

SOAPSTONE CONNECTOR

Fairfax County Project No. 2G40-078
From: Sunrise Valley Drive
To: Sunset Hills Road
Reston, VA

May 4, 2022

REVISED ENVIRONMENTAL ASSESSMENT



In Coordination With
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
VIRGINIA DEPARTMENT OF TRANSPORTATION

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

Approved for Public Availability

May 4, 2022

Date

For Division Administrator
Federal Highway Administration

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APPENDIX C Draft Section 106 Memorandum of Agreement
APPENDIX D Public Hearing Summary and Comments-Responses, November 2017
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Section 1

PURPOSE AND NEED

The Fairfax County Department of Transportation (FCDOT), in coordination with the Virginia Department of Transportation (VDOT) and the Federal Highway Administration (FHWA), prepared an Environmental Assessment (EA) to evaluate the potential social, economic, and environmental effects associated with the Soapstone Connector. The EA was approved by FHWA for public availability on August 16, 2017, and a public hearing was held on November 8, 2017. This Revised EA documents changes to the project or its impacts since completion of the August 2017 EA. Of note, new attachments include the November 2017 public hearing materials and responses to comments received during the comment period, and a Section 4(f) Evaluation that was completed in accordance with Section 4(f) of the US Department of Transportation Act of 1966 as a result of the identification of a new historic district in the project area (Association Drive Historic District, see Section 3.6).

1.1 PROJECT LOCATION

The Soapstone Connector would be a new roadway, approximately one-half mile long between Sunrise Valley Drive and Sunset Hills Road, in Fairfax County (Reston), Virginia. The project is located just west of the Wiehle-Reston East Metrorail Station and would include a new crossing over the Dulles Corridor, which includes VA Route 267 (Dulles Toll Road (DTR)), the Dulles International Airport Access Highway (DIAAH), and the Silver Line of the Metrorail system, as shown in **Figure 1-1**.

1.2 HISTORY

The following two precursor studies identified improvements to address transportation needs in the vicinity of the Wiehle-Reston East Metrorail Station and support access to and from the station area:

Wiehle Avenue/Reston Parkway Station Access Management Plans, April 2008

- Initiated to consider the current status and future needs in the vicinity of the two Metrorail stations proposed for the Reston area at Reston Parkway and Wiehle Avenue.
- Study recommendations included additional roadway capacity, travel demand management (TDM) strategies, additions to the network of pedestrian paths, and spot safety improvements.
- Soapstone Connector included in the list of recommended roadway projects.
- Recommendations divided into three groups based on date of implementation; Soapstone Connector included in the first group that would be required at the opening of the Wiehle Avenue station.

Soapstone Connector Feasibility Study, November 2013

- Assessed the engineering feasibility of a multimodal roadway that would provide a connection for motorists, pedestrians, bicyclists, and transit vehicles between Sunset Hills Road and Sunrise Valley Drive.
- Identified and screened multiple alternative alignments to narrow down the list to a limited number of feasible candidate alternatives.
- Conducted a more detailed evaluation of the short list of alternatives and assessed the alternatives in terms of traffic, environmental, land use, and engineering criteria.

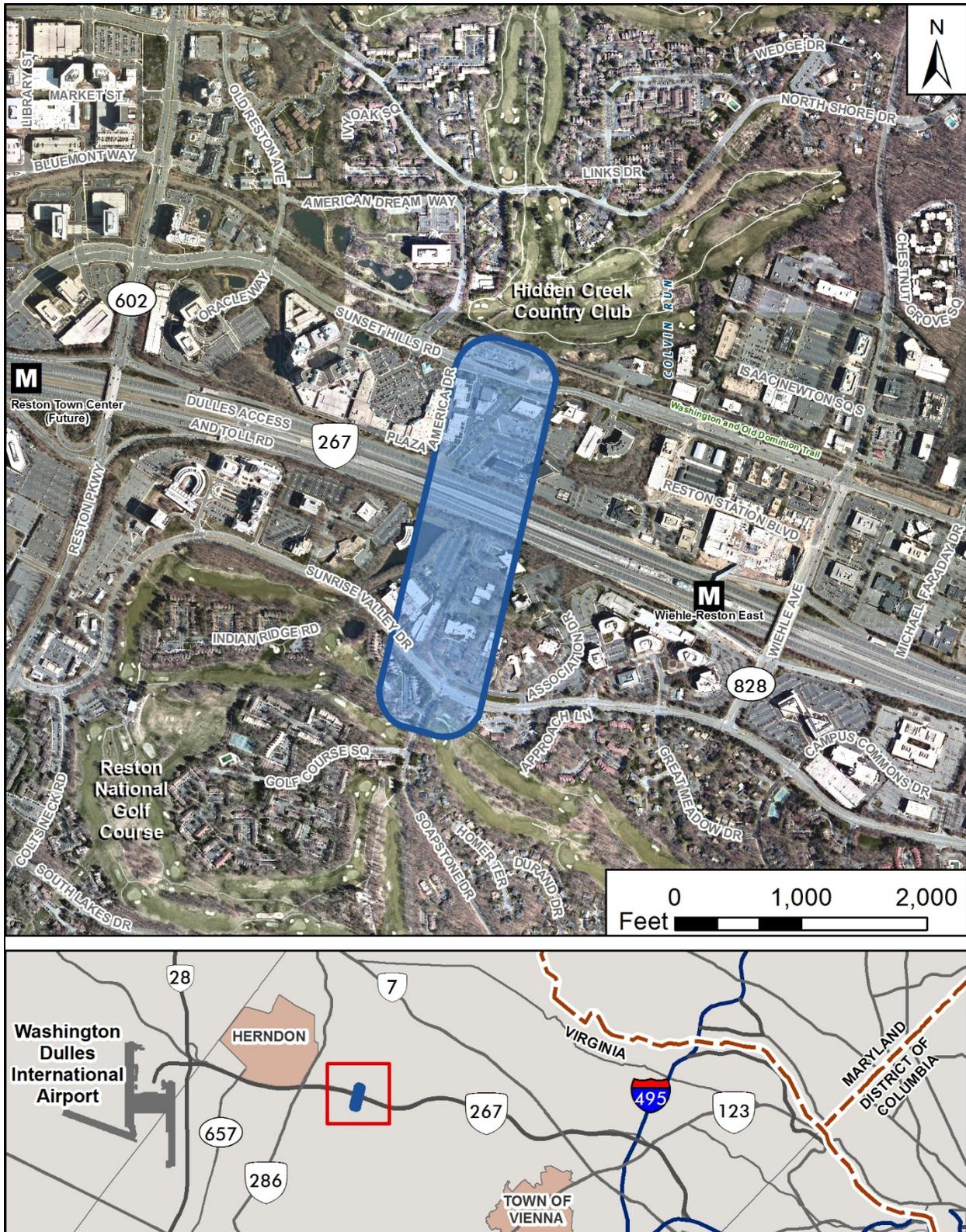


Figure 1-1. Project Location Map

- Conducted a type, size and location (TS&L) analysis of a new bridge over the Dulles Corridor and identified the most promising alignment for the Soapstone Connector.

Subsequently, in February 2014, the Soapstone Connector was included as a recommended roadway network improvement in an Amendment to the Fairfax County Comprehensive Plan.¹ In the latest edition of the Fairfax County Comprehensive Plan (2017 Edition, Area III, Reston Plan, Wiehle-Reston East Transit Station Area, Amended through 7-31-2018), the new crossing of the Dulles Corridor from Sunset Hills Road to Sunrise Valley Drive approximately at Soapstone Drive continues to be recommended to achieve the vision for Reston and enhance connectivity through the Transit Station Areas by creating multiple and enhanced connections.

1.3 NEEDS – EXISTING CONDITIONS

Traffic Congestion. The current roadway network in the project area includes two crossings of the Dulles Corridor on either side of the Wiehle-Reston East Metrorail Station, at Reston Parkway (Route 602) to the west and Wiehle Avenue (Route 828) to the east. Traffic traveling within the project area, traveling to and from the Metrorail station, and entering and exiting the Dulles Toll Road all compete for the same road space on these two roadways. Direct access to the Metrorail station, which opened in July 2014, is provided by way of Wiehle Avenue. Sunrise Valley Drive and Sunset Hills Road serve east-west travel to the south and north of the Dulles Corridor, respectively.

The traffic analysis area encompasses Reston Parkway, Wiehle Avenue, Sunrise Valley Drive, and Sunset Hills Road. Existing (2015) levels of service (LOS)² and associated delay times at intersections within the traffic analysis area are presented in **Table 1-1**. As shown in Table 1-1, the intersections of the four major roadways in the traffic analysis area (highlighted in grey) all operate at LOS D or lower under existing conditions, with average delay ranging from 40 to 80 seconds at each location. Congestion at these intersections acts as a constraint to traffic mobility within the area surrounding the station.

Table 1-1. Intersection Operations – 2015 Existing Conditions*

Intersection No.	Intersection Name	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
1	Sunset Hills Rd at Reston Parkway	63.2	E	57.6	E
2	Sunset Hills Rd at Oracle Way & Old Reston Ave	27.3	C	27.6	C
3	Sunset Hills Rd at Plaza America Dr	5.5	A	11.8	B
4	Sunset Hills Rd at American Dream Way	23.1	C	33.2	C
5	Sunset Hills Rd at Isaac Newton Sq & Metro Ctr Dr	17.0	B	28.8	C
6	Wiehle Ave at Sunset Hills Road	43.7	D	58.4	E
7	Wiehle Ave at Reston Station Blvd	19.4	B	32.0	C
8	Wiehle Ave at WB DTR Ramps	20.0	C	20.8	C
9	Wiehle Ave EB DTR Ramps	29.4	C	19.4	B
10	Wiehle Avenue at Sunrise Valley Drive	50.4	D	50.6	D
11	Sunrise Valley Dr at Soapstone Dr	18.4	B	16.6	B

¹ Amendment No. 2013-05, adopted February 11, 2014 by the Fairfax County Board of Supervisors, replaced the following: Fairfax County Comprehensive Plan, 2013 Edition, Area III, Upper Potomac Planning District as amended through 12-3-2013, Reston-Herndon Suburban Center and Transit Station Areas, pages 28-80.

² Level of service (LOS) provides a comparative measure of the traffic performance of roads and intersections through a letter grading from A (best) to F (worst).

Intersection No.	Intersection Name	AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
12	Sunrise Valley Drive at Sheraton Plaza	9.7	A	11.3	B
13	Sunrise Valley Dr at Colts Neck Road	26.0	C	11.1	B
14	Sunrise Valley Drive at Reston Pkwy	66.0	E	82.0	F

* Intersections of the four major roadways in the traffic analysis area are highlighted in grey.

Given the time interval since the initial traffic analysis was completed for the EA, new traffic counts were performed for this Revised EA at the same locations as completed in May 2015. The purpose of the new traffic counts was to identify the extent to which existing traffic volumes changed between 2015 and 2020. In general, based on the continuous 48-hour machine counts, traffic volumes for all four roadway segments were lower in February/March 2020 than in May 2015. With respect to the turning movement counts conducted at the intersections within the project area, overall there was a reduction in the number of vehicles and truck percentages in the system from the 2015 count data to the 2020 count data, which is consistent with the 48-hour counts. Additional documentation describing the updated counts is provided in **Appendix A**, and conclusions regarding an update to the traffic analysis are provided in Section 1.4 below.

Multimodal Connectivity. There is currently a shared use path on Wiehle Avenue in the southbound direction between Sunrise Valley Drive and Sunset Hills Road, and “Use Caution” is identified in the northbound direction based on the Fairfax County Bike Map.³ A bikeable sidewalk is provided on Sunset Hills Road within the project area, and a combination of bikeable sidewalk and shared use path are provided on Sunrise Valley Drive. Finally, a shared use path is provided on Reston Parkway within the project area.

The Wiehle-Reston East Metrorail Station includes entrances via pedestrian bridges on both sides of the Dulles Corridor. Fifteen bicycle racks are located on both the north and south sides; there is also a secure reserved bike room. The Wiehle-Reston East Station Bike Room was Fairfax County’s first enclosed, secure bicycle parking facility with a capacity for more than 200 bicycles. There are bus drop-off/pick-up locations on either side of the Dulles Corridor, with Kiss & Ride facilities on the north side only. Wiehle Avenue currently serves as the only access to the Metrorail station for buses; these buses experience congestion and delays on Wiehle Avenue as described above.

Accessibility and Mobility. The transportation network around the Wiehle-Reston East Metrorail Station is comprised primarily of major roadways (i.e., Wiehle Avenue, Sunset Hills Road, and Sunrise Valley Drive) and much smaller streets and driveways that provide access to individual buildings and developments. Consequently, most vehicles traveling in the area must use one of the major congested routes or intersections.

The Wiehle-Reston East Metrorail Station includes a 2,300-space covered parking garage north of the Dulles Corridor. The heavy traffic exiting the parking garage by way of Reston Station Boulevard during the PM peak period creates weaving conditions on all travel lanes on the southbound segment of Wiehle Avenue between Sunset Hills Road and the Dulles Toll Road, as shown in **Figure 1-2**. As documented in the April 2008 *Wiehle Avenue/Reston Parkway Station Access Management Plans* study, most vehicles turning right when they exit the Metrorail station (shown in yellow in Figure 1-2) are not destined to the westbound Dulles Toll Road; therefore, they must move over at least one lane once they turn onto Wiehle Avenue, weaving with

³ <https://www.fairfaxcounty.gov/transportation/bike/map>

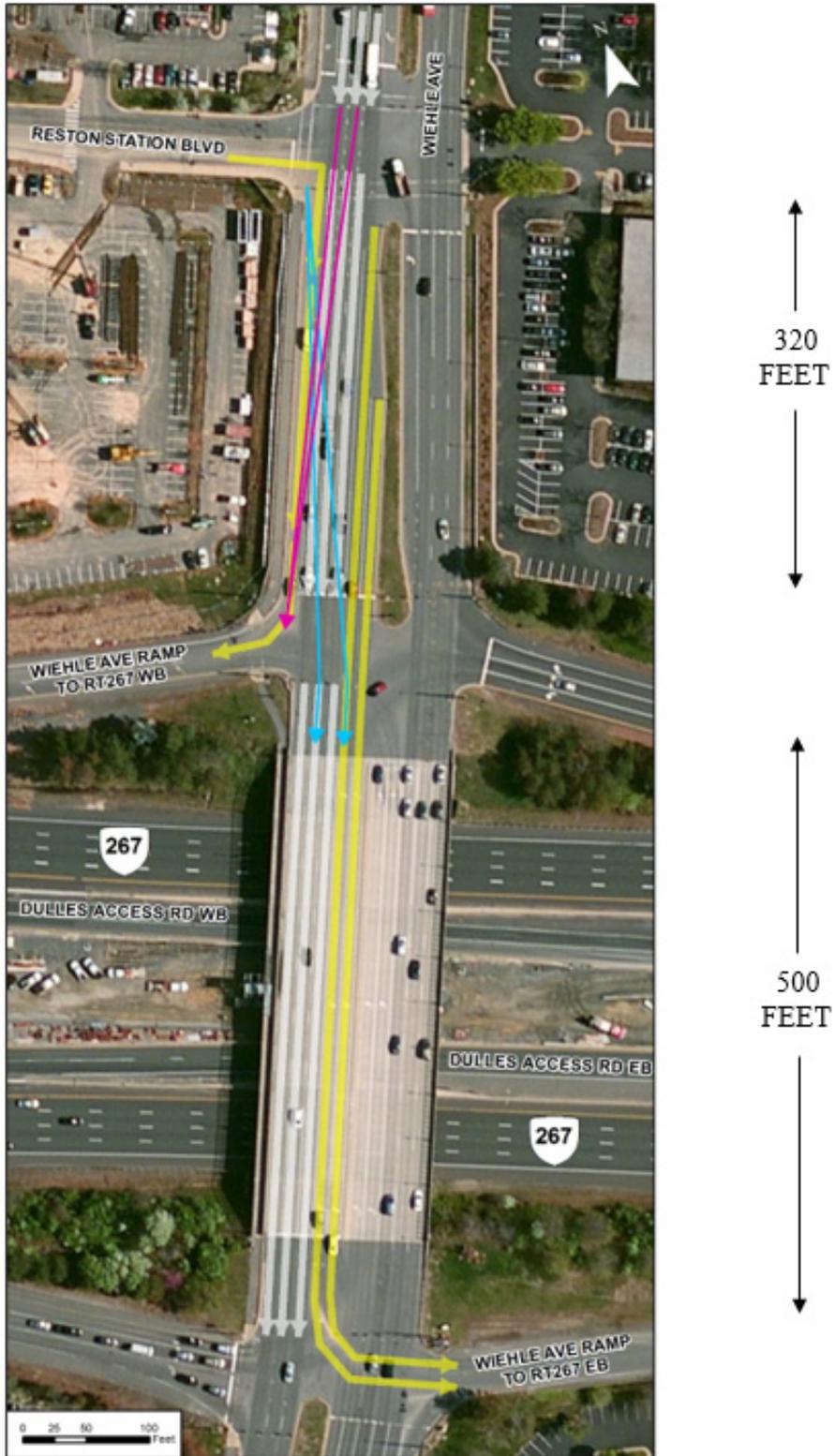


Figure 1-2. Illustration of Weaving on Wiehle Avenue with Metrorail Station Egress

vehicles on southbound Wiehle Avenue destined for the westbound exit ramp (pink arrows). The weaving is indicated by the blue arrows in Figure 1-2. If a vehicle exiting the Metrorail station is destined to the eastbound Dulles Toll Road ramp, they must weave across four lanes to enter into the left-turn bays. The situation is exacerbated by the short distance (320 feet) between the Wiehle-Reston East Metrorail Station access and the intersection with the westbound ramps; in addition, there is only an additional 500 feet on Wiehle Avenue between the westbound and eastbound exit ramps. Combined with the overall high traffic volumes, much of the delay is caused by vehicles forcing their way across travel lanes over this short distance in order to reach their desired lane.

1.4 NEEDS – FUTURE CONDITIONS

Traffic Congestion. The burden on the transportation network in the project area is expected to increase substantially by 2046 with the completion of Phase 2 of the Dulles Corridor Metrorail Project⁴ and changes in land use in the areas surrounding the Wiehle-Reston East and future Reston Town Center Metrorail Stations. As indicated in the Reston Plan (Fairfax County Comprehensive Plan, 2017 Edition, Area III, Reston Plan, Amended through 7-31-2018): “The community’s greatest densities will be at the three Metro station areas. A broad mix of regional retail and other attractions will be part of an enhanced urban center at the Town Center and strong local retail and a variety of amenities will characterize the other Metro station areas and village centers. To address congestion, the station areas will have an appropriate balance of residential uses and employment opportunities.” As more people find these areas highly desirable as residential and commercial locations, density of both residences and offices is planned to increase in the areas closest to the stations. Table 3-7 in the Environmental Consequences Section of this EA includes a list of over 30 development projects that are planned, under construction, or recently completed in the area surrounding the two stations, based on information gathered from the Fairfax County Department of Planning and Zoning (DPZ).

In addition, as the whole region (and particularly Loudoun County) continues to grow, travel through the Reston area is also projected to increase. By 2046, the existing transportation network will not be able to accommodate the projected peak hour demand for vehicular travel within the traffic analysis area. The increased volume of traffic would result in worse levels of service and delay, as shown in **Table 1-2**. Estimated average delay at the intersections of the four major roadways in the traffic analysis area (highlighted in grey) is projected to increase from 40 to 80 seconds under existing conditions to a range of 60 to over 140 seconds by 2046. Additional details are provided in the *Traffic Technical Memorandum*.

⁴ The Dulles Corridor Metrorail Project is a 23-mile extension of Washington’s existing Metrorail System, which is being built in two phases by the Metropolitan Washington Airports Authority (MWAA). Phase 1 of the new line opened on July 26, 2014, connecting East Falls Church with Tysons Corner and Reston, Virginia (at the Wiehle-Reston East Metrorail Station), with downtown Washington, DC and Largo, Maryland. Known as the Silver Line, the extension is operated by the Metropolitan Washington Area Transit Authority (WMATA). Preliminary construction for Phase 2 began in 2014. The extension will run from the Wiehle-Reston East Metrorail Station west to Washington Dulles International Airport and Ashburn in eastern Loudoun County. Within the Reston area, the Reston Town Center Station will be located in the median of the Dulles Toll Road/Dulles International Airport Access Highway just west of the Reston Parkway overpass. This station will have no dedicated parking. Additional information on the project can be found here: <http://www.dullesmetro.com/>.

Table 1-2. Intersection Operations – 2015 Existing and 2046 No Build Conditions*

Intersection No.	Intersection Name	2015 Existing Conditions				2046 No Build Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	Reston Pkwy at Sunset Hills Rd	63.2	E	57.6	E	86.9	F	103.4	F
2	Sunset Hills Rd at Oracle Way & Old Reston Ave	27.3	C	27.6	C	41.7	D	50.0	D
3	Sunset Hills Rd at Plaza America Dr	5.5	A	11.8	B	5.6	A	12.4	B
4	Sunset Hills Rd at American Dream Way	23.1	C	33.2	C	25.3	C	41.8	D
5	Sunset Hills Rd at Isaac Newton Sq & Metro Ctr Dr	17.0	B	28.8	C	116.5	F	191.3	F
6	Wiehle Ave at Sunset Hills Road	43.7	D	58.4	E	79.2	E	101.3	F
7	Wiehle Ave at Reston Station Blvd	19.4	B	32.0	C	30.5	C	74.8	E
8	Wiehle Ave at WB DTR Ramps	20.0	C	20.8	C	29.3	C	41.2	D
9	Wiehle Ave EB DTR Ramps	29.4	C	19.4	B	39.5	D	22.7	C
10	Wiehle Avenue at Sunrise Valley Drive	50.4	D	50.6	D	62.6	E	65.1	E
11	Sunrise Valley Dr at Soapstone Dr	18.4	B	16.6	B	26.6	C	29.0	C
12	Sunrise Valley Drive at Sheraton Plaza	9.7	A	11.3	B	3.9	A	8.8	A
13	Sunrise Valley Dr at Colts Neck Road	26.0	C	11.1	B	46.0	D	30.7	C
14	Sunrise Valley Drive at Reston Pkwy	66.0	E	82.0	F	105.6	F	144.7	F

* The No Build Alternative is described in Section 2.4.1. Intersections of the four major roadways in the traffic analysis area are highlighted in grey.

The forecasts for 2046 No Build Conditions that were used to generate the results shown in Table 1-2 were developed utilizing the traffic counts conducted in May 2015 and a growth rate derived from the Metropolitan Washington Council of Governments (MWCOC) Version 2.3.57A travel demand model with Round 8.4 Cooperative Land Use forecasts, which were the versions available at the time of the preparation of the August 2017 EA. To assess the extent to which the future year forecasts may have changed based on the latest MWCOC model and land use forecasts, the MWCOC model was run again as part of this Revised EA (model Version 2.3.75 with Round 9.1a Cooperative Land Use forecasts⁵). The forecasts generated using the more recent model were higher; however, as described in the memo in Appendix A that documents the results of the comparative analysis, it is expected that updated forecasts for the project would be the same or similar to the forecasts generated for the August 2017 EA given that the decrease in 2020 traffic counts (as described in Section 1.3) would be counterbalanced by an increase in growth rate based on the recent travel demand model run. As such, an update in the traffic operations analysis was found to be not warranted as there would be no substantive change in the findings and conclusions made in the August 2017 EA.

Multimodal Connectivity. As indicated above, the density of both residences and offices is planned to increase in the area surrounding the Wiehle-Reston East Metrorail Station, which will generate many more pedestrian and bicycle trips. In addition, the Metrorail station itself will generate additional pedestrian, bicycle, and bus trips in the surrounding area. Additional pathways for these modes of travel must be considered as higher volumes of traffic will make it increasingly

⁵ These versions of the model and land use forecasts were the latest available when the traffic update was completed in April 2020.

more difficult for pedestrians and bicyclists to travel in this area.⁶ Increased congestion and delays on the roadway network will also reduce the efficiency of bus service, which is programmed to increase by FCDOT; planning is already underway to reroute bus lines in the vicinity in order to serve the two rail stations and accommodate the development growth.

Accessibility and Mobility. As development in the area and traffic demand increases, accessibility and mobility will be further constrained. The Reston Town Center Metrorail Station that will open as part of Phase 2 of the Dulles Metrorail Project does not include dedicated parking; therefore, vehicular demand at the parking facilities at Wiehle-Reston East Metrorail Station will continue and likely increase, further exacerbating weaving conflicts along Wiehle Avenue.⁷ Queue lengths and delays at intersections in the area surrounding the station will also likely worsen with the higher traffic volumes in 2046.

1.5 PURPOSE SUMMARY

Based on the existing and future needs, the purpose of the proposed project is to:

- Reduce congestion and travel delay at intersections along Wiehle Avenue and within the traffic analysis area.
- Improve multimodal connectivity to the Wiehle-Reston East Metrorail Station.
- Improve accessibility and mobility to and within the area surrounding the Wiehle-Reston East Metrorail Station.

⁶ Comments were received during project scoping related to safety for pedestrians and bicyclists and connectivity to existing sidewalks, trails, and bike facilities. While safety has not been included as a primary element of purpose and need, the improvements aimed at increasing multimodal connectivity would also inherently improve safety for pedestrians and bicyclists.

⁷ As indicated in the footnote above, safety has not been included as a primary element of purpose and need; however, improvements aimed at providing additional access to and from the Metrorail station and reducing congestion along Wiehle Avenue would minimize weaving conflicts and inherently improve safety on the roadway network.

Section 2

ALTERNATIVES

2.1 INTRODUCTION

This section describes the process used to develop the alternatives evaluated in the Revised EA, including the range of alternatives considered for study and the alternatives carried forward for detailed analysis. Additional information on alternatives and the alternatives development process can be found in the *Alternatives Technical Memorandum*.

2.2 ALTERNATIVES DEVELOPMENT AND SCREENING PROCESS

Figure 2-1 illustrates the step-by-step process that was used to identify, develop, and screen alternatives. This process considered a full range of alternatives, including those identified in previous studies that could potentially address the identified purpose and need. Each of these steps is further described below.

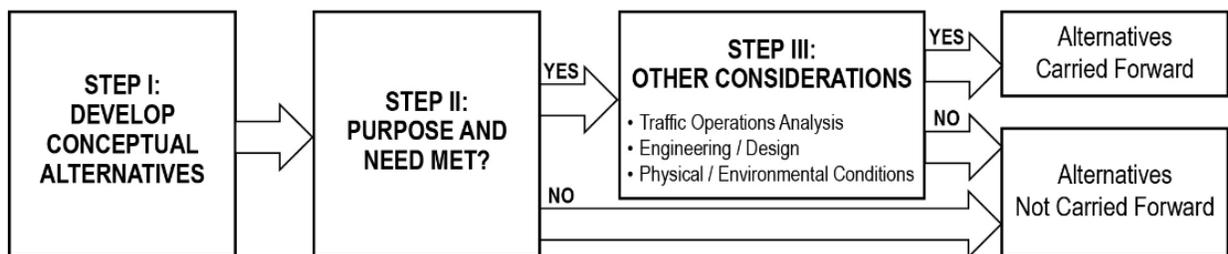


Figure 2-1. Alternatives Screening Process

2.2.1 Step I. Develop Conceptual Alternatives

The alternatives development process began with the identification of the purpose and need of the project, as described in Section 1. Subsequently, the following documents that were introduced in Section 1.2 were reviewed and data from these sources were utilized to develop alternative concepts as appropriate:

- *Wiehle Avenue/Reston Parkway Station Access Management Plans*, April 2008
- *Soapstone Connector Feasibility Study*, November 2013

Additionally, in October 2015, a Public Scoping Meeting was held for the public and scoping letters were mailed to federal, state, and local agencies to provide an opportunity to offer suggestions on the proposed project and scope of issues to be addressed in the EA (see Section 4 for additional information on the scoping process). Input was solicited on the **purpose and need** (confirming the transportation problem(s) to be solved); **alternatives** (suggestions for alternative improvement concepts); and **environment** (reporting natural, cultural, and human environment considerations). During the scoping process, several comments were made by the public that traffic operations is a widespread concern in the study area, especially with respect to congestion along Wiehle Avenue and Reston Parkway. In addition, the potential impact of the Soapstone Connector on traffic volumes on Soapstone Drive south of the study area was also expressed by several citizens as a traffic concern. Numerous comments were also received relating to safety for pedestrians and bicyclists and connectivity to existing sidewalks, trails, and bike facilities, as well as environmental concerns such as impacts to air, noise, and parks/recreation and public facilities in the study area.

2.2.2 Step II. Purpose and Need Addressed?

The 2008 and 2013 studies referenced above informed development of the purpose and need for the Soapstone Connector and established the basis from which initial alternative concepts were developed. Additional studies have been completed as part of the Revised EA to reaffirm what was identified in those precursor studies and the August 2017 EA. Traffic studies completed as part of the August 2017 EA included the development of 2046 travel demand forecasts and the operational analysis of existing (2015) and future No Build and Build conditions; as part of the Revised EA, these traffic data and analyses were validated to assess the extent to which existing traffic volumes have changed between 2015 and 2020 and the extent to which the future year forecasts have changed based on the latest regional travel demand model and land use forecasts (see Sections 1.3 and 1.4). The updated traffic analyses have confirmed the deficiencies in traffic level of service due to volumes exceeding available capacity on Wiehle Avenue and reaffirmed the need to provide additional north-south capacity in the study area. From a traffic perspective, this need is met by all of the alternatives developed for the Soapstone Connector. Other considerations made in screening alternatives are described below.

2.2.3 Step III. Other Considerations

In addition to preparing traffic forecasts and associated analyses to evaluate the effectiveness of conceptual alternatives in addressing the identified purpose and need, engineering/design and physical/environmental conditions in the study corridor were also considered in the screening of alternatives. In the 2013 *Soapstone Connector Feasibility Study*, a wide array of alignments was developed to connect Sunrise Valley Drive and Sunset Hills Road, west of the Wiehle-Reston East Metrorail Station. These alignments were screened initially taking multiple factors into consideration, such as engineering feasibility, right of way/displacements, traffic/transportation, and environmental impacts. The most promising five alignments from the initial screening were then developed further and evaluated once again. This second screening included engineering feasibility; Type, Size and Location (TS&L) analysis; environmental features; traffic analysis; pedestrian and bicycle assessment; land use assessment; and cost estimates.

2.3 ALTERNATIVES NOT CARRIED FORWARD FOR DETAILED STUDY

As described above, in the 2013 *Soapstone Connector Feasibility Study*, a variety of alignments were identified that connected Sunrise Valley Drive and Sunset Hills Road, west of the Wiehle-Reston East Station. In total, 30 alternative alignments were initially identified and screened, resulting in five alternatives that were developed further and evaluated once again in more detail (more information on these alternatives and the screening process can be found in the *Alternatives Technical Memorandum* and the 2013 *Soapstone Connector Feasibility Study*). After extensive study, none of the alternatives emerged as being superior compared to the other alternatives with respect to roadway network performance, engineering/design, and physical/environmental conditions. Below are the main reasons identified in the Feasibility Study as to why the five alternatives were not moved forward.

- *Alternative 1C*. This alternative would require a second bridge to traverse the floodplain north of the Dulles Corridor and it would require the acquisition of an existing multi-level parking garage. It also had poorer roadway network performance metrics compared to other alternatives.

- *Alternative 3D.* This alternative would require a second bridge to traverse the floodplain north of the Dulles Corridor and it would require the acquisition of an existing multi-level parking garage.
- *Alternative 4D.* This alternative would traverse the Transcontinental Gas Pipeline easement and cross over the pipeline, which would require additional mitigation. It would also require the acquisition of the entire property and require the acquisition of a 36,000-square-foot (sf) building currently owned by the National Association of Secondary School Principals.
- *Alternative 5C.* This alternative would traverse the Transcontinental Gas Pipeline easement and cross over the pipeline, which would require additional mitigation. It would also require the acquisition of the entire property and the acquisition of the existing 33,000-sf Musica LLC office building.
- *Alternative 6E.* This alternative would traverse the Transcontinental Gas Pipeline easement and cross over the pipeline, which would require additional mitigation. It would also require additional mitigation since the alignment runs parallel and adjacent to an existing stormwater retention pond. This alignment also had poorer roadway network performance metrics compared to other alternatives.

A Transportation System Management (TSM) Alternative was also considered in the 2008 *Wiehle Avenue/Reston Parkway Station Access Management Plans* study but not carried forward for detailed consideration in the EA due to its inability to address the project purpose and need. TSM generally includes implementation of relatively low-cost actions to improve the efficiency of existing transportation systems. Some examples include traffic controls, signal synchronization, turn lanes, parking management, access management, operational modifications, flexible work hours, vanpools, transit scheduling, bicycle and pedestrian improvements, and modifying driver behavior with incentives, pricing, or restrictions. Such actions were identified in the 2008 *Wiehle Avenue/Reston Parkway Station Access Management Plans* study:

Congestion and safety for all modes of transportation will be major issues in Reston for 2030 unless a set of comprehensive actions are implemented to accommodate the projected growth in travel demand. This report details an array of strategies and projects that can be used to improve conditions for all travelers, residents and employees in Reston. Increased roadway capacity, travel demand management (TDM) strategies, additions to the network of pedestrian paths, and spot safety improvements are all represented in these recommendations.

At the conclusion of the study, recommendations in all of the categories were divided into three groups based on date of implementation. The Soapstone Connector was included in the first group that would be required at the opening of the Wiehle Avenue station. It was concluded that the other actions identified in the study, which include roadway, pedestrian, bicycle, transit, and feeder bus recommendations, would undergo additional planning and implementation as needs arise and funding becomes available. Individually, the TSM-type improvements would not meet the identified needs for this study, i.e., to reduce traffic congestion on Wiehle Avenue and to increase multimodal connectivity and accessibility to the Wiehle-Reston East Metrorail Station. Accordingly, this alternative as a stand-alone solution was eliminated from further study in the EA.

2.4 ALTERNATIVES CARRIED FORWARD

2.4.1 No Build Alternative

Description. 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 assumes that the Soapstone Connector would not be constructed. The transportation network includes the existing roads and projects within the study area that were programmed at the time of the preparation of the EA in the National Capital Region’s 2015 Financially Constrained Long-Range Transportation Plan (CLRP), adopted by the Transportation Planning Board (TPB) in October 2015. Projects included in VDOT’s Six-Year Improvement Program (SYIP) were also assumed to be completed. The following projects were included in the No Build Alternative [*Note that these projects continue to be included in the region’s federally mandated, long-range transportation plan, Visualize 2045, which was approved on October 17, 2018. The financially constrained long-range plan element of Visualize 2045 identifies all of the regionally significant capital improvements to the region’s highway and transit systems that transportation agencies expect to make and to be able to afford through 2045. The timing for each project and the Constrained Element ID (CEID) from Appendix B Summary of Projects in the Financially Constrained Element, October 2018, is included in italicized text and brackets after each project*]:

- Dulles Airport Access Road – Widen from 4 to 6 lanes from Dulles Airport to VA 123 [*complete in 2030, CEID 1965*]
- VA 286 Fairfax County Pkwy HOV – Convert from 6 to 4+2 from Dulles Toll Road to Sunrise Valley Drive [*complete in 2035, CEID 2106*]
- VA 286 Fairfax County Pkwy HOV – Widen from 4 to 4+2 from Sunrise Valley Drive to West Ox Road [*complete in 2035, CEID 2106*]
- Collector-Distributor Rd EB – New 2 lane road from Wiehle Avenue to Spring Hill Road [*complete in 2036, CEID 3151*]
- Collector-Distributor Rd WB – New 2 lane road from Spring Hill Road to Wiehle Avenue [*complete in 2037, CEID 3154*]
- East Elden Street – Widen from 4 to 6 lanes from Monroe Street to Fairfax County Parkway [*complete in 2022, CEID 3222*]
- Spring Street – Widen from 4 to 6 lanes from Herndon Parkway to Fairfax County Parkway [*complete in 2020, CEID 1952 (currently in design phase with completion expected by Fall 2023, https://www.virginiadot.org/projects/northernvirginia/e_spring_st.asp)*]
- Route 602 Reston Pkwy – Widen from 4 to 6 lanes from Sunrise Valley Drive to Baron Cameron Avenue [*complete in 2020, CEID 1849 (incomplete; only the segment between the Dulles Toll Road and New Dominion Parkway/Temporary Road is currently six lanes)*]

Ability to Meet Needs.

*Traffic Congestion.*⁸ By 2046, the existing transportation network will not be able to accommodate the projected peak hour demand for vehicular travel within the traffic analysis area. LOS and delay will increase, particularly at the intersections of the four major roadways and at all of the

⁸ See Section 1.4 and Appendix A for discussion of new traffic counts and travel demand forecasting completed as part of the Revised EA to identify the extent to which 2046 forecasts would change between when they were prepared as part of the August 2017 EA and based on the more recent Metropolitan Washington Council of Governments (MWCOG) model and land use forecasts.

intersections along Wiehle Avenue, as shown previously in Table 1-2. Additional details are provided in the *Traffic Technical Memorandum*.

Multimodal Connectivity. As discussed in Section 1.4 Needs – Future Conditions, the density of both residences and offices is planned to increase in the area surrounding the Wiehle-Reston East Metrorail Station, which will generate many more pedestrian and bicycle trips. Additional pathways for these modes of travel must be considered as higher volumes of traffic will make it increasingly more difficult for pedestrians and bicyclists to travel in this area since there are limited sidewalks and no bike lanes. Increased congestion and delays on the roadway network will also reduce the efficiency of bus service, which is programmed to increase, with planning already underway to reroute bus lines in the vicinity to serve the two rail stations and accommodate the development growth.

Accessibility and Mobility. As discussed in Section 1.4 Needs – Future Conditions, as development in the area and traffic demand increases, accessibility and mobility will be further constrained. The Reston Town Center Metrorail Station that will open as part of Phase 2 of the Dulles Metrorail Project does not include dedicated parking; therefore, vehicular demand at the parking facilities at Wiehle-Reston East Metrorail Station will continue and increase, further exacerbating weaving conflicts along Wiehle Avenue. Queue lengths and delays at intersections in the area surrounding the station will also likely worsen with the higher traffic volumes in 2046.

2.4.2 Build Alternatives

The screening process in the 2013 *Soapstone Connector Feasibility Study* resulted in the development of a “hybrid” alternative for further consideration. The “hybrid” alternative (which combined Alternative 5C north of the Dulles Corridor and Alternative 4D south of the Dulles Corridor) was deemed to offer advantages compared to the five evaluated alternatives in terms of consistency with the typical section on Soapstone Drive, construction costs, and enhanced mobility for bicyclists and motorists, among other reasons. This “hybrid” alternative, referred to as Alternative 1 hereafter, is described below.

In addition to Alternative 1, a variation of this alignment was also developed as part of the alternatives development process described in Section 2.2 and is also being assessed in the Revised EA.⁹ The alignment for Alternative 2 follows the same alignment as Alternative 1 south of the Dulles Corridor, but north of the crossing, the alignments diverge and are offset by up to 150 feet. Given the similarities between the two alternatives, and the fact that they are functionally equivalent for the purposes of traffic operations and analysis, the alternatives are described concurrently within each section below.

Description. The Build Alternatives assume completion of those projects identified in the No Build Alternative and the addition of the Soapstone Connector between Sunrise Valley Drive and Sunset Hills Road. The southern terminus of Alternative 1 is located at the intersection of Soapstone Drive and Sunrise Valley Drive while the northern terminus would connect to Sunset Hills Road, as shown in **Figure 2-2**. In the figure, the alternative is represented as a 200-foot-wide

⁹ Subsequent to the completion of the November 2013 *Soapstone Connector Feasibility Study*, an additional alignment north of the Dulles Toll Road was presented to FCDOT by Linden Development Partners, LLC. Linden Development requested that their alignment be included in the EA, even though the engineering feasibility of such an alignment had not been previously studied by FCDOT. Ultimately, FCDOT determined that the EA would include both the Board of Supervisors’ approved alignment, identified as the “hybrid” alternative in the Feasibility Study, and Linden Development’s additional alignment north of Dulles Toll Road. See *Alternatives Technical Memorandum* for additional information.

corridor, which would be wide enough to encompass minor variations in actual roadway alignments and design features during the design phase, should a build alternative be selected, and to illustrate the maximum potential impacts of the alternative. The corridor has been estimated for planning purposes and decision-making during the NEPA process, but would be further refined during final design.

The 200-foot-wide corridor for Alternative 2 is shown in **Figure 2-3**, and the alignment is the same as Alternative 1 south of the Dulles Corridor. North of the Dulles Corridor crossing, Alternative 2 is aligned slightly to the east of Alternative 1. A closer view of the differences between the two alternatives north of the Dulles Access and Roll Road is shown in **Figure 2-4**.

The typical section of the new roadway would feature a three-lane cross-section (one travel lane in each direction and a two-way, left-turn-only lane); 5-foot-wide on-road bicycle lanes on each side; a 5-foot-wide concrete sidewalk on the west side; and a 10-foot-wide shared use path on the east side, as shown in **Figure 2-5**. The typical section for the bridge includes four travel lanes, as shown in **Figure 2-6**.

There are four planned access points throughout the length of the roadway. From south to north, access points include 1) the intersection with Sunrise Valley Drive at the southern terminus, 2) an intersection north of Sunrise Valley Drive before the Dulles Corridor bridge, 3) an intersection north of the Dulles Corridor bridge before Sunset Hills Road, and 4) the intersection with Sunset Hills Road at the northern terminus. The specific locations of the two intermediate points between the termini and the Dulles Corridor (one on the south and one on the north) would be determined during preliminary engineering. At this time, potential locations have been identified as part of the Reston Network Analysis, with the northern intersection including a potential connection to Reston Station Boulevard.¹⁰

At the northern and southern termini, additional turn lanes would be provided at the intersections of Sunset Hills Road and Sunrise Valley Drive with the Soapstone Connector to accommodate the new or increased turning movement volumes, with the maximum number of lanes constrained to the downstream receiving conditions. The build assumptions at the intersections were made primarily for the purposes of the traffic analysis; the details of each intersection configuration, including number of turn lanes and turning bay length, would be determined during preliminary engineering.

Ability to Meet Needs.

*Traffic Congestion.*⁸ Future year (2046) traffic forecasts were developed to support comparative analyses between the No Build and Build Alternatives. Approximately 18,000 vehicles per day (vpd) are projected to use the Soapstone Connector in 2046, as shown in **Table 2-1**.

¹⁰ <https://www.fairfaxcounty.gov/transportation/study/reston-network-analysis>

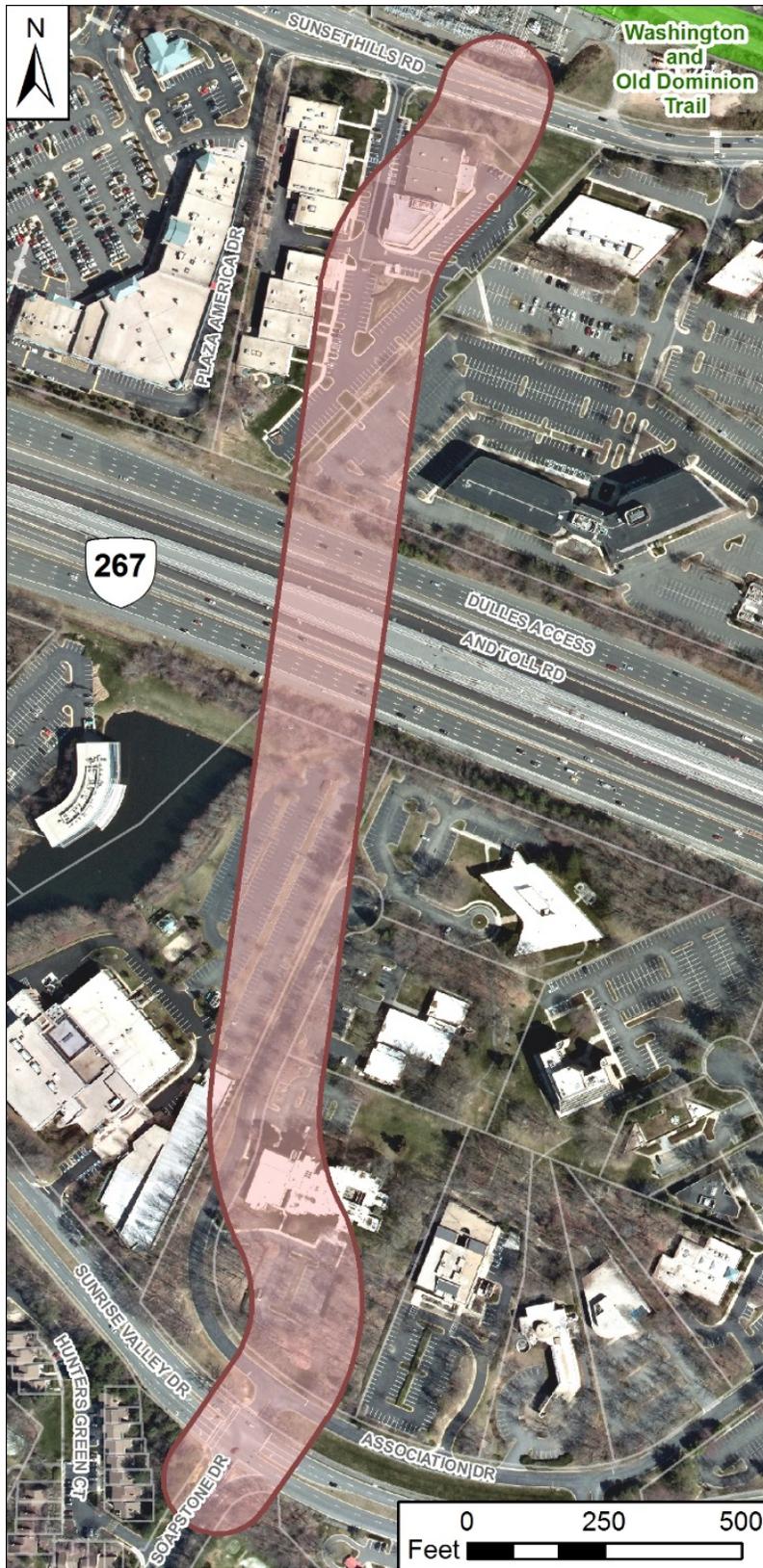


Figure 2-2. Alternative 1

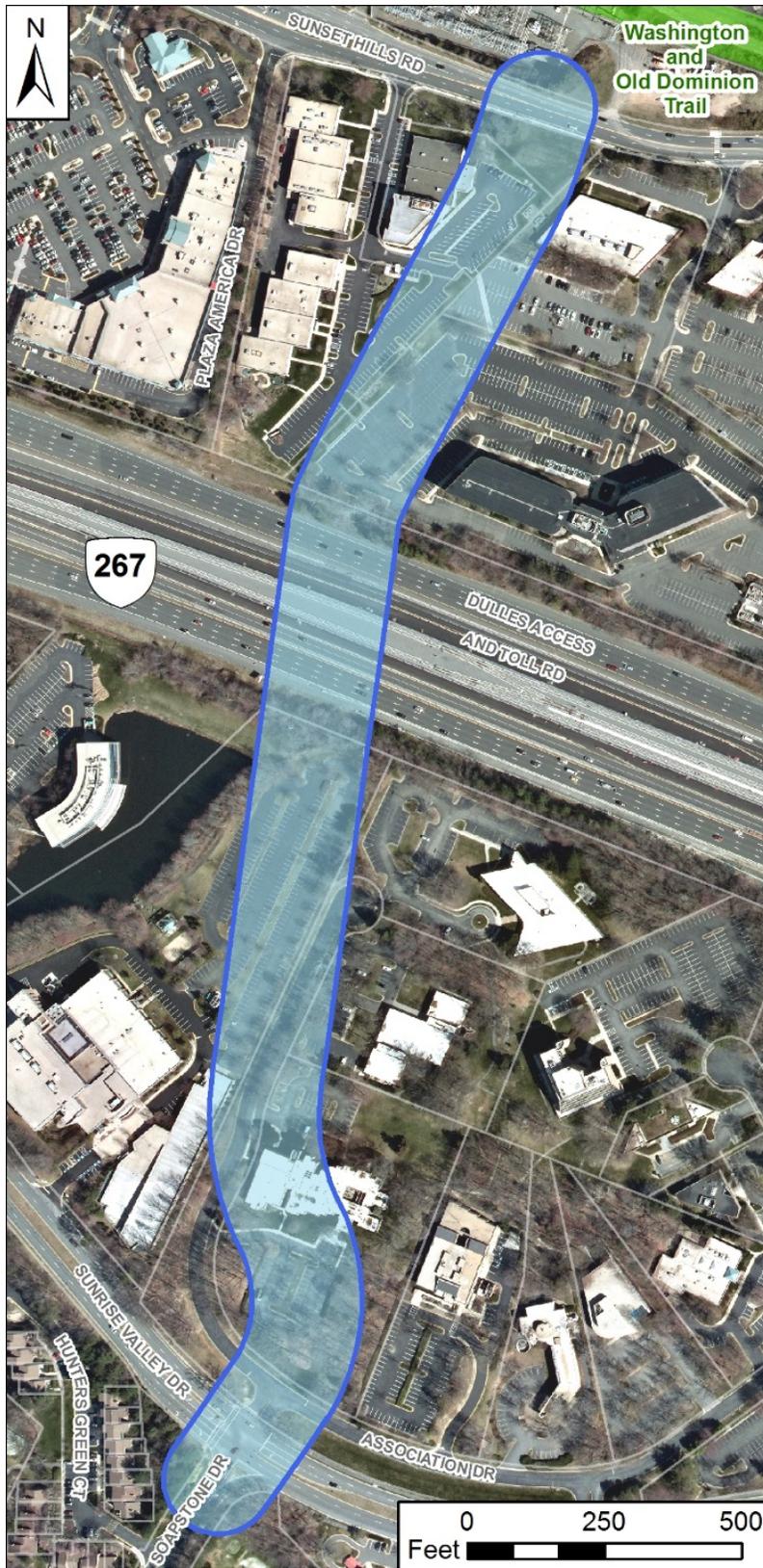


Figure 2-3. Alternative 2

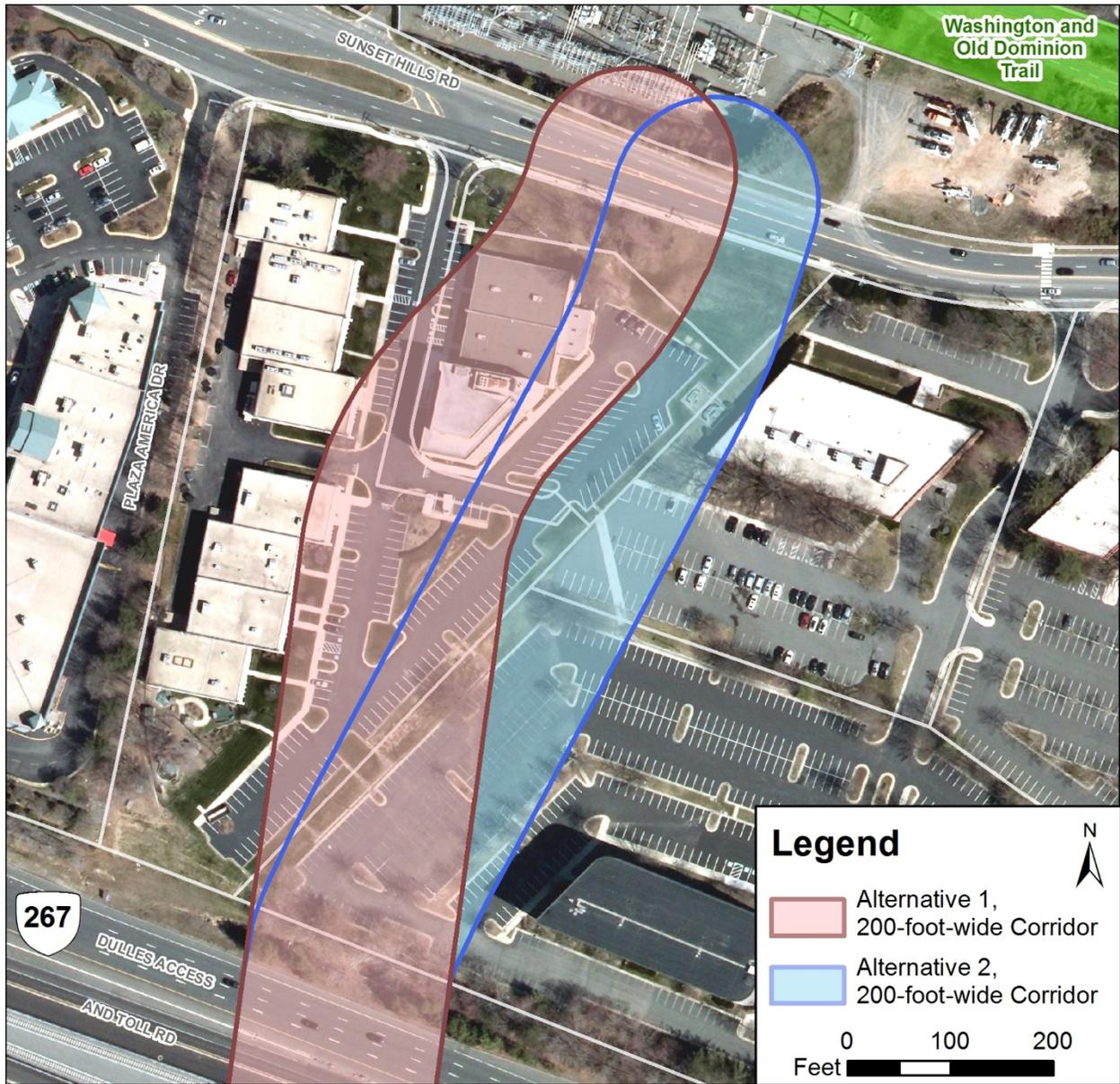


Figure 2-4. Comparison of Alternatives 1 and 2 North of Dulles Corridor

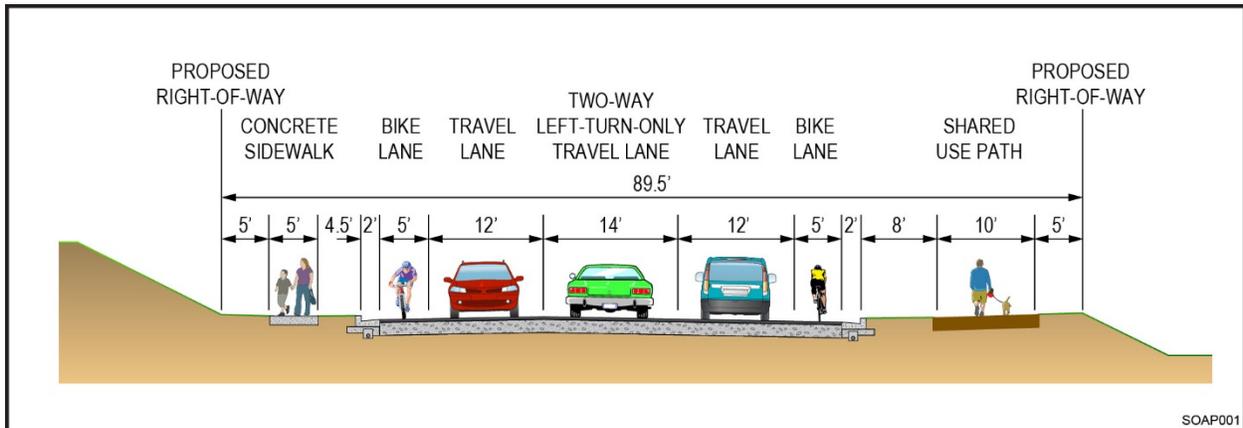


Figure 2-5. Typical Roadway Section

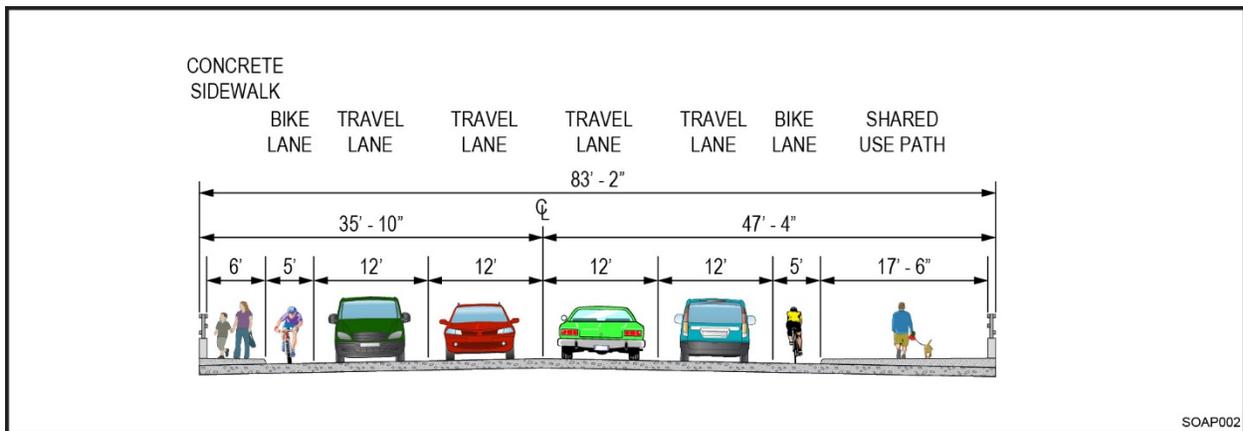


Figure 2-6. Typical Bridge Section

Table 2-1. Existing (2015) and Forecast (2046) Daily Volumes

		Daily Volume (NB + SB) (vehicles per day)						
		2015 Existing	2046		No Build vs Existing		Build vs No Build	
			No Build	Build	Growth	%	Difference	%
Reston Parkway	North of DTR	51,300	68,000	62,000	16,700	33%	-6,000	-10%
	South of DTR	43,700	63,800	57,300	20,100	46%	-6,500	-11%
Soapstone Connector	North of DTR	-	-	18,100	-	-	18,100	-
	South of DTR	-	-	18,300	-	-	18,300	-
Wiehle Avenue	North of DTR	36,900	46,800	37,400	9,900	27%	-9,400	-25%
	South of DTR	34,900	38,500	29,500	3,600	10%	-9,000	-31%

On Wiehle Avenue north of the Dulles Corridor, the 2046 No Build forecast of 46,800 vpd decreases to 37,400 vpd (which is similar to the existing volume of 36,900 vpd) when the Soapstone Connector is added to the roadway network. In other words, north of the Dulles Corridor, the volume on Wiehle Avenue grows by about 10,000 vpd between 2015 and 2046, and nearly all of that is absorbed by the Soapstone Connector under Build conditions. There is less growth on Wiehle Avenue south of the Dulles Corridor than north, which leads to lower volumes under the Build condition than existing year (year 2015, 2046 No Build, and 2046 Build volumes are 34,900, 38,500, and 29,500 vpd, respectively).

On Reston Parkway, there is also a reduction in traffic in 2046 with the addition of the Soapstone Connector, but the difference from the No Build condition is somewhat lower (both overall volume and in percentage terms) than the difference between the Build and No Build volume on Wiehle Avenue.

On a peak hour basis, the levels of service and delay shown in **Table 2-2** confirm that travel delays at intersections on Wiehle Avenue (shown in bold font) are anticipated to be lower in the Build condition with the addition of the Soapstone Connector (compared to the No Build condition). This result satisfies an element of the purpose of the Soapstone Connector project, which is to reduce traffic congestion and delay along Wiehle Avenue.

Table 2-2. Intersection Operations – 2046 No Build and Build Conditions

Intersection No.	Intersection Name	2046 No Build Conditions				2046 Build Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	Reston Pkwy at Sunset Hills Rd	86.9	F	103.4	F	82.7	F	93.2	F
2	Sunset Hills Rd at Oracle Way & Old Reston Ave	41.7	D	50.0	D	63.7	E	41.3	D
3	Sunset Hills Rd at Plaza America Dr	5.6	A	12.4	B	6.5	A	12.7	B
4	Sunset Hills Rd at American Dream Way	25.3	C	41.8	D	25.2	C	52.9	D
NEW	Sunset Hills Rd at Soapstone Connector	-	-	-	-	28.5	C	20.9	C
5	Sunset Hills Rd at Isaac Newton Sq & Metro Ctr Dr	116.5	F	191.3	F	53.9	D	97.6	F
6	Wiehle Ave at Sunset Hills Road	79.2	E	101.3	F	64.2	E	75.7	E

Intersection No.	Intersection Name	2046 No Build Conditions				2046 Build Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
7	Wiehle Ave at Reston Station Blvd	30.5	C	74.8	E	24.5	C	46.9	E
8	Wiehle Ave at WB DTR Ramps	29.3	C	41.2	D	22.9	C	50.9	D
9	Wiehle Ave EB DTR Ramps	39.5	D	22.7	C	26.1	C	22.4	C
10	Wiehle Avenue at Sunrise Valley Drive	62.6	E	65.1	E	39.6	D	46.4	D
11	Sunrise Valley Dr at Soapstone Dr	26.6	C	29.0	C	83.5	F	88.0	F
12	Sunrise Valley Drive at Sheraton Plaza	3.9	A	8.8	A	6.3	A	8.6	A
13	Sunrise Valley Dr at Colts Neck Road	46.0	D	30.7	C	33.1	C	25.8	C
14	Sunrise Valley Drive at Reston Pkwy	105.6	F	144.7	F	95.1	F	123.4	F

In general, the provision of the Soapstone Connector serves to redistribute traffic within the traffic analysis area and relieve the two north-south roadways, Wiehle Avenue and Reston Parkway. Overall, it can be expected that once the Soapstone Connector is in place, travel patterns and route choice will change within the study area, and volumes are likely to fluctuate for a short period of time.

Multimodal Connectivity. This alternative provides additional roadway capacity for buses to cross over the Dulles Corridor. This would play a key role in improving the bus network in Reston by providing direct access across the Dulles Corridor and to the station without requiring travel on Wiehle Avenue.

The Soapstone Connector would have two bike lanes, one sidewalk, and one shared use path, which would provide access for pedestrians and bicyclists to safely cross the Dulles Corridor. These facilities would connect with the existing sidewalks and bike lanes on Soapstone Drive, the latter extending south to Lawyers Road. Additional multimodal improvements that would connect to the Soapstone Connector are shown in **Figure 2-7** and described in **Table 2-3** (according to Map ID). West of the Soapstone Connector, separated bike lanes and a pedestrian facility on the north side of Sunrise Valley Drive between Soapstone Drive and Reston Parkway are in the design phase (Map ID #39). To the east of Soapstone Drive on Sunrise Valley Drive, completed projects include approximately 5,000 linear feet of 5 to 7-foot-wide concrete sidewalk on the south side and an upgrade of approximately 4,500 linear feet of an existing asphalt sidewalk to a 10-foot shared-use path on the north side (Map ID #31A and #31B). At the northern terminus of the Soapstone Connector, pedestrians and bicyclists would tie into the existing sidewalk on Sunset Hills Road and could then connect to the Washington and Old Dominion (W&OD) Trail. A new bridge is planned on the W&OD Trail that will extend over Wiehle Avenue and replace the existing at-grade crossing (currently the project is in the right-of-way phase, Map ID #11). Minor roadway, sidewalk, and median modifications will also be made to Wiehle Avenue at this location to accommodate the bridge.

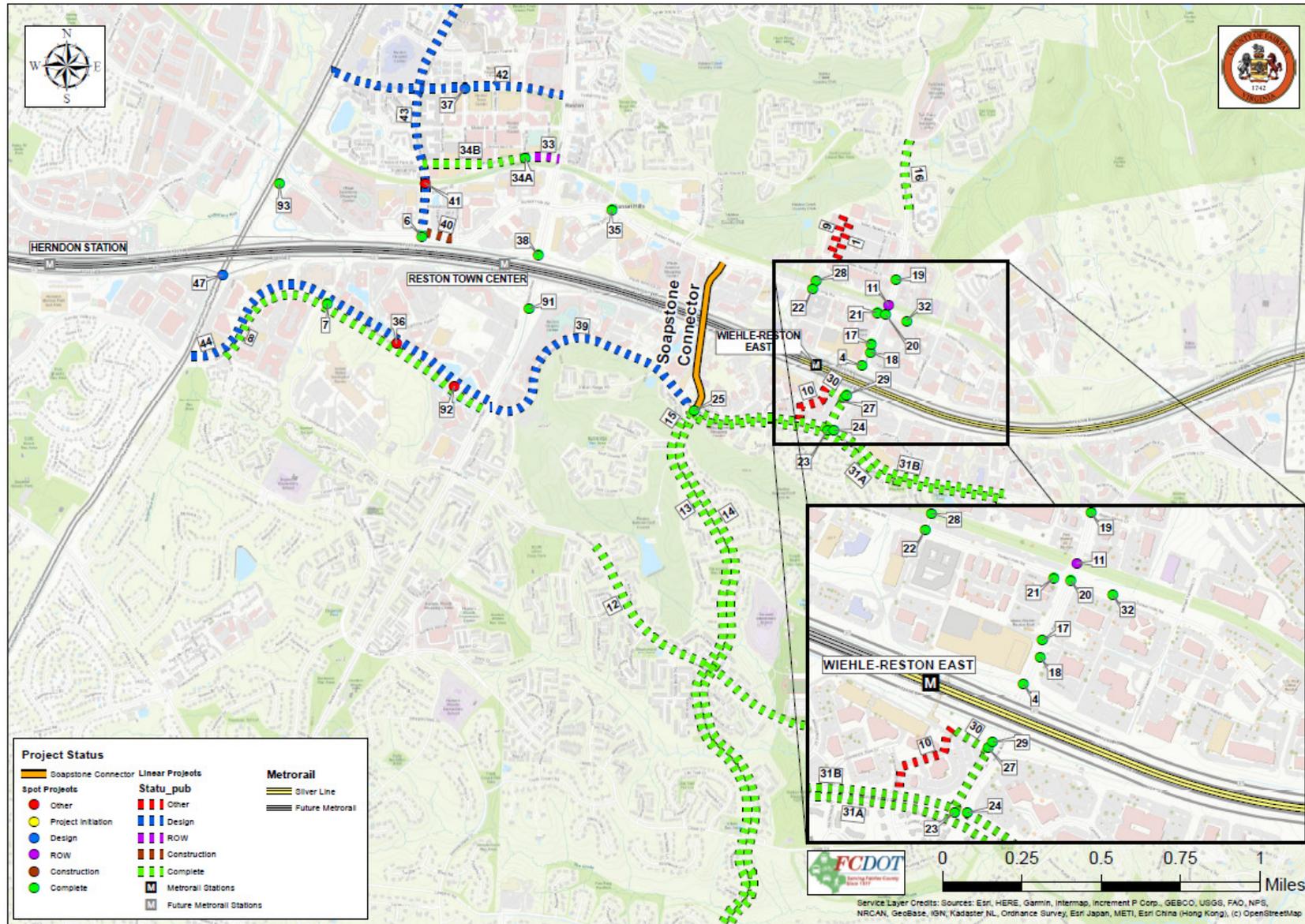


Table 2-3a. Bicycle and Pedestrian Projects – Spot Projects

Map ID	Project Location	Project Improvements	Type
4	Intersection of Wiehle Avenue and Dulles Toll Road westbound	Pedestrian intersection improvements - Add crosswalk on west leg	Crosswalk
5	Intersection of Wiehle Avenue and W&OD Trail	The work proposed under this project will be completed by Project #11, the Phase II portion of this project	Shared Use Path
6	Intersection of Sunset Hills Road and Town Center Parkway	Pedestrian intersection improvements - Add crosswalks on north and west legs	Crosswalk
7	Intersection of Sunrise Valley Dr and Mercator Drive (Included as part of Map ID #8)	Construct 5-foot concrete sidewalk on south side of Sunrise Valley Drive between Glade Drive and Reston Parkway	Crosswalk
11	Wiehle Avenue/Washington and Old Dominion (W&OD) Trail Phase II	Construct bicycle and pedestrian grade separated crossing	Shared Use Path
17	Intersection of Wiehle Avenue and Reston Station Boulevard	Pedestrian intersection improvements - Upgrade crosswalks on the west, north, and east legs of the intersection	Crosswalk
18	Intersection of Wiehle Ave and Reston Station Boulevard	Add a second left turn lane for northbound traffic and provide a second inbound lane	Road
19	Intersection of Wiehle Avenue and Isaac Newton Square South	Add signalized pedestrian crossings and median at Wiehle Avenue and Isaac Newton Square South	Crosswalk
20	Intersection of Wiehle Avenue and Sunset Hills Road	Pedestrian intersection improvements - Upgrade crosswalks on all legs of the intersection	Crosswalk
21	Intersection of Wiehle Avenue and Sunset Hills Road	Decrease right turn radius on north and south leg; Channelize right turn lane and decrease right turn radius on west leg	Road
22	Intersection of Sunset Hills Rd and Isaac Newton Square West	Intersection improvements - Add and upgrade crosswalks on all legs of the intersection; Construct new left turn lane for westbound turn	Road & Crosswalk
23	Intersection of Wiehle Avenue and Sunrise Valley Drive	Pedestrian intersection improvements - Add crosswalks west leg of the intersection	Crosswalk
24	Intersection of Sunrise Valley Drive at Wiehle Ave	Channelize right turns from the east and realign right turn channelization from the north	Road
25	Intersection of Sunrise Valley Drive and Soapstone Drive	Upgrade crosswalks on all legs of the intersection	Crosswalk
27	Intersection of Wiehle Ave and Eastbound Dulles Toll Road ramp	Pedestrian intersection improvements - Decrease right turn radius and add crosswalk on west leg of the intersection	Road & Crosswalk
28	Intersection of Isaac Newton Square West and W&OD Trail	Pedestrian intersection improvements - Upgrade and add asphalt sidewalk on west side to Sunset Hills Rd	Shared Use Path
29	Eastbound Dulles Toll Road ramp at Wiehle Avenue	Intersection improvements - Construct a left turn lane	Road
32	Intersection of Sunset Hills Rd and Wiehle Avenue	Construct a double left turn lane on westbound Sunset Hills Rd	Road
34A	Bluemont Way & Discovery Street/Explorer Street/Library Street	Road diet project to reduce travel lanes and introduce bike lanes, including pedestrian improvements	Bicycle Lanes & Crosswalk
35	Sunset Hills Road/Old Reston Avenue	Approximately 315 LF of sidewalk along the north side of Sunset Hills Road and intersection improvements at Old Reston Avenue	Crosswalk
36	Sunrise Valley Drive/Edmund Halley Drive	Install signalized crosswalks	Crosswalk
37	Explorer Street/New Dominion Parkway	Install signal at intersection with signalized crosswalk	Crosswalk
38	Reston Parkway/Dulles Toll Road Westbound On-Ramp	Intersection pedestrian improvements, including sidewalks, trails, and bike facility upgrades	Intersection Improvements
41	Town Center Parkway/W&OD Trail	Construct 10-foot shared-use path from the existing sidewalk along Town Center Parkway to the existing Washington and Old Dominion	Shared Use Path
47	Dulles Toll Road Eastbound Off-Ramp/Fairfax County	At grade crossing of trail at Dulles Toll Road on-ramp	Crosswalk
91	Reston Parkway/Dulles Toll Road Eastbound Off-Ramp and On-Ramp	Intersection pedestrian improvements, including sidewalks, trails, and bike facility upgrades	Intersection Improvements
92	Sunrise Valley Drive/Reston Association Entrance	Provide pedestrian crosswalk on the east leg of the intersection	Crosswalk
93	Sunset Hills Road Eastbound Ramp/Fairfax County Parkway Trail	Provide a crosswalk at the on-ramp from Sunset Hills Road to the Fairfax County Parkway and extend the shared-use path 130 LF	Crosswalk

Table 2-3b. Bicycle and Pedestrian Projects – Linear Projects

Map ID	Project Location	Project Improvements	Type
1	Metro Center Drive to Isaac Newton Square South	Widen Isaac Newton Square West	Road
8	Sunrise Valley Drive Sidewalk	Construct 5-foot concrete sidewalk on south side of Sunrise Valley Drive between Glade Drive and Reston Parkway	Sidewalk
9	Metro Center Drive entrance to Isaac Newton Square South	Construct 5-foot concrete sidewalk on Isaac Newton Square West from Metro Center Drive to Isaac Newton Square South	Sidewalk
10	Wiehle Ave Station Walkway/Bikeway	Station entrance to Sunrise Valley Drive	Shared Use Path
12	South Lakes Drive Walkway from Greenkeepers Court to Sunrise Valley Drive	Install walkway: Greenkeepers Court to Soapstone Drive, Whisperwood Glen Lane to Ridge Heights Road, and Harbor Court to Twin Branches	Shared Use Path
13	Soapstone Bike Lanes	West side from the end of Soapstone to Sunrise Valley Drive	Bicycle Lanes
14	Soapstone Bike Lanes	East side from the end of Soapstone to Sunrise Valley Drive	Bicycle Lanes
15	Soapstone Sidewalk	West side from Sunrise Valley Drive to Hunters Green Court	Sidewalk
16	Wiehle Avenue Sidewalk	East side from Chestnut Grove Square to North Shore Drive	Sidewalk
30	Wiehle Avenue Walkway	Sunrise Valley Drive to Wiehle-Reston East Station entrance	Sidewalk
31A	South side from Soapstone Drive to South Lakes Drive	Approximately 5,000 LF of 5 to 7-foot concrete sidewalk on south side of Sunrise Valley Drive	Sidewalk
31B	North side from Soapstone Drive to South Lakes Drive	Upgrade approximately 4,500 LF of an existing asphalt sidewalk to a 10-foot shared-use path on north side of Sunrise Valley Drive	Sidewalk
33	Bluemont Way Sidewalk from Discovery Street Pedestrian Bridge Walkway to Reston Parkway	Construct approximately 525 LF of 10-foot wide asphalt shared-use path along the south side of Bluemont Way	Shared Use Path
34B	Bluemont Way and Discovery Street/Explorer Street	Road diet project to reduce travel lanes and introduce bike lanes, including pedestrian improvements	Bicycle Lanes & Crosswalk
39	Sunrise Valley Drive from Reston Parkway to Soapstone Drive	Install separated bike lanes and a pedestrian facility on the north side of Sunrise Valley Drive	Cycletrack and Sidewalk
40	Sunset Hills Road from Town Center Parkway to Reston Town	Construct 6-foot asphalt sidewalk along the north side of Sunset Hills	Shared Use Path
42	New Dominion Parkway from Reston Parkway to Fairfax County Parkway	Reconstruct New Dominion Parkway with off-road bike lanes, reduced median width, and reduced lane widths from Fairfax County Parkway to Reston Parkway	Bicycle Lanes
43	Town Center Parkway from Sunset Hills Road to Baron Cameron Avenue	Construct off-road bike lanes by reducing median and lane widths	Bicycle Lanes
44	Sunrise Valley Drive from Reston Parkway to Fairfax County Parkway	Narrow median between Reston Parkway and Fairfax County Parkway to provide off-road bike lanes in each direction from Glade Drive to Edmund Halley Drive	Bicycle Lanes

Accessibility and Mobility. The Soapstone Connector would alleviate congestion on Wiehle Avenue by providing an additional road crossing over the Dulles Corridor, and it would enhance accessibility to the Wiehle-Reston East Metrorail Station and mobility in the surrounding area by providing pedestrian, bicycle, and vehicular access to the Metrorail Station by way of Reston Station Boulevard (or another connection that would be determined during the preliminary engineering stage).

As indicated in Section 1.2, the Soapstone Connector was included as a recommended roadway network improvement in the Reston Transit Station Areas Comprehensive Amendment to the Fairfax County Comprehensive Plan in February 2014. At that time, a follow-on motion by the Board of Supervisors directed staff to “conduct a detailed evaluation and operational analysis of the enhanced street network shown on the Reston Master Plan, prioritize these improvements, and develop an implementation strategy.” Accordingly, the Reston Network Analysis was initiated to take a long-range look at the transportation conditions in the Reston Transit Station Areas (TSAs) in 2030 and 2050. The Network Analysis evaluated the conceptual grid of streets in the Reston TSAs adopted in the Reston Phase I Plan Amendment, which included the Soapstone Connector. In the immediate vicinity of the Soapstone Connector, the grid of streets included an extension of Reston Station Boulevard to the Connector. From a connectivity perspective, this extension would provide a direct connection to the kiss-and-ride area, the parking garage for the Metrorail station, and future development in the vicinity of the station.

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Section 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION AND OVERVIEW OF ENVIRONMENTAL ISSUES

This section describes the affected environment and potential direct, indirect, and cumulative environmental consequences of the proposed project. Potential direct environmental impacts were estimated and described based on the implementation of each Build Alternative within a 200-foot-wide corridor, as described in Section 2. This planning-level corridor was estimated for the purposes of evaluating alternatives and decision-making during the NEPA process, and the analysis assumes that the entire area within the 200-foot-wide corridors would be impacted. The actual limits of disturbance would be further refined during design and as additional information becomes available. All efforts would be made to avoid or minimize direct impacts to environmental resources within the right of way limits of the selected Build Alternative. Indirect impacts are "...effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR § 1508.8(b))¹¹. Finally, cumulative impacts are: "...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 impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR § 1508.7). Indirect and cumulative impacts are discussed at the end of this chapter.

Table 3-1 summarizes environmental issues and their relevance to the project. **Table 3-2** quantifies and compares the impacts between the No Build and Build Alternatives. Issues that are pertinent to the study corridor are discussed further following the tables. The environmental data and findings presented herein were gathered from federal, state, and local agencies; previous area studies; existing literature and websites; aerial photography; geographic information system (GIS) databases; and site visits to the study corridor.

Table 3-1. Summary of Environmental Resources in Study Corridor

Resource	Discussion
Land Use	Land use in the vicinity of the proposed project is office, mixed use, and transportation. The proposed project would convert land currently in use as office

¹¹ On July 16, 2020, the Council on Environmental Quality (CEQ) issued the *Final Rule: Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*, which included substantive revisions to 40 CFR Parts 1500 through 1508. While CEQ's Final Rule became effective on September 14, 2020, FHWA and other federal agencies are still in the process of developing guidance to implement the updated regulations, which are currently undergoing additional revisions. This EA has been prepared consistent with the CEQ's *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* as last amended in July 2005. The analyses contained within this EA exceed the requirements set forth by CEQ's 2020 Final Rule, which was designed to streamline the NEPA process.

Table 3-1. Summary of Environmental Resources in Study Corridor

Resource	Discussion
	and mixed use to a transportation use. This is consistent with the land use identified for the area surrounding the project within the Fairfax County Comprehensive Plan. This project is presented within the transportation section of the Comprehensive Plan as a proposed highway overpass. The project is therefore consistent with the Fairfax County Comprehensive Plan.
Communities/ Neighborhoods & Community Access	The project area lies north of the Reston National Golf Course and the housing developments that surround the golf course. On the north side of the Dulles Corridor, the project is within a retail and office area of the community of Sunset Hills. VA Route 267 (Dulles Toll Road) provides access to the transportation network through dedicated interchanges. The proposed project is located between two of these interchanges, Wiehle Avenue (Route 828) and Reston Parkway (Route 602). Sunset Hills Road and Sunrise Valley Drive parallel the Dulles Toll Road and provide access to businesses and residences. See Section 3.2.1 .
Population and Employment	The total population for 2019 for Fairfax County is 1,145,862 persons (US Census Bureau, 2020). The County population is projected to grow by over 20 percent by 2045, to 1,386,476 (Weldon Cooper, 2017). The total employment within the County in 2020 was estimated at 639,918 (VEC, 2020). See Section 3.2.2 .
Minority and Low- income Populations	In 2019, 49.3% of the County population was minority. There are two Census tracts traversed by the project, both with minority percentages lower than Fairfax County as a whole. Household median income for the two Census tracts were compared to the US Department of Health and Human Services (HHS) 2019 Poverty Guidelines. Neither Census tract has a median household income at or below the threshold. No residential relocations would be required by the project, and no disproportionately high and adverse effects to minority and low-income populations would occur as a result of the project. See Section 3.2.3 .
Relocations	Both Build Alternatives 1 and 2 would relocate two businesses, and acquisition of right of way from up to six additional parcels may also be required. Acquisition of right of way and the relocation of displacees would be conducted in accordance with the <i>Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970</i> , as amended. See Section 3.2.5 .
Public Parks, Recreation Areas, and Open Space Easements	The project corridor was examined for any existing public parks, recreation areas, wildlife and waterfowl refuges, and open-space easements, including those associated with public schools. One resource, the Washington and Old Dominion (W&OD) Railroad Regional Park, was identified just beyond the north end of the proposed project (see Figure 3-1). The 45-mile-long W&OD contains a regional bicycle and pedestrian trail owned and operated by NOVA Parks (formerly the Northern Virginia Regional Park Authority). The No Build Alternative requires no right of way acquisition and has no direct adverse impacts to any park or recreation areas. Alternatives 1 and 2 would not require the temporary or permanent use of land from the W&OD Railroad Regional Park.
Farmlands and Agricultural/ Forestal Districts	As required by the federal Farmland Protection Policy Act (FPPA), Form CPA-106, Farmland Conversion Impact Rating for Corridor Type Projects, was submitted to the Natural Resources Conservation Service (NRCS) for assistance in evaluating farmland impacts. According to NRCS, no prime or statewide important farmland exists in the project area due to the fact that the project area is committed to urban uses. There are no agricultural or forestal districts within the project area.
Forest	No commercial forest resources exist in the project corridor.

Table 3-1. Summary of Environmental Resources in Study Corridor

Resource	Discussion
Air Quality	The project is located in Fairfax County, which has been designated by the US Environmental Protection Agency (EPA) as nonattainment for the eight-hour ozone national ambient air quality standard (NAAQS), attainment for the annual fine particulate matter (PM _{2.5}) NAAQS, and attainment for the carbon monoxide (CO) NAAQS. The air quality analysis indicates that the project would not cause or contribute to a new violation, increase the frequency or severity of any violation, or delay timely attainment of the NAAQS established by EPA. In addition, in accordance with recent guidance issued by FHWA, the project area is characterized as a project with low potential mobile source air toxics (MSAT) effects. See Section 3.3 .
Noise	Land uses within the project area that are subject to FHWA Noise Abatement Criteria (NAC) are predominately commercial/office with multi-family residential along Sunrise Valley Drive as well as a daycare center north of the Dulles Toll Road, a senior living facility south of the Dulles Toll Road, two golf courses, and a trail. ¹² There are six common noise environments (CNE) within the project area, two of which are predicted to experience noise impacts. Studies indicate that noise abatement using a noise barrier may be feasible and reasonable for one of them. One barrier evaluated for impacted receptors was not found to be feasible and reasonable. Additional studies would be necessary during the final design phase when more detailed design information is available. See Section 3.4 .
Visual Quality	Visual resources are those physical features that comprise the visual landscape, including land, water, vegetation, and man-made elements. The Dulles Corridor is the predominant transportation feature within the study area, and development on the north and south sides of the Dulles Corridor includes commercial, residential, and park/recreation facilities, including two golf courses and the W&OD Railroad Regional Park. See Section 3.5 .
Historic Properties	Two historic properties occur within the area of potential effects (APE): the W&OD Railroad Historic District and the Association Drive Historic District. The Virginia Department of Historic Resources (DHR) determined that the Soapstone Connector project would have an adverse effect on historic properties on February 24, 2021. See Section 3.6 .
Section 4(f) and Section 6(f) Resources	The nine contributing elements of the Association Drive Historic District are considered Section 4(f) resources under the US Department of Transportation Act of 1966. Alternatives 1 and 2 would require permanent use of one contributing element of the Association Drive Historic District. See Section 3.6 , Section 3.13 , and Appendix B . The W&OD Railroad Regional Park is a Section 4(f) resource and is also protected by Section 6(f) of the Land and Water Conservation Fund Act of 1965. Alternatives 1 and 2 would not require the temporary or permanent use of land from the W&OD Railroad Regional Park.
Hazardous Materials	A review was conducted of the most recent available federal and state databases of facilities with the potential for containing hazardous materials and/or wastes. Four

¹² The Kensington Reston senior living facility at 11501 Sunrise Valley Drive (south of the Dulles Toll Road and east of Soapstone Drive) opened in 2021 in the location of what was a daycare center with an outdoor playground at the time of the preparation of the August 2017 EA. Traffic noise impacts are not predicted at this location under the future design year (2046) build condition.

Table 3-1. Summary of Environmental Resources in Study Corridor

Resource	Discussion
	parcels with hazardous materials are within the 200-foot-wide corridors of the two Build Alternatives. See Section 3.7 .
Streams	The alternative corridors are located within the Potomac-Shenandoah River major watershed, within the Middle Potomac-Catoctin 8-digit hydrologic unit code (HUC) boundaries (HUC code 02070008) and within the Difficult Run 12-digit HUC boundaries (HUC code 020700081004). The alternative corridors cross one unnamed tributary to Colvin Run. See Section 3.8 .
Wetlands	According to the National Wetlands Inventory (NWI), there are no wetlands within or adjacent to the alternative corridors. See Section 3.8 .
Water Quality	There are no impaired waters within the alternative corridors. Colvin Run, which is impaired for aquatic use, lies approximately 0.6 mile downstream from the alternative corridors. See Section 3.8 . There are no public drinking water surface resource watersheds, public groundwater wells, or EPA-designated sole source aquifers within 1.0 mile of the alternative corridors. There are no surface water intakes located within five miles of the alternative corridors. While the Potomac surface water intake and the alternative corridors are both located within the Middle Potomac-Catoctin 8-digit HUC watershed (HUC code 02070008), the alternative corridors do not share the same 12-digit HUC subwatershed and therefore do not drain toward this surface water intake.
Chesapeake Bay Protection Areas	The project is located within Fairfax County, which is a Tidewater jurisdiction subject to the Chesapeake Bay Preservation Act. There are no Resource Protection Areas within 500 feet of the project. Under Fairfax County’s Chesapeake Bay Preservation Ordinance (Fairfax County Code of Ordinances, Article 5, Section 118-5-2), public roads and their associated structures are conditionally exempt from regulation provided they are constructed in accordance with the Erosion and Sediment Control Law (§ 62.1-44.15:51 et seq. of the Code of Virginia), the Stormwater Management Act (§ 62.1-44.15:24 et seq. of the Code of Virginia), and Chapter 104 (Erosion and Sedimentation Control) and Chapter 124 (Stormwater Management Ordinance) of the County Code. Given the exemption for public roads, as long as the necessary requirements are followed, the proposed project would be consistent with the Chesapeake Bay Preservation Act and Regulations. See Section 3.8 .
Environmental Quality Corridor	A stormwater management pond to the west of the project (outside of the 200-foot-wide corridors for Alternatives 1 and 2) has been identified as an environmental quality corridor (EQC) consistent with Policy Plan Objective 9 of the Environment Element of the 2017 Fairfax County Comprehensive Plan. EQC boundaries are identified based on the presence of streams, floodplains, steep slopes, and wetlands. As public roads identified within the Comprehensive Plan are among the supportable activities in EQCs, the proposed project would be consistent with the County’s EQC regulations. See Section 3.8 .
Coastal Zone Management Areas	Fairfax County is located within Virginia’s coastal zone. See Section 3.9 .
Floodplains	There are no Federal Emergency Management Agency (FEMA)-designated 100-year floodplains within the alternative corridors. A 100-year floodplain associated with Colvin Run is located approximately 1,000 feet northeast of the alternative corridors. Neither the No Build nor the Build Alternatives would impact 100-year floodplains.

Table 3-1. Summary of Environmental Resources in Study Corridor

Resource	Discussion
Wild and Scenic Rivers	There are no federally listed Wild and Scenic Rivers in the corridor.
Wildlife Habitat	<p>The project is located within urban lands developed for commercial and office use that do not provide natural habitat conditions for wildlife. Common urban wildlife species may use the adjacent stormwater management pond, the small clusters of trees that provide aesthetic landscaping within the office and commercial developments, and the narrow strip of trees bordering the Dulles Corridor. Wildlife species that may be present include common mammals, birds, reptiles, and amphibians that are adapted to living in urban environments. While individual trees may provide nesting and foraging opportunities for wildlife species typically found in urban and suburban environments, no forests or other naturally occurring habitat areas are present within the alternative corridors. The No Build Alternative would not result in the removal or disturbance of wildlife habitat. Alternatives 1 and 2 would require the removal of individual trees; however, there would be no loss of forest or other sensitive wildlife habitats, as none are present within the alternative corridors.</p> <p>No anadromous fish, trout waters, or shellfish exist in the project area. Best management practices and strict adherence to state and local regulations would be followed to protect downstream resources.</p>
Wildlife and Waterfowl Refuges	No wildlife or waterfowl refuges are present within 1.0 mile of the project.
Natural Heritage Resources	According to the Virginia Department of Conservation and Recreation (VDCR) Natural Heritage Data Explorer, there are no Natural Heritage Sites within 1.0 mile of the alternative corridors (VDCR, 2021). During project scoping, VDCR indicated that the proposed project is not likely to adversely impact natural heritage resources due to the scope of the activity and the distance to the resources (VDCR, 2015).
Federally Listed Threatened and Endangered Species	Based on the US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) online review database, one federally listed species, the northern long-eared bat (<i>Myotis septentrionalis</i>), and one candidate species, the monarch butterfly (<i>Danaus plexippus</i>), could potentially occur along the corridor. See Section 3.10 .
Invasive Species	The alternative corridors have been previously disturbed for construction of the commercial and office buildings and parking areas. Invasive species commonly occur within disturbed environments and are likely present within the alternative corridors. In accordance with Executive Order 13112, <i>Invasive Species</i> , the potential for the establishment of invasive terrestrial or aquatic animal or plant species during construction of the project would be minimized by following provisions in VDOT's <i>Road and Bridge Specifications</i> . 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. While the project corridor is previously disturbed and likely to contain invasive species, best management practices and implementation of the stated provisions would reduce the potential for the establishment and proliferation of invasive species.

Table 3-2. Summary of Potential Impacts

Category	Impacts within 200-foot-wide Corridor		
	No Build*	Alternative 1	Alternative 2
Total Area (acres)	0	13.0	12.9
Businesses Displaced (no.)	0	2	2
Section 4(f) Property (acres)	0	0.96	0.96
Historic Properties Within Area of Potential Effects (no.)	0	2**	2**
Stream Crossings (no.)	0	1	1
Length of Streams (linear feet)	0	259	278
Wetlands (acres)	0	0	0
Floodplains (acres)	0	0	0
Forest Area (acres)	0	0	0
Natural Heritage Resources (Conservation Sites and Stream Conservation Units)	0	0	0
Federally Listed Threatened or Endangered Species Identified by USFWS that may be affected by the Proposed Project (no.)	0	1	1
Hazardous Material Sites of Recognized Environmental Concern (no.)	0	3	4
Agricultural and Forestal District Land Used (acres)	0	0	0
Prime and Unique Farmland (acres)	0	0	0
Violations of National Ambient Air Quality Standards (no.)	0	0	0
Noise Receptor Impacts	--	7 6 residential and the playground of a daycare center	7 6 residential and the playground of a daycare center

* The No Build Alternative, as described in Section 2.4.1 in Section 2 Alternatives, includes several planned and programmed projects. These projects may impact resources included in this table. However, the exact nature and extent of impacts of these future projects are unknown and reporting them would be speculative. Regardless, any such impacts would occur for the Build Alternatives as well, so the relative outcome of effects for comparing the alternatives, as shown in this table, would be no different.

** DHR determined on February 24, 2021 that the Soapstone Connector project would have an adverse effect on historic properties. See Section 3.6.

3.2 SOCIAL AND ECONOMIC RESOURCES

The transportation network surrounding the project area is typical of a densely settled urban/suburban area. Multiple modes of transportation, including Metrorail, Washington Metropolitan Area Transit Authority (WMATA) and Fairfax Connector bus services, and bicycle and pedestrian facilities provide access to the communities and neighborhoods of Reston, Virginia.

3.2.1 Communities and Neighborhoods

The project corridor lies within Reston, a planned community within Fairfax County (see **Figure 3-1**). Individual neighborhoods within the project corridor include Sunset Hills and housing developments surrounding the Reston National Golf Course, a part of the Reston Association. Reston Town Center is northwest of the project corridor.

The community of Sunset Hills lies on the northern side of the Dulles Corridor between Wiehle Avenue and Reston Parkway. Within Sunset Hills, commercial, retail, and light industrial are the primary land uses and types of development between Sunset Hills Road and the Dulles Corridor. Residential and recreational areas of the community are located north of Sunset Hills Road.

South of the Dulles Corridor, the project corridor is within the commercial and industrial area north of Sunrise Valley Drive. South of Sunrise Valley Drive, the residential communities surrounding the Reston National Golf Course are a part of the Reston Association, a non-profit organization that provides support for the entire community of Reston in both the natural and man-made environments (Reston Association, 2020). There are individual homeowners associations within the Reston Association that are based on clusters of housing, condominiums, and single family associations. The homeowners associations adjacent to the project corridor and along Soapstone Drive are in the South Lakes District of the Reston Association and include: Golf Course View, Golf Course Square, Hunters Green, and Glencourse.

Because the project is located in the retail, commercial, and industrial areas on either side of the Dulles Corridor, these neighborhoods and communities are not expected to be adversely affected by the project. In fact, the Soapstone Connector may actually serve to better link and provide a direct route between the residential communities in the south along Soapstone Drive and the developments north of the Dulles Corridor within Sunset Hills, such as Plaza America, particularly for pedestrians and bicyclists given the multimodal facilities proposed on the new crossing.

An analysis of the potential increase in traffic volumes along Soapstone Drive was completed in response to concerns by some members of the community that the addition of the Soapstone Connector would result in an increase in volumes on Soapstone Drive south of Sunrise Valley Drive. The travel demand forecast modeling performed for this study indicates that the Soapstone Connector could result in increases in traffic volumes on a daily basis to Soapstone Drive just south of Sunrise Valley Drive (from 12,400 vehicles per day (vpd) in the No Build condition to 14,800 vpd in the Build condition, an increase of approximately 19%). On an hourly basis, based on rule-of-thumb directional and peak hour factors, the one-way hourly volume difference in the peak hour between the No Build and Build condition would be about 100 to 120 vehicles at the most. The difference in volumes on Soapstone Drive between the No Build and Build conditions decreases as distance increases from the Soapstone Connector south on Soapstone Drive (additional details on this analysis are included in the *Traffic Technical Memorandum*).



Figure 3-1. Community Resources

3.2.2 Population and Employment

Fairfax County is the most populous jurisdiction in the Commonwealth of Virginia; the total population for 2019 is 1,145,862 people (US Census Bureau, 2020). The County population is projected to continue to grow to 1,386,476 people by 2045 (Weldon Cooper, 2017). The total employment within the County in 2020 was estimated at 639,918 (VEC, 2020). As a large employment center immediately outside of Washington, DC, the County’s population and employment affect both the county itself and the region.

3.2.3 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”, states that each Federal agency “shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

Accordingly, demographic data for Fairfax County were analyzed to determine whether the Build Alternatives would have disproportionately high and adverse human health or environmental effects on minority and low-income populations. As defined in FHWA Order 6640.23A, minority populations include citizens or lawful permanent residents of the US who are:

- Black: a person having origins in any of the black racial groups of Africa;
- Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central, or South American, or other Spanish culture or origin, regardless of race;
- Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;
- American Indian and Alaskan Native: a person having origins in any of the original people of North America or South America (including Central America) and who maintains cultural identification through tribal affiliation or community recognition; or
- Native Hawaiian and Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

Table 3-3 provides demographic data for Fairfax County and the two Census tracts within the project corridor. The Census tracts appear graphically in **Figure 3-2**. The minority data for the two Census tracts were acquired from the American Community Survey (ACS) 2015-2019 5-Year Estimates. As shown in Table 3-3, both Census tracts have percentages of minority populations lower than the County as a whole.

Table 3-3. Demographic Data in 2018

Location	Total Population	Minorities (%)	Median Household Income	Total Limited English Proficiency (%)*	Age 65 and Over (%)
Fairfax County	1,145,862	564,444 (49.3%)	\$124,831	159,554 (14.9%)	149,923 (13.1%)
Census Tract 4822.02	4,140	1,242 (30.0%)	\$121,023	466 (12.1%)	975 (23.6%)
Census Tract 4823.01	4,767	1,371 (28.8%)	\$137,396	343 (7.69%)	1,017 (21.3%)

Source: US Census Bureau: 2015-2019 American Community Survey.

*Based on the population aged 5 years and over.

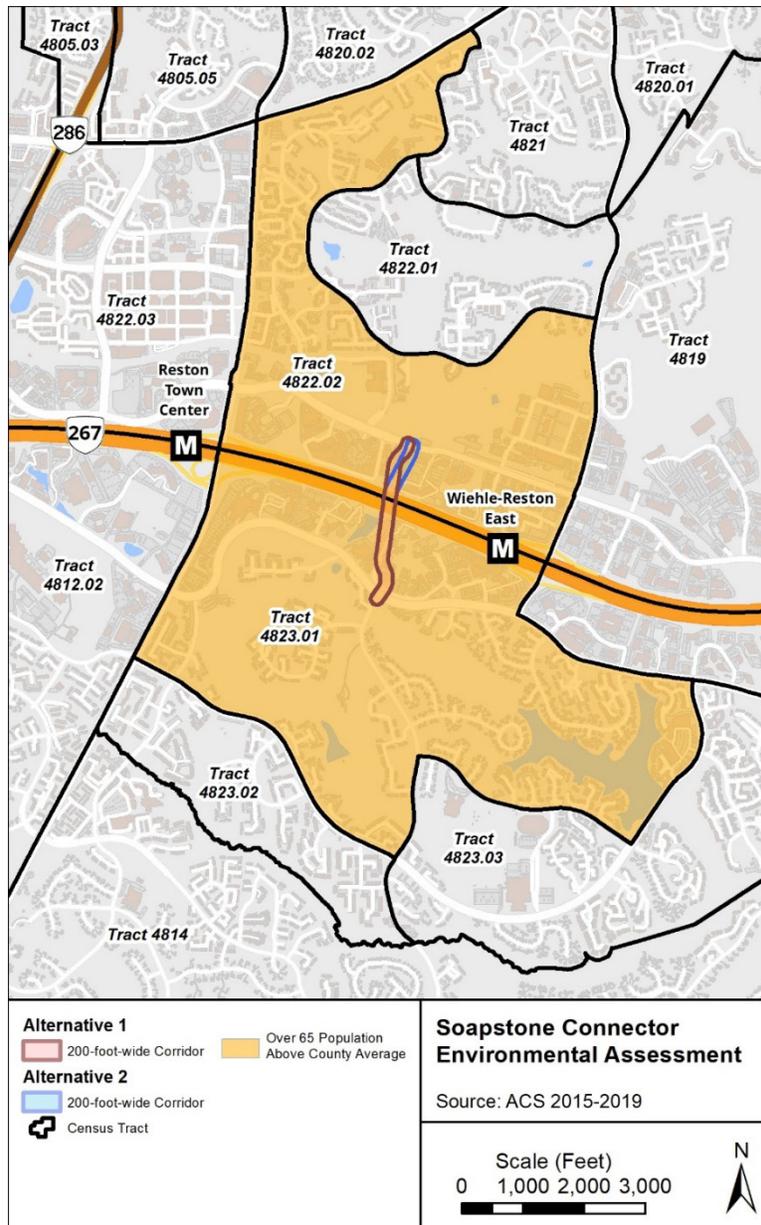


Figure 3-2. Age Demographics by Census Tract

The Council on Environmental Quality’s *Environmental Justice Guidance Under the National Environmental Policy Act* indicates that a minority population should be considered present when: (a) the minority population of the census block group exceeds 50 percent of total study area population or (b) the minority population percentage in the affected area is “meaningfully greater” than the minority population percentage in the general population or other appropriate unit of geographical analysis (CEQ, 1997).

For the Soapstone Connector, Fairfax County as a whole is considered the general population against which to consider whether the minority population percentage of the affected area is “meaningfully greater”. As both Census tracts have percentages of minority populations lower than the County as a whole, no minority populations are present; therefore, no disproportionately high and adverse effects to minority populations would occur as a result of the project.

Low-income populations are defined as those whose median household income is below the US HHS poverty guidelines. Median household income data were acquired from the ACS 2015-2019 5-Year Estimates, *Median Income in the Past 12 Months (in 2019 Inflation-Adjusted Dollars)*. The data was compared to the HHS 2019 Poverty Guidelines (February 1, 2019) because they are both for the same year, 2019. The average household size ranges from 1.91 to 2.12 persons within the two Census tracts; therefore, the 2019 HHS poverty threshold for a family of 2, \$16,910, was used for comparison. Neither Census tract has a median household income at or below the threshold; therefore, no disproportionately high and adverse effects to low-income populations would occur as a result of the project.

The Build Alternatives would reduce congestion and travel delay on Wiehle Avenue and in the surrounding area and improve multimodal connectivity, accessibility, and mobility surrounding the Wiehle-Reston East Metrorail Station. The effects of both Build Alternatives on the local community, including minority and low-income populations, would be similar and would benefit the entire community regardless of race, color, national origin, or income.

3.2.4 Limited English Proficiency and Age Demographics

Executive Order 13166 “Improving Access to Services for Persons with Limited English Proficiency” directs federal agencies to “examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them.” As a part of EO 13166, the Department of Justice issued guidance on implementing the LEP EO because of the connection between Title VI of the Civil Rights Act of 1964 barring of discrimination based on national origin and EO 13166. Data collection to determine the presence of persons with LEP has occurred as a part of this project. Neither of the Census tracts has a higher proportion of persons with LEP than the County as a whole.

3.2.5 Relocations

The No Build Alternative requires no right of way acquisition and therefore requires no relocations and has no direct adverse impacts to residences, businesses, and environmental justice populations.

Both Build Alternatives 1 and 2 would relocate two businesses and acquisition of right of way from up to six additional parcels may also be required. The two business relocations are: the National Association of Secondary School Principals (NASSP) at 1904 Association Drive and Musica LLC at 11501 Sunset Hills Road.

NASSP is an educational association that represents middle level principals, high school principals, and other school leaders across the United States. NASSP also administers the National Honor Society, National Junior Honor Society, National Elementary Honor Society, and National Student Council. NASSP and its one tenant, Technology Students Association, are not owned by and do not primarily employ or serve low-income or minority populations. NASSP is no longer headquartered in Reston and the demolition of the building will not affect the association’s operations.

Linden Development is the property owner of 11501 Sunset Hills Road, which houses Musica LLC, a musical instrument store. Neither the property owner nor its tenant primarily employ or serve low-income or minority populations.

For the purposes of this assessment, it is assumed that the entire area within the 200-foot-wide corridors would be affected. The project footprint and right of way acquisition estimates would be

further refined during design as additional information becomes available. All efforts would be made to avoid or minimize relocations and right of way acquisition. The acquisition of right of way and the relocation of displacees would be conducted in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended. Under the law, the purchase price for property acquired would be fair market value as determined by an appraisal prepared by a qualified appraiser. Assurance is given that relocation resources would be available to all displacees without discrimination.

3.3 AIR QUALITY

In accordance with NEPA, air quality impacts of transportation improvement projects must be considered at both the regional and local level. The project is located in Fairfax County, which has been designated by the EPA as nonattainment for the eight-hour ozone national ambient air quality standard (NAAQS) and attainment for all other NAAQS. The air quality analysis completed for the Soapstone Connector indicates that the project would not cause or contribute to a new violation, increase the frequency or severity of any violation, or delay timely attainment of the NAAQS established by EPA.

The methodologies and findings for the air quality analysis are summarized below and described in detail in the *Air Quality Technical Memorandum*.

Carbon Monoxide (CO) Analysis. In order to screen projects for CO impacts, a programmatic agreement for project-level air quality CO analyses (Programmatic Agreement, or PA) was executed between the FHWA Virginia Division Office and VDOT in April 2016 and updated in October 2020¹³. The PA uses worst-case modeling to identify the conditions for which a proposed project or action would require either a quantitative or qualitative CO hot-spot analysis to meet requirements under NEPA. Based on the agreement and applicable federal requirements, the Soapstone Connector project does not exceed the project types and conditions¹⁴ included in the screening procedures for streamlining the project-level air quality analysis process for carbon monoxide. Furthermore, it has been determined that projects such as this one may reasonably be expected to not significantly impact air quality and cause or contribute to a new violation of the NAAQS for carbon monoxide. Additional information can be found in the *Air Quality Technical Memorandum*.

Fine Particulate Matter (PM_{2.5}) Analysis. The project is located in an attainment area for PM and therefore is not subject to a PM conformity assessment.

¹³ As part of the Revised EA, the October 2020 PA was reviewed and it was confirmed that the findings in the project's February 2017 *Air Quality Technical Memorandum* (prepared using the 2016 PA) are still valid. Project-specific 1-hour and 8-hour CO concentrations calculated using the step-by-step process outlined in the PA for comparison to the applicable NAAQS would actually be lower with the application of the 2020 PA because the generalized 1-hour CO concentration that is the basis of the calculations is lower in the 2020 PA as compared to the 2016 PA (i.e., 4.1 parts per million (ppm) for an urban intersection at a 90 degree skew angle with 2 percent approach grades (Table A-2, 2020 PA) vs 5.7 ppm for an urban intersection with 25 mph approach speeds with 2 percent approach grades (Table 2, 2016 PA)). Note that the default background concentrations for urban areas in Northern Virginia and the default persistence factor to estimate an 8-hour concentration from the 1-hour concentration are unchanged.

¹⁴ The geometric features of the two new intersections created by the Soapstone Connector with Sunrise Valley Drive and Sunset Hills Road were considered in the qualitative analysis, including intersection skew angle, roadway grade of the approaches, and forecast approach speeds.

Mobile Source Air Toxics (MSAT) Analysis. In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources, and stationary sources (e.g., factories or refineries). On October 18, 2016, FHWA issued a memorandum titled *Updated Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. In accordance with the guidance, the project area is best characterized as a project with “low potential MSAT effects” since design year traffic is projected to be significantly less than 140,000 to 150,000 annual average daily traffic (AADT) thresholds. As a result, a qualitative assessment of emissions projections was prepared in accordance with the guidance. See *Air Quality Technical Memorandum* for additional details.

Construction Emission Analysis. The temporary air quality impacts from construction are not expected to be significant. Emissions would be produced during the construction of this project by heavy equipment and vehicle travel to and from the site. Earthmoving and ground-disturbing operations would generate airborne dust. Construction emissions are short term or temporary in nature. In order to mitigate these emissions, all construction activities are to be performed in accordance with VDOT’s 2020 *Road and Bridge Specifications*, Section 107.16(b.2), “Air”. These specifications require compliance with all applicable local, state, and federal air quality regulations.

Regional Conformity Considerations. The Soapstone Connector is located in an eight-hour ozone nonattainment area; therefore, conformity applies, which typically requires that projects be included in a conforming financially constrained regional long-range transportation plan adopted by the Metropolitan Planning Organization (MPO). The Soapstone Connector is included in the National Capital Region Transportation Planning Board’s 2018 constrained long-range transportation plan, *Visualize 2045* (CEID 3450), and the project was included in the March 18, 2020 Air Quality Conformity Analysis of the 2020 Amendment to *Visualize 2045* (Con ID 722, Project ID VS F49). The Project is included under TIP ID 6583 in the FY 2021-2024 Transportation Improvement Program adopted on March 20, 2021 and Amended and Modified as of June 23, 2021.

3.4 NOISE

A noise analysis was conducted in accordance with requirements of 23 CFR Part 772, FHWA’s *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. For purposes of the noise analysis, the project was divided into six areas of common noise environment (CNE). CNEs are groupings of receptor sites that, by location, form distinct communities within the project area and contain receptors with similar exposures to noise sources. These areas are used to evaluate traffic noise impacts and potential noise abatement options to residential developments or communities as a whole, and to assess the feasibility and reasonableness of possible noise abatement measures for those communities.

If noise levels “approach” or “exceed” noise abatement criteria (NAC) for the design year build alternative at any receptor, then an impact occurs and abatement measures are to be considered. The NAC for most land uses along the corridor is either Category B (Residential), 67 dBA (A-weighted decibels)¹⁵, or Category E (Commercial/Offices), 72 dBA. VDOT defines “approach” as

¹⁵ Noise levels for traffic noise are typically reported in terms of A-weighted decibels, or dBA. The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with traffic noise.

being within 1 dBA of the NAC and therefore the criterion can actually be considered 66 or 71 dBA, respectively, for the two categories (VDOT, 2018b). A noise impact is also deemed to occur if design year build noise levels are substantially higher than existing levels, even though the levels may not reach the NAC. The VDOT State Noise Abatement Policy defines a substantial increase as 10 dBA or more.

The noise analysis prepared for the project showed that under both Design Year (2046) Build Alternatives 1 and 2, a total of three receptors south of the Dulles Toll Road that represent six residential receptors and one receptor north of the Dulles Toll Road that represents the playground of a daycare center are predicted to experience noise impacts that would approach or exceed the NAC. Noise abatement measures (i.e., a noise barrier) have been determined to be feasible (provide the minimum noise reduction) and reasonable (meet the cost-effectiveness criteria, based on a square foot cost) for the three impacted receptors south of the Dulles Toll Road. The barrier would provide noise reduction benefits to the six residential receptors, as described further in the *Noise Analysis Technical Report*. Preliminary decisions regarding both recommended and non-recommended noise barriers may change between the environmental document and final design as a result of changes in the transportation improvement project design, design year traffic, or the level of detail the design contained at the time of the preliminary report.

The conclusions are preliminary because the noise analysis has been based on conceptual design and topographic information; additional detailed analysis will be conducted during the final design phase of the project. The noise impact estimates may change and potential abatement measures will be reevaluated. Final decisions at that time on whether to provide noise abatement measures will take into account design feasibility, cost, and the opinions of property owners impacted by the noise.

During the construction phase of the proposed project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Any construction noise impacts that may occur as a result of roadway construction are anticipated to be temporary in nature and would cease upon completion of the project construction phase. The contractor would be required to conform to the specifications found in VDOT's 2020 *Road and Bridge Specifications*, Section 107.16(b.3), "Noise". Adherence to this policy of establishing a maximum level of noise that construction operations can generate would reduce the potential impact of construction noise on the surrounding community.

The *Noise Analysis Technical Report* provides additional detail on analysis methodology, findings, and abatement considerations.

3.5 VISUAL QUALITY

Visual resources are those physical features that comprise the visual landscape, including land, water, vegetation, and man-made elements. These elements are the stimuli upon which a person's visual experience is based. Potential sensitive visual receptors would include areas or users affected by changes in the visual and aesthetic environment.

Because the project is within a developed suburban area, the viewshed for this visual and aesthetic resource assessment is primarily limited to adjacent land uses. The Dulles Corridor is the predominant transportation feature within the study area. This multimodal transportation corridor includes an eight-lane divided limited access highway (Route 267, the Dulles Toll Road) that provides access to adjacent land uses by way of the Wiehle Avenue and Reston Parkway interchanges on either side of the study area; a four-lane divided limited access highway (Dulles

International Airport Access Highway) that provides access to and from Washington Dulles International Airport; and the Silver Line of the Metrorail System, including the Wiehle-Reston East Metrorail Station just to the east of the study area.

Development on the north and south sides of the Dulles Corridor includes commercial (office parks, office buildings, a medical center, hotels, and shopping centers), residential (single-family townhouses and apartment buildings), and park/recreation facilities, including two golf courses and a walking and biking trail, the W&OD Railroad Regional Park. A Dominion Energy substation is located on the north side of Sunset Hills Road north of the Dulles Corridor. A 2.4-acre stormwater management pond also exists to the west of the Soapstone Connector alternatives south of the Dulles Corridor. On both the north and south sides are also pockets of trees and vegetation, including the small, vegetated area south of Sunset Hills Road and west of Metro Center Drive, that provide some relief to the numerous parking lots and commercial/residential buildings. A bank of trees also lines most of the Dulles Corridor.

The No Build Alternative would maintain the existing visual character along the Dulles Corridor and within the surrounding area. This alternative would also not result in any temporary construction impacts to visual and aesthetic resources.

Though the Build Alternatives would alter the landscape with the construction of a three-lane roadway on either side of the Dulles Corridor and a bridge over the Dulles Corridor, the resulting overall landscape would remain in character with the existing visual environment, which already features many roadways, driveways, and parking lots, as well as the overpasses for Wiehle Avenue, Reston Parkway, and pedestrian access to the Wiehle-Reston East Metrorail Station. Addition of a new roadway and associated elements (e.g., overpass, traffic signals, utility poles) would not add any visual intrusions that do not already occur within the viewshed of the surrounding development.

The views from adjacent development would be similar, albeit of a different form of paved roadway; north of the Dulles Corridor, the Soapstone Connector would primarily replace surface parking lots, and south of the Dulles Corridor, the Soapstone Connector would primarily replace surface parking and Association Drive. As mentioned above, the trees and vegetation that form natural barriers between properties would likely partially obscure views of the Soapstone Connector from most buildings.

Views from the Soapstone Connector would be of the adjacent commercial development. From the overpass, views would be of the Dulles Corridor, the trees that border the Dulles Corridor on both sides, and some of the higher office and residential structures in the greater Reston area.

Temporary visual impacts, such as visibility of construction materials, cranes, and other equipment, would occur during construction of either Build Alternative.

3.6 HISTORIC PROPERTIES

Phase IA and Phase IB cultural resources surveys were prepared as part of the EA. A *Supplemental Phase I Architectural Reconnaissance Survey* was prepared subsequent to the publication of the EA, followed by a determination of eligibility request to the Keeper of the National Register in 2019 (Keeper of the National Register, 2019). The surveys included an assessment of archaeological potential based on prior disturbance and development in the project area; research on buildings and structures that are located in and near the area of potential effect (APE) that may be 50 years old or older or those that might be considered “heritage resources” within Fairfax County; research on buildings or structures that are in and near the APE that are less than 50 years

old that may be considered eligible for listing in the National Register of Historic Places (NRHP) in association with Criterion Consideration G; photo-documentation of viewsheds (vantage points) to and from the proposed roadway corridor to identify the potential for new visual intrusions on the landscape from roadway elements (e.g., overpass, traffic signals, utility poles); and recommendations for additional investigations.

The site files search indicated that no archaeological sites have been identified in the APE. In addition, there is limited potential for archaeological resources to be located in the archaeological APE due to prior disturbance. The Virginia Department of Historic Resources (DHR) concurred with this determination on April 12, 2016.

Two previously identified architectural resources occur in the architectural APE, the Washington and Old Dominion (W&OD) Railroad Historic District (053-0276) and the Wiehle/Sunset Hills Historic District (029-0014) (**Figure 3-3**). The W&OD Railroad Historic District is a former rail line constructed around 1855 that was later converted into a park and trail. It was previously determined by DHR to be eligible for listing in the NRHP, and it was recommended that this resource retain its status as individually eligible for listing in the NRHP. DHR concurred with this determination in January 2017.

In 1987, DHR staff received a Preliminary Information Form (PIF), the first step in a two-step process for a property to be listed on the NRHP, for the Wiehle/Sunset Hills Historic District but did not make a formal eligibility determination on the district. Since that time, the majority of the proposed district has continued to undergo extensive development. Most of the buildings are under 50 years of age and lack outstanding architectural characteristics or associations with individuals or events of historical significance. Therefore, it was recommended that the Wiehle/Sunset Hills Historic District be considered not eligible for listing in the NRHP. DHR concurred with this determination in January 2017.

At the request of the Fairfax County Architectural Review Board (ARB) and additional requests by DHR in January 2018, a *Supplemental Phase I Architectural Reconnaissance Survey* was conducted to identify and assess ten mid-century modern buildings on Association Drive for NRHP eligibility in association with Criteria Consideration G (properties that have achieved significance in the last fifty years).

The Association Drive Historic District consists of nine of ten buildings located on the semi-circular Association Drive, immediately south of the Dulles Corridor and north of Sunrise Valley Drive (**Table 3-4** and **Figure 3-4**). Constructed between 1973 and 1982 as the Reston Center for Associations and Educational Institutions (RCAEI), the historic district represents a rare survivor within the industrial development context of the Reston Plan as manifested during the Gulf Reston (1967-1977) and Mobil Oil (1978-1996) management periods. The Association Drive Historic District was determined eligible for listing in the NRHP by DHR in November 2018. The historic district was also determined eligible by the Keeper of the National Register under Criterion A in the area of Community Planning and Development as an exceptionally important component of the overall Reston development, and it meets the threshold under Criteria Consideration G

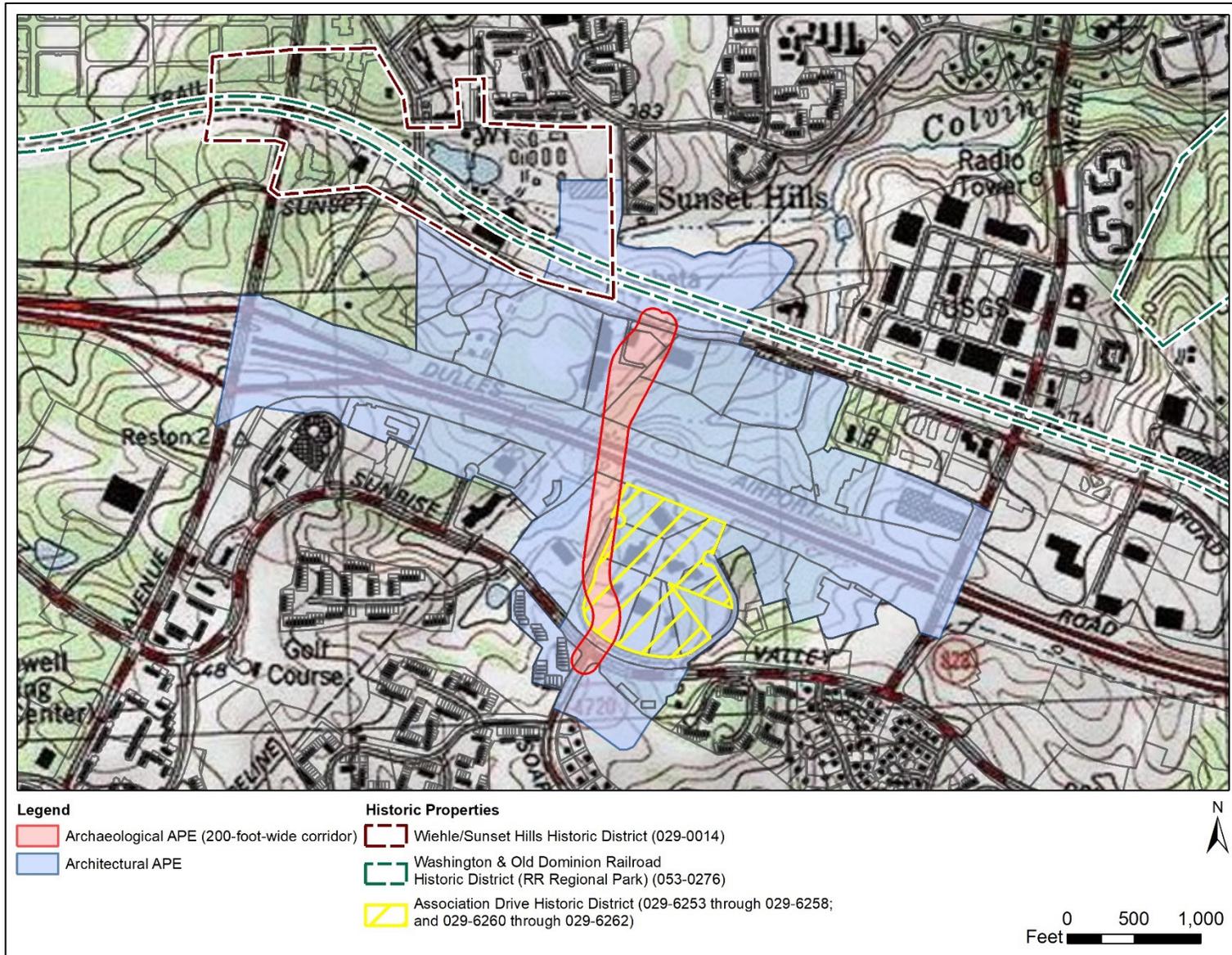


Figure 3-3. Area of Potential Effects and Historic Properties

Table 3-4. Contributing Elements within Association Drive Historic District

DHR Resource No.	Historic Name	Location	Construction Date
029-6253	American Association for Health, Physical Education, and Recreation	1900 Association Dr	1980
029-6254	American Medical Student Association	1902 Association Dr	1975
029-6255	National Association of Secondary School Principals (NASSP)	1904 Association Dr	1973
029-6256	National Council of Teachers of Mathematics (NCTM)	1906 Association Dr	1973
029-6257	Distributive Education Clubs of America	1908 Association Dr	1976
029-6258	Future Homemakers of America	1910 Association Dr	1982
029-6260	National Business Education Association	1914 Association Dr	1981
029-6261	National Art Education Association	1916 Association Dr	1977
029-6262	The Council for Exceptional Children	1920 Association Dr	1973



Figure 3-4. Association Drive Historic District

(properties that have achieved significance in the last fifty years) (Keeper of the National Register, 2019). The Keeper did not find that the Association Drive Historic District met the Criterion Consideration for exceptional importance under Criterion C (architecture) and there was insufficient information to determine significance under Education (Criterion A) (Keeper of the National Register, 2019).

The No Build Alternative would not introduce new ground disturbance or create any additional visual or audio intrusions within the project area. Therefore, the No Build Alternative would not affect any historic properties.

The W&OD Railroad Historic District is actively used as a regional park, with a paved bicycle and pedestrian trail, and the surrounding area has already been subject to suburban development. It is bounded by an electrical substation and visible to and from existing roadways and office buildings; therefore, the Soapstone Connector would not create any additional visual intrusions because they are similar to other features that already occur adjacent to the historic district. Finally, the grade of the trail within the APE is below the grade at which the end of the new Soapstone Connector would intersect with Sunset Hills Road. Views to and from the trail are partially obscured by trees and the electrical substation. The W&OD Railroad Historic District would not be affected by the Build Alternatives.

Both Build Alternatives would bisect the 4.23-acre parcel at 1904 Association Drive (see Figure 3-3). The building at 1904 Association Drive, a contributing element of the Association Drive Historic District, would be demolished, resulting in an adverse effect under Section 106 (54 U.S.C. § 306108) to this historic district. In addition, the Build Alternatives would create a visual intrusion along the west side of the Association Drive Historic District and associated traffic noise could affect the overall setting of contributing elements located at 1900 Association Drive and 1902 Association Drive.

A draft Memorandum of Agreement (MOA) has been developed to resolve adverse effects under Section 106 (54 U.S.C. § 306108) of the National Historic Preservation Act (see **Appendix C**). Consultation concerning appropriate mitigation measures to incorporate in the MOA are ongoing with DHR and the Consulting Parties. Visual and noise intrusions to contributing elements of the Association Drive Historic District will be addressed during project design, including the potential employment of visual screening and providing DHR the opportunity to review and comment on 60% and 90% design plans to ensure that final design minimizes impacts to the historic district to the extent practicable.

See the May 2016 *Phase IA Cultural Resources Survey of the Proposed Soapstone Connector, Fairfax County, Virginia*, the October 2016 *Phase IB Architectural Survey of the Proposed Soapstone Connector, Fairfax County, Virginia*, the 2018 *Supplemental Phase I Architectural Survey, Soapstone Connector, Fairfax County, Virginia*, and the 2019 *Determination of Eligibility Notification Reston Center for Associations and Educational Institutions (RCAEI), Association Drive, Reston, Virginia* (Keeper of the National Register, 2019) for additional information.

3.7 HAZARDOUS MATERIALS

The federal government and Commonwealth of Virginia, primarily through the EPA and the Virginia Department of Environmental Quality (VDEQ), respectively, regulate hazardous materials under multiple statutes. These agencies maintain databases of sites and facilities regulated by these statutes. A review was conducted of the most recent available federal and state databases of facilities with the potential for containing hazardous materials and/or wastes.

Four parcels within the 200-foot-wide corridors of the Build Alternatives contain facilities with the potential for hazardous materials/wastes (**Table 3-5** and **Figure 3-5**).

Table 3-5. Hazardous Materials Facilities within Alternatives*

Facility Type	Alternative 1	Alternative 2
Total Parcels	3	4
RCRA Regulated Generator, Transporter, Treatment/Storage Disposal Facilities (VDEQ)	2	2
EPA Registered Tier 2 Reporter	1	2
VDEQ Registered Tank Facility	0	1

Source: VDEQ 2021a, 2021b; EPA 2021.

*Some of the parcels have multiple attributes, e.g., an EPA registered facility and VDEQ registered tank facility.

Prior to the acquisition of right of way and construction, a Phase I Environmental Site Assessment (ESA) as per the American Society for Testing and Materials (ASTM) method E1527-13 would be conducted to determine whether any of the sites are potentially contaminated. Based on findings from the ASTM Phase I ESA, an ASTM Phase II may be conducted. All solid waste material resulting from clearing and grubbing, demolition, or other construction operations would be removed from the project area and disposed of according to regulations. Any additional hazardous materials discovered during construction of a Build Alternative would be removed and disposed of in compliance with all applicable federal, state, and local regulations. All structures scheduled for demolition or renovation would be inspected for asbestos containing materials (ACM) and lead-based paint (LBP) prior to work. If ACM or LBP are found, in addition to the federal waste-related regulations, state regulations for ACM and for LBP would be followed. 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 or state or local agencies as necessary. Prior to, during, and after construction, all applicable federal, state, and local regulations would be complied with by the contractor.

The Soapstone Connector would cross the Transcontinental Gas Pipeline easement, or more specifically, four natural gas pipelines that are assets of Williams Gas Pipelines (WGP) TransCo. A mainline valve setting that was located within the project area was removed in late 2018/early 2019. In correspondence with Fairfax County in November 2017, a representative of WGP indicated that WGP has no objections to either Alternatives 1 or 2 provided WGP maintains unlimited access to all four pipelines at any time to operate, maintain, and repair as necessary. In addition, WGP indicated no preference for either alignment and that should an alignment require the relocation of the valves, Fairfax County would be responsible for the cost. More recently, in August 2020, WGP confirmed that both alternatives would likely impact the existing WGP assets and subsequent to construction of the Soapstone Connector bridge, the pipelines would need to be inspected, repaired, or rerouted, if necessary, and recoated at Fairfax County's expense.

According to WGP, with any replacement or relocation, there are many factors to be considered. One major factor is the location of construction areas and access to the pipelines. With permanent structures, accessibility is more difficult. Other considerations include items such as blocking off areas (access points for pedestrians and/or traffic) when replacing or relocating the lines; purging gas to allow for work completion; as well as other activities not presently named that may be necessary to ensure safety to the public and the integrity of the pipelines. Coordination with WGP would continue throughout the design and construction phases of the project as needed.

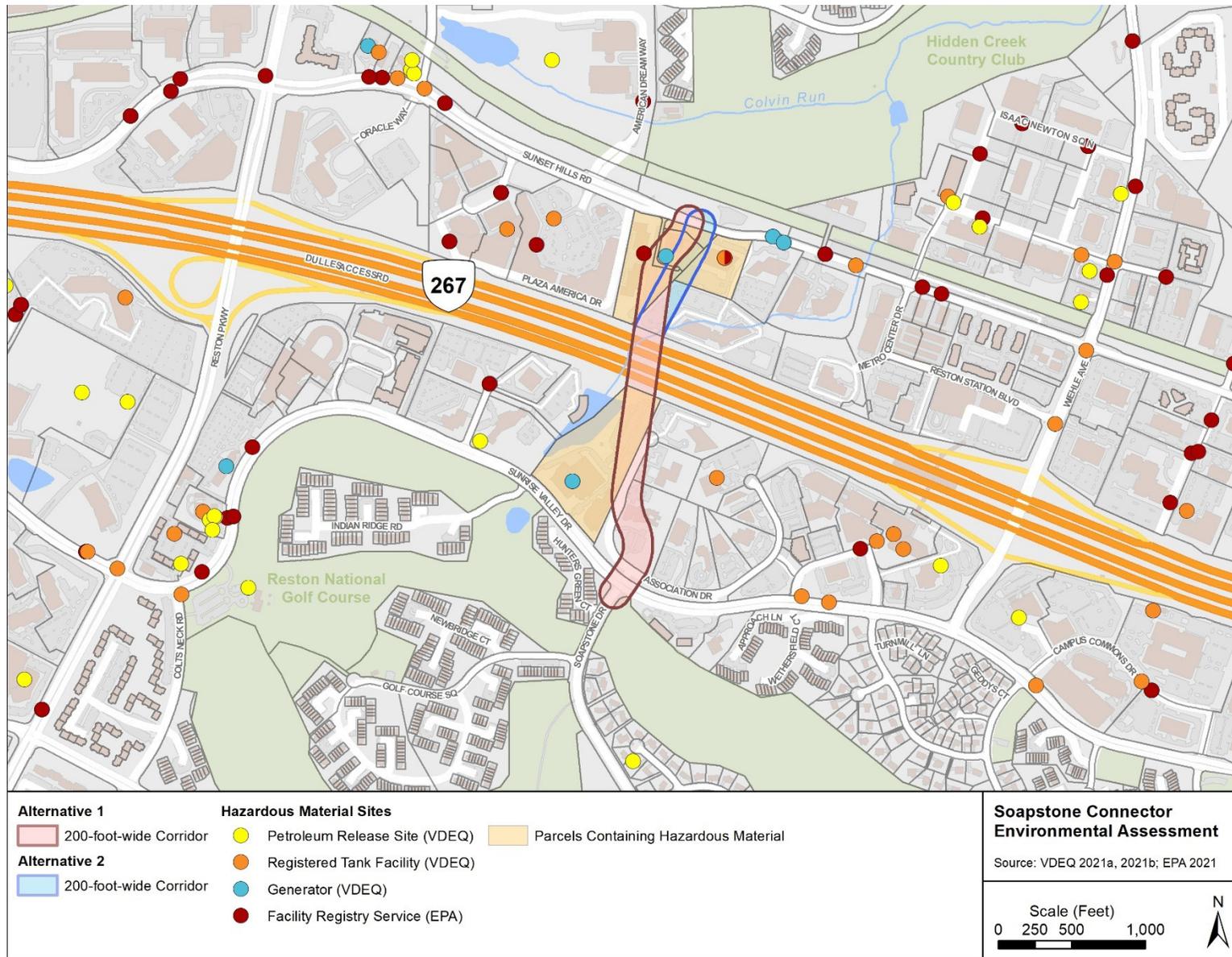


Figure 3-5. Hazardous Materials Sites

3.8 WATER RESOURCES

Water resources are regulated by EPA and the US Army Corps of Engineers (USACE) under the federal Clean Water Act (CWA) and Safe Drinking Water Act (SDWA). Section 404 of the CWA regulates discharges of dredged or fill material into Waters of the United States (WOUS). WOUS can be generally defined as all navigable waters and waters that have been or can be used for interstate or foreign commerce, their tributaries, and any waters that, if impacted, could affect the former. WOUS include surface waters (streams, lakes, bays, etc.) and their associated wetlands (inundated or saturated areas that support vegetation adapted for life in wet soils). The EPA, USACE, VDEQ, and the Virginia Marine Resources Commission (VMRC) all participate in the issuance of permits for various activities in, under, and over WOUS.

Water resources within and surrounding the study area, as shown in **Figure 3-6**, were identified based on a combination of GIS databases, aerial photography, published lists maintained by federal and state agencies, and field reconnaissance. A detailed delineation of WOUS subject to USACE jurisdiction, including wetlands, would be performed during project design.

Streams and Open Water. The alternative corridors are located within the Potomac-Shenandoah River major watershed. This watershed encompasses a total of 5,702 square miles in Virginia and extends into adjacent states. Within this watershed, the alternative corridors are located within the Middle Potomac-Catoctin 8-digit hydrologic unit code HUC boundaries (HUC code 02070008). More specifically, the alternative corridors are within the Difficult Run 12-digit HUC boundaries (HUC code 020700081004).

According to the US Geological Survey’s (USGS) National Hydrography Dataset (NHD), the alternative corridors traverse one stream. The stream is identified in the NHD as “Colvin Run,” however, it appears to be a tributary to Colvin Run, which is located approximately 500 feet to the north of the alternative corridors. The tributary that traverses the alternative corridors is an intermittent stream that originates at a stormwater management pond (WP0323) west of the alternative corridors and runs northeastward to its confluence with Colvin Run. The stream is contained within culverts under the Dulles Corridor, parking areas to the north of the Dulles Corridor, and Sunset Hills Road. It daylight briefly between the Dulles Corridor and parking areas, and again within a small open space corridor south of Sunset Hills Road and west of Metro Center Drive.

WP0323 is a 2.4-acre privately owned and maintained stormwater management pond that contains a permanent pool within its storage volume, making it typically wet even during periods of dry weather. The existing wet pond facility has apparent aeration features within its permanent pool, which enhances pollutant-treatment capability. In addition to treating pollutants such as phosphorous and sediment, the provided facility storage volume attenuates stormwater inflows, thus providing flood control and channel protection.

The pond has been identified as an EQC consistent with Policy Plan Objective 9 of the Environment Element of the 2017 Fairfax County Comprehensive Plan. EQCs are established by Fairfax County for the purposes of preserving wildlife habitat and corridors, protecting streams, and reducing pollution. The establishment of EQCs is negotiated between the County and the developer during the permit review process. The core of the EQC system consists of the county’s stream valleys. EQC boundaries are identified based on the presence of streams, floodplains, steep slopes, and wetlands. According to Policy Plan Objective 9, some disturbances “that serve a public purpose such as unavoidable public infrastructure easements and rights of way may be appropriate” (Fairfax County, 2017). Examples of supportable activities in EQCs include trails, public roads identified in the Comprehensive Plan, infrastructure lines/easements (e.g., sewer

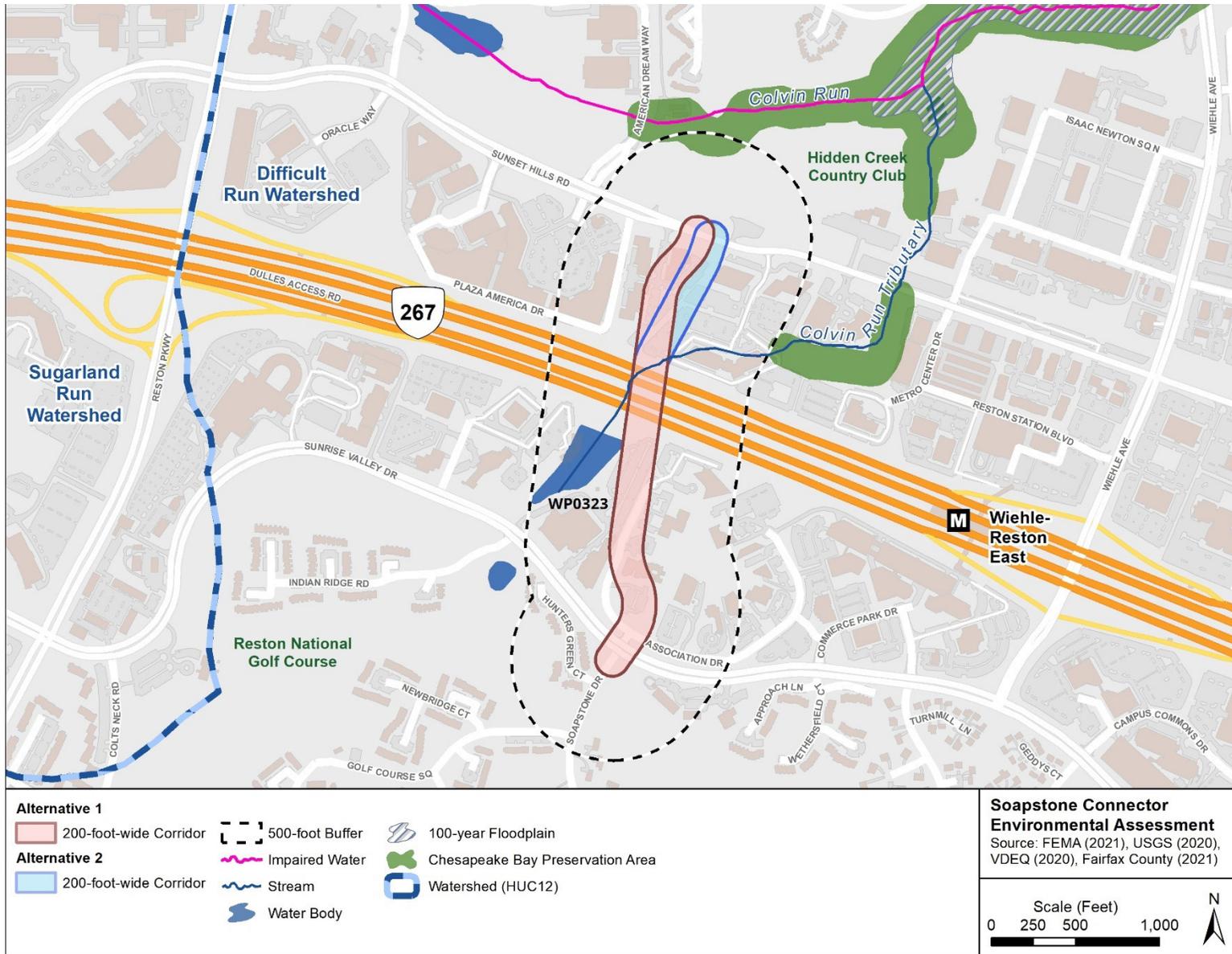


Figure 3-6. Water Resources

lines, water lines), and regional stormwater management ponds (Fairfax County, 2009). Policy Plan Objective 9 indicates that disturbance within EQCs “should be minimized and occur perpendicular to the corridor’s alignment, if practical, and disturbed areas should be restored to the greatest extent possible” (Fairfax County, 2017).

The No Build Alternative would not require alteration of any streams or open water.

Alternative 1 and Alternative 2 would impact up to 259 and 278 linear feet of a tributary to Colvin Run, respectively. Approximately half of the segment of the stream that is within the alternative corridors currently passes through a culvert under the Dulles Corridor and would be unaffected by construction of the Soapstone Connector bridge. The remaining half of the stream segment within the alternative corridors daylights briefly north of the Dulles Corridor before passing through a culvert again under parking areas. This segment of stream would likely be placed within culvert to accommodate construction of the northern Soapstone Connector bridge approach.

A more detailed analysis of stream impacts based on proposed limits of grading for a Build Alternative would be conducted during project design. It is anticipated that permanent impacts to WOUS, including wetlands, under either Alternative 1 or Alternative 2 would be less than the 1/2 acre threshold for linear transportation projects eligible for CWA Section 404 coverage under the State Programmatic General Permit (17-SPGP-01). Under 17-SPGP-01, permittees must also obtain a VDEQ Virginia Water Protection (VWP) Permit and a VMRC permit (when required) prior to commencement of work in WOUS. Authorizations under 17-SPGP-01 also require that permittees ensure that their projects are designed and constructed in a manner consistent with all state and local requirements pursuant to Chesapeake Bay Preservation Act (§ 62.1-44.15:67 et seq. of the Code of Virginia) and the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 25-830-10 et seq.), the Virginia Erosion and Sediment Control Regulations (9 VAC 25-850-10 et seq.), and the Virginia Stormwater Management Program (VSMP) Permit Regulation (9 VAC 25-870-10 et seq.).

Under 17-SPGP-01, stream mitigation is generally required where the total permanent stream channel impacts exceed 300 linear feet for transportation projects. If stream mitigation is required for a Build Alternative, purchase of credits from an approved mitigation bank or payments to the Virginia Aquatic Resources Trust Fund is the anticipated form of stream mitigation. Potential stream impacts occur in the Middle Potomac-Catoctin 8-digit HUC watershed.

Wetlands. Executive Order 11990, Protection of Wetlands, mandates that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance their natural values.

Wetlands are defined by USACE (33 CFR § 328.3[c]) and EPA (40 CFR § 120.2[3]) as:

...areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

According to the National Wetlands Inventory (NWI), there are no wetlands within or adjacent to the alternative corridors (USFWS, 2021a). A delineation of wetlands and WOUS would be performed consistent with the 1987 *Corps of Engineers Wetlands Delineation Manual* and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* during project design to verify the presence or absence of wetlands within the alternative corridors. Given that the project is located within urban

lands developed for commercial and office use, there is limited probability of identifying extensive wetland features.

The No Build Alternative would have no impact on wetlands.

No impacts to wetlands are anticipated for Alternative 1 or Alternative 2. As noted above, it is anticipated that permanent impacts to WOUS, including wetlands, under either Alternative 1 or Alternative 2 would be less than the 1/2-acre threshold for linear transportation projects eligible for CWA Section 404 coverage under the 17-SPGP-01. Mitigation for any unavoidable wetland impacts would be developed in coordination with the USACE and VDEQ during the permitting process. Use of credits from an approved mitigation bank or payments to the Virginia Aquatic Resources Trust Fund would be the anticipated form of wetlands mitigation for the project, if mitigation is necessary.

Water Quality. The following discussions address potential project effects on impaired surface waters and public drinking water supplies. Pollutants of concern, sources of pollutants, and programs to restore water quality in the affected water bodies are described to provide a context for evaluating potential project effects on water quality.

Impaired Waters

In compliance with Sections 303(d), 305(b), and 314 of the federal CWA and the SDWA, the VDEQ monitors streams for a variety of water quality parameters, including temperature, dissolved oxygen, pH, fecal coliform, e. coli, enterococci, total phosphorus, chlorophyll a, and benthic invertebrates, as well as metals and toxics in the water column, sediments, and fish tissues. VDEQ regularly rates Virginia's streams and other water bodies based on their ability to support designated uses of the waters by humans or aquatic life. 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. Both human activities and natural processes can cause impaired water quality. All human-caused impaired waters in Virginia are placed on a federally mandated 303(d) impaired waters list.

Virginia's 1997 Water Quality Monitoring Information and Restoration Act (§ 62.1-44.19.7) requires a plan to restore water quality and associated designated use(s) of impaired waters. VDEQ schedules each of these waters for development of a Total Maximum Daily Load (TMDL), which is a reduction plan that defines the limit of a pollutant(s) that a water body can receive and still meet water quality standards. A TMDL Implementation Plan is developed after a TMDL is approved by EPA. Once developed, a TMDL Implementation Plan is incorporated into the appropriate Water Quality Management Plan in accordance with CWA Section 303(e). Once fully implemented, the Water Quality Management Plan would restore the impaired waters and maintain its water quality.

While there are no impaired waters within the alternative corridors, the unnamed tributary that crosses the alternative corridors drains into Colvin Run, which is listed as impaired for aquatic life from its headwaters to its confluence with an unnamed tributary flowing from Lake Anne (VDEQ, 2020). The impaired segment of Colvin Run is approximately 0.6 mile downstream from the alternative corridors. There is currently no TMDL Report for Colvin Run; however, information regarding causes of impairment in the TMDL report for Difficult Run, which is also impaired for aquatic life and is downstream from Colvin Run, suggests that similar causes may be applicable to Colvin Run. Those causes are primarily sedimentation and higher runoff flows attributable to ongoing urbanization of the watershed.

According to the Difficult Run TMDL report, improvement of the benthic community in the biologically impaired segment of Difficult Run is dependent upon reducing sediment loadings within the watershed through stormwater control, as well as restoring instream and riparian habitat to alleviate the impacts of urbanization on the river (VDEQ, 2008).

The Difficult Run Watershed Management Plan recommends projects to improve water quality within each subwatershed, including the Colvin Run subwatershed. Two of the recommended projects within the Colvin Run subwatershed are located within or adjacent to the Build Alternatives. One project would involve retrofitting the 2.4-acre stormwater management pond (WP0323) west of the Build Alternatives with a multi-stage riser to increase management of smaller storms, as well as an aquatic bench to increase vegetative uptake of nutrients (project ID DF9118B). The other project would involve development of low-impact development (LID) design strategies (e.g., reducing imperviousness, infiltrating surface runoff, strategic use of vegetation) within areas to the south and north of the Dulles Toll Road, between Reston Parkway and Wiehle Avenue (Fairfax County, 2007).

The No Build Alternative would not introduce new ground disturbance, result in an increase in impervious surfaces, or introduce chemicals of concern within the project area. Therefore, the No Build Alternative would not contribute to erosion and sedimentation levels and toxicity within nearby streams.

The Build Alternatives could potentially result in a short-term increase in sedimentation and possible spills or non-point source pollutants entering groundwater or surface water from storm runoff during project construction. Potential short-term impacts of the proposed project would 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*. These specifications also prohibit contractors from discharging any contaminant that may affect water quality. Care would be taken while transporting materials in and out of the project site. In the event of accidental spills, the contractor is required to immediately notify all appropriate local, state, and federal agencies and to take immediate action to contain and remove the contaminant. Additionally, the requirements and special conditions of any required permits for work in and around surface waters would be incorporated into construction contract documents, so that the contractor would be required to comply with such conditions.

Minor long-term water quality effects could occur as a result of the Build Alternatives. Potential long-term effects include increases in impervious surfaces, increases in traffic volumes, and consequent increases in pollutants washed from the road surface into receiving water bodies. Increases in impervious surfaces can potentially increase stormwater flows, thus increasing sedimentation and turbidity problems in benthic impaired waters, such as Colvin Run.

Conveyance of stormwater from the Build Alternatives would require compliance with the Virginia Pollutant Discharge Elimination System (VPDES) standards and stormwater management regulations. Detailed hydrological studies would be conducted during project design to develop stormwater management measures in accordance with federal, state, and local regulations to minimize potential water quality impacts. The hydrological studies would include examination of whether the existing stormwater management pond west of the alternative corridors would provide adequate detention and treatment volume to accommodate stormwater flows from the project site, or if additional stormwater management measures, such as vegetated swales, infiltration trenches, and other measures, are warranted. Stormwater management measures would

be designed to reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of impaired water bodies in the project vicinity.

Chesapeake Bay Regulations

Stormwater runoff from the project area ultimately drains into the Potomac River; therefore, by way of the Potomac River, the project area is part of the watershed of the Chesapeake Bay. In 1988, the Virginia General Assembly enacted the Chesapeake Bay Preservation Act (Bay Act) to improve water quality in the Chesapeake Bay and other waters of the Commonwealth by requiring the use of effective land management and land use planning. The lands that make up Chesapeake Bay Preservation Areas are those that have the potential to impact water quality most directly (VDEQ, 2016a).

To implement the Bay Act, Fairfax County adopted the Chesapeake Bay Preservation Ordinance in 1993, which regulates the kinds of development that can occur in sensitive areas along streams that drain into the Potomac River and eventually the Bay. These sensitive areas are known as Resource Protection Areas (RPAs) and include the following features: 1) tidal shores and wetlands, 2) water bodies with perennial flow, 3) nontidal wetland connected by surface flow and contiguous to a tidal wetland or water body with perennial flow, and 4) a buffer area that includes any land within a major floodplain or any land within 100 feet of the listed features.

There are no RPAs within the alternative corridors (Fairfax County, 2021). The one stream that traverses the corridors is an intermittent stream. There are no wetlands or floodplains within the alternative corridors.

On May 12, 2009, President Obama signed Executive Order 13508 on Chesapeake Bay Protection and Restoration, which directs certain federal agencies to collaboratively develop strategies and recommendations for protecting and restoring the Chesapeake Bay. One of the outcomes of those strategies and recommendations was the establishment by EPA of the Chesapeake Bay TMDL in 2010 under the auspices of the federal CWA. The Bay TMDL establishes limits for the amount of nutrients and sediment allowed to flow into the Bay from Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia. The TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025.

The No Build Alternative would not alter development within RPAs or contribute additional nutrient and sediment loads toward the TMDL for the Bay.

Neither Alternative 1 nor Alternative 2 propose any development within RPAs, as there are no RPAs within the alternative corridors. Construction of either alternative would require a VPDES permit, which requires consistency with TMDL waste load allocations in accordance with federal CWA regulations. Accordingly, the project would conform to the goals of Executive Order 13508.

3.9 COASTAL ZONE MANAGEMENT AREAS

The federal Coastal Zone Management Act (CZMA) of 1972 and federal consistency regulations (15 CFR Part 930) stipulate that federal activities in Virginia's coastal zone must be consistent with the enforceable policies of the Coastal Zone Management Program (CZMP). VDEQ administers the Virginia CZMP through a network of state agencies and local governments, which share responsibility for administering the enforceable policies. The policies are related to fisheries management, subaqueous lands management, wetlands management, dunes management, non-point source pollution control, point source pollution control, shoreline sanitation, air pollution control, and coastal lands management. The entire project is within Virginia's designated coastal

zone. Therefore, a consistency determination would be coordinated with VDEQ during the permitting phase. Implementation of the project would be conducted in a manner that is consistent with the Virginia CZMP to the maximum extent practicable as defined in 15 CFR § 930.32.

3.10 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 ESA 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 (16 U.S.C. § 1532).

Information regarding threatened and endangered species that may be affected by the proposed project was requested from USFWS via the IPaC on-line system in October 2021. One of the goals of the IPaC system is to streamline the environmental review process associated with Section 7 of the ESA. Based on an official species list received from the USFWS in response to the IPaC request for the project (USFWS, 2021b), one federally listed species, the northern long-eared bat (*Myotis septentrionalis*), and one candidate species, the monarch butterfly (*Danaus plexippus*), were identified with the potential to occur in the alternative corridors, as listed in **Table 3-6**. In addition, the bald eagle (*Haliaeetus leucocephalus*), which is protected by the Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668c), was mentioned in the USFWS IPaC response.

The Commonwealth of Virginia also has a listing of state endangered or threatened species. The Virginia Department of Conservation and Recreation (VDCR) and Virginia Department of Wildlife Resources (DWR) are responsible for listing, protecting, and managing state-listed threatened and endangered species. VDCR's Natural Heritage Resources database identified occurrences of one federally listed species, the rusty-patched bumble bee (*Bombus affinis*), and one state-listed species, the wood turtle (*Glyptemys insculpta*), within the Difficult Run 12-digit HUC watershed (HUC code 020700081004) (VDCR, 2021). While Fairfax County is within the historical range of the rusty-patched bumble bee, this species is now believed to be extirpated within the County (DWR, 2021a). According to DWR, the wood turtle is known to occur in the region and has the potential to occur in the alternative corridors (DWR, 2015). A search of DWR's Wildlife Environmental Review Map Service (WERMS) database identified no known occurrences of federal or state-listed wildlife species in the alternative corridors (DWR, 2021b). The WERMS search identified an observation of the state-listed little brown bat (*Myotis lucifugus*) within 1.0 mile of the alternative corridors.

Table 3-6. Special Status Species Potentially Occurring in the Alternative Corridors

Common Name	Scientific Name	Status	Habitat
REPTILES			
Wood turtle	<i>Glyptemys insculpta</i>	State Listed Threatened	Forested floodplains, fields, wet meadows, and farmland, with nearby streams
MAMMALS			
Northern long-eared bat	<i>Myotis septentrionalis</i>	Federally Listed Threatened	Caves and cave-like structures (hibernacula), forests, trees (roosting and foraging)

Common Name	Scientific Name	Status	Habitat
Little brown bat	<i>Myotis lucifugus</i>	State Listed Endangered	Caves and cave-like structures (hibernacula); caves, buildings, bridges, and hollow trees (roosting); lake/stream margins, pastures, woodlands near water (foraging)
BIRDS			
Bald eagle	<i>Haliaeetus leucocephalus</i>	Not Listed, Protected by Bald and Golden Eagle Protection Act	Nest in tall hardwood trees with open canopies in close proximity to water bodies where they forage
INSECTS			
Monarch butterfly	<i>Danaus plexippus</i>	Federal Candidate	Abundance of milkweed (primarily <i>Asclepias</i> spp.) for breeding populations; abundance of nectar-producing flowering plants for breeding and migrating populations

Source: USFWS, 2021b; DWR, 2015, 2021b

Additional information on these species is provided below, along with characterizations of potential effects of the Build Alternatives on them, if present.

Northern Long-eared Bat. The northern long-eared bat (*Myotis septentrionalis*) was federally listed as threatened effective May 4, 2015 (80 FR 17974). The northern long-eared bat is a medium-sized bat weighing 0.2 to 0.3 oz. As indicated by its name, the northern long-eared bat is distinguished from other *Myotis* species by its relatively long ears (average 0.7 inches). The northern long-eared bat ranges across much of the eastern and north central United States (including all or portions of 37 States and the District of Columbia) and all Canadian provinces west to the southern Yukon Territory and eastern British Columbia. Winter habitat includes underground caves and cave-like structures such as abandoned or active mines, tunnels, and highway underpasses. These hibernacula typically have high humidity, minimal air currents, large passages with cracks and crevices for roosting, and maintain a relatively cool temperature, 32 to 48 degrees Fahrenheit. During summer, northern long-eared bats typically roost singly or in colonies underneath bark or in cavities or crevices of both live trees and snags. Northern long-eared bats most likely are not dependent on certain species of trees for roosts throughout their range; rather, many tree species that form suitable cavities or retain bark are used by the bats opportunistically. Northern long-eared bats also will roost in manmade structures, such as barns and the undersides of bridges. Northern long-eared bats migrate between their winter hibernacula and summer habitat, typically between mid-March and mid-May in the spring, and mid-August and mid-October in the fall. They are considered a short-distance migrant (typically 35 - 55 mi). Northern long-eared bats are nocturnal foragers, catching a diverse variety of insects in flight or picking them from surfaces. Most foraging occurs above the understory 3 to 10 feet above the ground, but under the canopy on forested hillsides and ridges, rather than along riparian areas. Mature forests are an important habitat type for foraging. The primary threat cited for listing the

species is white-nose syndrome, an infectious disease caused by the fungus *Pseudogymnoascus destructans*. However, other threats do exist, such as modifications or destruction of hibernacula and forest conversions or modifications,

There are no known northern long-eared bat hibernacula in the vicinity of the alternative corridors (DWR, 2021b). Nor are there any known occurrences of summer roosting or foraging northern long-eared bats in the vicinity of the alternative corridors (DWR, 2021b). Northern long-eared bats could potentially roost in trees within the alternative corridors; however, foraging habitat conditions within 0.5 mile of the alternative corridors are poor due to fragmentation from urban development.

The No Build Alternative would not impact hibernacula or summer roosting and foraging habitat for northern long-eared bats. The Build Alternatives would disturb potential summer roosting habitat for northern long-eared bat through tree removal. The USFWS issued a 4(d) Rule for the Northern Long-Eared Bat (81 FR 1900) on January 14, 2016, which prohibits incidental take resulting from tree removal if it 1) occurs within a 0.25-mile radius of known northern long-eared bat 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 northern-long-eared bats 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 Northern Long-Eared Bat and Activities Excepted from Take Prohibitions*. The Programmatic Biological Opinion concluded that such activities are not likely to jeopardize the continued existence of the northern long-eared bat. Federal agencies may rely on the Programmatic Biological Opinion to fulfill their project-specific Section 7 consultation responsibilities and no additional coordination regarding the species is required (USFWS, 2016). Accordingly, implementation of the Build Alternatives would rely upon the Programmatic Biological Opinion to fulfill Section 7 consultation requirements for potential incidental take of the northern long-eared bat.

Bald Eagle. The bald eagle (*Haliaeetus leucocephalus*) is not federally listed as threatened or endangered but is nevertheless protected by the Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668c). Therefore, it is often included, as here, in discussions of threatened and endangered species. In Virginia, bald eagles are most commonly found along the James, Rappahannock, and Potomac Rivers. This species builds nests in tall hardwood trees with open canopies in close proximity to water bodies, where they forage. The nearest known bald eagle nest is approximately four miles from the proposed project area. The USFWS recommends a buffer of 660 feet around bald eagle nests for proposed clearing, construction, and landscaping activities (USFWS, 2007). The Build Alternatives are not expected to affect bald eagles because there are no bald eagle concentration areas along the alternative corridors (USFWS, 2021c) and the nearest nest is well over 660 feet from the project site (Center for Conservation Biology, 2020). No impacts to this species would occur under the No Build Alternative either.

Monarch Butterfly. On December 17, 2020, the USFWS issued a finding that listing the monarch butterfly (*Danaus plexippus*) as an endangered or threatened species is warranted based on review of the best available scientific and commercial information, but that listing the species is precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants. The monarch butterfly is currently a “Candidate” species and is not yet proposed for listing; however, the USFWS intends to develop a proposed rule to list the monarch butterfly as its priorities allow (85 FR 81813).

Adult monarch butterflies are large and conspicuous, with bright orange wings with black veins, surrounded by a black border with a double row of white spots. The North American populations of monarch butterflies breed throughout the United States and parts of Canada and Mexico, and overwinter in Mexico and along the coast of California (USFWS, 2020).

Monarch butterflies require healthy and abundant milkweed and other nectar-producing flowers during breeding and migration, and groves of roosting trees with proximity to nectar sources during migration and overwintering. Primary threats to the North American populations of monarch butterflies include loss and degradation of habitat (from conversion of grasslands to agriculture, widespread use of herbicides, logging or poor management of overwintering sites, urban development, and drought), continued exposure to insecticides, and effects of climate change (USFWS, 2020).

There are no known occurrences of the monarch butterfly in the vicinity of the alternative corridors (DWR, 2021b). The alternative corridors are dominated by urban development and landscaping with ornamental species that do not provide the abundance of milkweed and nectar-producing flowering plants that monarch butterflies require during breeding and migration. Therefore, the monarch butterfly is not expected to be present within the alternative corridors.

Little Brown Bat. The little brown bat (*Myotis lucifugus*) is listed as state endangered and also listed under Tier 1 of the Virginia Wildlife Action Plan as “Critical Conservation Need” (DWR, 2021c). The little brown bat is a small to medium-sized bat with glossy fur that is dark yellow-brown to olive-brown. This species roosts in caves, buildings, rocks, trees, mines, tunnels, and under bridges (DWR, 2021d). Little brown bats forage over water, along the margins of lakes and streams, or in woodlands near water (NatureServe, 2021). They eat mostly moths, as well as midges, mayflies, and aquatic insects (DWR, 2021d). Winter hibernation sites (caves, tunnels, abandoned mines, and similar sites) generally have a relatively stable temperature of about 35 to 54 degrees Fahrenheit. Maternity colonies are commonly in warm sites in buildings (e.g., attics) and other structures, and infrequently in hollow trees (NatureServe, 2021). Similar to the northern long-eared bat, the primary threat to the little brown bat is white-nose syndrome. Populations of little brown bat have declined more than 95 percent across Virginia since the discovery of white-nose syndrome in 2009 (DWR, 2016). Other threats to this species include turbines at wind energy facilities, pesticides, deforestation, use of cyanide in mining, and destruction of caves and shafts associated with karst topography (NatureServe, 2021).

The WERMS database search identified an observation of the little brown bat within 1.0 mile of the alternative corridors (DWR, 2021b). There are no known little brown bat hibernacula in the vicinity of the alternative corridors (DWR, 2021e). Little brown bats could potentially roost within the alternative corridors; however, foraging habitat conditions within 0.5 mile of the alternative corridors are poor due to fragmentation from urban development.

The No Build Alternative would not impact hibernacula or summer roosting and foraging habitat for little brown bats. The Build Alternatives would disturb potential summer roosting and foraging habitat for little brown bat through tree removal, although the bats are not dependent upon trees for roosting or foraging. DWR’s goals for the protection of little brown bats are focused on restricting activities (i.e., tree removal, prescribed fire, and land disturbance) within 0.25 mile of hibernacula and within 150 feet of known roost tree(s) and foraging habitat during the maternity season (between June 1 and July 31).

Wood Turtle. The wood turtle (*Glyptemys insculpta*) is listed as state threatened and also listed under Tier 1 of the Virginia Wildlife Action Plan as “Critical Conservation Need” (DWR, 2021c). This species is a medium-sized turtle, up to 9 inches in length, with a keeled, sculpted carapace.

In Virginia, the wood turtle has a restricted range extending from Arlington and northern Fairfax Counties westward through Loudoun and Clarke Counties to Frederick, Warren, and Shenandoah Counties. It inhabits a variety of habitats, such as forested floodplains, fields, wet meadows, and farmland, with a creek or stream nearby. The wood turtle is generally terrestrial during the warm part of the year and aquatic during cool spells and hibernation. It hibernates in deep pools or under the mud or sand bottom of its waterways, or sits on the bottom or under overhanging roots of trees along the bank.

Wood turtle populations have declined due to degradation of aquatic habitats, loss of wetlands, fragmentation of habitats, urbanization, being killed by vehicular traffic, and from the collection of adults and juveniles for the pet trade (DWR, 2021f).

Habitat conditions for wood turtles within and adjacent to the alternative corridors are poor because there is a lack of forested floodplains, wet meadows, fields, or farmland, and aquatic habitat along the unnamed tributary that traverses the corridors has been impacted by culverts. It is therefore unlikely that wood turtles are present within the alternative corridors. The nearest potential habitat for wood turtles occurs along Colvin Run, approximately 250 feet north of the alternative corridors.

Neither the No Build Alternative nor the Build Alternatives would require removal of potential habitat for wood turtles. Because of the lack of suitable wood turtle habitat to either side of the alternative corridors, the proposed roadway is not likely to present a collision hazard for turtles.

3.11 INDIRECT EFFECTS

Indirect effects are those that are caused by an action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR § 1508.8(a)). The analysis of indirect effects followed a seven-step process described in the Transportation Research Board’s (TRB) National Cooperative Highway Research Program (NCHRP) Report 466, *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects* (TRB, 2002) and outlined below. To complete these steps, the required analyses rely on planning judgment. The NCHRP 25-25 program, Task 22, *Forecasting Indirect Land Use Effects on Transportation Projects*, documents means of applying planning judgment to indirect and cumulative effects analyses (TRB, 2007). The direction provided in the TRB document is the basis for the indirect effects analyses presented below.

Step 1: Scoping. Fairfax County, in cooperation with VDOT and FHWA, has coordinated with local, state, and federal agencies throughout the Soapstone Connector environmental review process. Fairfax County has also conducted an inclusive public involvement process. Additional details on the coordination can be found in Section 4 Comments and Coordination.

Step 2: Identify Study Area Direction and Goals. The alternative corridors shown in Figure 3-1 were the starting point for identifying boundaries of the resource-specific study areas described below. Each resource-specific study area includes the alternative corridors plus additional lands that contain resources that are in some way connected to the area of direct effects of the proposed project. The following study areas have been defined for use in both the indirect and cumulative

effects analyses. These areas have been designed to be large enough to encompass regional resources of concern that were identified during the scoping phase.

Social and Economic Resources, and Parks, Recreation, and Open Space Easements: This study area includes the residential communities, businesses, and recreational facilities of Reston, Virginia, a planned community within Fairfax County, which surrounds the alternative corridors. It is the people who live and/or work within Reston that would be affected by construction and operation of the Soapstone Connector. This study area is designed to be broad enough to consider whether the proposed project would result in induced growth effects and how direct right of way impacts might affect the availability of certain land uses within the community as a whole.

Historic Properties: The study area for indirect and cumulative effects to historic properties is the same as the area of potential effects (APE) for architectural and archaeological resources as defined in the historic properties analysis. For archaeological resources, the APE includes the project area footprint, inclusive of any areas where soil-disturbing activities are planned. For architectural resources, the APE includes a broader area beyond the roadway footprint to assess potential visual and audible effects of the new roadway and overpass.

Natural Resources: The study area for indirect and cumulative effects to natural resources includes the Difficult Run 12-digit HUC boundaries (HUC code 020700081004) that encompass the project limits. This is the area within which there is potential for indirect effects on waters downstream of the project. This area is roughly bounded by Reston Parkway to the west, Georgetown Pike to the north, the I-495 Capital Beltway to the east, and I-66 to the south. It includes lower density residential developments and parklands that provide habitat for wildlife, which could potentially be indirectly affected by the Build Alternatives.

Each of the above study areas are within the jurisdiction of Fairfax County, which has been experiencing steady growth since the 1950s. Population projections by the Weldon Cooper Center predict continued growth. Employment also is projected to increase over the next several decades.

The development of Reston is guided by the Reston Master Plan, which is part of the adopted Fairfax County Comprehensive Plan. A principal design concept for Reston is the clustering of neighborhoods served by a Village Center. The Village Centers provide community gathering spaces, neighborhood-serving retail, personal services, office, and civic uses. Employment uses were planned for areas north and south of the Dulles Corridor. This area, which includes the alternative corridors, is now the focus for mixed use development oriented to three Metrorail stations. Another key feature of the Reston Master Plan is lower density residential development or open space buffers along the boundaries of the community in order to be compatible with low density neighborhoods adjacent to Reston (Fairfax County, 2017).

Step 3: Identify Notable Features in the Study Area. The objective of this step is to identify specific environmental issues within the indirect effects study areas against which the proposed project may be assessed. This is accomplished through conducting an inventory of notable features for each resource of concern. Notable features include specific valued, vulnerable, or unique elements of the environment. For the purposes of this analysis, all resources included for evaluation were identified as notable features, for which indirect effects were considered. Notable features considered within the alternative corridors are summarized in Table 3-1. More specific information regarding notable features for each resource, including features that lie outside of the alternative corridors, is provided in Sections 3.2 through 3.10.

Step 4: Identify Impact Causing Activities of the Proposed Alternatives. Step 4 identifies the impact-causing activities of the alternatives so that they may be compared with the goals and trends identified in Step 2 and the notable features identified in Step 3 to assess whether a potential for indirect effects exists (Step 5). General types of project impact-causing activities include earthwork (clearing, excavation, and filling); landscaping and erosion control; remediation and reforestation; changes in traffic patterns; and changes in access. These activities have been considered in the analysis of direct effects for each resource in Sections 3.2 through 3.10. Direct effects that may result from the proposed project can potentially trigger indirect effects through encroachment and alteration of the environment farther in distance or time.

In addition to indirect effects that can be triggered by project encroachment, indirect effects can also occur as a result of induced changes in land use patterns, population density, or growth rate that would otherwise not be expected without implementation of a proposed project. General circumstances influencing the likelihood of induced development within a region that is undergoing urbanization include:

- Extent and maturity of existing transportation infrastructure
- Accessibility
- Location attractiveness
- State of the regional economy
- Land availability and value
- Availability of utilities
- Area vacancy rates
- Local political/regulatory conditions
- Land use controls

The influence of roadway projects on growth and development depends in part upon the extent and accessibility of the existing transportation infrastructure. The potential for growth inducement as a result of roadway projects is generally greatest where existing transportation infrastructure is lacking (TRB, 2002). The project is located adjacent to the Dulles Corridor, which includes VA Route 267 (Dulles Toll Road), the Dulles International Airport Access Highway (DIAAH), and the Silver Line of the Metrorail system. The Wiehle-Reston East Metrorail Station provides access to the Metrorail system and connects Reston to many locations within the greater Washington, DC metropolitan area. Main roadways in the study area include Reston Parkway, Wiehle Avenue, Sunset Hills Road, and Sunrise Valley Drive. Smaller streets and driveways provide access to individual buildings and developments within the study area. The Soapstone Connector would reduce congestion and improve accessibility, mobility, and multimodal connectivity to and within the area surrounding the Wiehle-Reston East Metrorail Station. These improvements represent incremental improvements to access within an area that is already developed and currently has access to the Wiehle-Reston East Metrorail Station rather than opening up new access where none existed before. Therefore, the potential for the project to induce growth due to increased accessibility is expected to be low.

A location's attractiveness and the strength of the regional economy are positively correlated with the potential for growth in a given area. Fairfax County is a major employment center in the greater Washington, DC metropolitan area. Predictions for continued population growth (see Section 3.2.2) attest to the high level of attractiveness and the strength of the economy of Fairfax County. Much of the future employment and residential growth within Reston is planned to occur within the Transit Station Areas (TSA), which include areas within approximately 0.5 mile to 1.0 mile of

the three transit stations within the Reston planning area (Fairfax County, 2017). The alternative corridors are located nearly in the middle of the TSA, within approximately 0.36 mile of the Wiehle-Reston East Metrorail Station. The Build Alternatives would reduce congestion and improve access and mobility in and around the Wiehle-Reston East Metrorail Station; however, these improvements are not expected to noticeably contribute to the attractiveness of the project vicinity.

The rate of population growth and development within a locality depends upon land availability and local political conditions and land use controls. The availability of developable land within Reston is limited due to development restrictions designed to maintain low-density residential communities and open space within much of Reston. A review of property listings on realty business websites (Zillow.com and Loopnet.com) in October 2021 revealed a considerable number of home and business vacancies, including 151 homes and 11 commercial properties for sale, and 76 homes and 102 commercial properties for lease. These vacancies would serve to accommodate just a small fraction of the total population growth projected for Fairfax County.

While local demographic and economic conditions (i.e., growing population, increased employment opportunities, and low property taxes) are generally favorable for increased development within Reston, development is regulated and controlled by the Reston Master Plan, the use of the Planned Residential Community zoning district, and planned community deed covenants. A large proportion of Reston is currently designated for low density residential and protected open space (Fairfax County, 2017). Regulatory requirements, such as Municipal Separate Storm Sewer System (MS4) permit requirements, also may influence local land use decisions.

In conclusion, the Build Alternatives would not provide access to any currently inaccessible areas that would act as a catalyst for development that could not occur in the absence of the project. It is anticipated that the Build Alternatives would not substantially encourage or accelerate any changes in land use that are not already anticipated. In fact, the Soapstone Connector is presented within the transportation section of the Fairfax County Comprehensive Plan as a proposed highway overpass. Therefore, the Build Alternatives are consistent with the future condition of land use that is already anticipated and planned for by Fairfax County.

Step 5: Identify Indirect Effects for Analysis. The objective of this step is to assess whether notable features identified in Step 3 would be indirectly affected by the Build Alternatives, taking into consideration the impact-causing activities and direct effects in Step 4. The following subjects were determined to potentially experience indirect effects from the Build Alternatives and were thus selected to move forward to the analysis of indirect effects in Step 6:

- Socioeconomics and Economic Resources
- Parks, Recreation and Open Space Easements
- Historic Properties
- Water Resources
- Wildlife and Threatened and Endangered Species

Step 6: Analyze Indirect Effects and Evaluate Analysis Results.

Social and Economic Resources

Under the No Build Alternative, the population of Fairfax County is expected to continue to grow. Several development and transportation projects are ongoing or planned in Reston. As discussed in Step 4, the proposed project is not expected to substantially encourage or accelerate any changes

in land use that are not already expected within the analysis area. The proposed project lies within a well-developed urban area, and it would not provide access to any currently inaccessible areas that would act as a catalyst for industrial, commercial, or residential development that could not occur in the absence of the project, nor would the project reduce the attractiveness of the area for residents or businesses already located there.

Both Alternatives 1 and 2 have the potential to require the relocation of two businesses. Given that alternative commercial properties are available within the community of Reston, no indirect impacts on the availability of the commercial properties are anticipated.

Parks, Recreation, and Open Space Easements

One park and recreation resource, the W&OD Railroad Regional Park, lies just beyond the northern terminus of the alternative corridors. Under the No Build Alternative, the W&OD Railroad Regional Park would continue to be affected by proximity effects such as air quality, noise, and visual impacts from adjacent commercial development and traffic along Sunset Hills Road.

The Build Alternatives would not require direct and permanent use of land from the W&OD Railroad Regional Park. There would be no additional air quality or noise impacts from the proposed project on this recreational resource.

Historic Properties

Under the No Build Alternative, the Association Drive Historic District would not be affected by new ground disturbance or additional visual or noise intrusions related to this project; however, the historic district would be affected by planned residential, commercial, and mixed use development in Reston, which may include adaptive reuse of the existing buildings for commercial ventures or demolition of the existing structures for the construction of low-density residential housing and mixed use. In 2018, the owners of seven parcels (1900, 1902, 1904, 1906, 1908, 1910, and 1920 Association Drive) within the Association Drive Historic District agreed to a comprehensive rezoning, and a rezoning application (RZ 2018-HM-019) was submitted to Fairfax County for redevelopment of the site, including demolition of their existing buildings.

The Build Alternatives would adversely affect the Association Drive Historic District through demolition of one contributing element (at 1904 Association Drive), which is also within the boundaries of the proposed future redevelopment project; however, the Build Alternatives would neither facilitate nor preclude the proposed redevelopment of parcels within the Association Drive Historic District. Therefore, the Build Alternatives would have no indirect effects on historic resources.

Water Resources

Under the No Build Alternative, stormwater runoff from existing urban development within and adjacent to the alternative corridors would continue to transport sediments and contaminants to local waterbodies, including impaired streams.

Both Build Alternatives involve direct impacts to an unnamed tributary as a result of roadway and bridge construction. This discussion focuses on the potential indirect effects of these activities on water resources from a water quality perspective, while the potential indirect effects on aquatic communities from a habitat perspective are discussed in the next section.

Potential temporary indirect impacts of the Build Alternatives during project construction include increased downstream sedimentation and turbidity from in-stream work, and possible spills or non-point source pollutants entering groundwater or surface water from storm runoff. Each of the Build

Alternatives involve construction of new roadway, which would increase the amount of impervious surface within the alternative corridors, resulting in increased stormwater runoff flows from the roadway. If untreated, increased flows would incrementally increase the transport of sediments and roadway contaminants to the unnamed tributary crossed by the alternative alignments. These pollutants can then be transported further downstream and into wetland areas. Increased sedimentation is particularly of concern in benthic impaired waters such as Colvin Run and Difficult Run.

Pollutant levels in runoff and the extent of downstream impacts are very difficult to quantify because there are many variables, including traffic volumes, rainfall volume and frequency, surrounding land use, and stream dynamics. Given that a meaningful projection of the extent of pollutant loads from each alternative cannot be made without extensive analysis, the best predictor of relative degree of impacts would then be the number of stream crossings and the amount of increase in impervious surfaces for each alternative. Both Build Alternatives would require one crossing of one unnamed tributary to Colvin Run. Specific quantities of additional impervious surfaces for each Build Alternative are not yet known, but are expected to be similar given that the same number of travel lanes and similar roadway length are proposed. In addition, the amount of existing impervious surface within each 200-foot-wide alternative corridor is similar (59% for Alternative 1 and 58% for Alternative 2).

Wildlife and Threatened and Endangered Species

Wildlife habitat within the study area is highly fragmented and previously disturbed by the Dulles Corridor, other roadways, and commercial and residential development. While the No Build Alternative would not result in further fragmentation of wildlife habitats, present and planned future development and transportation projects would continue to reduce habitat areas. Under the No Build Alternative, wildlife that occupy nearby forested habitats within parks and low-density residential areas would continue to experience disturbance from traffic noise, habitat degradation from soil erosion and contamination, introduction of invasive plants, and risk of collision with vehicles. Stream hydrology and water quality within aquatic habitats downstream of the project site are currently affected by erosive stormwater velocities and transport of sediment and roadway contaminants in stormwater runoff.

The Build Alternatives would require the removal of individual trees within existing office and commercial developments. The Build Alternatives would not result in the direct loss of forest or other sensitive wildlife habitats and therefore would not contribute to habitat fragmentation within the study area. The nearest natural habitat areas are more than 0.5 mile from the alternative corridors and would not be subject to traffic noise from the new roadway. The unnamed tributary to Colvin Run that would be impacted by the Build Alternatives is almost entirely within culverts within 500 feet to either side of the alternative corridors and thus currently provides poor quality habitat for aquatic life.

The indirect impacts to water quality discussed above would potentially affect habitat quality for aquatic species living in streams and wetlands downstream of the alternative corridors. Sediments and pollutants in runoff may contribute to changes in macrobenthic community structure and composition, affecting fish and amphibian populations that rely on them as a food source, as well as birds and mammals higher on the food chain.

Direct impacts to the one federally listed threatened species (northern long-eared bat), one federal candidate species (monarch butterfly) and the two state-listed threatened and endangered species (wood turtle and little brown bat, respectively) that potentially occur within the project vicinity are

not anticipated because habitat conditions within and adjacent to the alternative corridors are poor and the presence of these species is not likely. Potential indirect effects to downstream habitat is a concern for the wood turtle.

The Build Alternatives would increase the proportion of the unnamed tributary that is placed within culverts. Current stream flow volumes or velocities are influenced by existing culverts. New culverts would be designed to avoid or minimize increases in stream flow volumes and velocities. However, these modifications would result in further hardening of the stream corridor, making it incrementally more difficult for animals and aquatic organisms to cross through pipes. Notwithstanding, no significant indirect impacts to aquatic communities as a result of changes in hydrology, stream bank erosion, or vegetative species composition are anticipated.

Step 7: Assess Consequences and Develop Mitigation. While the Build Alternatives would not have any indirect effects on the Association Drive Historic District, the execution and implementation of the MOA for the Build Alternatives would mitigate impacts to the Association Drive Historic District from the proposed project.

Potential indirect effects to water resources and aquatic habitats were identified for the Build Alternatives in Step 6. While planning judgment allows for the identification of potential indirect effects, insufficient data exists to fully assess the consequences of these indirect effects. For example, while it is reasonable to predict that direct impacts to water quality may occur at the stream crossings, there is not enough information to determine how far downstream such impacts would actually occur. Despite the lack of detailed data, the consequences of the indirect effects are expected to be minimal because the Build Alternatives would convert one type of urban use (commercial and office use) to another urban use (transportation) that is consistent with local plans and would result in minimal direct impacts. In addition, indirect effects of the Build Alternatives would be minimized with the application of avoidance, minimization, and mitigation measures described in the following paragraphs.

Water Resources

Some impacts, such as increased downstream sedimentation and turbidity from in-stream work, and possible spills or non-point source pollutants entering groundwater or surface water from storm runoff, may occur during construction. These short-term impacts would be minimized with the 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*. As noted in Step 6, increased sedimentation is of particular concern in benthic impaired waters such as Colvin Run and Difficult Run. Stormwater management measures, such as vegetated swales, infiltration trenches and other measures, would be implemented in accordance with federal, state, and local regulations to minimize on-site and downstream water quality impacts. These stormwater management measures would reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of impaired streams and wetlands.

Wildlife Habitat and Threatened and Endangered Species

The potential for the establishment of invasive species during construction would be minimized by following provisions in VDOT's *Road and Bridge Specifications*. In order to prevent the introduction of new invasive species and to prevent the spread of existing populations, best management practices would be followed, including washing machinery before it enters the area, minimizing ground disturbance, and reseeded of disturbed area with seeds that are tested in accordance with the Virginia Seed Law and VDOT's standards and specifications that ensure that

seed mixes are free of noxious species. It is unlikely that the risk of wildlife-vehicle collisions would perceptibly increase under the Build Alternatives due to the lack of forested areas, riparian corridors, or other natural habitat areas to either side of the proposed roadway. Potential indirect effects to water quality downstream of the alternative corridors is a concern for the state-listed wood turtle. As indicated in the Water Resources paragraph above, stormwater management measures, such as vegetated swales, infiltration trenches, and other measures would be implemented in accordance with federal, state, and local regulations to minimize on-site and downstream water quality impacts. These measures would reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of impaired streams and wetlands.

3.12 CUMULATIVE EFFECTS

Cumulative effects are defined as the impact on the environment that 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. The cumulative effects analysis is based on a five-part evaluation process based on FHWA guidance (FHWA, 2014):

1. What is the geographic area affected by the project?
2. What are the resources affected by the project?
3. What are the other past, present, and reasonably foreseeable actions that have impacted these resources?
4. What were those impacts?
5. What is the overall impact on these various resources from the accumulation of the actions?

Geographic Area and Time Span. The geographic limits of the resource specific study areas used for the cumulative effects analysis are the same as those used for the indirect effects analysis, described in Section 3.12. The time span for the analysis is from the early 1960s (when the construction of Reston began) to 2046, which is the design year for the project (the horizon year for traffic analysis and project design).

Affected Resources. The resources that are affected by the proposed project are those listed as potentially impacted in Table 3-2.

Past, Present, and Reasonably Foreseeable Actions. The past, present and reasonably foreseeable future actions that contribute to cumulative effects are described below. The focus of the discussion is Reston, which encompasses the cumulative study area for social and economic resources and historic resources. A brief discussion of communities outside of Reston that lie within the outer boundaries of the natural resources study area is also provided.

Past Actions

Reston

Prior to 1887, the area that is now Reston was rolling timberland. Between 1887 and 1901, Dr. Carl Adolph Max Wiehle established a small town consisting of a post office, a Town Hall, a church, his mansion, and six or seven homes along the Washington and Old Dominion Railroad east of what is now Town Center Parkway in Reston. The first industry in the area included a mill built for the Maryland and Virginia Serpentine and Talc Company of Baltimore. In 1923, the A. Smith Bowman family bought much of the town from Dr. Wiehle's heirs and established a distillery in the town's old industrial buildings (Gulf Reston, Inc., 1973).

In 1961, all but the distillery and the former Wiehle mansion was acquired by Robert E. Simon, Jr. Simon envisioned establishing a full-scale self-contained city, which he named Reston (the name derived from his initials). The Reston Master Plan was initially adopted in July 1962 and updated periodically through 1989 by the various master developer entities that constructed areas of Reston over time. A principle design concept for Reston is the clustering of neighborhoods in such a way that they can be served by a Village Center (Fairfax County, 2017).

The construction of Reston began in 1963 with the building of a dam within Colvin Run to form the 30-acre Lake Anne and the construction of Lake Anne Village. By the time the 50,000 square-foot commercial development called Lake Anne Village Center was officially opened in December 1965, there were 227 townhouses, 113 apartments, a 15-story high-rise, and 100 single family detached homes in Lake Anne Village. Recreational facilities included a golf course, riding center, swimming pools, tennis and volleyball courts, playgrounds, and several miles of pedestrian walkways. The residential population was approximately 500 (Gulf Reston, Inc., 1973).

By 1980, the population of Reston had grown substantially and there was much traffic congestion in the area. The Dulles Toll Road was constructed in 1984 to provide local access to communities located between the Capital Beltway (I-495) and Washington Dulles International Airport, including Reston.

In 1991, the portion of Reston located along the Dulles Corridor was designated a Suburban Center in the Fairfax County Comprehensive Plan. The Suburban Center has since been redefined as three separate but contiguous Transit Station Areas (TSA) centered around three Metrorail stations, including the Wiehle-Reston East Metro Station, which opened in 2014.

Other Communities

In addition to Reston, the cumulative study area for natural resources, which includes the Difficult Run watershed (HUC code 020700081004), encompasses portions of the communities of Oakton, Vienna, and Tysons Corner. Like much of northern Virginia, these communities were largely agricultural until the late 1800s. The introduction of the Alexandria, Loudoun, and Hampshire Railroad in 1859 was an impetus for growth within the Town of Vienna, which was originally established in 1767 as Ayr Hill (Town of Vienna, 2016). In the mid-1800s, Oakton was a small rural community, having constructed its first school house in 1854 (Robison, 2004).

With the movement of many Americans from the cities into the suburbs after World War II, the suburban communities of northern Fairfax County grew substantially. The first of Vienna's modern shopping centers opened in 1954, followed in quick succession by more shopping centers. The commercial development of Tysons Corner began with a Fairfax County Planning Commission proposal in 1961 to make it a "regional business, convention and residential center" (Kelly, 2014). The Vienna Metrorail Station was constructed in 1986. The Tysons Corner, Greensboro, and Spring Hill Metrorail Stations, which serve the Tysons Corner area, were completed in 2014.

Present and Reasonably Foreseeable Future Actions

Present and reasonably foreseeable future actions are listed in **Table 3-7** and shown in **Figure 3-7**. These include transportation projects identified in the FY 22 *VDOT Six-Year Improvement Program* (SYIP) (VDOT, 2021) as well as other development projects that are planned, under construction, or recently completed in the study area, based on information gathered from the Reston Association website (reston.org), the Fairfax County Department of Planning and Zoning (DPZ), and online research.

Table 3-7. Present and Reasonably Foreseeable Future Actions

Project Name	Fig 3-7 Map ID	Project Description	Status
<i>Transportation</i>			
Reston Metrorail Access Group Recommendations	T-01	Facilities for pedestrians and bicycles for Reston Town Center Metrorail Station and Wiehle-Reston East Metrorail Station.	Implementation of this project is currently underway. See Table 2-3 and Figure 2-7.
Sunrise Valley Drive Walkway North Side from Soapstone Drive to South Lakes Drive	T-02	Upgrade approximately 4,500 linear feet (LF) of an existing asphalt sidewalk to a 10-foot-wide shared-use path on north side of Sunrise Valley Drive.	Completed.
Sunrise Valley Drive Walkway South Side from Soapstone Drive to South Lakes Drive	T-03	Approximately 5,000 LF of 5 to 7-foot-wide concrete sidewalk on south side of Sunrise Valley Drive.	Completed.
Sunrise Valley Drive Walkway North side from Association Drive to Preston White Drive	T-04	Reconstruct sidewalk from Association Drive to Preston White Drive.	Completed.
Town Center Parkway at Sunset Hills Sidewalk	T-05	Construct facilities for pedestrians and bicycles from Sunset Hills Road to 0.062 mile north of Sunset Hills Road.	Completed.
Town Center Parkway Underpass	T-06	Construct an underpass from Town Center Parkway and Sunset Hills Road to Sunrise Valley Drive west of Edmund Halley Drive.	A feasibility study is being conducted by VDOT. Underpinning for the underpass was constructed by the Silver Line Metrorail Project.
Wiehle Avenue and Isaac Newton Square Intersection	T-07	Reconstruct intersection of Wiehle Avenue and Isaac Newton Square.	Completed.
Wiehle Avenue and Dulles Toll Road Ramps Sidewalk	T-08	Construct facilities for pedestrians and bicycles along the Dulles Toll Road ramps.	Completed.
Wiehle Avenue and the W&OD Trail	T-9	Construct a grade-separated crossing of Wiehle Avenue and the W&OD Trail.	This project is currently in the right of way acquisition phase, with construction projected to be complete in 2023.
Sunrise Valley Drive (south side) Sidewalk	T-10	Construct sidewalk from Glade Drive to Reston Parkway.	Completed.
Metrorail/Dulles Corridor Project	T-11	Extension of Metrorail Silver Line along Dulles Corridor to Dulles International Airport.	Stations west of the project area to be complete by Spring 2022.
Fairfax County Parkway	T-12	Reconstruct and widen from 4 to 6 lanes between Route 50 and Dulles Toll Road	Preliminary Engineering complete.
Smart #18 – Elden St	T-13	Widen Elden St from Van Buren Street to Fairfax County Parkway.	This project is currently in the right of way acquisition phase, with construction projected to be complete in 2023.
<i>Residential, Commercial and Mixed Use</i>			
Foulger-Pratt Development, LLC, Association Drive	RCM-01	Proposed mixed use development on 23.99 acres.	Indefinitely deferred.
Reston Station, Reston Metro Plaza	RCM-02	More than 1.3 million square feet of mixed-use development consisting of	Final two buildings under construction. Anticipated

Project Name	Fig 3-7 Map ID	Project Description	Status
		office buildings, restaurants, a pedestrian plaza, shops, a full service hotel, and up to 900 residences with 3,500+ underground parking spaces located directly adjacent to the Wiehle-Reston East Metrorail Station.	completion in 2022. Hotel completion anticipated in 2024.
Reston Heights Expansion, 11844 Sunrise Valley Drive	RCM-03	Expansion of Reston Heights residential, commercial, and office development to include six-story and 15-story residential developments, five-story mixed-use building, and 10-story office, retail, and parking building.	Initial phase completed. Second phase under planning review.
RTC West, 12100 Sunset Hills Road	RCM-04	Phase 1: 40,100 square feet of new and converted retail space to complement the office uses at Sunset Hills Road and Town Center Parkway. Phase 2: Add 576 residential units, 650,000 square feet of additional office space and approximately 45,000 square feet of additional ground floor retail.	Construction on Phase 1 is complete. Phase 2 is in the Site Plan phase.
Reston Crossing Development, south of Dulles Toll Road between Edmund Halley Drive and Reston Parkway	RCM-05	Mixed use development consisting of 2 million square feet on a 14-acre site with plans for green space, office, residential and retail sitting atop a (mostly) below-ground parking structure. Pedestrian bridge access to Reston Town Center Metrorail Station	Approved by Fairfax County Board of Supervisors in June 2019.
Tall Oaks Village Center	RCM-06	Erect up to 156 dwelling units and 14,393 square feet of non-residential uses.	Under construction.
Lake Anne Fellowship House, North Shore Drive	RCM-07	Redevelopment of 240 affordable senior residential units and addition of 36 market-rate townhomes.	Under construction.
1831 Wiehle Avenue-Midline	RCM-08	Rezoning and development plan application for four adjacent parcels bounded on the north by Sunset Hills Road, on the west by Wiehle Avenue, and on the south by Dulles Toll Road. Includes 1.6 million square feet of new development, including multi-family and single family attached units, independent living, office space, and retail space. Also includes extension of Reston Station Boulevard from Wiehle Avenue to Michael Faraday Court.	Under construction.
1760 Reston Parkway	RCM-09	Construct 23-story office, retail, restaurant, civic/public open space building.	Approved by Fairfax County Board of Supervisors in June 2016.
General Dynamics Headquarters, 11011 Sunset Hills Road	RCM-10	Construction of a 190,000 square foot office building at 11011 Sunset Hills Road	Completed.

Project Name	Fig 3-7 Map ID	Project Description	Status
Triangle Park, 11501-11519 Sunset Hills Road	RCM-11	Option 1: Residential/office mixed use development with 400 dwelling units, 195,000 square feet of office, and 12,000 square feet of retail. Option 2: 400 dwelling units plus an additional 312 residential units and 12,000 square feet of retail. Both options include a possibility for independent/assisted living units within the residential units.	Pending determination of Soapstone Connector alignment.
Golf Course Overlook, northwest of the W&OD Trail, currently Golf Course Plaza, a three-story office building with surface parking	RCM-12	Proposed nine-story building with 300 residential dwelling units and 554 below ground parking spaces.	Approved by Fairfax County Planning Commission in September 2019.
Reston Promenade (CRS Sunset Hills, LC), Wiehle Avenue and Sunset Hills Road, north of Reston Station Boulevard	RCM-13	Development of up to 1.24 million square feet of mixed office, residential, hotel, and retail uses.	Updated application approved by the Fairfax County Board of Supervisors in 2020. Initial site work underway.
Aperture, 11410 Reston Station Boulevard	RCM-14	Mixed use development consisting of ground floor retail and 421 residential units.	Completed.
Commerce Metro Center, 1850 Centennial Park Drive, 11400 and 11440 Commerce Park Drive	RCM-15	1,097,189 square feet mixed use development (residential, office, and hotel) in addition to the 356,496 square feet of existing office uses on site.	Completed.
Wiehle Station Ventures, Lincoln at Commerce Park, north of Sunrise Valley Drive, east of Association Drive, and west of Commerce Park Drive	RCM-16	260 residential dwelling units while retaining the 72,637 square feet of existing office uses on site.	Completed.
11690 Sunrise Valley Drive, Sekas East (formerly American Press Institute Building)	RCM-17	34 single family attached dwelling units (townhouses) and 10-unit multi-family building.	Completed.
11720 Sunrise Valley Drive, Sekas West	RCM-18	54 single family attached dwelling units (townhouses).	Under construction. Expected completion by end of year 2021.
1808 Michael Faraday Court	RCM-19	Self-storage facility	Completed.
Lofts at Reston Station (1825 Michael Faraday Drive)	RCM-20	44 dwelling units (32 multi-family units and 12 2-over-2 townhouse units).	Completed.
1831 Michael Faraday Drive	RCM-21	283 multi-family units and 3 townhouse units.	Under construction.
11111 Sunset Hills Road	RCM-22	A multi-family building with 175 dwelling units and 13 townhouse units.	Zoning application approved 2019.
American Armed Forces Mutual Aid Association (AAFMAA), 1850 Old Reston Avenue	RCM-23	Approximately 140,000 square feet of office space.	Zoning application to redesign the site approved in 2019.
Halley Rise (formerly Reston Crescent), 12000 and 12010 Sunrise Valley Drive	RCM-24	Retain two existing office buildings and add additional office, retail and residential uses, resulting in	Phase 1 (multi-family Block F not including Wegmans Grocery Store) completed. Wegmans Grocery Store anticipated to be

Project Name	Fig 3-7 Map ID	Project Description	Status
		approximately 4 million square feet of total development.	completed in 2023. Blocks D and G in Site Plan phase. Block C Zoning application in progress.
Sorrento, 1925 Roland Clarke Place	RCM - 25	Two multi-family residential buildings with parking garages.	Completed.
Reston Gateway/Boston Properties, NE corner Sunset Hills Road and Town Center Parkway	RCM- 26	4,800,000 square feet of mixed-use development. Phase 1 consists of 600 residential units; 1.2 million square feet of office; 48,600 square feet of restaurant; 84,600 square feet of retail; a 240 room hotel; and retention of the existing office buildings totaling 652,302 square feet.	Approved by Board of Supervisors 2018. Phase 1 under construction, expected completion in 2022.
Reston Corner, South side of Sunrise Valley Drive between Michael Faraday Drive and Reston Parkway	RCM- 27	145 multi-family residential units.	Under construction.
APA Properties Isaac Newton Square, West side of Wiehle Avenue along Isaac Newton Square North and Isaac Newton Square South	RCM- 28	2,100 dwelling units (primarily multi-family with up to 300 townhouses and up to 300 hotel rooms), and up to 328,884 square feet of office and retail uses.	Rezoning approved 2019.
Renaissance Centro 1801, 1801 Reston Parkway	RCM- 29	110-120 multi-family luxury condominium dwelling units.	Rezoning approved 2018.
Thompson Hospitality, Lake Fairfax Business Park, Business Center Drive	RCM- 30	138 room hotel	Completed.
Campus Commons LLC	RCM- 31	802,694 square feet of residential (up to 655 units); 522,630 square feet of office; and 28,400 square feet of secondary uses for a total of up to 1,353,724 square feet of development.	Rezoning approved 2019.
Fannie Mae, 11600 American Dream Way, North side of Sunset Hills Road, south and west sides of American Dream Way	RCM- 32	Redevelopment with addition of two office buildings and up to 90 townhomes.	Zoning application underway.

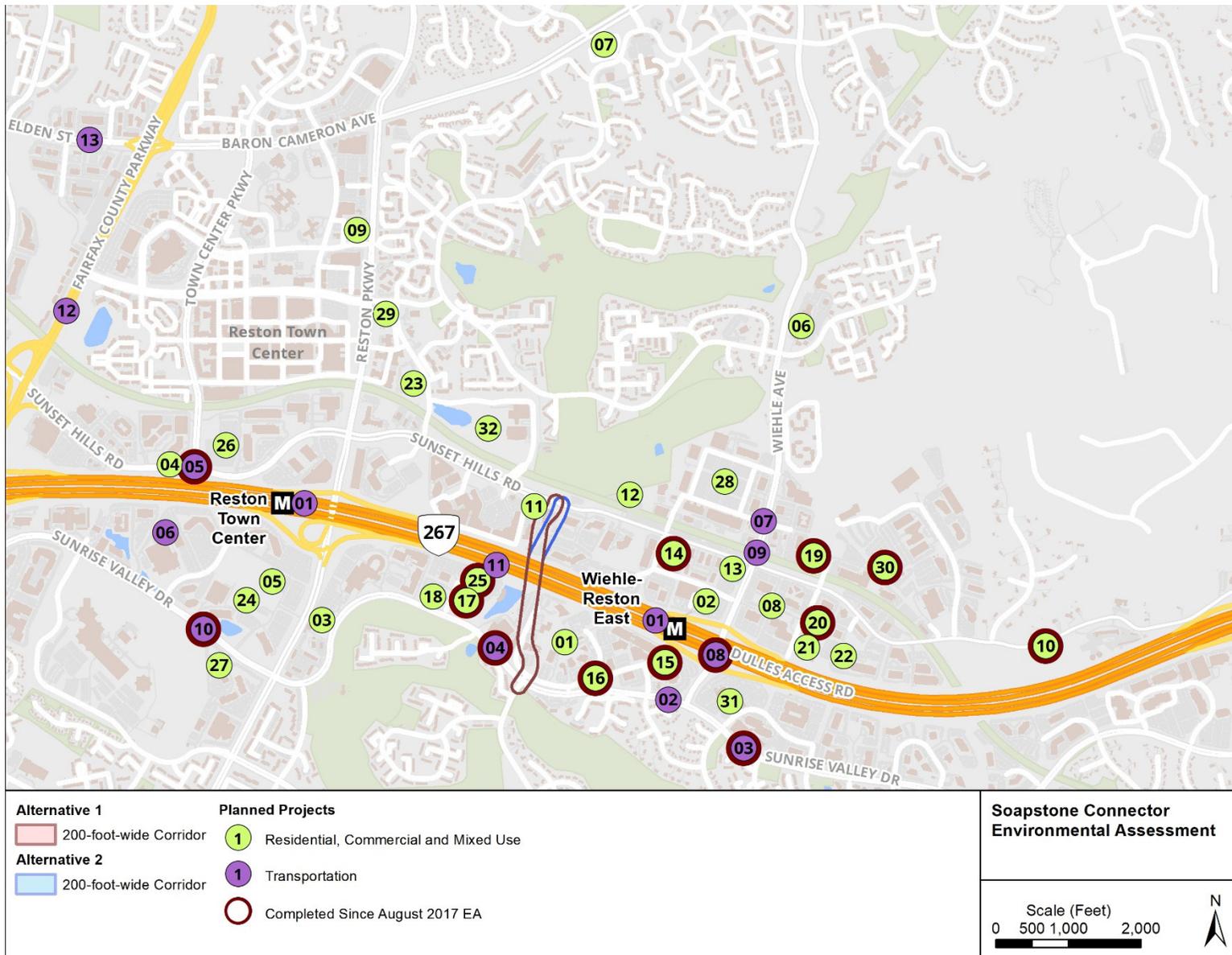


Figure 3-7. Present and Reasonably Foreseeable Future Actions

Impacts. Past actions identified above have changed the landscape dramatically and have resulted in the conversion of forest and agricultural lands to residential, commercial, and industrial uses as the population and economy of communities within the cumulative study area have grown. The effects of these past actions are reflected in the present socioeconomic and environmental conditions that form the baseline for consideration of environmental effects of present and reasonably foreseeable future actions, which include continued residential and commercial developments and transportation improvements to accommodate forecasted growth and provide multimodal options for travel. As indicated in Table 3-7, various development and transportation projects have either been recently completed, are under construction, or are being planned within the study area. These projects include widespread bicycle and pedestrian access improvements; extension of the Metrorail Silver Line to Dulles International Airport; and residential, office, and mixed use developments along Sunrise Valley Drive and Sunset Hills Road.

The resources potentially affected by the Build Alternatives and by past, present, and reasonably foreseeable future actions include social and economic resources; historic properties; water resources; wildlife and threatened and endangered species; air quality; and noise. These resources are taken into consideration in the following discussions of cumulative impacts.

As discussed in Sections 3.2 through Section 3.11, the nature of the direct and indirect impacts under Alternative 1 and Alternative 2 are very similar. While there exist some differences in the extent of resource impacts associated with each alternative, these differences are negligible in the context of the effects of past, present, and reasonably foreseeable future actions. Therefore, the cumulative effects of the Build Alternatives are assumed to be similar and are discussed as one.

Social and Economic Resources

Under the No Build Alternative, the population within the cumulative effects study area is expected to continue to grow. Several development projects are ongoing or planned in the study area. Congestion within the cumulative study area, especially surrounding the Wiehle-Reston East Metrorail Station, would continue to increase.

The Build Alternatives would reduce congestion and improve accessibility, mobility, and multimodal connectivity to and within the area surrounding the Wiehle-Reston East Metrorail Station. These improvements to mobility would contribute positively to the quality of life in Reston and support the anticipated continued growth of the regional economy.

Like other past, present, and reasonably foreseeable actions, the Build Alternatives are anticipated to require the relocation of businesses. Displacements would occur in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (as amended, 1987). Present and foreseeable future projects would be subject to these regulatory processes that are designed to help avoid substantial impacts to communities. Present and future projects would also be guided by the Fairfax County Comprehensive Plan, which identifies areas for compatible planned growth while accommodating future planned transportation improvements.

Historic Properties

Damage or loss of historic resources was far more prevalent from past actions that occurred prior to the National Historic Preservation Act of 1966. This Act combined with the establishment of historic resource protection objectives at the local planning level have reduced the rate of impacts to historic resources. Still, conflicts between protection of historic properties and development and transportation projects are expected to continue under the No Build Alternative, especially since non-federal actions such as private developments are not subject to the National Historic

Preservation Act. Potential cumulative effects include permanent loss and proximity effects (noise and visual impacts) from present and planned future development and transportation projects.

The Build Alternatives would adversely affect the Association Drive Historic District through demolition of one contributing element (at 1904 Association Drive) and visual and noise intrusion along the west side of the historic district (near contributing elements at 1900 Association Drive and 1902 Association Drive). Although these adverse effects would be mitigated through project design, and execution and implementation of the MOA, the physical manifestation of the Association Drive Historic District would be altered and would contribute to cumulative effects on historic properties in Reston.

Water Resources

Past actions have resulted in direct loss of streams and wetlands and degradation of water quality as evidenced by the presence of impaired streams like Colvin Run and Difficult Run within the cumulative study area. The establishment of protections under the CWA have put into place requirements to protect, monitor, and restore water resources. Fairfax County has established preservation and conservation programs that serve to improve water quality by protecting streams and controlling development. Fairfax County's EQC system, for example, protects the county's stream valleys by incorporating them into a system of connected parklands and trail systems. The EQC system provides buffer lands that separate streams from land uses and development activities that have the potential to degrade the ecological quality of streams (Fairfax County, 2017). In addition, Fairfax County prepares watershed management plans or studies, such as the Difficult Run Watershed Management Plan, that assess, monitor, and evaluate water quality and identify priorities and best management practices for improving water quality. In the plan, recommended actions are identified for Colvin Run, which is a tributary of Difficult Run. The Colvin Run subwatershed is identified as one of 18 subwatersheds in the Difficult Run watershed, and sites for improvement within the subwatershed are discussed in terms of the specific impairment, a description of the project, and the goal of the project (Fairfax County, 2007).

While federal regulations, local conservation programs, and improvements in stormwater best management practices have minimized water quality impacts, many waters continue to be impaired and additional efforts are needed to restore water quality to impaired streams. Adverse cumulative effects on water quality from past, present, and future actions are anticipated to continue under the No Build Alternative.

The Build Alternatives would involve direct loss of a small segment of an unnamed tributary as a result of bridge construction. Stormwater management measures, such as vegetated swales, infiltration trenches, and other measures, would be implemented in accordance with federal, state, and local regulations to minimize on-site and downstream water quality impacts of the Build Alternatives. These measures would reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of impaired water bodies.

Wildlife and Threatened and Endangered Species

Although individual trees and small groups of trees are scattered throughout the alternative corridors, the best wildlife habitat in general, and for the federally threatened northern long-eared bat in particular, would be expected on properties with more expansive contiguous mature tree cover, such as parks that are protected from residential and commercial development. Such properties within the cumulative study area include Lake Fairfax Park, Difficult Run Stream Valley Park, Tamarack Park, and Fred Crabtree Park.

Wildlife habitat within the cumulative study area has been heavily impacted by past actions. Forests and aquatic habitats have been converted to agricultural lands and then to suburban and urban developments. Patches of forest and aquatic habitats are present within the cumulative study area where lands have been protected as public parks and open space preserves. Aquatic habitats have suffered from degradation of water quality as evidenced by the listing of streams like Colvin Run and Difficult Run as impaired waters.

Adverse effects of past, present, and future actions on wildlife habitats are expected to continue with the anticipated population growth in the region under the No Build Alternative. The relative contribution of the Build Alternatives to the effects of habitat loss is minimal given the limited natural resources present within the alternative corridors and the existing fragmented condition of habitats within the cumulative study area. The contribution of the Build Alternatives to degradation of water quality within aquatic habitats is also minimal given the minimal stream impacts and the stormwater management measures that would be implemented in accordance with federal, state, and local regulations to minimize on-site and downstream water quality impacts.

Air Quality

The project is located in Fairfax County, which has been designated by EPA as nonattainment for the eight-hour ozone NAAQS and attainment for all other NAAQS. The ongoing implementation of ever more stringent motor vehicle emission and fuel quality standards helps to minimize the potential for growth in emissions and associated impacts even with long-term growth in economic activity and associated traffic. Trends in ambient air quality data show the benefit of these controls for specific pollutants. The No Build Alternative would not contribute additional sources of CO, mobile source air toxic, or temporary construction emissions to cumulative air quality conditions.

A qualitative assessment of the potential for cumulative impacts to air quality from the Build Alternatives concluded that any potential impacts that may be attributable to the Build Alternatives are not expected to be significant for several reasons. First, much of the area in which the project is located is already highly developed, which limits the potential for incremental cumulative impacts. Second, ongoing implementation of ever more stringent motor vehicle emission and fuel quality standards helps to minimize the potential for growth in emissions and associated impacts. Additionally, the Soapstone Connector is included in the conforming financially constrained regional long-range transportation plan, *Visualize 2045* (CEID 3450), and the project was included in the March 18, 2020 Air Quality Conformity Analysis of the 2020 Amendment to *Visualize 2045* (Con ID 722, Project ID VS F49). The Project is included under TIP ID 6583 in the FY 2021-2024 Transportation Improvement Program adopted on March 20, 2021 and Amended and Modified as of June 23, 2021.

Noise

As indicated in Section 3.4, the noise analysis estimated the number of sensitive receptors that would be affected by noise in the design year (2046), which includes the cumulative noise influence of past, present, and reasonably foreseeable future projects within the study area. Under the Build Alternative, a total of four receptors that represent six residential receptors and the playground of a daycare center are predicted to experience noise impacts in the design year (2046).

Noise abatement measures (i.e., a noise barrier) appear to be feasible and reasonable for one CNE at this time, which would provide noise reduction benefits to the six residential receptors within the CNE, as described in the technical report. Preliminary decisions regarding both recommended and non-recommended noise barriers may change between this Revised EA and final design as a

result of changes in the transportation improvement project design, design year traffic, or the level of detail the design contained at the time of the preliminary report.

Construction noise would be temporary and minimal in comparison to the existing noise levels and would not substantially contribute to the cumulative noise environment. Regardless, during the construction phase of the project, all reasonable measures would be taken to minimize noise impacts from these construction-related activities. VDOT's *Road and Bridge Specifications* establish construction noise limits and the contractor would be required to conform to this specification to reduce any impacts of construction noise.

Overall Impacts. Overall, the No Build Alternative would not contribute to adverse cumulative effects; however, communities within the study area would also not benefit from the reduced congestion and improved accessibility, mobility, and multimodal connectivity that would accompany the Build Alternatives. Adverse cumulative impacts from past, present, and future projects are anticipated under the No Build and the Build Alternatives for social and economic resources (i.e., relocations), historic properties, water resources, wildlife and threatened and endangered species, air quality, and noise. The majority of these adverse effects are largely attributable to past actions that occurred prior to the establishment of protective environmental regulations. Current regulatory requirements and planning practices are helping to avoid or minimize the contribution of present and future actions to adverse cumulative effects. In summary, considerable adverse impacts to natural resources have occurred over time, first due to agricultural uses of the land, and then to residential, commercial, industrial, institutional, and public infrastructure development. When considered in the context of the project setting, the magnitude and intensity of the impacts of the Build Alternatives would not contribute substantially to cumulative impacts, particularly in light of the efforts to minimize adverse impacts of the project and other mitigation measures to be implemented.

3.13 SECTION 4(F)

Section 4(f) of the US Department of Transportation Act of 1966 as amended (23 U.S.C. § 138 and 49 U.S.C. § 303) stipulates that FHWA and other US Department of Transportation agencies cannot approve the use of land from a significant publicly owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless the following conditions apply:

- There is no feasible and prudent avoidance alternative to the use of land from the property, and the action includes all possible planning to minimize harm to the property resulting from such use; or
- The use of the Section 4(f) properties, including any measures to minimize harm (such as avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact on the property.

The Build Alternatives would impact the building at 1904 Association Drive, a contributing element to the Association Drive Historic District. As such, two alternative alignments, Alternative 5C-Modified and Alternative 6E-Modified, which were based on modifications to alternatives evaluated in the 2013 *Soapstone Connector Feasibility Study*, were developed to avoid impacts to the historic district. Neither was determined to be a feasible and prudent avoidance alternative to the use of land from the Section 4(f) property and they were both dropped from consideration. A discussion of potential use of the property and these two avoidance alternatives to use of the property, the analysis of feasibility and prudence and least overall harm, and all possible planning to minimize harm is provided in the Draft Individual Section 4(f) Evaluation included in Appendix B.

As indicated in Section VI of the Draft Individual Section 4(f) Evaluation, FHWA has concluded that Alternatives 1 and 2 are the alternatives that cause the least overall harm to the Association Drive Historic District. In accordance with FHWA’s Section 4(f) Policy Paper, if the assessment of overall harm finds that two or more alternatives are substantially equal, then FHWA can approve any of those alternatives. Therefore, for this project, FHWA may approve either Alternative 1 or Alternative 2.

A draft MOA has been developed to resolve adverse effects to the Association Drive Historic District under Section 106 (54 U.S.C. § 306108) of the National Historic Preservation Act (see Appendix C). Consultation concerning appropriate mitigation measures to incorporate into the MOA are ongoing with DHR and the Consulting Parties. Visual and noise intrusions to contributing elements of the Association Drive Historic District will be addressed during project design. The mitigation measures in the executed MOA will be incorporated into the Final Individual Section 4(f) Evaluation, and the MOA itself will be included as an appendix.

Section 4

COMMENTS AND COORDINATION

Early and continuous coordination with the general public and appropriate agencies is an essential part of the National Environmental Policy Act (NEPA) review process to determine the scope of environmental documentation, level of analysis, potential impacts, and necessary mitigation measures and related environmental requirements. Fairfax County, in cooperation with VDOT and FHWA, has coordinated with local, state, and federal agencies throughout the Soapstone Connector environmental review process. Fairfax County has also conducted an inclusive public involvement program. The agency, public, and elected official comments received in response to these coordination efforts were instrumental in defining the scope of the project and in preparing the EA. The project has a dedicated website¹⁶, and email blasts have been transmitted to disseminate information as much as possible to all interested parties.

4.1 AGENCY COORDINATION

4.1.1 Federal and State Agency Coordination

The agencies listed below were contacted at the beginning of the study process and provided information on the project and a map detailing its location. Agencies were invited to provide feedback on issues and concerns regarding the proposed project. Agencies that sent a response to the scoping letters are marked with an asterisk.

- Federal Transit Administration
- US Army Corps of Engineers, Norfolk District*
- US Department of the Agriculture, Natural Resources Conservation Service*
- US Department of the Interior, Fish and Wildlife Service, Virginia Field Office
- US Environmental Protection Agency, Region III, Environmental Programs Branch
- Virginia Department of Agricultural and Consumer Services
- Virginia Department of Conservation and Recreation, Environmental Review Coordinator*
- Virginia Department of Environmental Quality*
- Virginia Department of Game and Inland Fisheries*
- Virginia Department of Health – Office of Drinking Water*
- Virginia Department of Historic Resources*
- Virginia Department of Transportation, ADA for Project Development
- Virginia Outdoors Foundation

Key issues and concerns included in the comments were: addressing the overall transportation network, completion of air and noise studies, potential for threatened and endangered species, historic resources, and water quality.

4.1.2 Regional and Local Agencies and Organizations

Scoping letters requesting information and comments for use in the study were sent to the

¹⁶ <https://www.fairfaxcounty.gov/transportation/projects/soapstone-connector>

following regional and local agencies and organizations. Those that responded are marked by an asterisk.

- Metropolitan Washington Airports Authority
- Metropolitan Washington Council of Governments, Transportation Planning
- NOVA Parks (formerly Northern Virginia Regional Park Authority)
- Washington Metropolitan Area Transit Authority
- Fairfax County Department of Housing and Community Development
- Fairfax County Department of Planning and Zoning*
- Fairfax County Department of Public Works and Environmental Services*
- Fairfax County Fire and Rescue
- Fairfax County Park Authority*
- Fairfax County Police Department*
- Fairfax County Public Schools
- Hunter Mill District, Supervisor
- Williams Gas Company*

Key issues and concerns included in the comments were: land use and relocations, stormwater management and water quality, park and recreation facilities (both existing and planned), and potential impacts to the gas pipelines within the project area.

4.1.3 Section 106 Coordination

Pursuant to Section 106 of the National Historic Preservation Act (54 USC §306108) (NHPA), Fairfax County initiated a process to identify consulting parties on this project. The consulting parties were invited to participate in the process pursuant to 36 CFR §800.3(f) by consulting on the identification of historic properties, the evaluation of effects on those properties, and the identification of measures to avoid, minimize, and mitigate adverse effects to the properties. The parties listed below were contacted by letter during October 2015 and provided an opportunity to participate in Section 106 consultation.

- Virginia Department of Historic Resources
- Fairfax County Architectural Review Board
- Fairfax County Department of Planning and Zoning
- Metropolitan Washington Airports Authority
- NOVA Parks (formerly Northern Virginia Regional Park Authority)
- Washington Metropolitan Area Transit Authority

A Phase IA Cultural Resources Survey and Phase IB Architectural Survey were completed in 2016 to identify historic properties that could be affected by implementation of the project, and these documents were shared with the consulting parties identified above.

Comments received on the EA approved for public availability by FHWA on August 16, 2017 resulted in the preparation of a *Supplemental Phase I Architectural Survey* in July 2018 to address eligibility for the National Register of Historic Places (NRHP) of ten architectural resources less than 50 years old comprising the office park originally known as the Reston Center for Associations and Educational Institutions (RCAEI), located at 1900, 1902, 1904, 1906, 1908, 1910, 1912, 1914, 1916, and 1920 Association Drive. The Association Drive Historic District, with all but the building at 1912 Association Drive contributing to the historic district, was determined eligible by the Virginia Department of Historic Resources and the Keeper of the

National Register in November 2018 and October 2019, respectively. The Association Drive Historic District is eligible under Criterion A in the area of Community Planning and Development as an exceptionally important component of the overall Reston town plan and meets the threshold under Criteria Consideration G.

Between July 2018 and March 2021, four consulting party meetings were held, as summarized below. The following are the consulting parties that participated in and/or were invited to the meetings¹⁷:

- Advisory Council on Historic Preservation¹⁸
- Federal Highway Administration, Virginia Division
- Virginia Department of Transportation
- Virginia Department of Historic Resources
- Fairfax County Department of Planning and Development
- Fairfax County Department of Planning and Development, Historic Preservation and Heritage Resources
- Fairfax County Architectural Review Board
- Fairfax County History Commission
- Foulger-Pratt Development, LLC
- SHAPE America (Society of Health and Physical Educators) [1900 Association Drive]
- National Association of Secondary School Principals (NASSP) [1904 Association Drive]
- National Council of Teachers of Mathematics (NCTM) [1906 Association Drive]
- Future Business Leaders of America, Phi Beta Lambda, Inc. [1912 Association Drive]
- 1914 LLC
- Richard B. Wirthlin Family LLC [1920 Association Drive]
- BDC Sunrise Valley LLC [11600 Sunrise Valley Drive]
- AIA NOVA (American Institute of Architects - Northern Virginia Chapter)
- McGuire Woods, LLP (representing Foulger-Pratt Development, LLC)
- Walsh, Colucci, Lubeley & Walsh, P.C. (representing BDC Sunrise Valley LLC)
- Walton & Adams, P.C. (representing Center for Educational Association (CEA), owner of Block 12 - Association Drive and other common areas of the CEA)
- Whiteford Taylor Preston LLC (representing SHAPE America and NCTM)

The first consulting party meeting was held on July 17, 2018 to discuss the preliminary findings from the *Supplemental Phase I Architectural Survey*, update the consulting parties on the status of the project, and to solicit feedback and comments. Following a presentation by the Fairfax County Department of Transportation (FCDOT) Project Manager, the consulting parties discussed their

¹⁷ Note that the list of consulting parties expanded during the course of the project, so not all of these consulting parties attended each and every meeting. Attendance was recorded in the meeting summaries, which are available upon request.

¹⁸ FHWA invited the Advisory Council on Historic Preservation on February 16, 2021 to participate in the resolution of adverse effects to the Association Drive Historic District in accordance with 36 CFR §800.6(a)(1). The Council declined on March 12, 2021 to participate in resolving adverse effects but offered technical assistance. Accordingly, a staff member participated in the consulting party meeting that was held on March 30, 2021.

points of view, both for and against the RCAEI property being designated eligible for the NRHP. After the discussion, the consulting parties were asked to submit their comments in writing.

The second consulting party meeting was held on July 11, 2019 to provide a project update. Topics for discussion included the status of an information packet sent to the Keeper of the National Register regarding the eligibility of the RCAEI; the study of potential avoidance alternatives if the RCAEI was determined eligible; the status of the Section 106 process; the status of the Section 4(f) process; the interaction of the zoning permit with Section 106 activities; and the status of listing the RCAEI on the Fairfax County Inventory of Historic Sites (IHS) and whether listing provided added protections.

The third consulting party meeting was held on April 14, 2020 to present the finding of the Keeper of the National Register regarding the eligibility of the RCAEI, now called the Association Drive Historic District, and to discuss two alternatives (Alternatives 5C-Modified and 6E-Modified) developed as avoidance alternatives to minimize adverse impacts to the historic district. Topics discussed during the meeting included the thresholds for environmental documentation under NEPA; the design elements of the two avoidance alternatives; the effects to 11600 Sunrise Valley Drive; the status of traffic studies for the two avoidance alternatives; the status of FHWA actions; and the status of the Section 4(f) evaluation.

The consulting parties were asked to provide comments on the two avoidance alternatives by May 15, 2020. Comments were received from the Virginia Department of Historic Resources (DHR); the Fairfax County Department of Planning and Zoning, Architectural Review Board, and History Commission; legal representation for BDC Sunrise Valley LLC; SHAPE America; and Foulger-Pratt. The two alternatives were viewed favorably as avoidance alternatives by DHR and the three Fairfax County organizations. DHR pointed out that although direct impacts would not occur to the Association Drive Historic District, indirect effects such as removal of trees and vegetation, increase in vehicular noise, and visual intrusion of the new roadway may result in diminishing the historic setting. Legal representation for BDC Sunrise Valley LLC, SHAPE America, and Foulger-Pratt were opposed to the two avoidance alternatives as not meeting the prudent and feasible requirements under Section 4(f).

A Draft Individual Section 4(f) Evaluation was transmitted to the consulting parties on October 28, 2020 (see **Appendix B**), with comments requested by November 27, 2020. The document concluded that there is no feasible and prudent avoidance alternative to the use of land from the Association Drive Historic District. Furthermore, the document indicated that if FHWA advances Alternatives 1 and 2 from the EA in the Section 106 process, a Memorandum of Agreement (MOA) describing minimization and mitigation measures to resolve adverse effects would be developed in consultation with the Section 106 consulting parties. These minimization and mitigation measures in the executed MOA would be incorporated into the Final Individual Section 4(f) Evaluation. Those consulting parties that submitted comments within the comment period agreed with these conclusions. Subsequently, on February 24, 2021, DHR concurred that both Alternatives 1 and 2 for the Soapstone Connector project would have an adverse effect on the Association Drive Historic District.

The fourth and final consulting party meeting was held on March 30, 2021 to provide an update on project activity and status of the Section 106 process and to gather input from the consulting parties on potential mitigation measures to be incorporated into the Section 106 MOA that would be used to resolve adverse effects to the Association Drive Historic District. Prior to the meeting, many of the consulting parties submitted input by way of email or letter. During the meeting, each

of the consulting party representatives was also given an opportunity to formally provide their input on potential mitigation measures. Once comments were transcribed by the project team, confirmation was requested that they were recorded correctly (and each consulting party reserved the right to review/update their comments later). The input that was received during the meeting formed the basis of the draft MOA, which was transmitted to the consulting parties for review on August 6, 2021. Comments were requested by September 7, 2021, which have been incorporated in the draft MOA that is included in **Appendix C**.

4.2 PUBLIC INVOLVEMENT

4.2.1 Public Scoping Meeting

Fairfax County held a Public Scoping Meeting on October 26, 2015 at South Lakes High School in Reston to obtain citizen input for use in defining the scope of the study, including alternatives to be analyzed and environmental issues to be considered. At the outset of the meeting, the study team presented maps and displays describing the study process, the purpose and need for the project, alternatives and improvement concepts, environmental considerations, and other study information in an informal setting. In the latter half of the meeting, a formal presentation was given by Fairfax County staff to further review the information, followed by a question and answer session. All meeting materials were available (and continue to be available) on the project website. The Public Scoping Meeting sign-in sheets show 42 people attended the meeting. A total of 38 comments were collected during the comment period, including both comments sheets and emails. Comment subjects that were the most frequent included: the overall study process, traffic concerns, the location and type of improvements, property impacts, parks and recreation facilities, and safety. The public also noted human and natural resources in the study area that should be considered as part of the transportation improvements.

4.2.2 Public Information Meeting

Fairfax County held a Public Information Meeting on June 15, 2016 at South Lakes High School in Reston to obtain stakeholder input on the project purpose and need and the conceptual alternatives. In addition, information was shared with attendees on the study process and its status. The meeting consisted of two parts. First, an informal information session was held during which displays and documents were available for review and Fairfax County staff and consultant personnel were available for discussion. Second, a formal presentation was given by Fairfax County staff to provide information on the project. Following this presentation, there was a brief question and answer session. The following primary topics relevant to the project were discussed during the question and answer session and referenced in the comment sheets submitted after the meeting:

- The typical section of the Soapstone Connector.
- Indirect effects (in particular, on Soapstone Drive between Sunrise Valley Drive and South Lakes Drive) and cumulative impacts and how they will be considered in the environmental document.
- Pedestrian and bicycle features on the Soapstone Connector and connections to other facilities.
- Environmental resources that will be studied in the EA, such as air quality and noise.

The attendance sign-in sheets show that 37 people attended the meeting. Comment sheets were completed by 14 people at the public meeting. When asked whether they agreed with the project

purpose and need, of the 14 meeting attendees that submitted a comment sheet, 12 answered in the affirmative and the remaining two did not respond. No other comments were received during the comment period following the meeting. All meeting materials were available (and continue to be available) on the project website.

4.2.3 Location Public Hearing

A Location Public Hearing was held at Dogwood Elementary School in Reston on Wednesday, November 8, 2017. The purpose of the hearing was to receive comments from the public on the alternatives and the EA, and to share information on the study process and its current status. The hearing consisted of four parts. First, an informal information session was held during which displays and documents were available for review and Fairfax County staff and representatives were available for discussion. Second, a presentation was given to provide information on the project. Following this presentation, a formal hearing was conducted during which attendees were given the opportunity to make oral statements (three minutes was allotted to each). After the formal hearing, there was an informal question and answer session.

In addition to the formal hearing, the public was invited to provide their comments by any of several avenues by November 18, 2017:

- Pre-printed comment sheets were provided at the hearing, upon which citizens could write their comments and either deposit in a box at the hearing or mail later to the preprinted address on the sheet.
- A court reporter was available during the two-hour public hearing to record comments orally.
- Letters could be sent to the designated address at FCDOT.
- Emails could be sent electronically to the designated address at FCDOT.
- Comments could be entered in the comment sheet on the project website.

The attendance sign-in sheets indicated that 45 people attended the hearing. Comment sheets were completed by three people at the public hearing. Oral comments were received from seven attendees. Finally, six individuals, two federal agencies (US Army Corps of Engineers and US Environmental Protection Agency), one state agency (Virginia Department of Conservation and Recreation), and three property owners submitted comments by email.

All meeting materials were available (and continue to be available) on the project website. A summary of the public hearing and the comments and responses is provided in **Appendix D**.

4.2.4 Public Information Meeting (*Supplemental Phase I Architectural Survey*)

Fairfax County held a Public Information Meeting on Thursday, July 19, 2018 at Fairfax County's Hunter Mill District Office in Reston to provide a project update and give the public an opportunity to review the *Supplemental Phase I Architectural Survey* that was completed to assess the potential eligibility for the NRHP of properties on Association Drive. The meeting was held in an open house format, which allowed attendees to discuss the project with Fairfax County staff and representatives and to review project displays and reports.

A presentation was given by the FCDOT Project Manager, during which attendees were given an overview of the Soapstone Connector project, the project's history, and a summary of cultural resource surveys completed to date, including a *Phase IA Cultural Resources Survey*, a *Phase IB*

Architectural Survey, and the *Supplemental Phase I Architectural Survey* for the Association Drive properties. A question and answer session followed.

Twenty-two attendees signed the sign-in sheet, but it is estimated that approximately 40 persons attended the meeting. Catherine Hudgins, the Fairfax County Board Supervisor for the Hunter Mill District at the time, was also in attendance. FCDOT emphasized to the attendees that comments should be in written form in order to be considered part of the project record, and they should be submitted by August 3, 2018 using any of these methods:

- Pre-printed comment sheets provided at the meeting, upon which citizens could write their comments and either deposit in a box at the meeting or mail later to the preprinted address on the sheet.
- Letters could be sent to the designated address at FCDOT.
- Emails could be sent electronically to the designated address at FCDOT.
- Comments could be entered in the comment sheet on the project website.

Twenty-one comments were received during the comment period. A summary of the public meeting and the comments and responses is provided in **Appendix E**. Copies of the presentation, the *Supplemental Phase I Architectural Survey*, and the comment sheet were available (and continue to be available) on the project website.

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