across the roadway for bicycle and pedestrian users of the W&OD Trail. This beneficial improvement is not anticipated to affect the function of the recreational facility.

In order to accommodate the implementation of the grade-separated overpass, approximately 1.2 acres of property owned by the Northern Virginia Regional Park Authority (NVRPA) are anticipated to be temporarily impacted by the construction of the trail improvements. This particular at-grade crossing has been previously identified by the NVRPA as a dangerous intersection VDOT and NVRPA have worked closely to develop a trail crossing that would meet the NVRPA’s bridge guidelines. The NVRPA finds that by removing the at-grade crossing will be beneficial for the trail by enhancing safety for all trail users. VDOT is committed to continue working with the NVRPA to find a design solution that is aesthetically pleasing and one that provides a safe crossing. Short-term impacts to the recreational trails, bike lanes, and/or bike routes could include temporary detours during construction; however the overall function of the facility is not anticipated to be affected.

Bon Air Park

In order to accommodate for adequate and safe sight distance along the mainline of eastbound I-66 just east of Patrick Henry Drive, the widening would occur along the outside shoulder and would require minor right of way acquisition and temporary construction easements from the Bon Air Park community facility. As a result, the adjacent Custis Trail would need to be realigned. The preliminary design for the trail realignment has been developed to improve sight lines for bicyclists and pedestrians utilizing the Custis Trail and crossing underneath I-66 at Bon Air Park. The right of way required to accommodate the widening and trail enhancements would be minimal and are not anticipated to affect the function or access of the community facilities. Approximately 0.07 acres of right of way would be permanently acquired and approximately 1.22 acres of temporary easement for construction would be required from Arlington County at Bon Air Park in the vicinity of the Bluemont Community.

On the north side of I-66, across from Bon Air Park, temporary construction impacts may occur as a result of the installation of sound barriers identified in the preliminary design phase to meet federal requirements for attenuation of noise impacts from the Build Alternative improvements. During construction, short-term impacts to the Custis Trail could include temporary detours during construction; however the overall function of the facility is not anticipated to be affected. In the Bon Air Park facility and along the Custis Trail, areas affected by temporary construction activities would be revegetated and returned to similar existing conditions. VDOT retains jurisdiction over the Custis Trail, which is...
considered to be dedicated to a transportation use in its current function. Therefore Section 4(f) regulations would apply only to Bon Air Park and not to the Custis Trail.

**De minimis**
Under the regulations implementing Section 4(f) 23 CFR § 774.17, FHWA intends to make a *de minimis* impact finding with respect to the project’s Section 4(f) involvement with each of the resources identified above. The basis for these findings includes the following:

- The project would not permanently interrupt the continuity of the trails and/or recreational areas.
- The temporary suspension of pedestrian and bicycle traffic on the W&OD Trail would last no longer than necessary to complete the project’s construction. Limitations of access would be coordinated throughout construction with local governments.
- The project would be designed to ensure the future design and construction of the proposed trail would not be prohibited.
- The land disturbed by construction would be fully restored.

The officials with jurisdiction over the affected resources will be asked to concur in writing, following an opportunity for public comment, that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. The public will be given opportunity at the public hearing to review and comment on the proposed project and the proposed *de minimis* finding.
April 25, 2016

Ms. Halie Stannard  
VDOT Environmental Division  
4975 Alliance Drive  
Fairfax, VA 22030

Ref:  Transform 66: Inside the Beltway, Eastbound Widening  
Environmental Assessment – Scoping Process  
City of Falls Church, Arlington and Fairfax Counties, Virginia

Dear Ms. Stannard:

On April 15, 2016, the Advisory Council on Historic Preservation (ACHP) received your notification for the proposed development of an Environmental Assessment for the referenced project. Our comments were requested regarding the potential environmental impacts, particularly any issues or concerns specific to human and natural resources under our jurisdiction, within the study area indicated. We have no comments pursuant to the National Environmental Policy Act at this time.

In order to ensure compliance with Section 106 of the National Historic Preservation Act, VDOT, in conjunction with the Virginia Division of the Federal Highway Administration (FHWA), should initiate the Section 106 process by notifying the Virginia State Historic Preservation Officer (SHPO), Indian tribes, and other consulting parties with an interest in historic properties pursuant to our regulations, “Protection of Historic Properties” (36 CFR Part 800). Through early consultation the agencies will be able to determine the appropriate strategy to ensure Section 106 compliance for this undertaking. VDOT and FHWA should continue consultation with the SHPO and other consulting parties to identify and evaluate historic properties within the project’s area of potential effect and to assess any potential adverse effects. If you determine, through consultation with the consulting parties, that the undertaking will adversely affect historic properties, or that the development of an agreement document is necessary, FHWA must notify the ACHP and provide the documentation detailed at 36 CFR § 800.11(e).

Should you have any questions regarding compliance with the requirements of Section 106, please contact MaryAnn Naber at 202-517-0218 or by e-mail at mnambr@achp.gov.

Sincerely,

Charlene D. Vaughn  
Assistant Director  
Office of Federal Agency Programs  
Federal Permitting, Licensing, and Assistance Section
May 10, 2016

Halie Stannard  
VDOT Environmental Division  
4975 Alliance Drive  
Fairfax, VA 22030  
Halie.stannard@vdot.virginia.gov

Re: Transform 66: Inside the Beltway, Eastbound Widening, VDOT Project Number 0066-96A-417, UPC 108424

Dear Ms. Stannard,

Thank you for the opportunity to comment on the scoping process for the Environmental Assessment (EA) of the I-66 widening project. Management of the I-66 corridor is of the utmost importance to Arlington, so we are grateful to be able to work with you. We formally accept the invitation to be a Participating Agency to support the development of the EA.

Ever since the initial construction of I-66, Arlington County has consistently opposed efforts to widen it, calling for a package of multimodal improvements and more efficient management techniques instead. In November, 2015 the County Board updated its official position on the issue to support the overall multimodal Transform 66 plan, but called on the widening to not occur until after 2025, when a thorough assessment of the multimodal elements’ impacts could be performed.

The County is thus disappointed that the widening will take place immediately. We are, however, encouraged and grateful for VDOT’s spirit of compromise and inclusiveness throughout this process. And though we continue to oppose immediate widening, we nonetheless hope to provide valuable feedback, to ensure any widening that does occur results in the best possible outcome for our community.

We appreciate your ongoing coordination with Arlington County Transportation staff. Per the Draft Coordination Plan for Agency and Public Involvement, we look forward to assisting you in determining the range of alternatives to be considered, methodologies, and the level of detail for the analysis of alternatives. We will provide meaningful and timely input on issues and respectfully request advance communications related to EA documentation and public outreach. Please work through Dennis Leach and his staff on this effort.

As VDOT advances with the EA, Arlington’s primary concerns will be that the project not undermine our investments and successes in transit and transit-oriented development, that multimodal and recreational facilities parallel to I-66 (including the Custis Trail and nearby parkland) be preserved or enhanced, and that the surrounding residential neighborhoods not suffer negative impacts.
Please find attached our response to your scoping process questionnaire, which you sent to us on April 15, 2016.

We look forward to continued close coordination with you on this important project.

If you have any questions, do not hesitate to contact me.

Sincerely,

Mark J. Schwartz
County Manager

cc: Arlington County Board
    Dennis Leach, Arlington Director of Transportation
Economic development:

1. Will the proposed project affect economic development in the area?
   a. If the project is successful in improving traffic conditions and promoting alternative modes then it would benefit the transportation network of the entire region including trips to work and other business-related travel and tourism. Conversely, if the project is not successful by either failing to provide sufficient resources to alternative modes or by exacerbating existing negative traffic conditions, the project will negatively affect economic development in Arlington County.

2. Do you have any concerns with regard to economic development in connection with this project?
   a. Arlington’s largest economic engines are the transit-oriented Metrorail corridors. One of our most important competitive advantages is the transit-oriented nature of the corridors, which allows workers to avoid traffic congestion. It’s crucial to Arlington that any project on I-66 not undermine the transit-oriented nature of these corridors by adding more traffic to them, as that would undermine the competitive advantage that underlies their success.

3. Additional comments:

Environmental services:

1. Is there any potential for the contamination of a public water supply system due to the proposed project?
   a. No, assuming standard design and construction practices are followed and VDOT coordinates with the County’s Water, Sewer, & Streets Bureau concerning any utility conflicts within the project area.

2. Will the proposed project affect a public water supply?
   a. No direct impacts to a public water supply are expected.

3. Do you anticipate any adverse effects from the proposed project on local sanitary facilities, such as public sewer systems or private septic fields?
   a. No direct impacts to local sanitary facilities are anticipated, although VDOT should coordinate with the County’s Water, Sewer, & Streets Bureau concerning any utility conflicts within the project area.

4. Do you have any other concerns regarding public health in connection with this project?
   a. As mentioned in the previous survey, air quality impacts of the proposed lane widening should be evaluated using best available air quality modeling techniques suitable for linear projects. The Environmental Assessment should also address conformity of this project with the State Implementation Plan, particularly with respect to ozone and fine particulate emissions in the project area both with and without the proposed lane widening. Additionally, the Four Mile Run stream corridor already experiences degraded storm water runoff conditions from I-66 that could be exacerbated by this project. The EA should address runoff, with a particular emphasis on impacts to Four Mile Run.

5. Additional comments:

Fire Department:

1. Based on the project location, will the project affect the emergency operations of the Arlington County Fire Department?
   a. We do not anticipate that it will.

2. Are there concerns associated with the construction of the project regarding the overall functions of the Arlington County Fire Department?
a. If the project causes traffic conditions on any streets within Arlington County to worsen, it could adversely affect Fire Department response times.

3. Additional comments:
   a. Gregg Karl of the fire department spoke with the fire station closest to I-66 and they could not recall any outstanding issues during the last phases of construction.

Parks and Recreation:
1. Are there any existing or planned recreational sites within the project area?
   a. Adjacent to I-66 are 13 Arlington County owned parks, the Custis Trail, and the W&OD Trail owned by the Northern Virginia Regional Park Authority (NVRPA). Both trails are heavily used by residents throughout the region for recreation and commuting. The adjacent parks also contain recreation amenities such as athletic fields and courts, and natural lands with significant tree canopy.

2. Are there any locally significant historic sites in close proximity to the proposed project?
   a. Arlington County and the W&OD Trail contain locally and nationally designated historic sites and districts that will need careful consideration. More information and coordination is needed to fully answer this question. Please provide and coordinate with us on the proposed locations for signage, toll gantries, and other supporting infrastructure.

3. Are there concerns about impacts to Parks and Recreation?
   a. Impacts to trees, view sheds, and the general use and enjoyment of the parks and trails are a concern. More information is needed to answer this question. Please provide the proposed locations for signage, toll gantries, and other supporting infrastructure.

4. Additional comments:

Public Schools:
1. Will any new or existing schools be impacted by the project? If so, please provide a diagram of the school and school grounds.
   a. Impacts would be limited to changes in traffic patterns affecting school buses.

2. Please provide a schedule of school ground activities (curricular and extra-curricular).
   a. N/A

3. Is the school air-conditioned? Please identify whether all or which portions of the school are air-conditioned.
   a. N/A

4. Were any federal funds used for school improvements? If so, please identify those improvements.
   a. N/A

5. Do you have any other concerns regarding public schools in connection with this project?
   a. We need to see final plans prior to answering this question. There is potential for congestion around the exits on N Sycamore/N Roosevelt and S Glebe/Fairfax Dr during construction, which would affect school buses and school drop-offs, particularly for Tuckahoe Elementary. Severe congestion might result in the need to add routes to reduce delays. Depending on the severity, impacts could be on the order of a few hundred thousand dollars a year to put extra buses on the road.

6. Additional comments:

Manager's Office:
1. Do you anticipate or are you aware of any organized opposition to the proposed project?
   a. Yes. Arlington County has long opposed widening I-66, but the county supports the project’s overall multimodal focus. It is unclear how active or organized community opposition is currently. In the past, groups like the Arlington Coalition for Sensible Transportation have organized to support a “wiser, not wider” multimodal plan. With the multimodal plan in place and moving forward, opposition may be more limited than in the past.

2. Will the proposed project disrupt a community or planned development?
   a. More information is needed to answer this question. Any expansion of the I-66 right-of-way (including expansion of the highway into existing state right-of-way that’s currently used for open space or the Custis Trail) would disrupt the surrounding community.

3. Is the project consistent with community goals, such as proposed land use?
   a. More information is needed to answer this question. Arlington’s land use plans focus growth around walkable transit-oriented urban villages, both adjacent to Metro stations and in other areas. This project may provide an opportunity for the state to better align with the community’s land use goals, for example by permitting redevelopment of the East Falls Church parking lot. Alternatively, this project could disrupt the community’s land use goals if it expands highway facilities or adds traffic to urban village areas.

4. What are the existing and proposed zonings for this area?

5. Have any building permits been issued for development/redevelopment of property along the proposed project corridor? If so, please include the location, a brief description of proposed development, and a copy of the development plan(s) (preferably in digital format).
   a. More time is needed to provide this information.

6. Will the proposed project be compatible with the County’s planning?
   a. The multimodal aspects of the I-66 project are compatible, but the County’s planning does not support widening.

7. Are there any agricultural/forestall districts within the proposed project boundaries?
   a. I-66 is zoned S-3A, a special district intended to retain properties in a relatively undeveloped state. The same zoning category is used for parks, schools, stream valleys, some federal facilities (including military bases), and major infrastructure including I-66, I-395, Reagan National Airport, US-50, George Washington Parkway, and Route 100.
8. Is the proposed project endorsed by the Board of Supervisors and in the County Comprehensive Plan?
   a. On November 19, 2015 the Arlington County Board endorsed the multimodal plan for I-66, but urged no widening until 2025.

9. Where is the proposed project ranked in County transportation improvement needs?
   a. The project has not been ranked.

10. Is the County developing any mass transit options for this corridor?
    a. Yes, as part of a sub-region, County-wide, and staff process. Further coordination will be necessary for greater detail.

11. Are there any existing or planned recreational sites within the proposed project area?
    a. See response in the Parks & Recreation section.

12. Are there any locally significant historic sites in close proximity to the proposed project?
    a. There are several significant historic sites and districts adjacent and within the vicinity of the project. Impact to these sites and districts should be considered. There are 7 designated historic districts and numerous historic sites with proximity to the proposed I-66 project area.

13. Will the proposed project affect a public water supply?
    a. No direct impacts to a public water supply are expected.

14. Does the County have a preferred scheme of development for the project?
    a. The County is likely to have comments regarding lane layout, highway exits, signage, toll gantries, and other infrastructure likely to be installed as part of this project. We will review and comment once additional information is provided.

15. Are there any concerns about impacts to Parks and Recreation?
    a. See response in the Parks & Recreation section.
The Department of Conservation and Recreation (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources within two miles of the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

There are no State Natural Area Preserves under DCR’s jurisdiction in the project vicinity.

Many invasive plant species are adapted to take advantage of soil disturbances and poor soil conditions. These adaptations are part of what enable certain species to be invasive. Non-native invasive plants are found throughout Virginia. Therefore, the potential exists for some VDOT projects to further the establishment of invasive species. To minimize the potential for invasive species infestation, projects should be conducted to minimize the area of disturbance, and disturbed sites should be revegetated with desirable species at the earliest opportunity following disturbance. Equally as important, species used for revegetation should not include the highly invasive species that have traditionally been used for revegetating disturbed sites. We recommend VDOT avoid using crown vetch, tall fescue, and autumn olive if at all possible.

For more information on invasive alien plants and native plants, see the DCR-Division of Natural Heritage website http://www.dcr.virginia.gov/natural-heritage/invspinfo.shtml. For sources of native plant material, see the Virginia Native Plant Society’s website (http://vnps.org) or the U.S. Fish and Wildlife Service nursery list for Virginia (http://www.fws.gov/ChesapeakeBay/BayScapes/bsresources/bs-nurseries.html).

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.
All VDOT projects on state-owned lands must comply with the Virginia Erosion & Sediment Control (ESC) Law and Regulations, the Virginia Stormwater Management (SWM) Law and Regulations, the most current version of the DCR approved VDOT Annual ESC and SWM Specifications and Standards, and the project-specific ESC and SWM plans. [Reference: VESCL §10.1-560, §10.1-564; VESCR §4VAC50-30 et al; VSWML §10.1-603 et al; VSWMR §4VAC-3-20 et al].

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from [http://vafwis.org/fwis](http://vafwis.org/fwis), or contact Ernie Aschenbach at 804-367-2733 or [Ernie.Aschenbach@dgif.virginia.gov](mailto:Ernie.Aschenbach@dgif.virginia.gov). According to the information currently in our files, Pimmit Run, which has been designated by the Virginia Department of Game and Inland Fisheries (VDGIF) as a “Threatened and Endangered Species Water” for the Wood turtle is within 2 miles of the project area. Therefore, DCR recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Thank you for the opportunity to comment on this project.

Cc: Ernie Aschenbach, VDGIF
Valerie Fulcher, DEQ – Office of Environmental Impact Review
EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
  o www.epa.gov/enviro/index.html

- EPA NEPAassist Database

  Facilitates the environmental review process and project planning:
  http://nepaassisttool.epa.gov/nepaassist/entry.aspx

If you have questions about the environmental review process and/or the federal consistency review process, please feel free to contact me (telephone (804) 698-4204 or e-mail bettina.sullivan@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

Bettina Sullivan

Bettina Sullivan, Program Manager
Environmental Impact Review and
Long-Range Priorities
Ms. Stannard,

The Division of Land Protection & Revitalization (DLPR) has completed the request for the scoping comments of the scoping request for Transform 66: Inside the Beltway, Eastbound Widening project in Arlington & Fairfax Counties. All of the information that is listed in the letter sent to you, dated April 15, 2016, from Bettina Sullivan of this Department address all DLPR comments at this time.

Thanks,
Katy T. Dacey
Office of Financial Responsibility & Waste Programs
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219
(804) 698-4274
(804) 698-4234 FAX
MEMORANDUM

TO: Halie Stannard, Environmental Specialist - VDOT

FROM: Daniel Moore, Principal Environmental Planner - DEQ

DATE: May 20, 2016

SUBJECT: Scoping Comments - Transform 66: Inside the Beltway, Eastbound Widening, Arlington and Fairfax Counties and City of Falls Church

We have reviewed the scoping letter and submitted information for the proposed project and offer the following comments regarding consistency with the provisions of the Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations):

In Arlington and Fairfax Counties and the City of Falls Church, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores, and a minimum 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. The RMA, which require less stringent performance criteria, includes all remaining areas of all three localities.

This project proposes to widen approximately four miles of eastbound Interstate 66 (I-66) between the Dulles Airport Access Road (Route 267) and North George Mason Drive (Route 6710) in an effort to reduce traffic congestion along the I-66 corridor inside the Interstate 495 (I-495) Capital Beltway. Construction, installation, operation and maintenance of public roads within CBPA lands are conditionally exempt from the Chesapeake Bay Preservation Area Designation and Management Regulations, § 9 VAC 25-830-150 B 1, if further conditioned by the following:

1. Optimization of the road alignment and design, consistent with other applicable requirements, to prevent or otherwise minimize (a) encroachment in the RPA and (b) adverse effects on water quality.

Provided adherence to the above requirements, the proposed activity would be consistent with the Chesapeake Bay Preservation Act and the Regulations.
From: Burstein, Daniel (DEQ)
Sent: Thursday, May 05, 2016 1:55 PM
To: Stannard, Halie (VDOT)
Cc: Fulcher, Valerie (DEQ)
Subject: RE: VDOT - Transform 66: Inside the Beltway, Eastbound Widening, Arlington & Fairfax Counties; - EA Scoping Request

NRO comments regarding the Scoping Request for the VDOT: Transform 66: Inside the Beltway, Eastbound Widening, located in Arlington & Fairfax Counties, Virginia are as follows:

**Land Protection Division** – The project manager is reminded that if any solid or hazardous waste is generated/encountered during construction, VDOT would follow applicable federal, state, and county regulations for their disposal.

**Air Compliance/Permitting** - The project manager is reminded that during the construction phases that occur with this project; the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120. In addition, should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during demolition and construction, the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100.

**Virginia Water Protection Permit (VWPP) Program** – The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. DEQ VWP staff recommends that the avoidance and minimization of surface water impacts to the maximum extent practicable as well as coordination with the US Army Corps of Engineers. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance.

**Water Permitting/VPDES Program/Stormwater** - The project manager is reminded to follow all applicable regulations related to stormwater management and erosion and sediment controls.

Daniel Burstein
Regional Enforcement Specialist, Senior II
Virginia Department of Environmental Quality
Northern Virginia Regional Office
13901 Crown Court
Woodbridge, VA 22193
Phone: (703) 583-3904
daniel.burstein@deq.virginia.gov.
Ms. Julie V. Langan, Director
ATTN: Mr. Marc Holma, Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

VDOT Project: 0066-96A-417, C501, P101, R201; UPC 108424 (I-66 EB Widening in Fairfax and Arlington Counties)
VDHR File: 2016-0741
County: Fairfax and Arlington Counties
Funding: Federal
Action Required: Identification of Historic Properties-Archaeology

Dear Mr. Holma:

The Virginia Department of Transportation (VDOT) is currently conducting environmental studies for the proposed Interstate 66 Inside the Beltway (ITB) East Bound (EB) Corridor Widening in Arlington and Fairfax Counties. The VDOT, on behalf of the Federal Highway Administration (FHWA), is coordinating this undertaking with your department and other interested/consulting parties in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800. This letter constitutes a formal request for concurrence with our identification of historic properties (archaeological sites) within the Area of Potential Effects (APE) for this project.

Project Description and APE

The proposed undertaking consists of a 3.7-mile section along the existing EB lanes of I-66 extending from Exit 67 (Dulles Connector Road Interchange) in Fairfax County to Exit 71 (Fairfax Drive/Glebe Road) in Arlington County. The project proposes to widen the EB lanes from two to three lanes in order to relieve traffic congestion.

The area of potential effects (APE) is defined as the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). Specifically, the APE for archaeological resources for this project consists of the potential widening areas
situated to the outside of the EB lanes, where construction might be expected (totaling 96-ac/39-hectares). This area includes the construction footprint and easements for the project. The APE for archaeological resources was based on a conceptual understanding of the potential limits of construction, ground disturbance, and ROW acquisition comprising the area of direct effects of the project (see Archaeological Management Summary, August 2016: Figures 2-4). The APE for indirect effects is identified in the architectural resource survey report which will be submitted to you separately.

Identification of Historic Properties

In June-July 2016, Dovetail Cultural Resource Group (Dovetail), a sub-consultant to VDOT’s consultant, Parsons Transportation Group, Inc., performed Phase I archaeological survey for the project. Please find enclosed 2 hardcopies (and 1 copy on CD-ROM) of the report entitled, *Phase I Archaeological Survey of the Interstate 66 Inside the Beltway Eastbound Widening in Fairfax and Arlington Counties, Virginia: Management Summary*. It is the VDOT’s opinion that the report meets the Secretary of the Interior’s Standards and Guidelines (1983), as well as the VDHR Guidelines for cultural resources reports (2011). The VDOT agrees with the findings of this report.

The archaeological survey consisted of a pedestrian survey and shovel testing in the APE. Shovel tests were excavated at 50-foot intervals across portions of the project APE. Judgmental shovel tests were excavated in areas of disturbance to confirm the areas as disturbed. The shovel tests were excavated into sterile subsoil or to the practical limits of excavation. No archaeological materials or features were observed, and no archaeological resources are located within the project APE. The architectural resource survey report will be submitted for your review separately after completion by the cultural resources consultant.

Consulting Parties

This letter and the Phase I Archaeology Management Summary report are being provided to the consulting parties copied below to allow them the opportunity to review and comment on VDOT's findings within 30 days of receipt. If additional organizations express an interest in becoming consulting parties, a copy of these documents will be provided to them. The FHWA has also provided the Delaware Nation and the Pamunkey Indian Tribe the opportunity to participate as consulting parties for this project.

The VDOT invites you to review the enclosed information (Phase I archaeology report) and concur with our findings by signing the signature block below and returning the original signature to my attention within 30 days. If you or any of the consulting parties copied on this letter have any questions or need additional information about this project, please do not hesitate to contact me at (540) 654-1737 or Raymond.Ezell@vdot.virginia.gov.

Sincerely,

[Signature]

Raymond Ezell, RPA
District Archaeologist
Enclosure

cc: Ms. Rebecca Ballo, Arlington County Department of Community Planning, Housing & Development
    Mr. Karl VanNewkirk, Arlington Historical Society
    Ms. Elizabeth Crowell, Fairfax County Park Authority
    Ms. Linda Blank, Fairfax County Planning Department
    Ms. Elizabeth Crowell, Fairfax County Park Authority
    Mr. Stuart Tyler, Parsons Transportation Group, Inc.

cc:/file108424

CONCURRENCE

The Virginia Department of Historic Resources (DHR) concurs with the Virginia Department of Transportation’s (VDOT): 1) definition of the project’s Area of Potential Effects (APE); 2) efforts to identify archaeological properties; 3) finding that no archaeological resources are located in the project APE that meet the criteria for National Register of Historic Places (NRHP) eligibility; and 4) No additional archaeological investigation is necessary for I-66 EB Widening in Fairfax and Arlington Counties, VDOT Project No. 0066-96A-417, C501, P101, R201 (UPC 108424); VDHR File No. 2016-0741.

Ms. Julie V. Langen
Director, Virginia Department of Historic Resources
Virginia State Historic Preservation Officer

20 Sept 16
Date
2016-0741
September 16, 2016

Ms. Julie V. Langan, Director
Attention: Mr. Marc Holma
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221


Dear Mr. Holma,

As described in the August 19, 2016 letter to your office, the Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration, is currently evaluating the potential social, economic, and environmental effects of transportation improvements along approximately four miles of eastbound Interstate 66 (I-66) from the Dulles Connector Road (VA Route 267) in Fairfax County to Fairfax Drive (VA Route 237) in the Ballston area of Arlington County, Virginia. The Transform I-66: Inside the Beltway, Eastbound Widening project consists of the addition of one lane in the eastbound direction as well as some improvements to existing intersecting roadways and bridges. Modifications are also being considered to existing drainage systems including inlets, roadside ditches, culverts, storm sewer systems, and storm water management facilities.

Definition of Area of Potential Effects (APE)

In order to accurately reflect the anticipated impacts of the ITB Eastbound Widening project, the Limits of Disturbance (LOD) have been used to calculate predicted impacts of the project, including any anticipated direct effects to cultural resources. As a result, the project’s LOD is considered to be the basis for the area of potential effects (APE) for direct effects to cultural resources. The LOD is based on preliminary engineering and design, which has been developed to include both temporary and permanent impacts, including storm water management facilities and construction access. The LOD largely follows the existing VDOT right of way along I-66, with the exception of the areas that have been expanded: on either side of the intersection of US Route 29 (Lee Highway) along a segment of the bike path, the Washington & Old Dominion (W & OD) Railroad (RR)/Trail in Falls Church, and just east of the perpendicular crossing of Patrick Henry Drive through Bon Air Park. To be specific, the enlarged spaces area between MP 69.1 and 69.4 (0.3 mile) and between MP 70.2 and 71.0 (0.8 mile).
Defining the direct effects APE based on the project LOD provides a more realistic estimate for outcomes that may occur from the implementation of the proposed undertaking, as opposed to assuming all of the environmental resources inventoried along the entire extent of the study area would be affected. As the project advance into detailed stages of engineering and design, the anticipated impacts to environmental resources may be subject to change.

For potential indirect effects to standing structures beyond the LOD, architectural resources have been examined and obvious areas where sightlines are obstructed by vegetation or modern buildings are narrower whereas open spaces such parking lots, fields and low-lying plants have necessitated more expansive boundaries. As a result, the APE for indirect effects includes tax parcels immediately adjacent to and outside of the direct effects APE and any parcels abutting those parcels, see Management Summary, page 3 (Overview) and pp. 21-24 (close-up maps).

Identification of Historic Properties

Supplemental Archaeological Investigation

On August 31, 2016, a supplemental Phase I archaeological investigation was conducted for a portion of the direct effects APE that was not investigated during the previous Phase I archaeological survey coordinated with your office in August 2016. This portion of the APE is located near the crossing of Lee Highway by the W&OD RR/Trail and consists of a linear grassy park-like environment circumscribed by modern, urban development on all sides. This portion of the APE also contains the W&OD RR/Trail for a distance of approximately 500-ft west of Lee Highway and approximately 350-ft east of Lee Highway (see aerial map, below). As most of this area has been previously disturbed by construction associated with the W&OD RR/Trail and later enhancements, a total of four shovel tests were excavated to investigate the potential for intact archaeological deposits that may be eligible for the National Register of Historic Places (NRHP). All shovel tests were excavated in portions of the APE west of Lee Highway.

The shovel tests profiles excavated in this area yielded results that were not unexpected. Stratum I consisted of 7.5YR 4/4 loam over Stratum II typically consisting of 7.5YR 5/6 clay loam with some inclusions of 7.5YR 5/8 sand. Stratum III in shovel test A4 was characterized by 7.5YR 2.5/1 clay loam with 50-75% road construction gravel. Stratum IV in STP A2 was characterized by 7.5YR 5/6 clay loam with inclusions of 7.5YR 5/8 sand. The depths of soil zones in each shovel test were variable. Stratum I generally extended to 0.4-ft bgs. Stratum II extended from 0.4 to 1.0-ft bgs below Stratum I. Stratum III (when encountered) was from 0.2 to 0.6-ft thick, and Stratum IV (only in STP A2) was 0.3-ft thick. Numerous gravels occurred in all STPs, and Stratum III in STP A4 probably represents the relict railroad berm. STP A2 was characterized by a topsoil- subsoil-topsoil-subsoil sequence.

The inspection and shovel tests indicate that the APE has been thoroughly disturbed and the western terminus of the APE is on sloped ground adjacent to the existing W&OD RR/Trail. No archaeological remains were observed, and the portion of the APE to the east of Lee Highway has been thoroughly disturbed precluding shovel testing. The supplemental archaeological survey for the portion of the direct effects APE along the W&OD RR/Trail resulted in a negative finding. No further archaeological work is recommended in this regard.
Location of the Supplemental Archaeological Survey.

Architectural Properties

The counties of Arlington and to a lesser degree, Fairfax, have been the recipient of numerous surveys through the years. Between June and August 2016, Dovetail Cultural Resource Group (Dovetail), a sub-consultant to VDOT’s consultant, Parsons Transportation Group, Inc., performed a Phase I architectural survey for the project. Please find enclosed the V-CRIS documentation as well as 2 hardcopies (and 1 copy on CD-ROM) of the report entitled, Phase I Architectural Survey of the Interstate 66 Inside the Beltway Eastbound Widening in Fairfax and Arlington Counties, Virginia: Management Summary. VDOT finds that the report meets the Secretary of the Interior’s Standards and Guidelines (1983), as well as the VDHR Guidelines for cultural resources reports (2011).

Following completion of a records review and background research, the survey team visually inspected the APE for indirect effects for any and all properties that will meet the age criteria by 2020. Generally speaking, in this location, the I-66 corridor is characterized by an elaborate and increasingly dense network of roads and ramps linking it to clusters of homes and offices, shops and other local amenities, with buildings dating primarily from the early-mid twentieth century to the present. The study identified a total of 40 architectural resources within the APE; 29 of which were previously recorded resources. This group is comprised of 24 individual properties, three districts, and two linear resources. The VDHR had determined eligibility on three resources. Two properties are eligible and/or listed on the NRHP: The
W & OD RR Historic District (DHR Inventory # 053-0276) is an eligible resource while the Dominion Hills Historic District (DHR Inventory # 000-4212), is a property listed on the NRHP since 2012. The third resource has been determined not eligible for NRHP inclusion; Berkey’s Addition Historic District (DHR Inventory # 000-4230). In addition to this group are another eleven (11) newly identified standing structures that meet the age criteria which were documented using V-CRIS. Nine are individual resources and two are districts.

**Properties listed on /or previously determined eligible the NRHP**
Dominion Hills HD (000-4212) + 13 associated properties Single Dwellings (000-4212-0092, -0093, -0326, -0349, -0350, -0351, -0352, -0353, -0354, -0355, -0356, -0357, -0359)
W & OD RR Historic District (053-0276)

**Properties recommended as being eligible for NRHP listing**
Benjamin Elliott’s Coal Trestle (053-0276-0006) contributing resource to the NR-elig. W & OD RR Historic District (053-0276)
Brockwood-Kearney’s Addition Historic District to Bon Air (000-4906)
Madison-Manor Neighborhood Historic District (000-4211)

**Properties (new and previously documented) recommended as being not individually eligible or as contributing elements for NRHP consideration**
The Washington, Arlington, and Falls Church Electric Railway (029-5470)
Berkey’s Addition Historic District (000-4230)
Falls Church Park Historic District (000-9730)
House, 6610 19th Rd N (000-4208-0043)
House, 6721 19th Rd N (000-4208-0084)
House, 6715 19th Rd N (000-4208-0085)
House, 6709 19th Rd N (000-4208-0086)
House, 6707 19th Rd N (000-4208-0087)
House, 1028 N Arlington Mill Dr (000-4214-0392)
House, 917 N Jacksonville St (000-4214-0393)
House, 5410 9th Rd N (000-4214-0398)
House, 913 N Harrison St (000-4214-0400)
House, 908 N Greenbrier St (000-4214-0401)
House, 5420 9th Rd N (000-8713)
House, 965 N Harrison St (000-8716)
House, 909 N Greenbrier St (000-8718)
House, 905 N Greenbrier St (000-8719)
House, 900 N Frederick St (000-8720)
House, 1933 N Van Buren St (000-9730-0001)
House, 6700 19th Rd N (000-9730-0002)
House, 1919 N Underwood St (000-9730-0003)

This conveyance letter and the contents herewith are being provided to the consulting parties copied below to allow them the opportunity to review and comment on VDOT’s findings. We invite you to indicate your concurrence with our recommendations on eligibility by signing below and would ask that
you please return the original signature to this office at your very earliest convenience or within 30 days. If you have any questions or need additional information about this report or project please do not hesitate to contact me at 540-899-4033 and/or Helen.Ross@VDOT.Virginia.gov. Thank you for your assistance and we look forward to working with you on this exciting transportation project.

Sincerely,

[Signature]

Helen P. Ross
District Preservation Manager

Enclosures

Cc: Ms. Rebecca Ballo, Arlington County Preservation Planner
    Mr. Karl VanNewkirk, President, Arlington County Historic Society
    Ms. Stephanie Goodrich, Fairfax County Historic Preservation Planner
    Mr. Stuart Tyler, Parsons Transportation Group
The Virginia Department of Historic Resources concurs with the Virginia Department of Transportation's recommendations:

1) the definition of the area of potential effects;

2) the efforts to identify historic properties;

3) the following properties retain their integrity and should remain listed and/or are recommended as eligible for NRHP listing: Dominion Hills Historic District (000-4212) and 13 associated properties, W & OD RR Historic District (053-0276), Benjamin Elliott’s Coal Trestle (053-0276-0006) as a contributing resource to the NR-elig. W & OD RR Historic District (053-0276), Brockwood-Kearney’s Addition Historic District to Bon Air (000-4906), and Madison-Manor Neighborhood Historic District (000-4211);

4) that the following properties are not individually eligible for NRHP inclusion nor do they contribute to a historic district if one were to exist: The Washington, Arlington, and Falls Church Electric Railway (029-5470), Berkey’s Addition Historic District (000-4230), Falls Church Park Historic District (000-9730), House, 6610 19th Rd N (000-4208-0043), House, 6721 19th Rd N (000-4208-0084), House, 6715 19th Rd N (000-4208-0085), House, 6709 19th Rd N (000-4208-0086), House, 6707 19th Rd N (000-4208-0087), House, 1028 N Arlington Mill Dr (000-4214-0392), House, 917 N Jacksonville St (000-4214-0393), House, 5410 9th Rd N (000-4214-0398), House, 913 N Harrison St (000-4214-0400), House, 908 N Greenbrier St (000-4214-0401), House, 5420 9th Rd N (000-8713), House, 965 N Harrison St (000-8716), House, 909 N Greenbrier St (000-8718), House, 905 N Greenbrier St (000-8719), House, 900 N Frederick St (000-8720), House, 1933 N Van Buren St (000-9739-0001), House, 6700 19th Rd N (000-9730-0002), House, 1919 N Underwood St (000-9730-0003); and

5) no further archaeological work is warranted

November 2, 2016

Ms. Julie V. Langan, Director  
Attn: Mr. Marc Holma  
Office of Review and Compliance  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, VA 23221


Dear Mr. Holma:

The Virginia Department of Transportation (VDOT) is concluding environmental studies associated with the above referenced project in Northern Virginia. The purpose of this letter is to coordinate with your department and others and to seek your concurrence on VDOT's effect determination for the historic resources on the project. On behalf of the Federal Highway Administration, the VDOT is coordinating this evaluation with your department in accordance with Section 106 of the National Historic Preservation Act, as amended and its implementing regulations, 36 CFR 800.

The proposed undertaking primarily consists of transportation improvements along approximately four miles of Interstate 66 (I-66) inside of the Interstate 495 (I-495) Capital Beltway from the Dulles Connector Road (VA Route 267) in Fairfax County to Fairfax Drive (VA Route 237) in the Ballston area of Arlington County, Virginia. The Transform I-66: Inside the Beltway, Eastbound Widening improvements would include the construction of one additional lane in the eastbound beginning at approximately milepost 67.7, just east of the convergence of I-66 eastbound and the Dulles Connector Road. The widening would continue to milepost 71.0, where the Fairfax Drive/Glebe Road exit ramp diverges from eastbound I-66. The improvements would include modifications to existing intersecting roadways and bridges as well as to existing drainage systems including inlets, roadside ditches, culverts, storm sewer systems, and storm water management facilities. New sound barriers and modifications of existing barriers
would be incorporated at locations meeting the federal criteria and supported by benefited property owners.

As defined in our previous September 16, 2016 correspondence, and concurred by your agency in October 11, 2016, the project’s Limits of Disturbance (LOD) defines the area of potential effects (APE) for archaeology while the APE for indirect effects mimics the LOD with the exception of two enlarged spaces between milepost 69.1 and 69.4 (0.3 mile) and between milepost 70.2 and 71.0 (0.8 mile).

Based upon the current preliminary design, modifications to existing sound barriers and construction of new barrier locations would be included as part of the project improvements. The LOD associated with sound barrier construction are anticipated to be fully located within the existing public right of way. Additional coordination with your agency will be conducted as the project progresses and additional information is known about the specifics of the design and anticipated impacts; however, the sound barrier construction is not anticipated to potentially affect significant character-defining features of any historic properties.

Archaeological Resources
Previous investigations associated with this project have revealed no archaeological features and no archaeological resources located within the project APE for direct effects. Through coordination with your agency and others it has been determined that none of the findings meet eligibility criteria set for in the National Register of Historic Places (NRHP). No further work is necessary.

Architectural Properties Listed or Eligible in the NRHP
In October 2016 your agency concurred that of the 11 newly identified architectural properties none were found to meet any of the NRHP evaluation criteria. Thus, we are left with five (5) previously documented properties that are eligible for or are already listed on the NRHP.

Dominion Hills Historic District (000-4212) — this resource has been listed on the NRHP since 2012 due to its exemplary post-World War II collection of mostly Colonial Revival style residential architecture, Criteria C, and under Criteria A for its association with Community Planning. The VDHR has previously concurred that the property still retains sufficient integrity to remain listed in the NRHP.

Brockwood-Kearny’s Addition Historic District to Bon Air (000-4906) — this resource is eligible under Criteria A, Community Planning and Development due to retention of its intact suburban layout. Additionally, under Criteria C, for its architectural significance, it maintains a high degree of integrity among the Minimal Traditional style houses. Its period of significance dates from 1940 through 1952 due to it being developed in two distinct phases, one is pre-WWII and the other is post-WWII.
Madison-Manor Neighborhood Historic District (000-4211) – another collection of domiciles that signify the post-WW II building boom, the historic district has a period of significance from 1947 to 1960. It is eligible under Criteria A, Community Planning and Development, and Criteria C, architecture.

Washington & Old Dominion (W & OD) Rail Road (RR) Historic District (053-0276) – determined eligible in 1999 by VDHR, the property is an example of a small regional mid-19th to mid-20th century transportation-related resource that traverses three counties: it is eligible under Criteria A for its association with Transportation and Commerce.

Benjamin Elliott’s Coal Trestle (053-0276-0006) - this property is associated with the NRHP-eligible W & OD RR Historic District (053-0276). The remnants of the industrial feature contribute to the linear historic property by conveying an important visual reminder of industrial infrastructure of which not many examples survive: it retains its historic location and association with the railway.

**Effect Determination**
In accordance with 36 CFR 800.5(a), VDOT has applied the criteria of adverse effect to historic properties within the project’s APE. The regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended, define an effect as an “alteration to the characteristics of a historic property qualifying it for inclusion in or eligible for the National Register” (36 CFR 800.16(i)). The effect is adverse when the alteration of a qualifying characteristic occurs in a “manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling or association” (36 CFR 800.5(a)). **VDOT has determined that this project as proposed will have no adverse effect on historic properties.**

**Archaeological Resources**
No archaeological sites eligible for or listed in the NRHP are located within the project’s APE. The VDOT has concluded that the project will not affect any significant archaeological resources because project construction impacts are primarily limited to areas previously disturbed by road construction and maintenance.

**Architectural Resources**
Dominion Hills Historic District – the historic boundary of the NRHP-listed property lies approximately 105 feet outside the project’s construction limits, which would primarily occur within the existing median of I-66 at this location. Additionally, I-66 is partially obscured from the property’s historic boundaries. The existing sound barrier combined with the naturally occurring topography serve to effectively conceal the district from I-66 motorists and will remain in place.
Ms. J. V. Langan  
November 2, 2016  
Page Four

No new right of way or acquisition of easements is needed. The significant characteristics specifically the historic location, design, materials, workmanship, setting, feeling and association of the Dominion Hills Historic District will neither be altered nor diminished by the proposed construction activities. As a result, VDOT has concluded that the project improvements will have no effect on the Dominion Hills Historic District.

Brockwood-Keamy’s Addition Historic District to Bon Air – in this section of the project area, the existing sound barrier is to remain in place. The eastbound widening would occur on the outside shoulder of I-66 within the existing right of way and abutting the existing retaining wall. VDOT finds that there will be no diminishment or alteration of the important features that qualify the resource for NRHP inclusion and have concluded that the project will have no effect on the Brockwood-Keamy’s Addition Historic District.

Madison-Manor Neighborhood Historic District – is another post- WW II neighborhood. In proximity to the district’s proposed historic boundaries, which are aligned adjacent to existing I-66, the preliminary noise analysis indicates that the current sound barrier would remain in place. There are no plans to extend the wall vertically or horizontally. Furthermore, the widening in this vicinity will occur within the existing median. No new right of way or easement acquisition is needed. Thus, the project would not alter or diminish any of the significant characteristics of the historic district that distinguish the property as being eligible for the NRHP and VDOT has concluded that the project will have no effect on the Madison-Manor Neighborhood Historic District.

W & OD RR Historic District – is aligned adjacent to I-66 between Lee Highway/Washington Boulevard (Route 29) and Patrick Henry Drive. It is encompassed within the project area at the intersection of Fairfax Drive and Lee Highway/Washington Boulevard at the Exit 69 diverge ramp for I-66 eastbound. On October 20, 2016 a discussion between the author and Dan Ighlauth, Land Manager for the Northern Virginia Regional Park Authority (NVRPA), owner of the W & OD RR Trail, revealed that a small segment of the W & OD RR Trail found east of the Route 29 (Washington Boulevard/Lee Highway), has actually been heavily disturbed, being reconfigured as part of a previous improvement project and has already lost its historic integrity. The current alignment is not on the original centerline of the railroad bed. Any work proposed in this area, including the potential reconstruction of an existing sound barrier in this location, would be within the VDOT owned right of way in a previously disturbed context. On the west side of Route 29, the paved trail lies on top of the original centerline of the rail bed alignment. Besides the remnants of a coal trestle, Mr. Ighlauth stated that he is unaware of any other features associated with the W & OD RR in this area. He added that the VDOT and its designers have been working closely with his agency to develop a trail bridge, grade-separating the W & OD from its intersection with Washington Boulevard/Lee Highway (Route 29), which would meet the NVRPA’s bridge guidelines. This particular at-grade crossing has, in fact, been previously identified by the NVRPA as a dangerous intersection. The NVRPA finds that by removing the at-
grade crossing will actually be beneficial for the trail as well as the historic property by enhancing safety for all trail users. VDOT is committed to continue working with the NVRPA to find a design solution that is aesthetically pleasing and provides a safe crossing. The important characteristics of the resource, chiefly its association with historic patterns of transportation and commerce will not be altered by the proposed project. As VDOT continues to work with NVRPA throughout the design process for an aesthetically pleasing grade-separated trail crossing, VDOT finds that the improvements would result in a no adverse effect on the W & OD RR Historic District as a whole.

Benjamin Elliott’s Coal Trestle – is a surviving element in very close proximity to the existing and original alignment of the W & OD RR property. In this vicinity in terms of the proposed grade separation the designers are continuing to refine their design to completely avoid the resource. The VDOT is committed to following the NVRPA’s design requirements, thus any direct impacts to the park property that could be expected to result from the project will not adversely affect activities, features, and attributes of the historic property. While there may be alteration to the historic location and feeling, the project would not diminish the seven aspects of integrity in this location of the 45-mile long W & OD RR Historic District which is significant for its contribution to the broad patterns of history. VDOT concludes that the project would have conditional no adverse effect on the Benjamin Elliott’s Coal Trestle provided that the feature is avoided and ensuring the VDHR an opportunity to review and comment on the final plans in this area.

In conclusion, the VDOT has determined that this project as proposed will have a conditional no adverse effect on historic properties provided that the VDOT avoid the coal trestle and provide VDHR final plan review and comment opportunities. By copy of this letter the consulting parties are being provided the opportunity to comment on the issue of the project's effect on historic properties. Please review the accompanying information at your earliest convenience and should you concur with our determination please sign below as soon as you are able after receipt of this letter. Upon your concurrence with our conditioned no adverse effect determination, the Federal Highway Administration intends on making a de minimus determination pursuant to Section 4(f) of the Department of Transportation Act. If you have questions, please call me at (540) 899-4033. Thank you for your assistance.

Sincerely,

[Signature]

Helen P. Ross
District Preservation Manager
Ms. J. V. Langan  
November 2, 2016
Page Six

Cc: Mr. Dan Iglhaut, Northern Virginia Regional Park Authority  
Ms. Rebecca Ballo, Arlington County  
Ms. Stephanie Goodrich, Fairfax County  
Mr. Karl VanNewkirk, Arlington County Historical Society  
Mr. John Simkins, Federal Highway Administration  
Mr. Stuart Tyler, Parsons Transportation Group

*****************************************************************

The Virginia State Historic Preservation Officer (SHPO) concurs that the project as proposed (VDOT No. 0066-96A-417, C501, P101, R201; UPC 108424; VDHR File No. 2016-0741) will have a **conditional no adverse effect** on historic properties.

Julie V. Langan, Director, VDHR  
Virginia State Historic Preservation Officer
Ms. Stannard,

EPA has reviewed your letter dated April 15, 2016 regarding the subject project. We understand that the study is being done in compliance with the National Environmental Policy Act (NEPA) and CEQ regulations implementing NEPA. Please find below recommendations for the scope of analysis for the proposed study. We suggest that the progress on the project be shared at the interagency partnering meeting and look forward to being involved as the study moves forward. In addition, we request that each submittal have a 30 day review period and that concurrence points be established. We also suggest that draft chapters of the EA be shared prior to the release of the EA. Our Cooperating Agency letter will be sent separately.

- Information regarding the purpose and need, alternatives analyzed, avoidance and minimization of resources, and cumulative effects for the proposed project should be included in the environmental assessment (EA).
- The EA should include a clear and robust justification of the underlying purpose and need for the proposed action. The purpose and need statement is important because it helps explain why the proposed action is being undertaken and what objectives the project intends to achieve. The purpose of the proposed action is typically the specific objective of the activity. The need should explain the underlying problem for why the project is necessary.
- Alternatives analysis should include the suite of other activities or solutions that were considered and the rationale for not carrying these alternatives forward for detailed study.
- The document should describe potential impacts to the natural and human environment. Existing resources should be identified and EPA encourages that adverse impacts to natural resources, especially wetlands and other aquatic resources, be avoided and minimized.
- Stormwater ponds, best management practices (BMPs) and construction staging areas should not be located in wetlands and streams. Stormwater management alternatives that address the existing and new construction should be considered.
- EPA suggests coordinating with other appropriate federal, state and local resource agencies on possible impacts to wetlands, streams, historic and/or rare, threatened and endangered species. As needed, assessment of aquatic resources functions should be provided. We would be pleased to coordinate with VDOT and the U.S. Army Corps of Engineers on this work.
- An evaluation of air quality and community impacts, including noise, light and possible traffic impacts, should be included in the document.
- Potential air impacts and general conformity should be included in the EA.
- The EA should also include an analysis of any hazardous sites or materials, and the status of any ongoing or past remediation efforts in the project area.
- The EA should include a discussion and analysis of greenhouse gas emissions, climate change, and extreme weather events (in particular in association with resiliency design).
- Environmental Justice (EJ) should also be evaluated, including the identification of potential communities of concern, and meaningful and timely community involvement, public outreach, and access to information. Our regional expert on EJ would be pleased to discuss methodology for identification of EJ communities at your convenience.
Consideration should also be given to all potential impacts to at-risk populations, as well as consideration to sensitive subpopulations, possibly including elderly, children and others. Community impacts should also be avoided, minimized and mitigated.

The document should address potential indirect and cumulative effects in the project areas, and analysis may aid in the identification of resources that are likely to be adversely affected by multiple projects, and sensitive resources that could require additional measures. It is suggested that a secondary and cumulative effects analysis begin with defining the geographic and temporal limits of the study; this is generally broader than the study area of the project. The cumulative impact analysis should evaluate impacts to environmental resources that have the potential to be impacted by the project (i.e. wetlands, surface water, etc).

Thank you for coordinating with EPA on this project. We look forward to working with you as more information becomes available. Please let me know if you have any questions on the recommended topics above or if there is any information that we might be able to provide. Please provide a copy of the EA to EPA when it is available for review.

Barb

Barbara Okorn
USEPA Region III (3EA30)
1650 Arch Street
Phila, PA 19103
Phone (215) 814-3330
May 26, 2016

Mr. John Simkins
Federal Highway Administration
400 North 8th Street, Room 750
Richmond, Virginia 23219

Re: Cooperating Agency Role for the Development of an Environmental Assessment for Transform 66: Inside the Beltway, Eastbound Widening Arlington and Fairfax Counties, Virginia

Dear Mr. Simkins:

The U.S. Environmental Protection Agency (EPA) is responding to the letter of April 15, 2016 in which the Virginia Department of Transportation (VDOT) on behalf of the Federal Highway Administration (FHWA) requested participation of EPA as a cooperating agency in the development of an Environmental Assessment (EA) for the Transform 66: Inside the Beltway Project. EPA will accept the role as a cooperating agency for the subject project. The EA is being prepared pursuant to the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR parts 1500-1508).

The CEQ has determined that a cooperating agency has the responsibility to assist the lead agency by participating in the National Environmental Policy Act (NEPA) process at the earliest possible time. This participation includes engaging in the scoping process; in developing information and preparing environmental analyses including portions of the environmental assessment where the cooperating agency has special technical expertise; and in making available staff support at the lead agency’s request to enhance the lead agency’s interdisciplinary capabilities. Our role as a cooperating agency in support of the subject EA will consist of providing comments on general NEPA compliance and Clean Water Act (CWA) Section 404 issues as well as providing technical support in the development of the EA. The EPA would like the opportunity to contribute in the EA process including: identification of significant issues, provide technical assistance in the development of the analysis of alternatives and their environmental impact, technical assistance on Environmental Justice, Cumulative Impacts, etc.

The many benefits of enhanced cooperating agency participation in the preparation of NEPA analyses include: disclosing relevant information early in the analytical process; applying
available technical expertise and staff support; and establishing a mechanism for addressing intergovernmental issues. Other benefits of enhanced cooperating agency participation include fostering intra- and intergovernmental trust (e.g., partnerships at the community level) and a common understanding and appreciation for various governmental roles in the NEPA process, as well as enhancing agencies ability to adopt environmental documents. We expect the level of data and the cooperation provided will result in a high quality NEPA document and an environmentally sound project.

Due to resource constraints, we may limit our attendance of project meetings and hope that video or telephone conference opportunities may be made available. Given reasonable time frames, we would be pleased to review preliminary project documentation including chapter milestones (such as Purpose and Need) and preliminary draft versions of the EA. CEQ guidance recognizes that, while the lead agency has overall responsibility for the content of the EA, status as a cooperating agency should not be construed as expressing agreement with the lead agency regarding the conclusions to be drawn from the EA or selection of the preferred alternative. In addition, EPA has a number of independent responsibilities related to the proposed project, including our responsibilities pursuant to Section 309 of the Clean Air Act (CAA), Sections 402(d) and 404(b), (c), and (q) of the CWA.

Thank you for the opportunity to be a cooperating agency on this project. We look forward to working with you to ensure that a scientifically sound and sufficient EA is developed for this project. Consistent with CEQ guidance, we retain our independent obligations and right under Section 309 (a) of the CAA to review and comment on an environmental document. If you need additional assistance, the staff contact for this project is Barbara Okorn; she can be reached at 215-814-3330.

Sincerely,

Barbara Rudnick
NEPA Team Leader
Office of Environmental Programs

cc VDOT
From: Washington Elim Church
6901 Haycock Road
Falls Church, VA 22043
Elder Howard Blair

To: Halie Stannard

From: Washington Elim Church has integrated with Washington Elim Presbyterian Church

In answer to your questions:

1. Will the proposed project affect your place of worship.
   Answer: We do not believe so. From what we read, it sounds like you will be expanding on the other side of the road from us. Even if the road is moved closer to the church, we do not think it will impact our services.

2. Times for our services and weekly activities:

   Sunday Services and training - 8-9:30 AM and 10:30 - 2:00
   Mon - Sat - 6 AM Early Morning Prayers
   Wednesday - 7:30 - 9 PM

   All indoors.

3. We have air-conditioning. Heat Pump, forced air. The whole church is air condition.

V/R
Howard Blair
Elder Washington Elim Church
Ms. Stannard- the City of Falls Church appreciates the opportunity to comment on the scoping effort on the study evaluating improvements to widen approximately four miles of eastbound Interstate 66 (I-66) between the Dulles Airport Access Road (Route 267) and North George Mason Drive (Route 6710), located in Arlington and Fairfax Counties, and the City of Falls Church, Virginia. For your record, I would note that the City of Falls Church does indeed wish to be listed as a participating agencies given the proximity to the City, City owned land and the impact of construction as well as diverted traffic on the City. I will serve as the prime contact for the City via the City Manager’s Office. My full contact information is provided below.

For background information on our concerns and comments, for the Transform 66 multi-modal project component NEPA review, I have attached the City’ NEPA questionnaires from that submission.

Also I would ask that you please reach out and consider including directly our Falls Church City Public Schools as we have a middle and high school on land adjacent to the proposed widening area as well as West Falls Church Metro Station. The superintendent contact info is: Dr. Toni Jones, tjones@fccps.org. Please cc me in the correspondence with our school system. Thank you.

Please let me know if you need anything further at this time. Cindy

_Cindy L. Mester, ICMA-CM_
Assistant City Manager
300 Park Avenue, Suite 303E
Falls Church, VA 22046
phone: 703-248-5042 (TTY 711)
cell: 571-641-5586
fax: 703-248-5146
email: cmester@fallschurchva.gov

_www.fallschurchva.gov_

_The City of Falls Church is committed to the letter and to the spirit of the Americans with Disabilities Act. To request a reasonable accommodation for any type of disability call 703.248.5004 (TTY 711)_
DISCLAIMER:
This e-mail message and any attached files are for the sole use of the intended recipient(s) and may contain privileged, confidential or otherwise protected from disclosure information. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.
GENERAL QUESTIONS FOR FALLS CHURCH CITY PUBLIC SCHOOLS

1. Will any new or existing schools be impacted by the project?
   Yes. All of our schools leave from the main campus in terms of buses.

2. Do you have any other concerns regarding public schools in connection with this project?
   There has been little to no dialogue with the school system. Given that we have 1,300 children right next to I-66, there should be specific outreach to the school system and with our school community.

Please feel free to make any additional comments.
   Please let me know when we can set up a school community meeting to discuss impacts on transportation and safety.

November 13, 2015
Date

Joni Jones
Superintendent
Name, Title
GENERAL QUESTIONS FOR FALLS CHURCH CITY PUBLIC SCHOOLS TRANSPORTATION SERVICES

1. Will the proposed project affect school bus routes and schedules?
Yes. All school sites have bus routes which leave from the main campus on Route 7 - Haycock. The increased traffic is going to impact all routes. Our schools employ 700+ people who will not pay tolls.

2. Do you have any other concerns regarding public school transportation services in connection with this project?
Yes. Will the school bus be able to have easy access to I-66? We have tremendous car traffic for those who attend events on our campus such as football games. Also, widening the corridor next to our sporting facilities could create a dangerous proximity for students.

Please feel free to make any additional comments.

November 13, 2015  
Date

[Signature]
Superintendent
Name, Title
Route: 66
Project Number: 0066-96A-358, P101
From: I-66 Corridor
To: I-66 Corridor
Federal Project; County/City: Fairfax County, Arlington County, City of Falls Church
UPC ID #: 107371

GENERAL QUESTIONS FOR CITY FALLS CHURCH

1. Do you anticipate or are you aware of any organized opposition to the proposed project?
   The City Council of the City of Falls Church has expressed concerns that must be addressed as part of project planning. See attached Council adopted Resolution 2015-27.

   Organized opposition to the project exists outside the City. The Board of Supervisors of Loudoun County passed a resolution opposing the use of tolls on I-66 Inside the Beltway.

2. Will the project disrupt a community or planned development?
   The project could potentially disrupt existing communities and planned developments.

   The proposed project may cause existing vehicle traffic to divert from I-66 onto local roadways. This concern was clearly expressed in a July 29, 2015 letter from the City Manager, see attachment. Resolution 2015-27 reiterates this concern and stresses that project funds should be made available to alleviate such disruptions should they occur.

   The proposed project may negatively impact planned development on the City’s joint high school and middle school campus. The City intends to enter into a public private partnership to construct new school facilities. Placement of large signs and future widening of the interstate may preclude some redevelopment scenarios. No changes/improvements should be made that would negatively impact the ability to complete this project.

3. Will the project affect any neighborhood programs under the Department of Human Services/Division of Housing and Human Services Office of Housing and Community Development jurisdiction?
   No
4. Is the project consistent with community goals, such as proposed land use?
The dependence on single occupancy vehicles and the lack of other viable travel options contributes to regional and local congestion. The City’s Comprehensive Plan calls for shifting the mode-share balance away from single occupancy vehicles.

Council Resolution 2015-27 states that it is unclear at this time how the proposed project will decrease reliance on single occupancy vehicles and increase the mode share of multi-modal options.

The City of Falls Church is entirely within the proposed project corridor. Therefore, the proposed project must contribute to a shift in mode share away from single occupancy vehicle use in order to be consistent with community goals.

5. What are the existing and proposed zonings for this area?
The proposed project corridor encompasses the entire City of Falls Church. The existing and proposed zonings for this area include park and open space. The zonings also include mid-rise, walkable, mixed-use development.

6. Will the proposed project be compatible with your City’s county’s planning?
The City’s Comprehensive Plan calls for increasing transit service in commercial corridors (Routes 29 and 7), increasing pedestrian and bicycle access to commercial areas, adjacent regional activity centers, and transit stations, and protecting residential neighborhoods from increases in automobile traffic.

The proposed project may be compatible with these plans. As noted in Council Resolution 2015-27, additional information on how the above goals will be achieved is needed.

7. Are there any agricultural/forestill districts within the proposed project boundaries?
   No.

8. Is the proposed project endorsed by the Board of Supervisors City Council and the in City County Comprehensive Plan?
The City supports the vision and goals of the project but has concerns regarding the tolling, roadway widening and the multi-modal component implementation. See attached Council adopted Resolution 2015-27.

9. Where is the proposed project ranked in City county transportation improvement needs?
   Different components of the proposed project are ranked differently within the City’s transportation improvement needs.

   Installation of tolled facilities along I-66 is not included in the City’s transportation plans.
Provision of high frequency transit service along Route 7 and Route 29 is targeted for completion in calendar years 2018 to 2020.

Construction of a second entrance to the East Falls Church Metro is targeted for completion in calendar year 2021 or beyond.

Expansion of capacity along the W&OD Trail and changes to trail/street crosses is targeted for completion in calendar year 2021 or beyond.

10. Is the City developing any mass transit options for this corridor?
The City is participating with the Northern Virginia Transportation Commission (NVTC) on a Phase II Transit Alternatives Analysis for the Route 7 Corridor from Tysons to Alexandria. This corridor overlaps the proposed I-66 Inside the Beltway project corridor in the City of Falls Church. NVTC staff should be contacted for additional information on this effort.

The City’s Comprehensive Plan calls for provision of high frequency transit along Route 7 and Route 29, both of which are in the project corridor.

11. Are there any proposed or planned developments in the project area?
There are several proposed and planned developments in the project area. The City intends to construct a new high school and middle school and to redevelop approximately 10 acres of land adjacent to these facilities through a joint public/private partnership.

Separate from that project, the City is currently reviewing redevelopment proposals on sites of approximately 4 acres each. One project includes a movie theater, 145 room hotel, restaurants, and approximately 350 apartments. The other project includes a full service grocery store, 36,000 square feet of office, and approximately 325 apartments.

Providing multimodal travel options is necessary for accommodating the increased travel demand associated with these developments.

12. Are there any existing or planned recreational sites within the project area?
The entire City is within the proposed project corridor. Within the City, there are approximately 96.3 acres of park space. This includes several playing fields and the City’s Community Center. No direct impacts on these facilities are anticipated based on tolling or multi-modal component implementation.

13. Are there any locally significant historic sites in close proximity to the proposed project?
The City has several significant historic sites within the project corridor but does not anticipate any direct impacts on them based on the tolling or multi-modal component implementation.
14. Will the proposed project affect a public water supply?
   The City of Falls Church will defer to Fairfax Water and Fairfax County for the response to this question. We do not operate our own water system as of January 2013.

15. Does the City county have a preferred scheme of development for the project?
The City’s Comprehensive Plan identifies a shift in mode share away from single occupancy vehicles as the solution to congested travel conditions and accommodating population and employment growth.

   The City prefers a scheme of development for the project is to increases multi-modal mode share.

16. Are there any locally significant historic sites in close proximity to the proposed project?
   This repeats Question #13.

17. Are there any concerns about impacts to Parks and Recreation?
   See Recreation and Parks responses on the park authority questionnaire.

   Please feel free to make any additional comments.

November 11, 2015

__________________________  ______________________________
Date                      Name, Title
GENERAL QUESTIONS FOR CITY OF FALLS CHURCH PARK AUTHORITY RECREATION AND PARKS DEPARTMENT

1. Are there any existing or planned recreational sites within the project area?
   There are no current plans by the City of Falls Church to build or renovate any parks directly in the project area.

2. Are there any locally significant historic sites in close proximity to the proposed project?
   The City has several significant historic sites within the project corridor but does not anticipate any direct impacts on them based on the tolling or multi-modal component implementation. Included in local historic sites would be the Historic Cherry Hill House and Barn, The Tinner Hill Historic Site and 13 parks of various size and uses throughout the City.

3. Are there concerns about impacts to Parks and Recreation?
   I don’t anticipate any concerns on the City’s behalf regarding this project.

Please feel free to make any additional comments.

11/12/15                              Daniel J. Schlitt, Director of Recreation and Parks
Date                                      Name, Title
GENERAL QUESTIONS FOR CITY OF FALLS CHURCH ECONOMIC DEVELOPMENT AUTHORITY and ECONOMIC DEVELOPMENT OFFICE

1. Will the proposed project affect economic development in the area?

   If cut-through traffic on Routes 7 and 29 increases by measurably higher volumes within the City of Falls Church as commuters avoid I-66 tolls, then local businesses may experience decreased patronage as customers avoid primary commercial corridors in the City during peak commuting hours. There is also the potential that businesses desired and targeted by the City as tenants may opt not to locate in Falls Church due to perceptions of traffic congestion and gridlock.

2. Do you have any other concerns with regard to economic development in connection with this project?

   Failure to achieve a more holistic, multimodal approach in and around Falls Church with support for projects as outlined in the city manager’s letter of July 29, 2015 will impact negatively employee recruitment efforts by local businesses. This also will create additional barriers for development of new office space in the City, as prospective business tenants will choose locations with superior “last mile” Metro accessibility.

November 12, 2015

Richard Goff
City of Falls Church Economic Development Director
June 6, 2016

Ms. Halie Stannard  
Environmental Specialist  
Virginia Department of Transportation  
4975 Alliance Drive  
Fairfax, Virginia 22030

RE: Environmental Scoping Comments  
Transform I-66 Inside the Beltway – Eastbound Widening  
VDOT Project 0066-96A-417, P101, R201, C501 (UPC 108424)

Dear Ms. Stannard:

On behalf of Fairfax County staff, I am writing to you in response to your recent letter to Chairman Martin Nohe of the Northern Virginia Transportation Authority, with a copy to Sharon Bulova, Chairman of the Fairfax County Board of Supervisors, requesting information relating to potential environmental impacts associated with the referenced project.

Your letter indicates that only a small segment of the project is located within Fairfax County. The comments below are limited to only those portions of the project that are located within, or could have an affect upon, Fairfax County.

**Fairfax County Public Schools (FCPS)**  
The FCPS system expressed concern regarding the use of an EZ Pass for school buses. While school buses are free to use these roads, they are still required to have a transponder or EZ Pass. Acquiring and maintaining 1,600+ transponders for each FCPS bus traveling into the District of Columbia, Alexandria, or Arlington on field trips each year presents a significant problem for the FCPS system. Battery life for these devices is only a few years and they must be mounted on a specific bus (rather than being moved from bus to bus for occasional or sporadic need). FCPS is concerned that maintaining this volume of equipment presents us with a much bigger obstacle than their current and more limited and scheduled in-county use on a few hundred buses.

**Fairfax County Department of Planning and Zoning (DPZ)**  
Since most of this project lies outside of Fairfax County, there is only a limited potential for adverse impact to natural resources within the county. However, a number of issues warrant consideration in the Environmental Assessment (EA), as outlined below.
Property Impacts

- It is unclear from the documentation provided if it is intended that the widening project would be implemented entirely within the existing highway right-of-way in the Fairfax County portion of the project. There are a number of residential properties that abut the right-of-way, along with a school and recreation facility. Ideally, the widening project should be designed to avoid any increases to the width of the right-of-way in Fairfax County. If this will not be possible, the EA should document any property impacts (including residential relocations and takings of private property) and address how such impacts will be minimized. The DPZ assumes that the presence of Metrorail in the highway median will serve to preclude any changes north of the rail line, but if this is an incorrect assumption, the potential for property impacts to the north of the highway should be considered, as well as impacts to the south.

Natural Resource Impacts

- Per standard NEPA requirements, the EA should address impacts to wetlands, streams, Resource Protection Area, floodplains, tree cover and rare, threatened or endangered species and/or rare vegetative communities. There are no Resource Protection Areas within the Fairfax County portion of the project along the eastbound lanes, but the RPA associated with Four Mile Run is located within and north of the highway right-of-way near the Arlington County boundary.
- Coordination with the Stormwater Planning Division of the Fairfax County Department of Public Works and Environmental Services (DPWES) is recommended in regard to stream/outfall stabilization associated with any stormwater discharges within the Fairfax County portion of the project area.

Watershed Management Plan

- The Stormwater Planning Division of DPWES should be contacted for information regarding any projects identified in the watershed plans for the Pimmit Run and Four Mile Run watersheds and whether there may be opportunities to incorporate any of these projects within the project scope (e.g., for stormwater management or mitigation purposes). In general, the Pimmit Run and Four Mile Run watersheds are two of the most degraded within the county. The project is located in the headwaters of these watersheds, and as such, a great opportunity exists to implement best management practices that will have positive and significant broader impacts on downstream areas within these watersheds.

Stormwater Runoff

- The EA documentation should identify the stormwater runoff impacts (both volume/quantity and quality) that would result from the proposed construction as well as the additional impervious cover, if any, that would result from the project. Efforts should be pursued to minimize additional impervious cover consistent with project goals. Stormwater management plans should be discussed within the documentation. Early coordination with the
Stormwater Planning Division is recommended on stormwater management designs. This will be of particular importance, if stormwater management requirements will cause there to be a consideration of an expansion of the width of the right-of-way and the taking of property adjacent to the existing right-of-way. Stormwater management strategies should be pursued in a manner that will preclude or minimize such impacts.

- Detention of the 100-year storm should be provided, in accordance with the Northern Virginia Regional Commission and Fairfax County Public Facilities Manual requirements.
- Stormwater management best management practices should be used to manage and detain runoff as close to the source as possible. Low Impact Development (LID) techniques and practices should be pursued as much as possible to reduce stormwater runoff pollution and facilitate infiltration at the source. In areas where conventional stormwater management ponds are to be used, it is recommended that these be designed with enhanced pollutant removal features, such as micro-pools and wetland vegetation to optimize water quality benefits. It is highly encouraged that enhanced outfall treatment devices or energy dissipation designs be used to properly mitigate erosive velocities in downstream receiving channels that are typically the result of increased volume and duration of post construction runoff. This may require going beyond typical standard VDOT outfall treatments and extending channel improvements beyond right-of-way limits.
- Though the State Runoff Reduction Method (VRRM) is currently a requirement for stormwater management, it is possible that this project could be grandfathered from the VRRM. Accordingly, Fairfax County strongly recommends the use of volume reduction methodologies for water quantity and water quality improvements. Again, coordination with the Stormwater Planning Division is recommended.

**Other Issues**

- To the greatest extent practicable, the EB widening should occur within the existing ROW limits.
- Safety and operational impacts will need to be assessed in detail and mitigated where necessary.
- Disruptions to Metrorail service should be minimized.
- County staff assumes that the EA will address highway noise and air quality issues per standard FHWA/VDOT protocols and look forward to seeing the results of noise and air quality analyses.

Many other Fairfax County agencies reviewed the request for comments, but did not have comments. Therefore, the information given above should be regarded as a comprehensive response on behalf of Fairfax County staff.
I hope that the above information is useful to you in the preparation of the Environmental Assessment for the referenced project. Please do not hesitate to contact Mr. Douglas Miller, Environmental Specialist with the Fairfax County Department of Transportation (703-877-5750; douglas.miller3@fairfaxcounty.gov), if we can be of further assistance.

Sincerely,

[Signature]

Tom Biesiadny
Director

cc: Hon. Martin Nohe, Chairman, Northern Virginia Transportation Authority
    Members, Fairfax County Board of Supervisors
    Edward L. Long, Jr., County Executive
    Robert A. Stalzer, Deputy County Executive
    Catherine A. Chianese, Assistant County Executive
    Valerie Fulcher, Manager, Office of Environmental Impact Review, Virginia Department of Environmental Quality
    Fred Rose, Chief, Watershed Planning and Assessment Branch, Stormwater Planning Division, DPWES
    Amanda Baxter, Special Programs Manager, Virginia Department of Transportation
    Donald Demetrius, Chief, Watershed Projects Evaluation Branch, Stormwater Management, DPWES
    Noel Kaplan, Sr. Planner, Fairfax County Department of Planning and Zoning
    Tim Parker, Fairfax County Public Schools
    Sung Shin, Planner IV, Fairfax County Department of Transportation
Dear Ms. Stannard,

The Fairfax County Park Authority (FCPA) staff has reviewed the Environmental Assessment Scoping documents for the I-66 Inside the Beltway, Eastbound Widening project.

The physical construction proposed and reviewed for these comments is the widening of the eastbound lanes of I-66, between the Dulles Access Road interchange east to the Fairfax County line. From the documents provided, it is not clear how many lanes will be added or if the eastbound widening will be confined to existing right of way, which has been previously impacted and filled to support the road network, or if there will be impacts to existing culverts and/or drainages. The Fairfax County Park Authority does not have any parks in close proximity to this project, therefore, while there would be changes in traffic patterns and volumes, this change would not be expected to measurably impact Fairfax County Parkland. However, there are streams in close proximity to the study area, which could be impacted by stormwater runoff. This project also has the potential to introduce non-native invasive vegetation due to land disturbing activities.

Additionally, the I-66 corridor was subjected to cultural resources review which indicates that the corridor contains numerous Native American, historical, and Civil War sites, with a high potential to contain additional sites. Since this project requires Federal permitting and funding, it triggers Section 106, requiring VDOT to consult with VDHR by Federal Regulation. Staff recommends a Phase I archaeological study for all land disturbing activities, with a Phase II study followed by avoidance or Phase III data recovery on all significant sites found during Phase I surveying or that previously exist in the study corridor or areas of impact.

Thank you for the opportunity to comment on the I-66 Inside the Beltway, Eastbound Widening project Environmental Assessment Scoping. Please do not hesitate to email me if you have questions.

-Andy

Andy Galusha
Landscape Architect & Park Planner
Fairfax County Park Authority
Planning and Development Division
http://www.fairfaxcounty.gov/parks/

Please save paper by not printing this email.
April 22, 2016

Ms. Halie Stannard, Environmental Specialist  
Virginia Department of Transportation,  
Environmental Division  
4975 Alliance Drive  
Fairfax, Virginia 22030

Re: NEPA Scoping for the Transform 66: Inside the Beltway, Eastbound Widening Project  
Project: 0066-96A-417, C501, P101, R201/ UPC-108424  
Location: Arlington County, Fairfax County, Falls Church

Dear Ms. Stannard:

Thank you for your letter of April 15, relating to the study of proposed improvements to widen approximately four miles of eastbound Interstate 66 (I-66) between the Dulles Airport Access Road (Route 267) and North George Mason Drive (Route 6710), in an effort to reduce congestion along the I-66 corridor inside the Interstate 495 (I-495) Capital Beltway. You requested information to help determine if the proposed road widening might affect any neighborhood programs under the jurisdiction of the HUD Richmond Field Office and/or the HUD Washington DC Field Office.

After review of the location with regard to HUD properties and programs in the referenced locations, the two HUD Field Offices mentioned above can find no impact to HUD programs or projects as a result of Virginia Department of Transportation’s proposal to re-work the four mile section of I-66.

Thank you for your interest in the Department’s programs. If you should have any questions, please contact me at (804) 771-2100, Ext. 4805. Members of your staff who have questions or require technical assistance may contact Mr. Kerry Johnson, Environmental Protection Specialist, at Extension 4803.

Sincerely,

Carrie S. Schmidt  
Field Office Director

Cc: Marvin Turner, Director, HUD DC Field Office

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1.A.1 (LPD-NCR)

April 28, 2016

Halie Stannard
VDOT Environmental Division
4975 Alliance Drive
Fairfax, Virginia 22030

Subject: Transform 66: Inside the Beltway, Eastbound Widening

Dear Ms. Stannard:

The National Park Service (NPS), National Capital Region has reviewed the project area (I-66 between Dulles Airport Access Road and North George Mason Drive). At this time it does not appear that the eastbound widening will effect NPS property. If the project area changes in the future please contact us for further evaluation.

For continued coordination with NPS National Capital Region, please contact Tammy Stidham, Chief, Planning, Compliance and GIS at National Capital Region, 1100 Ohio Drive S.W., Washington, D.C. 20242. Ms. Stidham can be reached by phone at (202) 619-7474 or email tammy_stidham@nps.gov.

Sincerely,

Robert A. Vogel
Regional Director

cc:
Peter May, Associate Regional Director, Lands, Planning and Design
Tammy Stidham, Chief, Planning, Compliance & GIS, Lands, Planning and Design
Subject: Transform 66: Inside the Beltway, Eastbound Widening
Arlington County; Fairfax County; and the City of Falls Church, Virginia
VDOT Project Number: 0066-96A-417, C501, P101, R201
UPC: 108424

1. Are there any existing or planned recreational sites within the project area?
   Yes. The W&OD Railroad Regional Park (W&OD Trail) exists within the project area.

2. Are there any locally significant historic sites in close proximity to the proposed project?
   In 2000, the Virginia Department of Historic Resources designated the W&OD Railroad Historic District (VDHR #053-0276) as eligible for the National Register of Historic Places (NRHP) because of the remaining W&OD Railroad structures. The W&OD Railroad Historic District was nominated to the NRHP under Criterion A for its contributions to the broad patterns of northern Virginia history in the areas of commerce and transportation from the mid-19th century through the mid-20th century.

3. Please provide any other comments or feedback that you feel may be beneficial to the development of this study.

The W&OD Trail parallels the south side of I-66 between N. Washington Street (Route 29) and N. Sycamore Street. The Park Authority requests that VDOT provide plans for our review so that the improvements will be properly planned to minimize impacts.

The W&OD Railroad Regional Park was acquired and developed with federal Land & Water Conservation Funds. Therefore, in addition to any 4(f) requirements for use of federal highway funds on road projects, major roadwork affecting the park also may be subject to Section 6(f) of the LWCF Act.

VDOT is required to maintain the continuity, safety and convenience of the W&OD Trail at all times and project plans must reflect this condition.

Date

Daniel Iglhaut, Deputy Director of Planning and Grants
April 27, 2016

CENAO-WR-R
Special Projects Section, NAO-2016-00751

Ms. Irene Rico
Division Administrator
Federal Highway Administration
Post Office Box 10249
Richmond, Virginia 23240-0249

Ms. Halie Stannard
Environmental Specialist
Environmental Division
4975 Alliance Drive
Fairfax, VA 22030

Dear Ms. Rico and Ms. Stannard:

This letter is in response your letter dated April 15, 2016 soliciting scoping comments for a study you have undertaken to evaluate improvements of approximately four miles of Interstate 66 (I66) inside the I495 Capital Beltway, in Arlington and Fairfax Counties and the City of Falls Church, Virginia. In accordance with the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) is being prepared with the Federal Highway Administration (FHWA) as the lead federal agency and the Virginia Department of Transportation (VDOT) as the Joint Lead Agency.

It is likely the project will impact waters and/or wetlands regulated by the Norfolk District Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (33 U.S.C. 1344), and a permit or permits will likely be required for the improvements. USACE will participate as a cooperating agency in the preparation of the Environmental Assessment (EA). We recommend the use of a collaborative process for the study of this project, documenting concurrence of the pertinent Federal agencies at important steps, to provide the local governments and the public with a more dependable framework for planning decisions. We have been working with FHWA and VDOT to develop a synchronized process that would provide for such collaboration, and we encourage expeditious completion of that process and its use for this study.

We have reviewed the draft coordination plan you provided with your scoping letter. Some of the timeframes are shorter than we believe are feasible given our large workload, including numerous large VDOT projects. We are willing to accept timeframes of a minimum of 30 days for each document or decision we are requested to review. We are also concerned that the schedule in the Coordination Plan is not clear whether review times for separate
documents/decisions overlap, so that more than one time period for review could be running simultaneously with other time periods for review. For example, the coordination for the Purpose and Need is shown to start in May with a 21 day review time and the coordination for the range of alternatives is shown to start in June with a 21 day review time. If the first coordination starts in late May and the second in early June, the review periods would overlap and run concurrently.

So, in addition to needing a full 30 days of review for each coordination point, we will need for one coordination to finish before the next coordination begins. Aside from needing this arrangement in order to manage workload, it is not reasonable to expect agencies to agree to a range of alternatives when we have not even completed review of and arrived at the purpose and need those alternatives are intended to address. Also, as noted above, concurrence points should be added to the Coordination Plan.

We recommend coordination with the Cooperating Agencies of draft sections of the EA prior to publishing the document. Such coordination will help to minimize future delays or problems that can be addressed earlier in the process. The Coordination Plan does not appear to include this step.

You included a list of questions with your letter, and we have the following responses, which pertain only to aquatic resources:

a. We recommend that in establishing a study area boundary for analyzing indirect and cumulative effects, you include an area of sufficient size to include any indirect downstream effects, such as potential water quality effects from roadway runoff, as well as cumulative effects the watershed has experienced. You may find that the boundary of the entire watershed is needed to sufficiently address these effects to aquatic resources. In determining a timeframe for evaluating cumulative effects, we recommend you consider the dates of construction of the interstate system west of Washington DC as well as the construction of Dulles Airport in setting a past date.

b. We can provide you with our record of impacts from authorized projects in the watershed, although the data are incomplete and most accurate only back to about 2007. At such time as you are conducting your cumulative effects analysis, if you will contact us we will provide the most current information.

c. We do not have available any historic imagery or mapping. All of our imagery has been acquired from publically available sources.

d. We do not have any tools to share that would be of use in indentifying indirect and cumulative effects other than our Regulatory database, from which we can provide some information about authorized impacts (as noted above). We recommend you refer to Virginia’s record of identified impaired waters as one indicator of cumulative effects to surface waters. You may also wish to refer to the Virginia Department of Environmental Quality’s WetCat
program which will provide information regarding the condition of wetlands in the watershed, which can serve as an indicator of cumulative effects.

Our regulations require that we consider a full range of public interest factors and conduct an alternatives analysis in order to identify the least environmentally damaging practicable alternative (LEDPA), which is the only alternative we can authorize.

In addition to wetland and waters impacts, we must consider factors such as land use (including displacements of homes and businesses), floodplain hazards and values, water supply and conservation, water quality, safety, cost, economics, threatened and endangered species, historic and cultural resources, and environmental justice. As you develop alternatives, you should document how impacts to aquatic resources were avoided and minimized, and waters and wetlands should be identified and mapped before alternatives are considered. At a minimum, you should consider all available information such as aerial photography, U.S.G.S. quad sheets, National Wetland Inventory (NWI) maps, and soil mapping of the study area, as well as review of aerial photography (including color infrared aerals) by a qualified reviewer.

Many projects funded by Federal-Aid Highway Funds managed by FHWA require permits from USACE. These projects are subject to compliance with Section 106 of the National Historic Preservation Act of 1966.

According to 36 CFR 800.2(a)(2):

“…If more than one Federal agency is involved in an undertaking, some or all [of] the agencies may designate a lead Federal agency, which shall identify the appropriate official to serve as the agency official who shall act on their behalf, fulfilling their collective responsibilities under section 106. Those Federal agencies that do not designate a lead Federal agency remain individually responsible for their compliance with this part.”

Pursuant to the above provision, FHWA (Virginia Division) is hereby designated as the lead federal agency to fulfill the collective Federal responsibilities under Section 106 for this undertaking: USACE authorizes FHWA to conduct Section 106 coordination on its behalf. Any Memorandum of Agreement prepared by FHWA under 36 CFR 800.6 should include the following clause in the introductory text:

“WHEREAS, pursuant to Section 10 and/or Section 404 of the Clean Water Act, a Department of the Army permit will likely be required from the Corps of Engineers for this project, and the Corps has designated FHWA as the lead federal agency to fulfill federal responsibilities under Section 106; and

In addition, USACE hereby authorizes FHWA to conduct coordination on its behalf for this I66 project in accordance with Section 7 of the Endangered Species Act.
Thank you for the opportunity to comment on the preparation of the EA. To the extent that workload and scheduling allow, we will participate in stakeholder meetings. However, we request that VDOT will consider separate meetings with the Cooperating Agencies as needed to resolve issues.

You may contact, Alice Allen-Grimes at alice.w.allen-grimes@usace.army.mil or 757-201-7219 if you have any questions.

Sincerely,

Kimberly A. Prisco-Baggett, MBA
Chief, Special Projects Section

cc:
Environmental Protection Agency, Philadelphia
U. S. Fish and Wildlife Service, Gloucester
NOAA Fisheries Service, Gloucester Point
Virginia Department of Transportation, Richmond
Virginia Department of Historic Resources, Richmond
Virginia Department of Environmental Quality, Richmond
Ms. Halie Stannard  
Environmental Specialist  
VDOT Environmental Division  
4975 Alliance Drive  
Fairfax, Virginia 22030  

Subject: Transform 66: Inside the Beltway, Eastbound Widening Environmental Assessment – Scoping Process  
Arlington County; Fairfax County; and the City of Falls Church, Virginia  
VDOT Project Number: 0066-96A-417, C501, P101, R201 / UPC: 108424

Dear Ms. Stannard:

This is in response to your letter to this agency dated April 15, 2016, inviting comments concerning potential issues or concerns related to the study to evaluate improvements to widen eastbound Interstate 66 between the Dulles Airport Access Road and North George Mason Drive. We appreciate the opportunity to provide feedback on this project.

The Virginia Department of Agriculture and Consumer Services (VDACS) is responsible for the preservation of farmland and the protection of endangered and threatened plant and insect species. Concerning farmland preservation, § 3.2-204 of the Code of Virginia requires that in preparing reports on major state projects, each state agency shall demonstrate that it considered the impact of the projects on farm and forest lands as required in § 3.2-205 and that it adequately considered alternatives and mitigating measures. Therefore, VDACS encourages the Virginia Department of Transportation (VDOT) and others involved with this project to minimize the loss of farm and forest land to the highest degree possible. Also, VDACS asks that VDOT be mindful of any actions that could result in altering the water flow within surrounding agricultural lands and, to the greatest extent possible, minimize any adverse drainage or erosion issues that may result. In addition, VDACS suggests that VDOT determine whether the counties of Arlington or Fairfax, or the City of Falls Church, have any established agricultural and forestal districts that may be impacted by this project. Should such districts exist, additional project review is required per § 15.2-4313 of the Code of Virginia.

Additionally, VDACS works closely with the Department of Conservation and Recreation (DCR) in determining the potential impact of proposed projects on state endangered and threatened plant and insect species. Through a Memorandum of Agreement between our agencies, DCR reviews these projects and submits comments on our behalf. Consequently, any inquiries

=Equal Opportunity Employer=\n
relating to state protected plant and insect species should be directed to DCR for response. If after researching its database of natural resources, critical habitats, and species locations DCR finds that a project poses a potential adverse impact on an endangered or threatened plant or insect species, the appropriate information will be referred to VDACS for further review and possible mitigation. Please note that requests of this nature should be sent to Rene Hypes at the DCR Division of Natural Heritage Project Review Program. Ms. Hypes can be reached at (804) 371-2708 or rene.hypes@dcr.virginia.gov.

Sincerely,

[Signature]

Sandra J. Adams
Commissioner

cc: Larry Nichols, Director, Division of Consumer Protection
    Kevin Schmidt, Director, Office of Policy, Planning, and Research
Project Name: Transform 66: Inside the Beltway, Eastbound Widening
Project #: N/A
UPC #: N/A
Location: Arlington and Fairfax Counties, and the City of Falls Church, Virginia

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

There are no public groundwater wells within a 1 mile radius of the project site.

There are no surface water intakes located within a 5 mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

There are no apparent impacts to public drinking water sources due to this project.
The Virginia Department of Transportation and the Federal Highway Administration are requesting scoping comments on a study evaluating improvements to widen approximately four miles of eastbound Interstate 66 (I-66) between the Dulles Airport Access Road (Route 267) and North George Mason Drive (Route 6710), located in Arlington and Fairfax Counties, and the City of Falls Church, Virginia. Should you choose to provide comments on the project, please do so by May 6, 2016, as indicated in the attached letter.

Thank you,

Halie Stannard
Environmental Specialist
Northern Virginia District
4975 Alliance Drive
Fairfax, Virginia 22030
Office Telephone: (703) 259-1929
e-mail: halie.stannard@vdot.virginia.gov
Ms. Stannard, based on a desktop review of the drawings provided, it appears that a permit may be required by the Virginia Marine Resources Commission (VMRC) for this roadway improvement project.

The Marine Resources Commission regulates encroachment and impacts to State owned submerged lands, the bottoms of all the streams, rivers, bays and oceans within the Commonwealth. It appears this four mile stretch of road will involve improvements or widening of existing stream crossings, or possibly new roadway crossings of stream bottoms. Impacts to these stream bottoms would require review and possible permitting by the VRMC.

Please feel free to contact me if you have any questions or concerns as your plans for this project are developed.

Thank you for the opportunity to review and comment on your project.

Mark Eversole
Virginia Marine Resources Commission
2600 Washington Avenue, 3rd Floor
Newport News, Virginia 23607
Office: (757)-247-8028
e-mail: mark.eversole@mrc.virginia.gov

The Virginia Department of Transportation and the Federal Highway Administration are requesting scoping comments on a study evaluating improvements to widen approximately four miles of eastbound Interstate 66 (I-66) between the Dulles Airport Access Road (Route 267) and North George Mason Drive (Route 6710), located in Arlington and Fairfax Counties, and the City of Falls Church, Virginia. Should you choose to provide comments on the project, please do so by May 6, 2016, as indicated in the attached letter.

Thank you,

Halie Stannard
Environmental Specialist
Northern Virginia District
4975 Alliance Drive
Fairfax, Virginia 22030
Office Telephone: (703) 259-1929
e-mail: halie.stannard@vdot.virginia.gov
Ms. Stannard,

The Virginia Outdoors Foundation has reviewed the project referenced above. As of 27 April 2016, there are not any existing nor proposed VOF open-space easements within the immediate vicinity of the project.

Please contact VOF again for further review if the project area changes or if this project does not begin within 24 months. Thank you for considering conservation easements.

Thanks,
Mike

Mike Hallock-Solomon, AICP
Virginia Outdoors Foundation
Ms. Stannard,

I have discussed this issue with the VSP supervisors in Area 45 where the project will take place. We have no issues with the proposed project. Hopefully, it will help to ease the congestion in that area.

Thank you for the opportunity to comment.

JED

Captain James E. De Ford, Sr.
Division VII Commander
Department of State Police
4977 Alliance Drive
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May 5, 2016

Ms. Hallie Stannard
VDOT Environmental Division
4975 Alliance Drive
Fairfax, VA 22030

Dear Ms. Stannard:

On behalf of the Washington Metropolitan Area Transit Authority (WMATA), I am transmitting the Authority’s comments on the Transform 66 Inside the Beltway Eastbound Widening Environmental Assessment (EA) Scoping Process.

Metro strongly supports the Commonwealth’s efforts to invest in variably-priced lanes through the Transform 66 tolling project to more effectively and sustainably manage congestion, particularly given this corridor’s array of multimodal travel options. We understand that due to a legislative action the Commonwealth is now accelerating the implementation of a proposed I-66 widening project rather than evaluating the effects of the converted toll lanes on congestion before widening the interstate as had been planned previously.

As the tolling is expected to begin in summer 2017, up to two years prior to the proposed widening project’s completion, we request that VDOT work with WMATA, NVTC, local governments and transportation operators to measure and monitor the effects of both the tolling conversion and widening projects on corridor auto, transit and bicycle travel. WMATA looks forward to discussing this approach with you and determining a monitoring, evaluation, and reporting protocol that can best take advantage of this unique opportunity to best guide future thinking and policies. Although the tolling period prior to roadway widening will be short, this period represents a unique opportunity to preliminarily evaluate the relative impacts of a congestion pricing strategy and could influence future regional policies and investment strategies.

The proposed corridor, from Dulles Airport Access Road to George Mason Drive, is constrained by the Orange/Silver Line in the median, flanked closely by numerous neighborhoods, Washington & Old Dominion Railroad Regional Park, Custis Trail, and Four Mile Run. To limit physical and environmental impacts and cost, VDOT may seek to widen the roadway completely within the existing I-66 right-of-way, including towards the median Jersey barrier/retaining wall and Orange/Silver Metrorail Line easement. Just like previous I-66 “common corridor” projects, it is critical that VDOT and its contractors work closely with WMATA on its alternatives development, design review, other preconstruction, and construction activities to inform, avoid or minimize any conflicts or impacts to WMATA-owned facilities and operations within the I-66 right-of-way. WMATA requires access to infrastructure within the I-66 corridor at all times to provide
Ms. Hallie Stannard
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Metrorail and Metrobus service, as well as for facilities maintenance, repair and emergencies. This requirement should be addressed in an access and coordination agreement between VDOT and WMATA. As described in WMATA’s 1991 Easement Agreement with VDOT, VDOT will also be expected to follow all applicable provisions of WMATA’s Adjacent Construction Project Manual which provides guidance on the requirements, when there are potential impacts to WMATA’s interests and facilities.

In anticipation of the development of alternatives and design drawings, please also be aware of the following information:

- WMATA ground rods and grid cable are installed approximately within one (1) foot, of the exterior of the WMATA retaining wall/Jersey barrier for the entire length of the railroad surface section. Care must be taken to prevent any damage to the ground rods. Additionally, WMATA must be able to access the ground rods for periodic testing, maintenance and repair.

- Any location where material is removed or altered between WMATA’s retaining wall and the eastbound I-66 lanes has the potential to compromise the retaining wall which supports the rail track beds. These areas must be identified and the proposed work vetted with WMATA before any work is planned/performe.

- WMATA storm water management laterals tie into VDOT’s storm water system.

- There is a WMATA Traction Power Sub Station (K04 TPSS No. 2) on the south side of I-66 at 920 North Frederick Street. There are underground ductbanks from the TPSS under I-66 to WMATA’s tracks.

- There is a WMATA Tie-Breaker Station (K05 TBS-No 2) on the south side of I-66 at 6899 North 25th St. There are underground ductbanks from the TBS under I-66 to WMATA’s tracks.

- Metrobus Route 5A operates service through the I-66 widening project area, and many other bus routes access Metro stations at West Falls Church, East Falls Church, and Ballston stations. Mitigation measures for likely timeliness and routing impact on through and local serving buses due to construction activity must be considered as part of the EA.

- The proposed I-66 eastbound widening project is adjacent to an operating Metrorail line. Prior to construction, a project coordination agreement and a reimbursable agreement between WMATA and VDOT must be executed to clearly ensure that Metrorail service and infrastructure is not adversely affected and that all costs associated with any relocation of WMATA infrastructure shall be borne by VDOT.
Ms. Hallie Stannard
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We appreciate your collaborative efforts and the opportunity to comment on the proposed action and we look forward to working closely with VDOT on this project. If you have any questions regarding these comments, please contact Jonathan Parker of my staff at (202) 962-1040 or jhparker@wmata.com.

Sincerely,

[Signature]

Shyam Kannan
Managing Director
Office of Planning

Cc:
Renee Hamilton, VDOT
Susan Shaw, VDOT
Regina Sullivan
Greg Potts
Jim Hamre
Tom Robinson
Tom Crone
Shiva Pant
Michelle Corum
James McNamee