Natural Resources Technical Report

November 2019

Prepared in support of the Environmental Assessment for the

Fairfax County Parkway Widening Project

State Project Number: 0286-029-259, P101
Federal Project Number: STP-5A01 (775)
From: North of US Route 29 (Lee Highway)
To: Route 123 (Ox Road)
Fairfax County, Virginia

TABLE OF CONTENTS

1. INTRODUCTION 1
1.1 HISTORY OF FAIRFAX COUNTY PARKWAY 1
1.2 ALTERNATIVES CARRIED FORWARD FOR DETAILED STUDY 2
1.2.1 No Build Alternative 2
1.2.2 Build Alternative 4
2. REGULATORY CONTEXT/METHODOLOGY 6
3. AFFECTED ENVIRONMENT 8
3.1 WATER RESOURCES 8
3.1.1 Streams and Ponds 9
3.1.2 Wetlands 9
3.1.3 Water Quality 13
3.1.4 Coastal Zone Management Areas 18
3.1.5 Floodplains 18
3.2 WILDLIFE AND HABITAT 19
3.2.1 General Wildlife Habitat 19
3.2.2 Natural Heritage Resources 20
3.2.3 Invasive Species 20
3.2.4 Threatened and Endangered Species 20
4. ENVIRONMENTAL CONSEQUENCES 22
4.1 WATER RESOURCES 22
4.1.1 Streams and Ponds 22
4.1.2 Wetlands 30
4.1.3 Water Quality 31
4.1.4 Coastal Zone Management Areas 33
4.1.5 Floodplains 34
4.2 WILDLIFE AND HABITAT 34
4.2.1 General Wildlife Habitat 34
4.2.2 Natural Heritage Resources 37
4.2.3 Invasive Species 37
4.2.4 Threatened and Endangered Species 37
5. REFERENCES 39

LIST OF TABLES

Table 1-1. Regionally Planned and Programmed Projects Assumed under the No Build Alternative 3
Table 3-1. Wetlands within WOUS Survey Area 13
Table 3-2. Impaired Waterbodies within One-Mile of Project Corridor..... 14
Table 3-3. 100-Year Floodplains within the Environmental Inventory Corridor 18
Table 3-4. Special Status Species Potentially Occurring within the Environmental Inventory Corridor ... 21
Table 4-1. Potential Impacts to Water Resources within the Build Alternative's LOD 30

LIST OF FIGURES

Figure 2-1. Vicinity Map 7
Figure 3-1. 8-Digit Hydrologic Unit Code Boundaries 10
Figure 3-2. 12-Digit Hydrologic Unit Code Boundaries 11
Figure 3-3. Water Resources..... 12
Figure 4-1a. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative 24
Figure 4-2. Wooded Areas in Relation to the LOD of the Build Alternative 36

LIST OF ATTACHMENTS

ATTACHMENT A – Federal and State Agency Coordination

1. INTRODUCTION

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA), has initiated a study to evaluate improvements to widen Fairfax County Parkway (Route 286) from north of US Route 29 (Lee Highway) to Route 123 (Ox Road). The improvements consist of widening Fairfax County Parkway from four lanes to six lanes and constructing a new interchange that would consolidate Popes Head Road and the future extension of Shirley Gate Road. The proposed project would include an extension of the Fairfax County Parkway Trail, modification or elimination of all intersections along the corridor, and minor improvements at the Fairfax County Parkway/Ox Road interchange. The intersections that would be modified include Fairfax County Parkway at Ladues End Lane/Nomes Court and at Burke Centre Parkway. The intersections that would be eliminated include Fairfax County Parkway at Popes Head Road and at Colchester Meadow Lane. The interchange at Popes Head Road is funded for construction and is currently planned to be implemented in advance of the proposed widening.

The purpose of the improvements under consideration is to increase capacity in order to improve traffic operations, reduce congestion, and address safety needs. Pursuant to the National Environmental Policy Act of 1969 (NEPA) and in accordance with FHWA regulations, VDOT is preparing an Environmental Assessment (EA) to analyze the potential social, economic, and environmental effects associated with the improvements being considered. As part of the EA being prepared, VDOT is evaluating the environmental consequences of the No Build Alternative and Build Alternative. In support of that effort, this report has been prepared to analyze existing natural resources along the corridor and to identify the impact to natural resources potentially resulting from the alternatives being considered in the EA.

The purpose of this technical report is to analyze existing natural resources along the corridor and to identify potential impacts that could result from implementation of the Build Alternative. The text and tables included in the sections that follow discuss the potential impacts of the Build Alternative in comparison to the No Build Alternative. Information in this technical report, described below, will support discussions presented in the EA.

- **Section 1** provides an overview of the project and outlines the methods used to assess impacts to natural resources.
- **Section 2** provides an overview of existing conditions (affected environment) and identifies natural resources located along the corridor, including water resources, floodplains, wildlife and habitats, and threatened and endangered species.
- **Section 3** assesses potential impacts to natural resources resulting from the No Build Alternative and the Build Alternative, and, if applicable, potential mitigation.
- **Section 4** provides a list of references.

1.1 HISTORY OF FAIRFAX COUNTY PARKWAY

Planning for a “Springfield Bypass” began in the 1970s. The Commonwealth Transportation Board (CTB) approved final plans on July 16, 1987 for the 33-mile road, with 16 interchanges and 35 traffic signals between US Route 1 at Fort Belvoir and west of Dranesville. Nearly a year later, on June 20, 1988, the Fairfax County Board of Supervisors revised the roadway’s name from Springfield Bypass to the Fairfax County Parkway. The Fairfax County Parkway opened to traffic as a secondary roadway (Route 7100) in a series of constructed segments between 1987 and 2001, with the segment between Route 123 and Interstate 66 (I-66) opening in 1995 connecting to previously constructed portions of Fairfax County Parkway. In 2010, Fairfax County Parkway was officially changed to a primary route

which resulted in changing the roadway designation from Route 7100 to Route 286. In 2013, Fairfax County Parkway was widened from four to six lanes from north of US Route 29 to north of Rugby Road including the construction of an interchange at Fair Lakes Parkway and Monument Drive.

The National Capital Region Transportation Planning Board's (NCRTPB) 2016 Constrained Long-Range Plan (CLRP) includes sections north of Rugby Road that are to be widened in the future from four to six lanes. South of Route 123, where the Fairfax County Parkway is four lanes wide, the CLRP does not include widening to six lanes; however, the Fairfax County Comprehensive Plan includes widening to six lanes with high-occupancy vehicles (HOV) restrictions. The number and type of lanes is currently being evaluated by Fairfax County as part of their Long Range Study. Currently, Fairfax County Parkway is a four-lane divided roadway with a mix of interchanges and signalized and unsignalized intersections. Although originally designed as a four-lane facility, the 1991 Fairfax County Comprehensive Plan depicted the entire Fairfax County Parkway as a proposed six-lane facility.

1.2 ALTERNATIVES CARRIED FORWARD FOR DETAILED STUDY

1.2.1 No Build Alternative

In accordance with the implementing regulations for NEPA (40 CFR §1502.14(d)), the No Build Alternative has been retained for detailed study and serves as a benchmark for comparison of future conditions and impacts with the Build Alternative. The operational analysis of the No Build Alternative is included in Chapter 1.0, Purpose and Need, of the associated EA. The No Build Alternative would retain the existing four-lane Fairfax County Parkway facility, maintain the at-grade signalized intersection at Fairfax County Parkway and Popes Head Road, and allow for routine maintenance and safety upgrades. The No Build alternative also assumes that the project is currently programmed and funded in VDOT's fiscal year 2019-2024 Six-Year Improvement Program (SYIP) and the Metropolitan Washington Council of Governments (MWCOG) CLRP for the National Capital Region will be implemented as planned. The projects included in the SYIP and MWCOG CLRP within the study area, and therefore assumed under the No Build Alternative, are shown in **Table 1-1.**

As noted in **Table 1-1**, the future-planned extension of Shirley Gate Road from the existing terminus at Braddock Road to Fairfax County Parkway is included in the CLRP. This project has been included in the Fairfax County Transportation Plan since 1991 and in 2014, was included in the County's Six-Year Transportation Project Priorities plan. A Planning Study with stakeholder outreach was conducted in 2015 and 2016. The Planning Study evaluated existing conditions, alternatives, and environmental considerations. The Shirley Gate Road Extension includes the construction of a four-lane new alignment roadway connecting Fairfax County Parkway and Braddock Road, and is assumed to be complete in 2025 per the 2016 CLRP; however, it is not included in 2046 No Build condition since the construction of the extension is dependent on the construction of the Popes Head Road interchange with Fairfax County Parkway. The Popes Head Road/Fairfax County Parkway interchange project is included in the traffic forecasts and analysis of the 2046 Build condition.

Table 1-1. Regionally Planned and Programmed Projects Assumed under the No Build Alternative

Project Location	Description	Anticipated Completion Date	Included in CLRP?	Included in 2015 Base Year?	Include in 2020 No Build?	Include in 2040 No Build?
I-66 – I-495 to US 15	Upgrade existing lanes and construct high-occupancy toll (HOT) lanes	2021	YES	NO	YES	YES
Route 29 – Union Mill Road to Buckley's Gate Drive	Widen from 4 lanes to 6 lanes	2024	YES	NO	YES	YES
Route 123 – Hooes Road to Burke Centre Parkway	Widen from 4 lanes to 6 lanes	2025	YES	NO	NO [2]	YES
Route 123 – Burke Centre Parkway to Braddock Road	Widen from 4 lanes to 6 lanes	2025	YES	NO	NO [2]	YES
Shirley Gate Road – Fairfax County Parkway to Braddock Road	Construct new 4 lane road	2025	YES	NO	NO [1]	NO [1]
Braddock Road – Fairfax County Parkway to Ox Road	Widen from 4 lanes to 6 lanes	2025	YES	NO	NO [2]	YES
Route 651/New Guinea Road - Route 123 to Roberts Road	Construct new 4 lane road	2025	YES	NO	NO [2]	YES
Guinea Road – Roberts Parkway to Pommeroy Drive	Widen from 2 lanes to 4 lanes	2025	YES	NO	NO [2]	YES
Route 286/Fairfax County Parkway – I-66 to Fair Lakes Parkway	Convert the 8 existing lanes to provide 6 general purpose lanes plus 2 HOV lanes during peak periods	2035	YES	NO	NO	YES

Project Location	Description	Anticipated Completion Date	Included in CLRP?	Included in 2015 Base Year?	Include in 2020 No Build?	Include in 2040 No Build?
Route 286/Fairfax County Parkway – Fair Lakes Parkway to Route 267/Dulles Toll Road	Widen and/or convert existing lanes to provide 4 general purpose lanes plus 2 HOV lanes during peak periods	2035	YES	NO	NO	YES

[1] The Shirley Gate Road Extension is assumed to be complete in 2025 per the 2016 CLRP; however, it is not included in the 2026 and 2046 No Build conditions since the construction of the Extension is dependent on the construction of the Popes Head Road interchange with Fairfax County Parkway. This project is included in the 2026 and 2046 Build conditions.

[2] Although included in the CLRP with a completion date of 2025, this project will not be included in the 2026 No Build and Build conditions since it is not currently funded or expected to be funded in the near future.

1.2.2 Build Alternative

The project involves replacing the existing at-grade signalized intersection along Fairfax County Parkway at Popes Head Road with a new grade-separated interchange. The interchange includes four ramps along Fairfax County Parkway in addition to three roundabouts serving the Popes Head Road and Shirley Gate Road interchange movements. Two roundabouts are proposed at Shirley Gate Road which will function as an entrance to Patriot Park in the interim until the extension of Shirley Gate Road is constructed in the future. A connection to the west of Fairfax County Parkway will be provided forming a third roundabout to serve Popes Head Road access to the interchange. This is shown as Option 1 - Triple Roundabouts in figure 2-10 of the associated Environmental Assessment (VDOT, 2019).

The proposed improvements at the Fairfax County Parkway at Burke Centre Parkway intersection include two different operations depending on the time of day. During the AM peak period, the intersection will operate with a Right-In/Right-Out configuration to and from Burke Centre Parkway without signalization and with all left turns prohibited. During the PM peak period and off-peak hours, all turning movements will be permitted with the exception of the westbound Burke Centre Parkway left turn to southbound Fairfax County Parkway.

The improvements at the Fairfax County Parkway at Ladues End Lane/Nomes Court intersection include restricting left-turning movements from Ladues End Lane and Nomes Court onto Fairfax County Parkway and accommodating left turns from Fairfax County Parkway onto Ladues End Lane and Nomes Court. Vehicles exiting eastbound Ladues End Lane desiring to go northbound on Fairfax County Parkway will turn right to southbound Fairfax County Parkway and use a proposed Restricted Crossing U-turn (RCUT) in the median located 1,400 feet south of the intersection to enter the northbound Fairfax County Parkway travel lanes. Vehicles exiting westbound Nomes Court desiring to go southbound on Fairfax County Parkway will turn right to northbound Fairfax County Parkway and use the proposed interchange at Popes Head Road to travel southbound on Fairfax County Parkway.

Minor interchange improvements are proposed at the Fairfax County Parkway at Route 123 interchange including increasing capacity at the intersection of Route 123 at the Fairfax County Parkway southbound ramps/Robert Carter Road intersection to accommodate the heavy northbound Route 123 to northbound Fairfax County Parkway (AM peak) and southbound Fairfax County Parkway to southbound Route 123 (PM peak) movements.

In addition, Fairfax County Parkway will be widened from four to six lanes from north of the US 29 interchange to the Route 123 interchange.

Recent Modifications to the Preferred Alternative

The traffic analysis presented in Section 2 of the EA and the environmental analysis presented in Section 3 of the EA are based on Option 1 and the Left-in with RCUT to the South option which would restrict left turns from Ladues End Lane and Nomes Court onto Fairfax County Parkway and accommodate left turns from Fairfax County Parkway into Ladues End Lane and Nomes Court as the preferred alternative as described above. Option 1 and the Ladues End Lane/Nomes Court intersection have been modified since these analyses were done. The current preferred alternative for Option 1 and Ladues End Land/Nomes Court intersection are shown in Option 1 9.16.2019: Triple Roundabouts (see Figure 2-21). The current preferred alternative for Option 1 9.16.2019 for the Fairfax County Parkway at Ladues End Lane/Nomes Court intersection is to provide a left-turn only from southbound Fairfax County Parkway to Nomes Court and right-in/right-out access to and from Nomes Court. Access between Ladues End Lane and Fairfax County Parkway will be eliminated and a frontage road will be provided from Popes Head Road to Ladues End Lane to provide access to residential properties. This modification will have no substantive change in the traffic analysis.

Pedestrian and Bicycle Accommodations

There is an existing 8-foot wide asphalt path along the Fairfax County Parkway between Route 29 and Burke Centre Parkway. The asphalt path is located on the east side of Fairfax County Parkway between Route 29 and Braddock Road and on the west side of Fairfax County Parkway between Route 29 and Burke Centre Parkway. As part of the scope of the Popes Head Road Interchange project, a 10-foot shared use path is proposed along the west side of Fairfax County Parkway where the existing 8-foot wide asphalt path is being impacted by the construction of the interchange. The Fairfax County Parkway Widening project includes a continuous upgraded or new 10-foot wide shared use path along the project limits. Between Route 29 and Braddock Road, the existing asphalt path along the east side of Fairfax County Parkway will be upgraded to a 10-foot wide shared use path. Between Braddock Road and the limits of the Popes Head Road interchange project, the existing asphalt path along the west side of Fairfax County Parkway will be upgraded to a 10-foot wide shared use path. Between the limits of the Popes Head Road Interchange project and Burke Centre Parkway, the existing asphalt path along the west side of Fairfax County Parkway will be upgraded to a 10-foot wide shared use path. A new 10-foot wide shared use path will be constructed along Fairfax County Parkway between Burke Centre Parkway and Route 123. The preliminary design includes a new 10-foot wide shared use path between Burke Centre Parkway and Route 123 on the east side of Fairfax County Parkway, but the final location has not been finalized.

The upgraded shared use path will have at-grade crossings at several existing locations within the project limits at the Route 29 interchange, the Braddock Road interchange, and Route 123 interchange. A grade-separated bike/pedestrian crossing is proposed near the Burke Centre Parkway intersection to improve safety and accessibility to existing bike/pedestrian facilities. All existing at-grade crossings of the Fairfax County Parkway would be eliminated by the widening project.

The existing shared use path is located on the west side of Fairfax County Parkway and terminates at the intersection of Fairfax County Parkway and Burke Centre Parkway with an at-grade pedestrian crossing of Fairfax County Parkway at the existing traffic signal at Burke Centre Parkway. The existing at-grade pedestrian crossing is being removed by providing a grade separated crossing by utilizing the existing Fairfax County Parkway Bridge spanning Fairfax Station Road and Norfolk Southern Railway. The

shared use path alignment will be modified to ramp down from Fairfax County Parkway to run under the Fairfax County Parkway adjacent to the railroad tracks (separated by a proposed fence) and then ramp back up to Fairfax County Parkway on the east side and continue south along the east side of Fairfax County Parkway to Route 123. The selected alternative minimizes construction cost, future maintenance cost and visual impacts of the proposed pedestrian grade separated crossing of Fairfax County Parkway by utilizing the existing bridge over Fairfax Station Road.

2. REGULATORY CONTEXT/METHODOLOGY

In order to inventory resources and identify potential impacts associated with the Build Alternative being evaluated, a study area was established for the Fairfax County Parkway widening improvements. The study area encompasses the geographic area within which improvements could reasonably be developed to meet the identified project Purpose and Need. The study area encompasses the approximately 6.2-mile-long section of the Fairfax County Parkway corridor from north of Lee Highway to Ox Road in Fairfax County, as shown in **Figure 2-1**. Transition areas extending slightly beyond these termini are included in order to connect proposed improvements with the existing road on either end. Crossroads, interchange areas, and areas where intersection improvements are proposed also are included in the study area. The study area was developed to reasonably accommodate considerations for construction access as well.

Natural resources within the study area were identified based on agency input through the scoping process, review of existing available scientific literature, geographic information system (GIS) databases and mapping, and field reconnaissance. The following federal, state, and local agencies were consulted for information regarding sensitive natural resources within the study area, as referenced throughout the remainder of the report in the resource descriptions:

- United States Department of Agriculture, Forest Service and Natural Resources Conservation Service (USDA Forest Service and NRCS, respectively)
- United States Fish and Wildlife Service (USFWS)
- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia Department of Forestry (VDOF)
- Virginia Department of Game and Inland Fisheries (VDGIF)
- Virginia Department of Health (VDH)
- Virginia Marine Resource Commission (VMRC)

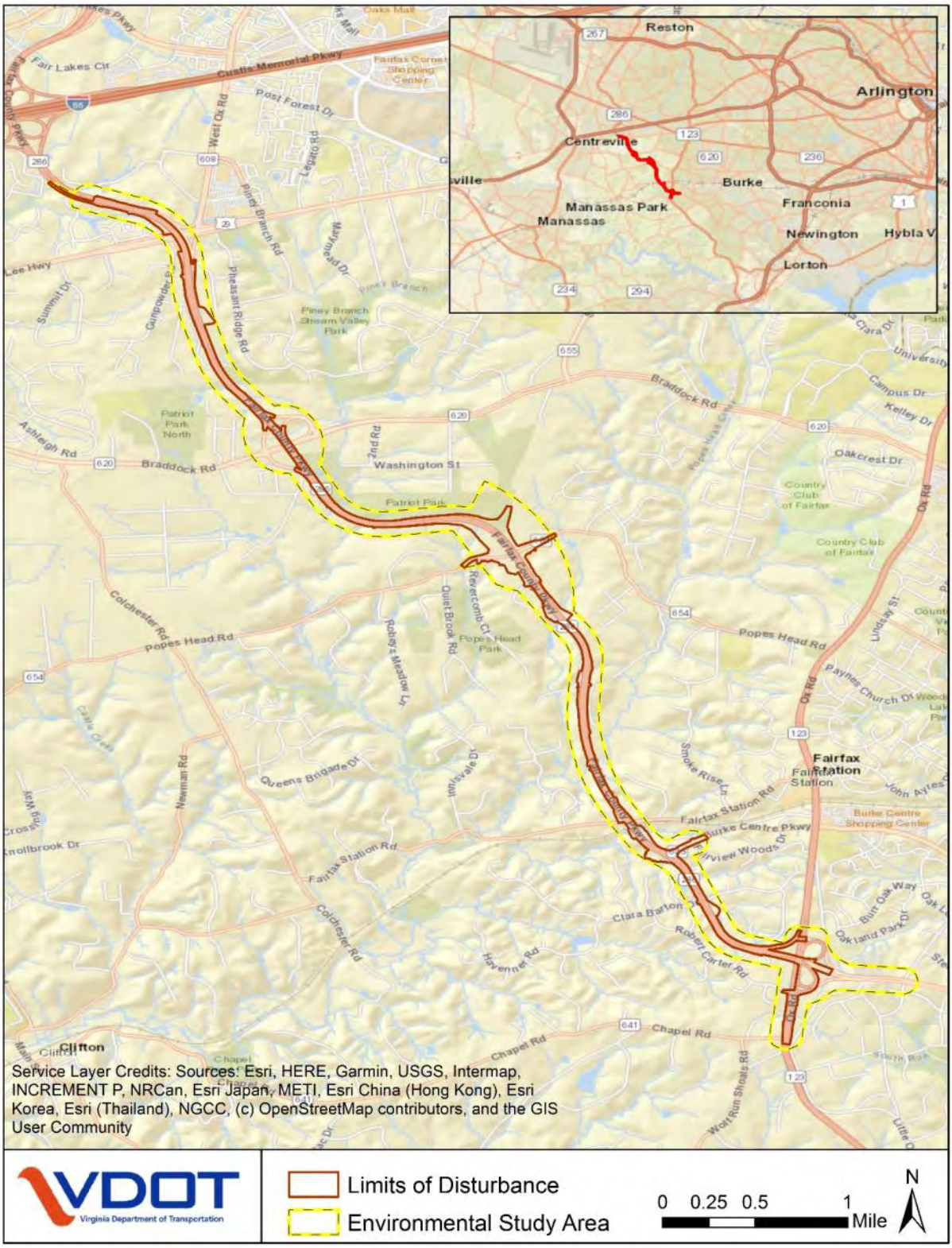

Figure 2-1. Vicinity Map

In general, a 2,000-foot-wide study corridor (Environmental Inventory Corridor) was the starting point for the natural resources inventory in order to gain an overall understanding of the natural environment within the project area and to develop a database that would be sufficient for the analysis of both direct and indirect impacts. This was deemed an appropriate corridor width given the nature of improvements proposed on the Fairfax County Parkway and connecting facilities and based on the urban nature of the area. Subsequently, an Environmental Study Area was also developed to allow for more detailed resource-specific inventories for the project, to better characterize the footprint within which there could be direct impacts from the widening. For example, wetland and stream field delineations were completed within the Environmental Study Area, a 150-foot buffer beyond the existing edge of pavement within the Environmental Inventory Corridor, except in the vicinity of proposed stormwater management facility locations and the Fairfax County Parkway/Popes Head Road interchange. At these locations, the Environmental Study Area includes the conceptual limits of disturbance plus an additional 20 feet to account for potential temporary construction and/or permanent utility easements.

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

Specific information regarding data gathering sources and approach are presented within the discussion of each resource in Section 3, and references are listed in Section 5.

3. AFFECTED ENVIRONMENT

3.1 WATER RESOURCES

Water resources are controlled under the federal Clean Water Act (33 USC § 1251 et seq.), which is administered by the Environmental Protection Agency (EPA) and regulated by the U.S. Army Corps of Engineers (USACE), in coordination with VDEQ and the Virginia Marine Resources Commission (VMRC). Section 404 of the Clean Water Act regulates discharges of fill 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, ponds, bays, etc.) and their associated wetlands (inundated or saturated areas that support vegetation adapted for life in wet soils). USACE, VDEQ, and VMRC all have permit authority for various activities in, under, and over WOUS in Virginia.

WOUS along the Fairfax County Parkway corridor were identified based on a combination of GIS databases, aerial photography, published lists maintained by federal and state agencies, and field surveys. A detailed delineation of WOUS subject to USACE jurisdiction was conducted by qualified biologists in the field. VDOT will seek to acquire a USACE Preliminary Jurisdictional Determination (PJD) in early 2020 to confirm the limits of WOUS within the Environmental Study Area, as identified through the wetland delineation effort.

The WOUS survey area limits included the existing VDOT right of way and 150 feet beyond the existing VDOT right of way along mainline Fairfax County Parkway and interchange areas. The delineation followed the methods contained in the 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012). Streams and wetlands were characterized using the *National Classification of Wetlands and Deepwater Habitat of the United States* (Federal Geographic Data Committee, 2013).

3.1.1 Streams and Ponds

The Environmental Inventory Area is located within the Potomac-Shenandoah River Basin, which encompasses a total of approximately 5,702 square miles in Virginia and extends into adjacent states, including portions of Maryland, Pennsylvania, West Virginia, and Washington, D.C. This larger drainage area can be further subdivided into hierarchical hydrologic units. Within this river basin, the study area is located entirely within one eight-digit hydrologic unit code (HUC) boundary; the Middle Potomac-Anacostia-Occoquan subbasin (HUC 02070010), as shown in **Figure 3-1**. Included within the subbasin are more localized watersheds and subwatersheds (**Figure 3-2**). Portions of the following two 12-digit HUC subwatersheds are within the study area:

- Lower Bull Run-Potomac River (HUC 020700100705); and
- Pohick Creek-Potomac River (HUC 020700100401).

Fairfax County Parkway crosses two named streams within the Environmental Study Area, Piney Branch and Popes Head Creek. Piney Branch Stream crosses the Environmental Study Area through a triple box culvert. A separated bridge crossing is provided over Popes Head Creek.

Figure 3-3 depicts streams from the National Hydrography Dataset (NHD), wetlands from the National Wetlands Inventory (NWI), and Resource Protection Areas (RPA), as depicted in Fairfax County GIS datasets. These hydrologic features were field verified within the Environmental Study Area to develop a more informed understanding of the potential impacts to wetlands and streams. The results of the project-specific delineation are shown on the detailed aerial maps provided in Figure 4-1a through 4-1f. A total of approximately 22,188 linear feet of streams, including 2,671 linear feet of culverted streams, and approximately 0.65 acres of Palustrine Open Water (POW) were delineated in the Environmental Study Area.

3.1.2 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 the USACE (33 CFR §328.3[b]) and the EPA (40 CFR §230.3[t]) as:

> *Those 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.*

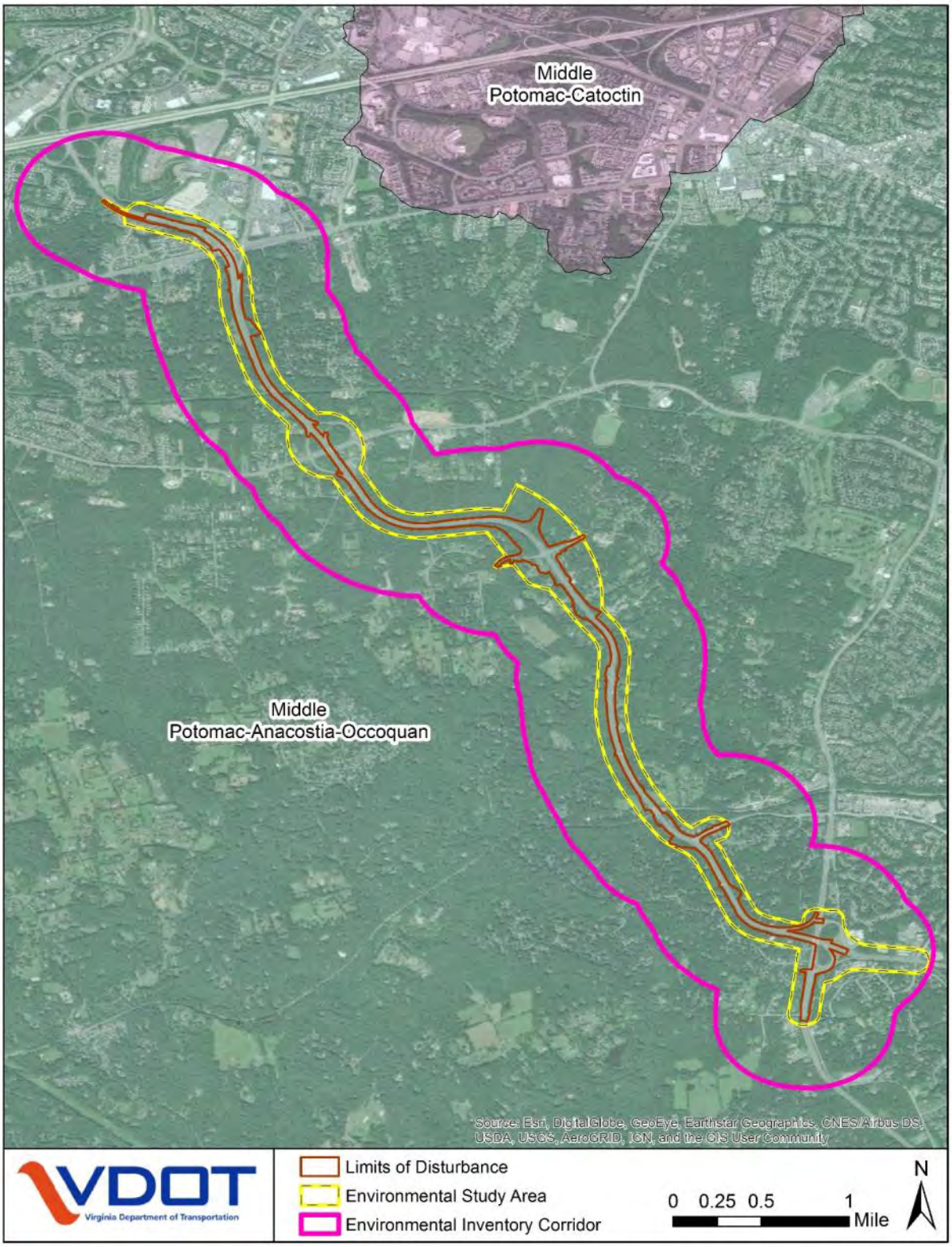

Figure 3-1. 8-Digit Hydrologic Unit Code Boundaries

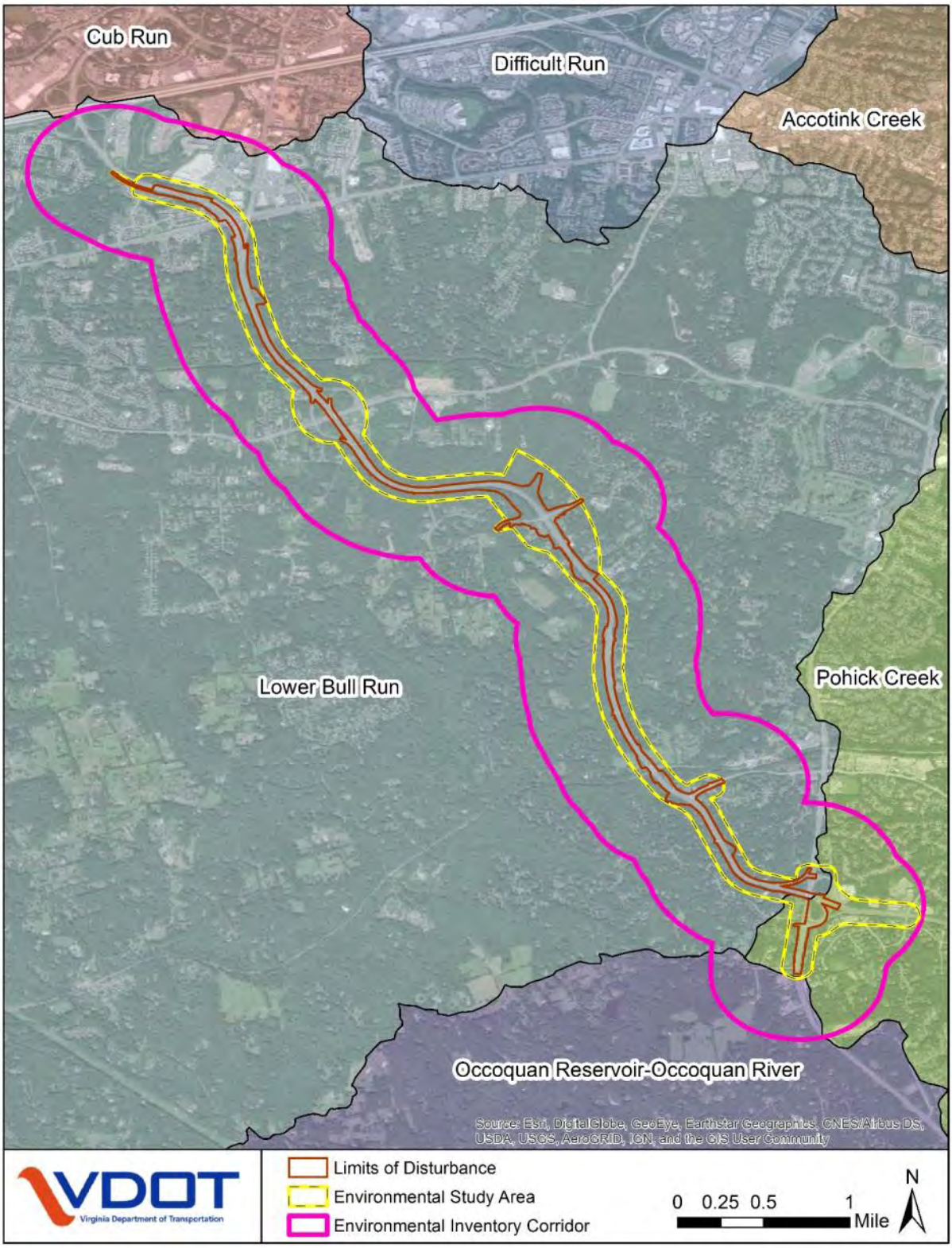

Figure 3-2. 12-Digit Hydrologic Unit Code Boundaries

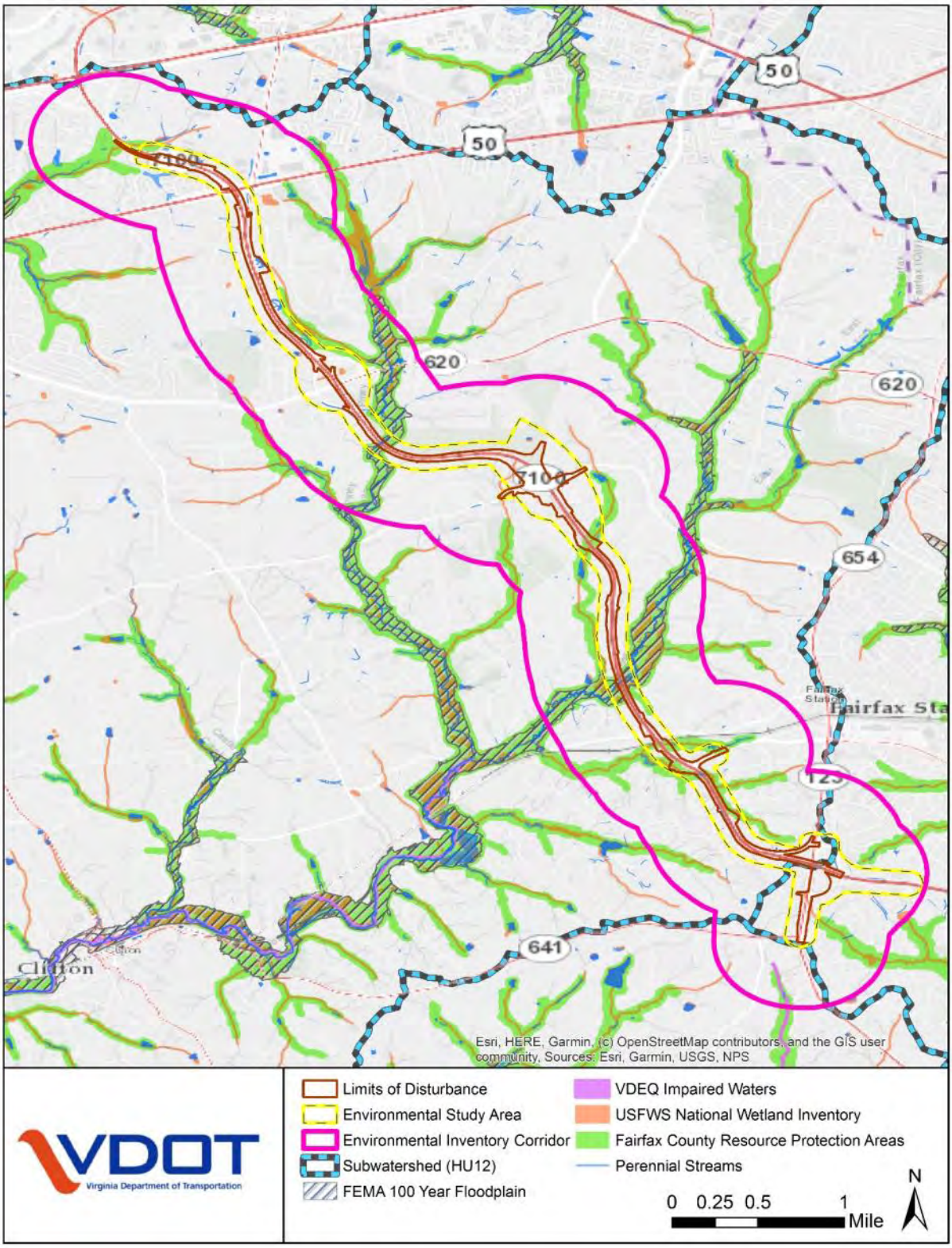

Figure 3-3. Water Resources

Wetlands identified within the Environmental Study Area are depicted in Figure 4.1a-f. A total of approximately 5.40 acres of wetlands exist within the Environmental Study Area, as shown in **Table 3-1**, which describes the wetland acreages by type. The predominant wetland type is palustrine forested. The majority of these wetlands (3.86 acres) are located within the floodplain areas of named and unnamed tributaries.

Table 3-1. Wetlands within WOUS Survey Area

Waterbody	Acreage within Environmental Study Area
Palustrine Forested (PFO)	3.86
Palustrine Scrub Shrub (PSS)	0.55
Palustrine Emergent (PEM)	0.99
Total	5.40

Source: WOUS Delineation for the Fairfax County Parkway Widening Project (VDOT, 2019)

3.1.3 Water Quality

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

3.1.3.1 Impaired Waters

In compliance with Sections 303(d), 305(b), and 314 of the federal Clean Water Act and the Safe Drinking Water Act, VDEQ monitors lakes, bays, and 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 toxins in the water column, sediments, and fish tissues. Section 305(b) of the Clean Water Act requires each state to submit a report to EPA every two years describing the status of its surface and ground waters. 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. Under Section 303(d) of the Clean Water Act, states are required to develop lists of impaired waters. Both human activities and natural processes can cause impaired water quality. All human-caused impaired waters in Virginia are placed on the federally mandated Section 303(d) impaired waters list. Waters designated as "impaired" are those that do not support one or more uses, which include aquatic life use, fish consumption use, shellfishing use, recreation use (swimming, boating), public water supply, and wildlife use. States are allowed to report on all of their assessed water under Section 305(b) and those that are impaired under Section 303(d) in a single integrated report. VDEQ documents the designations in bi-annual 305(b)/303(d) Water Quality Assessment Integrated Report and submits the report to the EPA and Congress. Not all uses may exist in a given water body. For instance, the public water supply use only applies to the waters designated as such in Virginia's water quality standards (9 VAC 25-260-390-540). The shellfishing use only exists in estuarine waters.

Table 3-2Error! Reference source not found. below lists the impaired waters that are within or near the project corridor. Impaired waters within approximately 1.0 mile of the corridor are listed to support the analysis of indirect effects. Figure 3-3. Water Resourcesshows the locations of impaired waters along the project corridor and surrounding areas (VDEQ, 2018).

Table 3-2. Impaired Waterbodies within One-Mile of Project Corridor

Waterbody	Impaired Use	Reason for Impairment	Impairment Source	Orientation to Fairfax County Parkway
Popes Head Creek	Aquatic Life Recreation	Benthic Macroinvertebrates Bacteria (E.coli)	Point/Nonpoint Source	Within 1.0 mile
Sandy Run	Aquatic Life	Benthic Macroinvertebrates	Point/Nonpoint Source	Within 1.0 mile

Source: VDEQ, 2018

These impaired waters, like all waters within the project vicinity, are within the Potomac-Shenandoah River Basin. According to VDEQ and consistent with the reasons for impairment of waterbodies in the study area, the significant causes of use impairment in rivers and streams in this basin, ranked by percentage of impaired water size, are:

1. Bacteria, 82 percent;
2. Benthics, 35 percent;
3. pH, 8 percent;
4. Mercury in Fish Tissue, 7 percent;
5. Dissolved Oxygen, 6 percent; and
6. PCBs in Fish Tissue, 3 percent (VDEQ, 2018).

VDEQ reports that the suspected sources of designated use impairment, again ranked by percentage of impaired water size, are:

1. Wildlife other than Waterfowl, 63 percent;
2. Non-Point Sources, 52 percent;
3. Agriculture, 36 percent;
4. Source Unknown, 27 percent;
5. Grazing in Riparian or Shoreline Zones, 19 percent; and
6. Sewage Discharges in Unsewered Areas, 17 percent (VDEQ, 2018).

Virginia's 1997 Water Quality Monitoring Information and Restoration Act (Section 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 can receive and still meet water quality standards. A TMDL Implementation Plan is developed after a TMDL is approved by the EPA. TMDLs are implemented in Virginia using existing regulations and programs such as the Virginia Stormwater Management Program (VSMP) Permit Regulations (4 VAC 50-60-10 et. Seq). Once developed, a TMDL Implementation Plan is incorporated into the appropriate Water Quality Management Plan in accordance with CWA Section 303I. Once fully implemented, the Water Quality Management Plan will restore the impaired water and maintain its water quality.

The Popes Head Creek and Sandy Run impaired stream segments are associated with an approved or proposed TMDL plan. The following discussions provide information regarding the known or potential sources of impairment for these streams based on approved TMDLs and other water quality

documentation for impaired waters within the Middle Potomac-Anacostia-Occoquan watershed (HUC code 02070010).

Popes Head Creek

Popes Head Creek bisects the project corridor approximately 1.8 miles from the southern terminus. The upper limits of the section listed for benthic impairment is approximately 1.1 river miles downstream of where Popes Head Creek exits the proposed project limits. The section listed for impairment begins at the confluence of Popes Head Creek and Piney Branch Stream and continues to the convergence of Popes Head Creek and Bull Run stream, approximately 5.63 river miles downstream. Popes Head Creek was initially listed on Virginia's 1998 Section 303(d) List of Impaired Waters and was subsequently included on Virginia's 2002 Section 303(d) List of Impaired Waters, and in the 2004 Water Quality Assessment 305(b)/303(d) Integrated Report due to violations of water quality standards for fecal coliform bacteria and benthic impairment. A TMDL Report to address the benthic impairment was prepared for Popes Head Creek in 2006 (VDEQ, 2006). Sedimentation caused by higher runoff flows from the surrounding urban environment was identified in the TMDL Report's Stressor Identification Analysis as a primary stressor impacting benthic invertebrates in the biologically impaired segments of the Popes Head Creek watershed. Potential sources of sediment loading in the watershed include urban stormwater runoff, stream bank erosion, and sediment loss from habitat degradation associated with urbanization.

The aforementioned segment of Popes Head Creek was one (1) of nine (9) stream segments associated with the Occoquan River watershed listed as an impaired water due to exceedances of fecal coliform standards for primary contact recreation on Virginia's 1998, 2002, and 2004 Water Quality Assessment 305(b)/303(d) Integrated Report. Potential sources of bacteria identified for these watersheds in the TMDL Report include run-off from point source dischargers, livestock grazing, manure applications, failed septic systems and straight pipes, pet waste, and wildlife sources.

Sandy Run

Sandy Run is located within the Environmental Inventory Corridor, approximately 0.25 miles southeast of the southern terminus of the project's LOD; however the LOD does straddle the drainage divide for the tributary. The impaired segment of Sandy Run begins at its headwaters and continues approximately 2.10 river miles downstream to the boundary of the public water supply of the Occoquan Reservoir. In 2010, E. coli monitoring identified a bacterial impairment, resulting in an impaired classification for recreational use. In VDEQ's 2018 draft TMDL Report, the impaired segment qualified for Category 5A for benthic impairment, which means no TMDL plan has been developed for this segment and it is not eligible to be nested within an existing downstream TMDL plan (VDEQ, 2018).

For point sources of bacteria, all new or revised Virginia Pollutant Discharge Elimination System (VPDES)/ National Pollutant Discharge Elimination System (NPDES) Permits must be consistent with TMDL Waste Load Allocations pursuant to 40 CFR §122.44(d)(1)(vii)(B). The measures for non-point sources reductions, including specific Best Management Practices (BMPs), are implemented in an iterative process described in the TMDL implementation plan (VDEQ, 2006).

Fairfax County is in the process of developing countywide watershed management plans. The plans are being developed with the help of citizens' advisory committees and other public input, and will identify Fairfax County's strategy for improving stormwater management over the next 25 years. While the plans will not explicitly address the bacteria impairments described in the TMDL report referenced for the impaired segments of Popes Head Creek and Sandy Run Stream, it is anticipated that many of the actions to control stormwater and reduce pollutant loads would also help meet bacterial water quality goals set by existing and future TMDLs. The relevant projects and recommendations made in the County's watershed

management plans would be considered during the implementation planning process for this TMDL and incorporated as appropriate.

3.1.3.2 Chesapeake Bay TMDL

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

Since the 1987 Chesapeake Bay Agreement, EPA, the District of Columbia, and the six states in the Chesapeake Bay watershed have implemented various programs to improve the health of the Chesapeake Bay so that it will meet the requirements of the Clean Water Act. However, despite continuing efforts, the Bay remains significantly impaired, and cleanup plans failed to meet the 2010 deadline for pollutant reductions stipulated in the 2000 Chesapeake Bay Agreement. In addition, the EPA reached a settlement in a 2009 lawsuit filed by Bay advocacy groups claiming that the EPA failed to take adequate measures to protect and restore the Bay.

As part of the settlement and due to the failure of earlier, voluntary restoration programs, the EPA was required to establish a total maximum daily load (TMDL) for the Bay. The EPA issued the final Chesapeake Bay TMDL on December 29, 2010 (EPA, 2010). In addition, to focus attention and resources on the Bay, on May 12, 2009, President Obama signed Executive Order 13508 on Chesapeake Bay Protection and Restoration to bring a new level of interagency coordination and cooperation and requires that the Chesapeake Executive Order Action Plan be updated annually.

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. It is the largest ever established by the EPA, covering a 64,000-square-mile watershed, and is comprised of 92 smaller TMDLs for individual Chesapeake Bay tidal segments. The Bay 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, with at least 60 percent of the actions completed by 2017.

The Bay TMDL will be made possible through the development and execution of Watershed Implementation Plans (WIPs) that include pollution limits for point sources (permitted sources such as wastewater treatment plants and urban stormwater systems) and non-point sources (diffuse, non-permitted sources such as agricultural lands and suburban stormwater). In addition to total pollution limits, the Bay TMDL is divided by jurisdiction and major river basin based on state-of-the-art modeling tools (Chesapeake Bay Watershed Model), extensive monitoring data, peer-reviewed science, and close interaction with jurisdiction partners.

The Chesapeake Bay Program's (CBP) Watershed Model, in conjunction with models of the Chesapeake airshed and estuary, can be used in the development of management plans to protect water quality and restore living resources in the Chesapeake Bay and to ensure water quality standards for dissolved oxygen, clarity/submerged aquatic vegetation (SAV), and chlorophyll are achieved and fully maintained as required by the Chesapeake TMDL under future conditions of land use and population growth (CBP, 2019).

In response to the newly established Bay TMDL, Virginia completed its Phase II WIP on March 30, 2012. The Phase II WIP supplements the previous Phase I WIP and is designed to reduce phosphorus, nitrogen, and sediment loads to the Bay. The Phase II WIP divides the Bay TMDL into local area targets; describes how local, state and federal partners will work together to reduce loads delivered to the Bay; and defines systems for tracking, verifying, and reporting progress. Over the past several decades, multiple efforts by local governments, state and federal programs and the private sector including conservation groups and other non-governmental organizations (NGOs), farmers, landowners, consultants, and many others have resulted in significant improvements to Virginia's water quality.

In July 2018, the Environmental Protection Agency (EPA) issued State-Basin Planning Targets for nitrogen and phosphorus in Virginia's five river basins draining to the Chesapeake Bay by 2025. These targets for the Potomac River, Eastern Shore, Rappahannock River, York River, and James River basins cumulatively represent the assimilative capacity of the Chesapeake Bay to meet the dissolved oxygen water quality criteria. These target loads represent caps that need to be achieved and maintained through time. The Bay Program Partnership agreed to develop the Phase III WIPs using forecasted 2025 conditions for population, land use, septic systems and agricultural animals. By using these 2025 base conditions as the starting point for Virginia's WIP and designing a plan to meet the state-basin planning targets, we have explicitly accounted for forecasted growth. The Bay Program will continue to update the 2025 base conditions every two years as new information becomes available and Virginia will adaptively manage its implementation process through the two-year milestone process. (Commonwealth of Virginia, 2019).

Fairfax County is protected by Virginia's Chesapeake Bay Preservation Act of 1988, as locally implemented, and requires conformance with performance criteria. A Chesapeake Bay Preservation Ordinance was adopted in the County to protect local streams and the Chesapeake Bay from pollution due to land use and development as all of the water drains into the Potomac River and ultimately the Chesapeake Bay. In an effort to protect and improve the quality of waterways, sensitive areas along streams have been designated as Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores, and a minimum 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include all remaining areas. RPAs that have been designated by Fairfax County are shown in **Figure 3-3**. By managing land uses within these areas, local governments help reduce the water quality impacts of nonpoint source pollution and improve the health of the Chesapeake Bay. The regulation of activities within RMAs and RPAs has been incorporated into the enforceable policies of Virginia's Coastal Zone Management Program, discussed in **Section 3.1.4** (Fairfax County, 2019).

3.1.3.3 Public Drinking Water Supply

In 1974, the Safe Drinking Water Act (SDWA) was passed by Congress to regulate the public drinking water supply. The 1986 and 1996 SDWA Amendments further protect the water supply by requiring actions that protect both drinking water and its sources. The EPA defines sole source aquifers as those that supply at least 50 percent of the drinking water supply for the area. The sole source aquifer program provides for federal overview of federally-funded projects within the designated area. There are no sole source aquifers as designated by the EPA within the Environmental Inventory Corridor.

The Virginia Department of Health's (VDH) GIS data layers and scoping letter response indicate that no public drinking water surface resource watershed intakes are located within the Environmental Inventory Corridor. One public groundwater well was documented within a 1-mile radius of the LOD, located

approximately 2,190 feet northeast of where Fairfax Station Road intersects the LOD. The public groundwater well is located uphill of the proposed LOD (VDH, 2018).

3.1.4 Coastal Zone Management Areas

Federal actions occurring within or with the likelihood of affecting any land or water use, or natural resource of a state's coastal zone, including cumulative and secondary effects, must be consistent with a state's federally approved Coastal Zone Management Program (CZMP) according to Section 307 of the Federal Coastal Zone Management Act of 1972, as amended (CZMA), and National Oceanic and Atmospheric Administration (NOAA) regulations (15 CFR §930).

Virginia's CZMP, established in 1986, includes enforceable policies pertaining 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. Virginia's coastal zone includes 29 counties, 17 cities, and 42 incorporated towns in "Tidewater Virginia", as defined in the Code of Virginia §28.2-100. Fairfax County is located within Virginia's coastal zone and as such, the project is subject to the above policies.

3.1.5 Floodplains

In accordance with Executive Order 11988, *Floodplain Management*, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities." Executive Order 11988 outlines an eight-step decision-making process for floodplain evaluation:

1. Determine if proposed action is in the floodplain;
2. Early public review;
3. Identify and evaluate alternatives to locating in the floodplain;
4. Identify impacts of the proposed action;
5. Minimize harm and restore and preserve natural and beneficial values;
6. Reevaluate alternatives;
7. Findings and public explanation; and
8. Implement proposed action.

Executive Order 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, issued on January 30, 2015, amends Executive Order 11988 to include a new Federal Flood Risk Management Standard (FFRMS) "…to increase resilience against flooding and help preserve the natural values of floodplains." The new FFRMS has not been implemented yet and the implementation of the new requirements may take some time. Therefore, the floodplains evaluation for this project is based on the currently accepted standard, the 100-year FEMA-designated floodplain elevation, current FHWA regulations, and the eight-step evaluation process. 100-year floodplains along the corridor were identified based on current GIS data layers produced by FEMA. 100-year floodplains have a one percent chance of flooding in any given year.

Two 100-year floodplains exist within the Environmental Inventory Corridor, associated with Popes Head Creek and Piney Branch Stream (**Figure 3-3**). As indicated below in **Table 3-3,** approximately 137.31 acres of 100-year floodplain are located within the Environmental Inventory Corridor.

Table 3-3. 100-Year Floodplains within the Environmental Inventory Corridor

Associated Stream	Floodplain Acres	Orientation to Fairfax County Parkway
Piney Branch	58.94	Perpendicular Crossing
Popes Head Creek	78.37	Perpendicular Crossing
TOTAL	137.31	

Source: FEMA, 2010

3.2 WILDLIFE AND HABITAT

Wildlife habitat within the Environmental Inventory Corridor is described based on a review of literature and aerial photography, and a windshield survey that focused on the distribution of developed land uses and natural areas along the corridor. GIS data and input from resource agencies were also combined to develop the following discussions. Lastly, the degree to which invasive species may influence habitats within the Environmental Inventory Corridor is addressed based on advisory lists maintained by VDCR.

3.2.1 General Wildlife Habitat

The Environmental Inventory Corridor primarily consists of the limited access roadway and its infrastructure, with single family home communities along both sides of the road. Within the VDOT right of way, trees and shrubs are scarce due to the extent of the paved areas and maintained-meadow median. However, most of the interchange areas within the Environmental Inventory Corridor contain immature mix deciduous upland forest. The western portion of the Fairfax County Parkway/Braddock Road interchange area is dominated by immature-to-shrub-sized eastern red cedar (*Juniperus virginiana*), tuliptree (*Liriodendron tulipifera*), black locust (*Robinia pseudoacacia*), and other opportunistic hardwood tree species; while the eastern portion of the interchange area contains a mix of fragmented mature forest and maintained-meadow areas.

Development adjacent to the Fairfax County Parkway corridor consists mostly of low-density semi-wooded-to-grass lots of single-family home communities. Most of these communities have a forested common green space immediately adjacent to the project's LOD. Tree species include sycamore (*Platanus occidentalis*), oaks (*Quercus spp.*), silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), locust, black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), white pine (*Pinus strobus*), and Virginia pine (*Pinus virginiana*). Residential areas contain typical landscaping tree and shrub species, including crape myrtles (*Lagerstroemia spp.*), red maple, Bradford pear (*Pyrus calleryana*), forsythias (*Forsythia spp.*), azaleas (*Rhododendron spp.*), and burning bush (*Euyonomous alatus*). Wildlife along the corridor includes species adapted to and typical of urban conditions, such as eastern cottontail rabbit (*Sylvilagus floridanus*), whitetail deer (*Odocoileus virginianus*), eastern grey squirrel (*Sciurus carolinensis*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), eastern chipmunk (*Tamias striatus*) and a number of common bird species. Aquatic habitat is present in stream valley areas and adjacent headwater drainages, bisecting the LOD perpendicularly.

VDGIF designates trout streams for special management considerations and protection. No trout streams are located along the Environmental Inventory Corridor. Anadromous Fish Use Areas are migration pathways, spawning grounds, or nursery areas identified by the VDGIF as having been used or having the potential to be used by anadromous fish. There are no identified anadromous fish use areas along the Environmental Inventory Corridor.

3.2.2 Natural Heritage Resources

Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations (VDCR, 2019). According to scoping comments received from the VDCR Division of Natural Heritage (DNH), natural heritage resources are present within 100 feet of the LOD (VDCR, 2019). The VDCR Natural Heritage GIS database listed no Natural Heritage Conservation Sites within the Environmental Inventory Corridor.

General Location Areas for natural heritage resources represent the approximate locations of documented natural heritage resource occurrences that were not incorporated into Conservation Sites, either because they are poor quality, their location was not precisely identified, or they have not been re-verified in over 25 years. According to the VDCR Natural Heritage GIS database, there are no known occurrences of federal or state listed species recorded for the General Location Area.

Stream Conservation Units (SCUs) identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within the reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. According to the VDCR Natural Heritage GIS database, one (1) SCU was identified within the Environmental Inventory Corridor, the Piney Creek – Popes Head Creek – Castle Creek SCU. The Piney Creek – Popes Head Creek – Castle Creek SCU has been given a biodiversity ranking of B3, which represents a site of high significance related to Aquatic Natural Community to first order and second order streams within the Middle Potomac-Occoquan watershed.

3.2.3 Invasive Species

Invasive species are non-native plant, animal, or microbial species that cause, or have the potential to cause, economic or ecological harm or harm to human health. Invasive species are regulated by Executive Order 13112, Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990, Lacey Act, Federal Plant Pest Act, Federal Noxious Weed Act of 1974, and the Endangered Species Act of 1973.

VDCR maintains an advisory list of invasive plants to inform land managers of potential risks associated with certain plant species known to exhibit invasive behavior in some situations (Heffernan et al, 2014). The list is divided into three regions: Coastal Plain, Piedmont, and Mountains. The Environmental Inventory Corridor is located within the Piedmont region. Some of the highly invasive plant species listed for this region that were observed along the project corridor during field investigations include Chinese privet (*Ligustrum sinense*), autumn olive (*Elaeagnus umbellate*), multiflora rose (*Rosa multiflora*), wineberry (*Rubus phoenicolasius*), Chinese lespedeza (*Lespedeza cuneate*), garlic mustard (*Alliaria petiolata*), Japanese stilt grass (*Microstegium vimineum*), Japanese honeysuckle (*Lonicera japonica*), mile-a-minute (*Persicaria perfoliata*), porcelain berry (*Ampelopsis brevipedunculata*), and oriental bittersweet (*Celastrus orbiculatus*).

3.2.4 Threatened and Endangered Species

3.2.4.1 Federally Listed Species

The USFWS is responsible for listing, protecting, and managing federally listed threatened and endangered species under the U.S. Endangered Species Act of 1973(16 U.S.C. ch. 35 § 1531 et seq), as amended (ESA). The USFWS defines an endangered species as one that is in danger of extinction throughout all or in a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future (USFWS, 1973).

Information regarding threatened and endangered species that may be affected by the proposed project was requested from the USFWS via the Information, Planning, and Conservation online system (IPaC). The IPaC system aims 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 an IPaC request for the project, and listed in **Table 3-4**, one (1) federally listed species, the northern long-eared bat (*Myotis septentrionalis*), was identified with the potential to occur within the Environmental Inventory Corridor (USFWS, 2019). In addition, the USFWS IPaC response references the project's responsibility to comply with the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.) Actions taken to comply with this regulation are discussed in greater detail below. Additional threatened and endangered species coordination information is provided in Attachment A.

Table 3-4. Special Status Species Potentially Occurring within the Environmental Inventory Corridor

Common Name	Scientific Name	Status	Habitat
Northern Long-eared Bat (Mammal)	*Myotis septentrionalis*	Federally listed Threatened	Caves and cave-like structures (hibernacula), forests, trees (roosting and foraging)
Bald Eagle (Bird)	*Haliaeetus leucocephalus*	Not Listed, Protected By Bald and Golden Eagle Protection Act	Tall hardwood trees with open canopies in close proximity to water bodies where they forage

Source: USFWS, 2019; VDCR, 2019; VDGIF Species Observation Database (VDOT, 2019)

Northern Long-eared Bat

The northern long-eared bat *(Myotis septentrionalis)* (NLEB) was federally listed as threatened effective May 4, 2015 (80 FR 17974). The NLEB is a medium-sized bat weighing 0.2 to 0.3 ounces. As indicated by its name, the NLEB is distinguished from other *Myotis* species by its relatively long ears, which average 0.7 inches in length. The NLEB ranges across much of the eastern and northcentral 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. The NLEB's 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 around 32 to 48 degrees Fahrenheit. During summer, NLEBs typically roost singly or in colonies underneath bark or in cavities or crevices of both live trees and snags. NLEBs 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 will be used by the bats opportunistically. NLEBs will also roost in manmade structures, such as barns and the undersides of bridges. NLEBs 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 to 55 miles. NLEBs are nocturnal foragers, catching a diverse variety of insects in flight or picking them from surfaces. Most foraging occurs above the understory three 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 (USFWS, 2015).

There are no known NLEB hibernacula in the vicinity of the Environmental Study Area. Wooded areas near the Environmental Inventory Corridor could potentially provide suitable summer roosting and

foraging habitat for the species; however, there are no known occurrences of summer roosting or foraging northern long-eared bats in the vicinity of the project NLEB within the vicinity of the Environmental Inventory Corridor (VDGIF, 2019). According to the U.S. Geological Survey National Land Cover Dataset, of the 709.2 acres that make up the Environmental Study Area, 431.4 acres are developed or non-forested (high, medium, and low intensity, development, developed open space, barren land, herbaceous and hay/pasture) and 277.8 acres are characterized as forested (mixed, evergreen, scrub/shrub, and deciduous) or woody wetlands (NLCD, 2016). As suggested by these amounts, the Environmental Study Area is largely developed, containing residential communities with manicured landscaping and fragmented forests; as well as some common areas and green spaces, small parks, stream valleys, forested areas adjacent to the Fairfax County Parkway interchanges, and narrow linear areas between the existing Fairfax County Parkway roadway and right of way limits.

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 et seq). Therefore, it is often included 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 2.0 miles from the LOD. In the Bald and Golden Eagle Protection Act, the USFWS recommends an avoidance radius buffer of 660 feet around bald eagle nests for proposed clearing, construction and landscaping activities (USFWS, 2007b).

State Protected Species

The Commonwealth of Virginia maintains a listing of state endangered or threatened species. VDCR and VDGIF are responsible for listing, protecting, and managing state-listed threatened and endangered species. No state listed threatened or endangered species were identified within a 2-mile search of the project corridor.

The VDGIF's Species Observation Database contains no known occurrences of federal or state listed wildlife species within the Environmental Inventory Corridor.

4. ENVIRONMENTAL CONSEQUENCES

4.1 WATER RESOURCES

The following discussions address potential effects of the project on streams, wetlands, water quality, coastal zone management areas, and floodplains. Specific methods and assumptions employed in the analysis of effects for each resource are discussed below.

4.1.1 Streams and Ponds

4.1.1.1 No Build Alternative

The No Build Alternative would not require alteration of any streams along the corridor and would result in no impact to streams and ponds.

4.1.1.2 Build Alternative

As discussed in **Section 2**, limits of disturbance (LOD) have been estimated to reflect the anticipated impacts of the Build Alternative, and they have been used to calculate predicted direct effects of the project. The LOD are based on preliminary engineering and design, which has been developed to include

both temporary and permanent impacts, including stormwater management facilities and construction access.

Potential stream and pond impacts for the Build Alternative were quantified using GIS and stream mapping obtained from the WOUS delineation. The locations of delineated streams and ponds within the Environmental Study Area are shown in Error! Not a valid bookmark self-reference., and **Table 4-1** lists the potential impacts to streams and ponds under the Build Alternative. As indicated in **Table 4-1**, approximately 3,232 linear feet of perennial stream and approximately 1,629 linear feet of intermittent stream are located within the LOD. However, approximately 1,947 linear feet of stream within the LOD are culverted streams that have already been previously impacted. Opportunities to avoid and minimize potential impacts may be identified as the proposed limits of grading for the Build Alternative are refined during detailed project design and permitting.

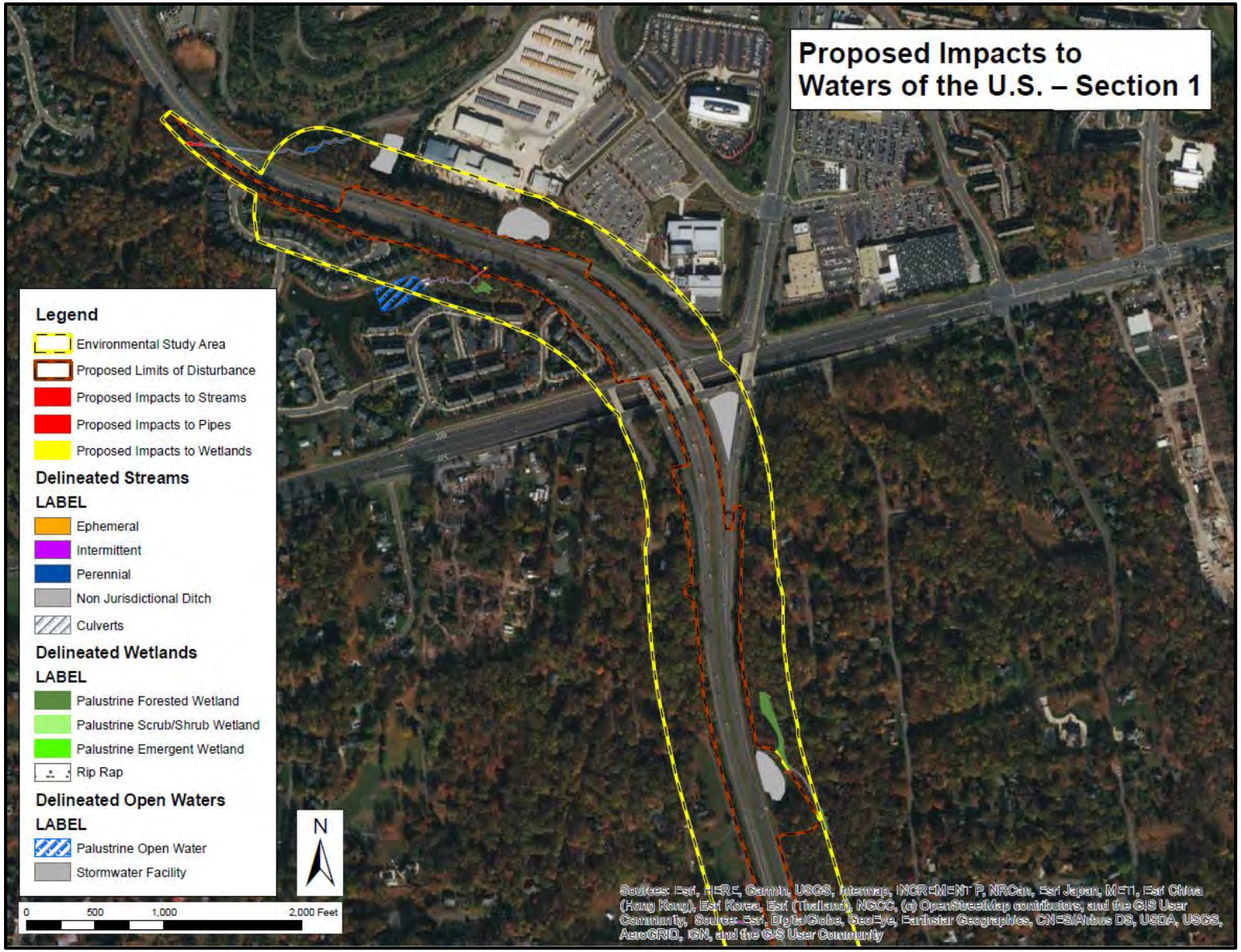

Figure 4-1a. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative

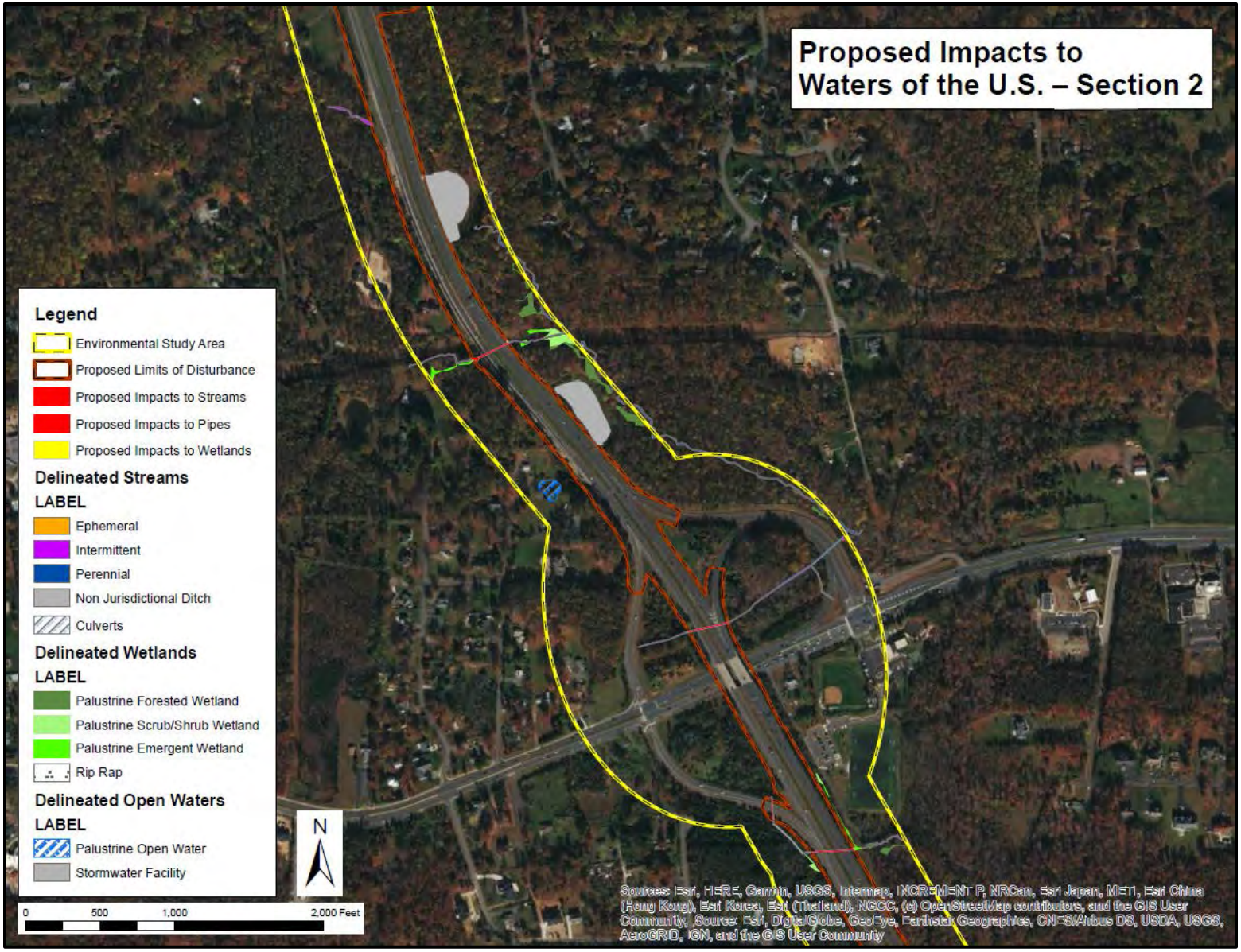

Figure 4-1b. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative

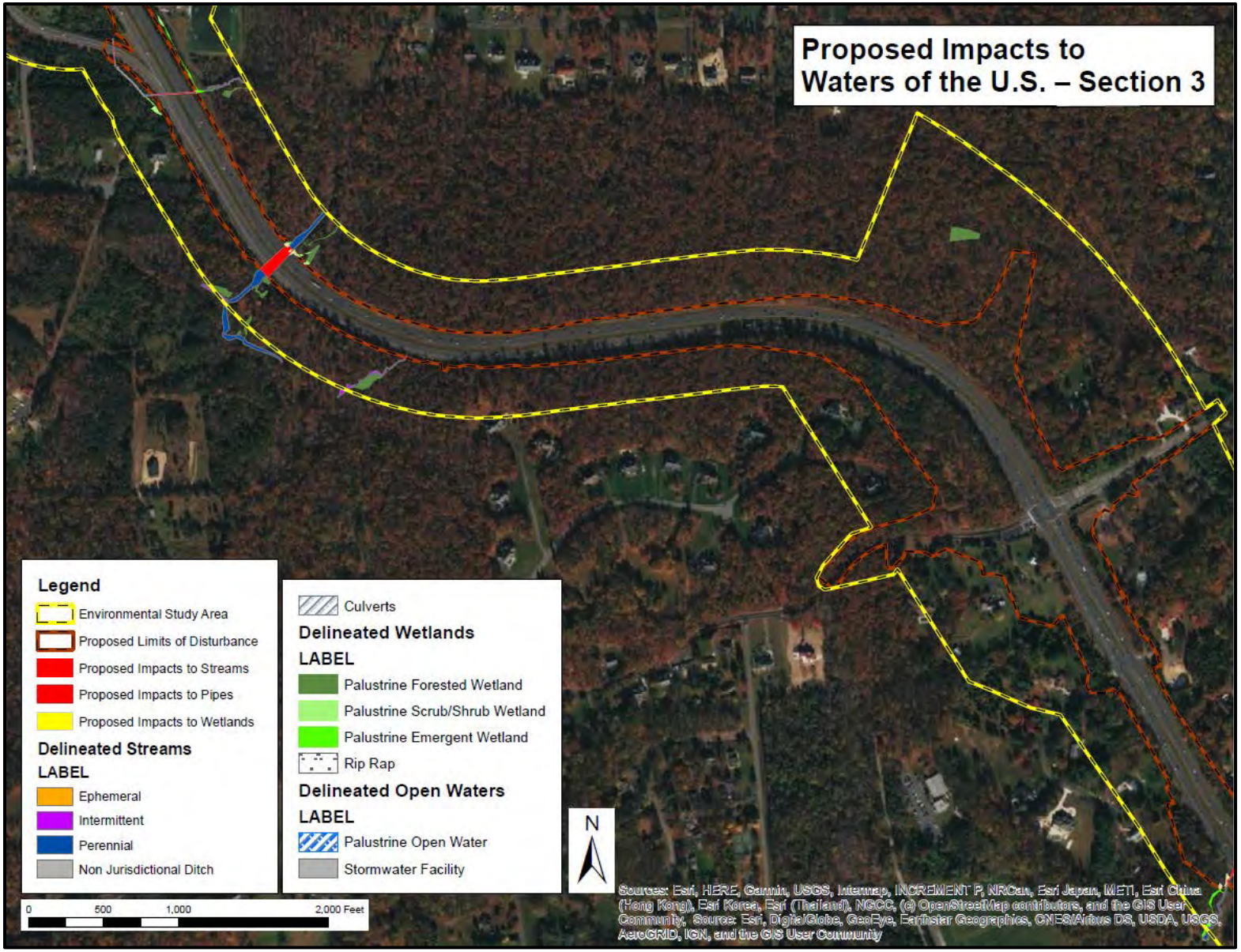

Figure 4-1c. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative

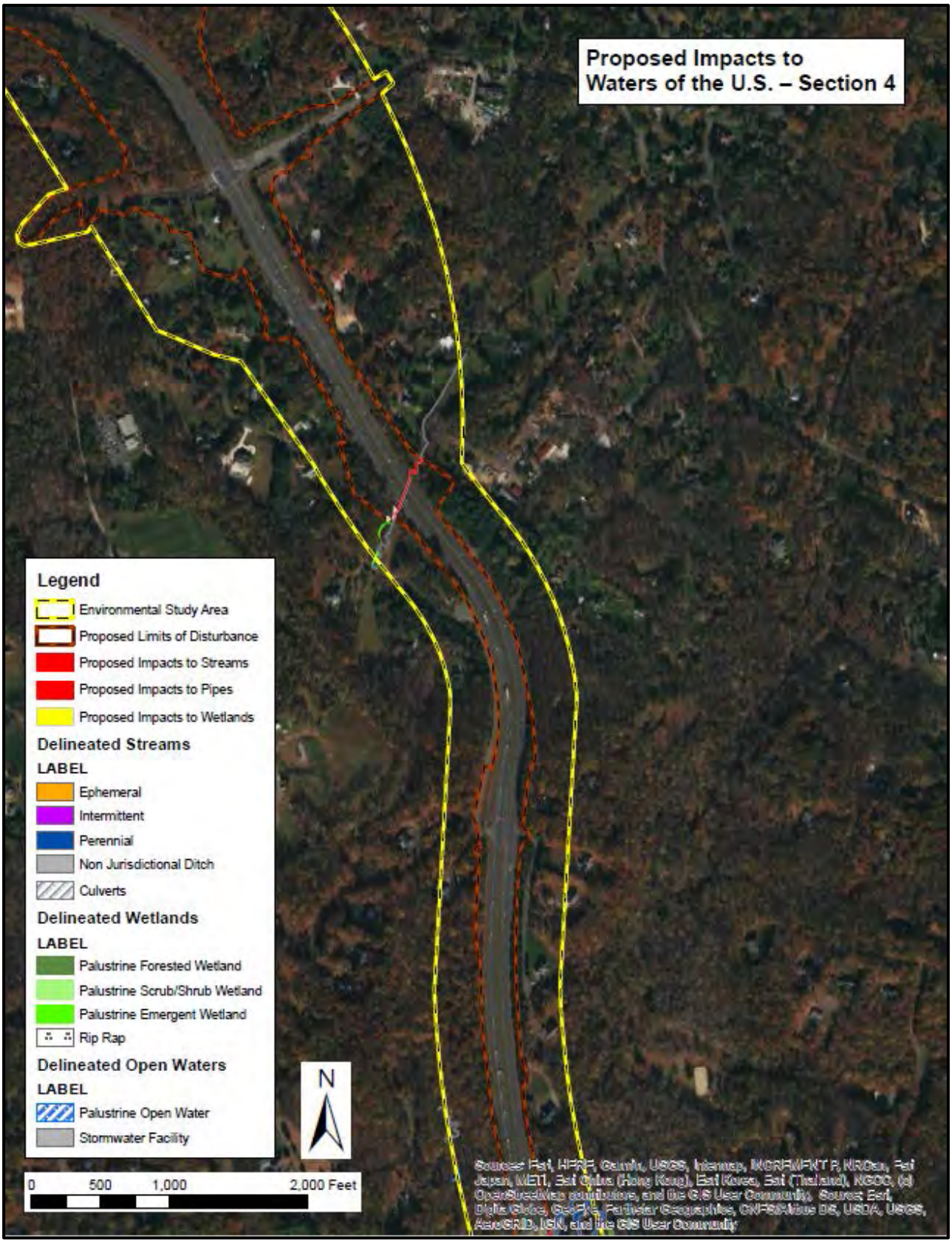

Figure 4-1d. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative

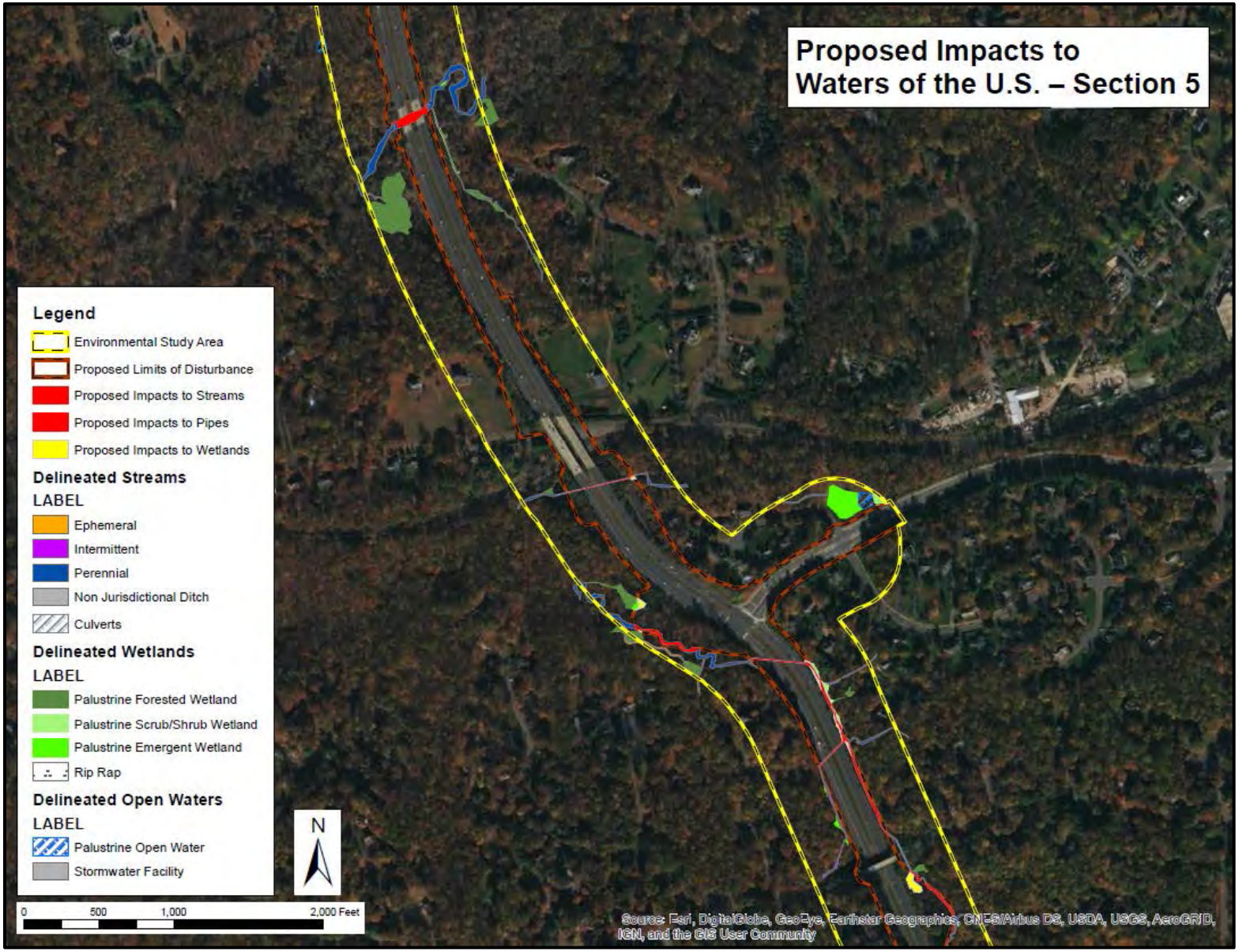

Figure 4-1e. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative

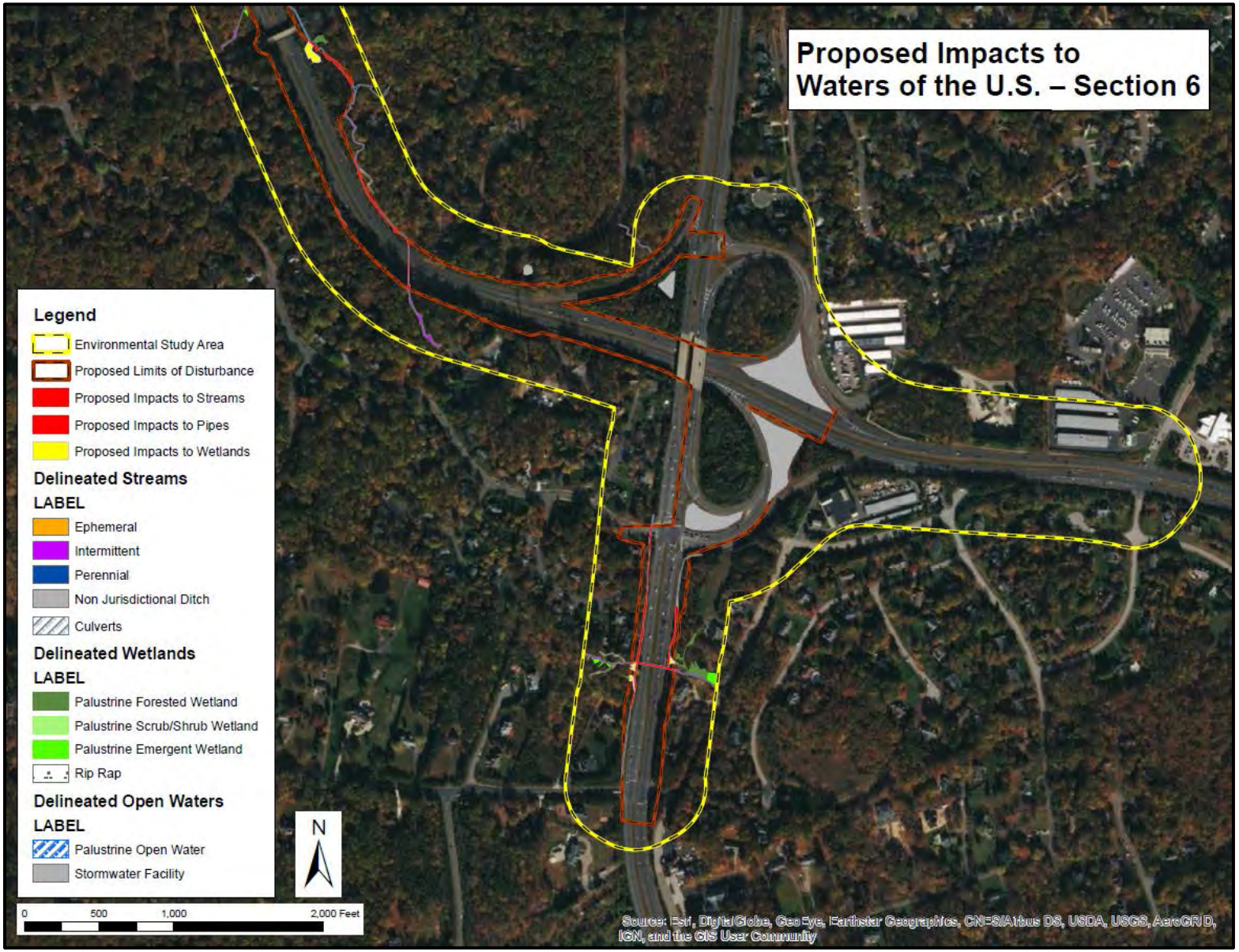

Figure 4-1f. Delineated Streams and Wetlands in Relation to the LOD of the Build Alternative

Table 4-1. Potential Impacts to Water Resources within the Build Alternative's LOD

Category	Impacts within Build Alternative LOD
Limits of Disturbance (acres)	204.25
Number of Potentially Impacted Streams	19
Length of Streams [Culvert] (linear feet)	
Ephemeral	1,298 [15]
Intermittent	1,629 [911]
Perennial	3,232 [1,036]
Total	6,159 [1,962]
Wetlands (acres)	
Palustrine Forested	0.17
Palustrine Shrub Scrub	0.08
Palustrine Emergent	0.07
Total	0.32
Floodplains (acres)	
Total	3.33

These estimates are based on an assumption that each stream crossing would be a permanent impact. As indicated in **Section 3.1.1**, within the Environmental Study Area, Fairfax County Parkway currently crosses Piney Branch Stream via box culverts and Popes Head Creek via a bridge crossing. A more detailed assessment of stream impacts and avoidance and minimization efforts would be performed during the detailed design and permitting phase. Analysis of impact quantities based on the preliminary conceptual design information indicates the project can anticipate being authorized to impact Waters of the U.S. under an USACE Individual Permit, a VDEQ General Permit and a VMRC VGP-1 Permit.

Mitigation for unavoidable stream impacts is estimated at a 1 linear foot to1 stream mitigation credit ratio within the same eight-digit HUC watershed; however stream mitigation requirements vary depending on existing stream conditions and level of disturbance. Potential stream impacts occur in the Middle Potomac-Anacostia-Occoquan eight-digit watershed (HUC 02070010). In conjunction with the wetlands, impacts to streams would require submittal of a Joint Permit Application (JPA). The JPA would include an assessment of existing on-site stream and buffer conditions using the Unified Stream Methodology (USM), which was developed and approved by USACE and VDEQ. The USM would determine the relative functional value of the streams and buffers. The results of the stream assessment would be examined together with the project design to identify specific impacts and appropriate mitigation in consultation with the resource agencies. Use of credits from an approved mitigation bank or payments to the Virginia Aquatic Resources Trust Fund is the anticipated form of stream mitigation for the project.

4.1.2 Wetlands

4.1.2.1 No Build Alternative

The No Build Alternative would not result in wetland impacts.

4.1.2.2 Build Alternative

Potential direct impacts to wetlands under the Build Alternative have been quantified using GIS and wetlands mapping produced from the WOUS delineation. The extent of wetlands within the existing right of way of the Build Alternative LOD are shown by wetland type in **Table 4-1** and are depicted in Error! Not a valid bookmark self-reference.**a** through **Figure 4-1f**. Total impacts to wetlands within the LOD under the Build Alternative amount to approximately 0.33 acres of impacted wetlands. A more detailed analysis of impacts based on proposed limits of grading for the Build Alternative would be conducted as project design advances.

It is important to note that Error! Not a valid bookmark self-reference. does not distinguish between temporary or permanent wetland impacts. Temporary and permanent impacts would be quantified during the final design phase. Measures to avoid and minimize wetland impacts would also be developed during the final design phase. These measures may include, but are not limited to, steeper side slopes and retaining walls.

Impacts to wetlands would require submittal of a JPA to the USACE, VDEQ, and VMRC. Due to the linear nature and size of the Build Alternative, however, unavoidable impacts are anticipated. Adequate mitigation to compensate for any unavoidable wetland impacts would be developed in coordination with the aforementioned agencies, as well as the EPA, during the permitting process. Use of credits from an approved mitigation bank, or payments to the Virginia Aquatic Resources Trust Fund is the anticipated form of wetlands mitigation for the project.

Wetland mitigation requirements vary by wetland type: 1:1 for palustrine emergent, 1½:1 for palustrine scrub-shrub, and 2:1 for palustrine forested. These ratios are typical; however compensation is approved on a case-by-case basis and requirements may vary. In most situations, mitigation is typically required within the same eight-digit HUC watershed.

4.1.3 Water Quality

4.1.3.1 No Build Alternative

Under the No Build Alternative, stormwater runoff from the existing Fairfax County Parkway roadway would continue to transport sediments and roadway contaminants to local waterbodies, including impaired streams. No impacts to the Chesapeake Bay's TMDL or local public drinking water supplies are anticipated under the No Build Alternative.

4.1.3.2 Build Alternative

Impaired Waters

No designated impaired waters are crossed by the proposed project under the Build Alternative. However, the project lies within 1.0 mile of two (2) listed impaired water segments, Popes Head Creek and Sandy Run Stream, as previously identified in **Section 3.1.3**.

Widening of the Fairfax County Parkway could potentially incrementally increase stormwater runoff volumes and roadway contaminants received by impaired waters. Short-term impacts include increased sedimentation, increased turbidity from in-stream work, and possible spills or non-point source pollutants entering groundwater or surface water from storm runoff. Increased sedimentation and turbidity are especially of concern for waters that are impaired for aquatic life. Of the two (2) impaired waters within 1.0 mile of the Environmental Study Area/Environmental Inventory Corridor, only Popes Head Creek is impaired for aquatic life, but the segment of Popes Head Creek that is listed as impaired for aquatic life is

outside of the LOD. Furthermore, the upper limits of Popes Head Creek's impaired segment initiates 1.1 river miles downstream from the LOD.

Generally, VDOT's practice is to maintain both water quality and quantity post-development equal to or better than pre-development, as described in the current guidance, *Minimum Requirements for the Engineering, Plan Preparation and Implementation of Post Development Stormwater Management Plans*, Instructional and Informational Report Number: IIM-LD-195.12 (VDOT, 2019). 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. 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 Alternative. Potential long-term effects from widening of the Fairfax County Parkway 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 downstream waters.

Stormwater management measures, such as detention basins, vegetative controls, and other measures, would be implemented in accordance with federal, state, and local regulations to minimize potential water quality impacts. Low Impact Development (LID) techniques and practices would be considered to reduce stormwater runoff pollution and facilitate infiltration at the source. These measures would reduce or detain discharge volumes and remove sediments and other pollutants, thus avoiding substantial further degradation of water bodies in the project vicinity.

The proposed project is not expected to increase bacteria levels within Popes Head Creek or Sandy Run Stream. As discussed in **Section 3.1.3**, the southern terminus of the project's LOD narrowly straddles the drainage divide for Sandy Run and any potential drainage from the project into this drainage area would be negligible in scale in relation to the overall drainage network for this tributary. Furthermore, the sources of bacterial contamination for these waters are permitted point sources, sanitary sewer and septic systems, wildlife, and pets. The proposed project would not introduce or cause an increase in any of these sources.

Chesapeake Bay TMDL

Based on a review of the CBP Watershed Model documentation (CBP, 2019), the Watershed Model is not calibrated to a scale that could be used to assess water quality impacts at the project level. As such, the direct impacts of the Fairfax County Parkway improvements on the Bay TMDL cannot be quantified (CBP, 2019).

The proposed project would increase impervious surfaces and traffic volumes, thus potentially increasing stormwater runoff volumes and transport of sediments and other pollutants washed from the road surface into receiving water bodies that are tributaries of the Chesapeake Bay. The most common pollutants in highway runoff include heavy metals, inorganic salts, aromatic hydrocarbons, and suspended solids (FHWA, 1997). Ordinary highway operations and wear and tear of vehicles result in the dropping of oil,

rust, hydrocarbons, rubber particles, and other solids. Salting and sanding practices may leave concentrations of chloride, sodium, and calcium. Deicing chemicals are often combined with rust inhibitors that may contain phosphorus compounds. These various pollutants can adversely affect receiving waters and contribute to Chesapeake Bay TMDLs if no measures are taken to remove excessive contaminants.

As discussed in **Section 3.1.3** above, potential short-term and long-term water quality impacts from the release of sediments and other pollutants into streams within the project vicinity would be minimized with implementation of appropriate erosion and sediment control practices during project construction and through incorporation of stormwater management BMPs in project design.

As noted above, the drainage area for the Chesapeake Bay is approximately 64,000 square miles; the entire area of the LOD for the proposed improvements encompasses approximately 204.25 acres, or 0.32 square miles (less than 0.000005 percent of the total Chesapeake Bay drainage area). The project's contribution to the total impervious surface within the Chesapeake Bay watershed, as well as the project's pollutant contributions from the roadway surface to the total pollutant load to the Chesapeake Bay, would be minute. However, as described in the section above, the project includes mitigation for stormwater management, during and after construction. The Fairfax County Parkway improvements would be constructed under the Construction General Permit and the project would become a part of VDOT's Municipal Separate Storm Sewer System (MS4), both of which take into consideration TMDL requirements and require compliance with the applicable water quality requirements contained in the VSMP Regulations.

Under Fairfax County's Chesapeake Bay Preservation Ordinance (Fairfax County Code of Ordinances, Article 5, §118-5-2), public roads and their associated structures are conditionally exempt from regulation, as outlined on the following page. 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.

Public Drinking Water Supply

A scoping response received from the VDH indicated that there would not be any apparent impacts to public drinking water sources as a result of the proposed project (VDH, 2018).

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

4.1.4 Coastal Zone Management Areas

4.1.4.1 No Build Alternative

The No Build Alternative would not require a consistency determination with respect to the established Virginia Coastal Zone Enforceable Policies in coordination with VDEQ.

4.1.4.2 Build Alternative

The Build Alternative would require a federal individual permit and therefore would require a consistency determination with respect to the established Virginia Coastal Zone Enforceable Policies in coordination with VDEQ.

With implementation of mitigation measures, the Build Alternative would not impair resources protected by the Virginia Coastal Zone Enforceable Policies, including wetlands, nonpoint source pollution control and aquatic animals. The proposed project would be designed and constructed in accordance with the Virginia Erosion and Sediment Control Law and the terms and conditions of water quality permits required by USACE, VDEQ, VMRC, and VDCR.

4.1.5 Floodplains

4.1.5.1 No Build Alternative

No impacts to 100-year floodplains are anticipated under the No Build Alternative.

4.1.5.2 Build Alternative

As indicated in **Table 4-1**, 3.33 acres of floodplains would potentially be impacted under the Build Alternative. These potential impacts primarily occur within the 100-year floodplains associated with Piney Branch Stream and Popes Head Creek within the existing right of way. For the purpose of this impact analysis, it is assumed that all 100-year floodplain areas within the LOD have the potential to be impacted by the Build Alternative.

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

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

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

4.2 WILDLIFE AND HABITAT

4.2.1 General Wildlife Habitat

4.2.1.1 No Build Alternative

Impacts to wildlife and habitat are not anticipated under the No Build Alternative.

4.2.1.2 Build Alternative

The proposed project would result in the removal of wildlife habitat, including wooded areas. The potential impact to wooded areas within the proposed right of way for the Build Alternative is 65.0 acres, as shown in Figure 4-2. Wooded Areas in Relation to the LOD of the Build Alternative Habitat loss would generally occur within small isolated habitat patches or along edges of habitats adjacent to the existing roadway. No potential corridors for wildlife movement would be substantially disrupted because impacts would take place along the existing Fairfax County Parkway roadway.

Within the anticipated LOD for the Build Alternative, to the extent practicable, temporary construction impacts to wooded areas would be revegetated, according to VDOT's 2016 *Road and Bridge Standards* (VDOT, 2019).

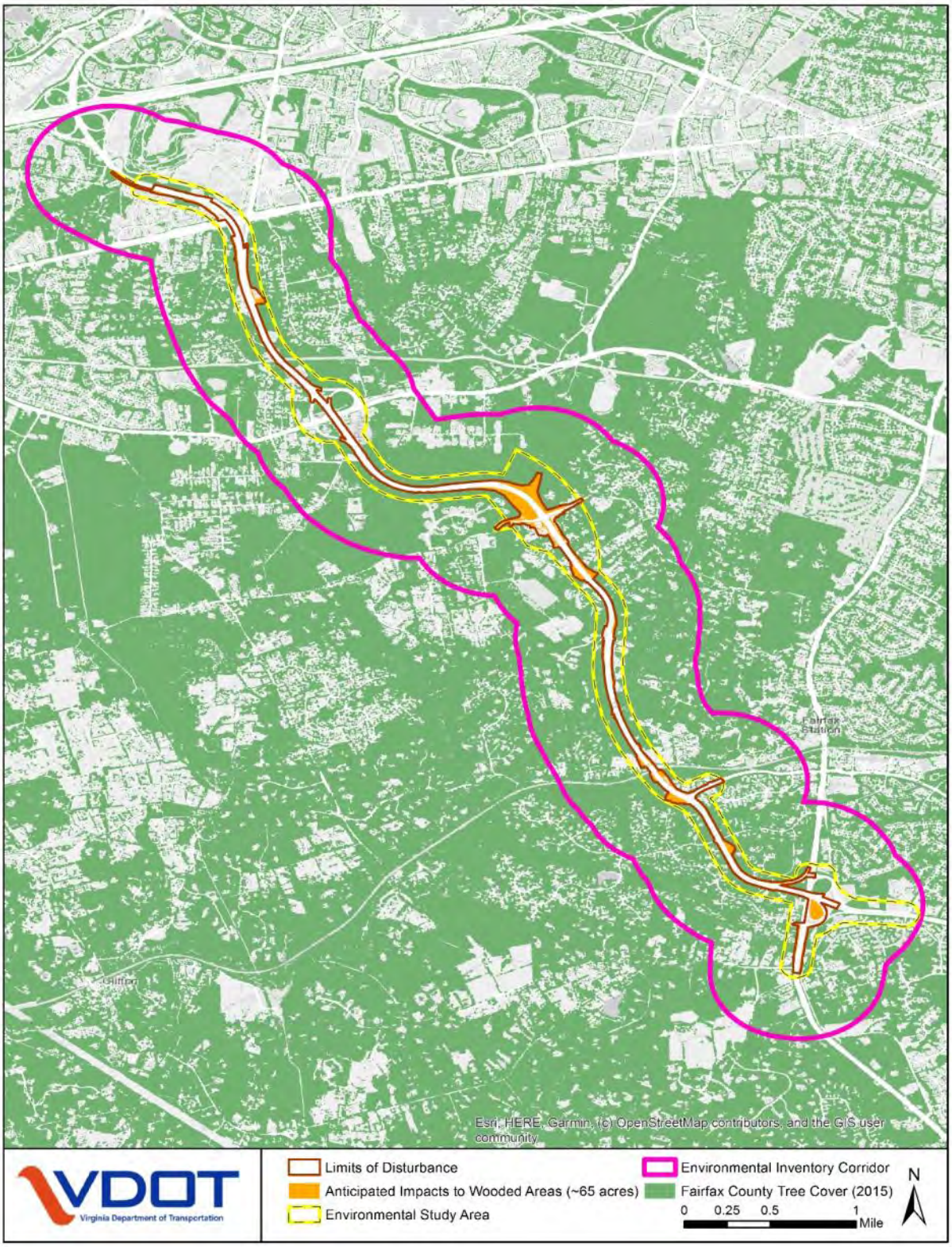

Figure 4-2. Wooded Areas in Relation to the LOD of the Build Alternative

4.2.2 Natural Heritage Resources

4.2.2.1 No Build Alternative

The No Build Alternative would not impact natural heritage resources.

4.2.2.2 Build Alternative

As indicated in **Section 3.2.2**, according to scoping comments from the VDCR-DNH, natural heritage resources are present within two miles of the project area; however, VDCR-DNH does not anticipate adverse impacts from the proposed project for other natural heritage resources including listed species as identified in the Natural Heritage Data Explorer Report generated on July 15, 2019. In the comments, VDCR-DNH recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow (VDCR-DNH, 2019).

4.2.3 Invasive Species

4.2.3.1 No Build Alternative

No impacts to invasive species are anticipated under the No Build Alternative.

4.2.3.2 Build Alternative

In accordance with Executive Order 13112, *Invasive Species*, the potential for the establishment of invasive animal or plant species during construction of the proposed project would be minimized by following provisions in VDOT's 2018 *Road and Bridge Specifications* (VDOT, 2019). These provisions require prompt seeding of disturbed areas with seeds that are tested in accordance with the Virginia Seed Law and VDOT's standards and specifications to ensure that seed mixes are free of noxious species. In addition, in order to prevent the introduction of new invasive species and to prevent the spread of existing populations, best management practices would be followed, including washing machinery before it enters the area, minimizing ground disturbance, and reseeding of disturbed areas. While the right of way is vulnerable to colonization by invasive plant species from adjacent properties, implementation of the stated provisions would reduce the potential for the establishment and proliferation of invasive species within highway right of way. Consistent with scoping input provided by VDCR-DNH, species used for revegetation would not include crown vetch (*Securigera varia*), tall fescue *(Festuca arundinacea*), autumn olive (*Elaeagnus umbellata*), or other plants listed on VDCR's *Virginia Invasive Plant Species List*.

4.2.4 Threatened and Endangered Species

4.2.4.1 No Build Alternative

No impacts to potential habitat for the federally listed NLEB or Bald Eagle are anticipated to result from the No Build Alternative.

4.2.4.2 Build Alternative

The Build Alternative would directly disturb potential summer roosting habitat for the NLEB through tree removal. The USFWS issued a 4(d) Rule for the NLEB (50 CFR §17) on January 14, 2016, which prohibits incidental take resulting from tree removal if it 1) occurs within 0.25-mile radius of known NLEB hibernacula; or 2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known maternity tree during the NLEB pup season (June 1 through July 31). Incidental take of NLEBs from activities not prohibited by the 4(d) rule were evaluated within the USFWS's *Programmatic Biological Opinion for the Final 4(d) Rule for the NLEB and Activities*

Excepted from Take Prohibitions. The Biological Opinion concluded that such activities are not likely to jeopardize the continued existence of the NLEB. Federal agencies may rely on the Biological Opinion to fulfill their project-specific Section 7 consultation responsibilities (USFWS, 2016). On July 15, 2019, VDOT utilized the USFWS NLEB 4(d) Rule Determination Key to assist with the determination as to whether the proposed actions of the project are consistent with those analyzed in the USFWS's Programmatic Biological Opinion (PBO) dated January 5, 2016. The USFWS determined that project may rely on the January 5, 2016, PBO on Final 4(d) Rule for the NLEB and Activities Excepted from Take Prohibitions to fulfill its Section 7(a)(2) consultation obligation. As a result, VDOT, on behalf of FHWA, has completed the appropriate coordination and due diligence under Section 7 of the ESA and no further action or coordination is required.

The proposed project is not expected to adversely affect bald eagles as there are no bald eagle concentration areas within the Environmental Inventory Corridor and the nearest nest is well over 660 feet from the proposed Limits of Disturbance. No impacts to this species would occur under the No Build Alternative either.

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ATTACHMENT A –
FEDERAL AND STATE AGENCY COORDINATION

Route:	Route 286
Project Number:	0286-029-259, B619, B620, B621, B622, B623, B624, B625, B627, B628, B629, B630, B631, B632, D604, D605, P101
From:	Ox Road (Route 123)
To:	2000 feet North of Lee Highway (Route 29)
Federal Project:	STP-5A01(775)
County/City:	Fairfax County
UPC ID #:	107937

GENERAL QUESTIONS FOR NATURAL RESOURCES CONSERVATION SERVICE

1. Will the proposed project affect any prime or unique farmland in the project area?

No, the project area is already committed to urban uses mainly residential.

2. Will the proposed project affect erosion in the project area?

Possibly, care must be taken when soils are exposed to prevent soil erosion and sedimentation.

3. Do you have any other concerns regarding soil and water conservation in connection with this project?

No

Please feel free to make any additional comments.

9/14/2018
Date

Don Floyd Soil Scientist, NRCS
Name, Title

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
http://www.fws.gov/northeast/virginiafield/

In Reply Refer To: July 15, 2019
Consultation Code: 05E2VA00-2019-SLI-5251
Event Code: 05E2VA00-2019-E-12835
Project Name: Fairfax County Parkway Widening

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2019-SLI-5251

Event Code: 05E2VA00-2019-E-12835

Project Name: Fairfax County Parkway Widening

Project Type: TRANSPORTATION

Project Description: The improvements consist of widening Fairfax County Parkway from four lanes to six lanes and a new interchange that will consolidate the Popes Head Road and future Shirley Gate Road. The proposed project would include the extension of the Fairfax County Parkway Pedestrian Trail, access management improvements, stormwater improvements and minor improvements at the Fairfax County Parkway at Route 123 interchange. Based on review of conceptual designs, preliminary tree clearing for the project is approximately 35.3 acres. More accurate analysis of tree loss will be determined as the design is furthered.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.815506893974856N77.34561471813763W

Counties: Fairfax, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
http://www.fws.gov/northeast/virginiafield/

In Reply Refer To: July 15, 2019
Consultation Code: 05E2VA00-2019-TA-5251
Event Code: 05E2VA00-2019-E-12846
Project Name: Fairfax County Parkway Widening

Subject: Verification letter for the 'Fairfax County Parkway Widening' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Bryan Campbell:

The U.S. Fish and Wildlife Service (Service) received on July 15, 2019 your effects determination for the 'Fairfax County Parkway Widening' (the Action) using the northern long-eared bat (Myotis septentrionalis) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

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[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Fairfax County Parkway Widening

2. Description

The following description was provided for the project 'Fairfax County Parkway Widening':

> The improvements consist of widening Fairfax County Parkway from four lanes to six lanes and a new interchange that will consolidate the Popes Head Road and future Shirley Gate Road. The proposed project would include the extension of the Fairfax County Parkway Pedestrian Trail, access management improvements, stormwater improvements and minor improvements at the Fairfax County Parkway at Route 123 interchange. Based on review of conceptual designs, preliminary tree clearing for the project is approximately 35.3 acres. More accurate analysis of tree loss will be determined as the design is furthered.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.815506893974856N77.34561471813763W

Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-ear ed Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully Take northern long-eared bats?

   No

4. Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered

   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

   No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

    No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

35.3

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith
Deputy Director of Operations

MEMORANDUM

DATE: October 15, 2018

TO: Steve Varner, VDOT

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: VDOT 0286-029-259, Fairfax County Parkway Widening

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Piney Creek – Popes Head Creek – Castle Creek Stream Conservation Unit is located within the project site. Stream Conservation Units (SCUs) identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Piney Creek – Popes Head Creek – Castle Creek SCU has been given a biodiversity ranking of B3, which represents a site of high significance. The natural heritage resources associated with this site are:

Aquatic Natural Community (NP-Middle Potomac-Anacostia-Occoquan First Order Stream)	G3G4/S3S4/NL/NL
Aquatic Natural Community (NP-Middle Potomac-Anacostia-Occoquan Second Order Stream)	G2G3/S2S3/NL/NL

The documented Aquatic Natural Communities are based on Virginia Commonwealth University's **INSTAR** (*Interactive Stream Assessment Resource*) database which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Communities are significant on multiple levels. First, these streams are a grade B, as per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. These stream reaches also hold as a "Healthy" stream designation as per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of these streams to ideal stream conditions of biology and habitat for this region. Lastly, these streams contribute to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Communities and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species.

In addition, the Sideburn Branch Below Rt. 641 SCU is located downstream from the project site. The Sideburn Branch Below Rt. 641 SCU has been given a biodiversity ranking of B3, which represents a site of high significance. The natural heritage resource associated with this site is:

Aquatic Natural Community (NP-Middle Potomac-Anacostia-Occoquan Second Order Stream)	G2G3/S2S3/NL/NL

This stream is a grade B, as per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. This stream reach also holds as a "Healthy" stream designation as per the INSTAR Virtual Stream Assessment (VSS) score.

Furthermore, the Rusty patched bumble bee (*Bombus affinis*, G1/S1/LE/NL) has been historically documented within two miles of the project area. The Rusty patched bumble bee is listed as endangered under the Endangered Species Act by U.S. Fish and Wildlife Service (USFWS) effective March 21, 2017. Since the late 1990s, the Rusty patched bumble bee has declined throughout its historical range including Virginia and is anticipated to be extinct in all ecoregions by 2030. Threats to the Rusty patched bumble bee include disease, pesticides, climate change, habitat loss and small population dynamics.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow. DCR also recommends the implementation of the following USFWS voluntary measures for the conservation of the Rusty patched bumble bee: avoid pesticide use, avoid herbicide use, and plant native flowers that bloom throughout the spring and summer to support pollinator habitat.

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

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

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

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

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

All VDOT projects on state-owned lands must comply with the Virginia Erosion & Sediment Control (ESC) Law and Regulations, the Virginia Stormwater Management (SWM) Law and Regulations, the most current version of the DCR approved VDOT Annual ESC and SWM Specifications and Standards, and the project-specific ESC and SWM plans. [Reference: VESCL §10.1-560, §10.1-564; VESCR §4VAC50-30 et al; VSWML §10.1-603 et al; VSWMR §4VAC-3-20 et al].

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

Web Project ID: WEB0000011276

Client Project Number: UPC107937

PROJECT INFORMATION

TITLE: Fairfax County Parkway Widening

DESCRIPTION: The improvements consist of widening Fairfax County Parkway from four lanes to six lanes and a new interchange that will consolidate the Popes Head Road and future Shirley Gate Road. The proposed project would include the extension of the Fairfax County Parkway Pedestrian Trail, access management improvements, stormwater improvements and minor improvements at the Fairfax County Parkway at Route 123 interchange. Based on review of conceptual designs, preliminary tree clearing for the project is approximately 35.3 acres. More accurate analysis of tree loss will be determined as the design is furthered.

EXISTING SITE CONDITIONS: limited Access Roadway with single family home residential communities and parkland.

QUADRANGLES: Manassas, Fairfax

COUNTIES: Fairfax

Latitude/Longitude (DMS): 38° 47' 47.9716" N / 77° 20' 14.7714" W

Acreage: 229 acres

Comments: Project Review is being submitted to support the NEPA document for the project. Limits of disturbance are based on preliminary conceptual information. Follow up project review request will occur once the project design is ready to acquire water quality permits.

REQUESTOR INFORMATION

Priority: N **Tier Level:** Tier II **Tax ID:**

Contact Name: Bryan Campbell

Company Name: Virginia Department of Transporation

Address: 4975 Alliance Drive

City: Fairfax **State:** VA **Zip:** 22030

Phone: 703-259-2774 **Fax:** N/A **Email:** bryan.campbell@vdot.virginia.gov

Conservation Site	Site Type	Brank	Acreage	Listed Species Presence
PINEY CREEK - POPES HEAD CREEK - CASTLE CREEK SCU	SCU	B3	27	NL

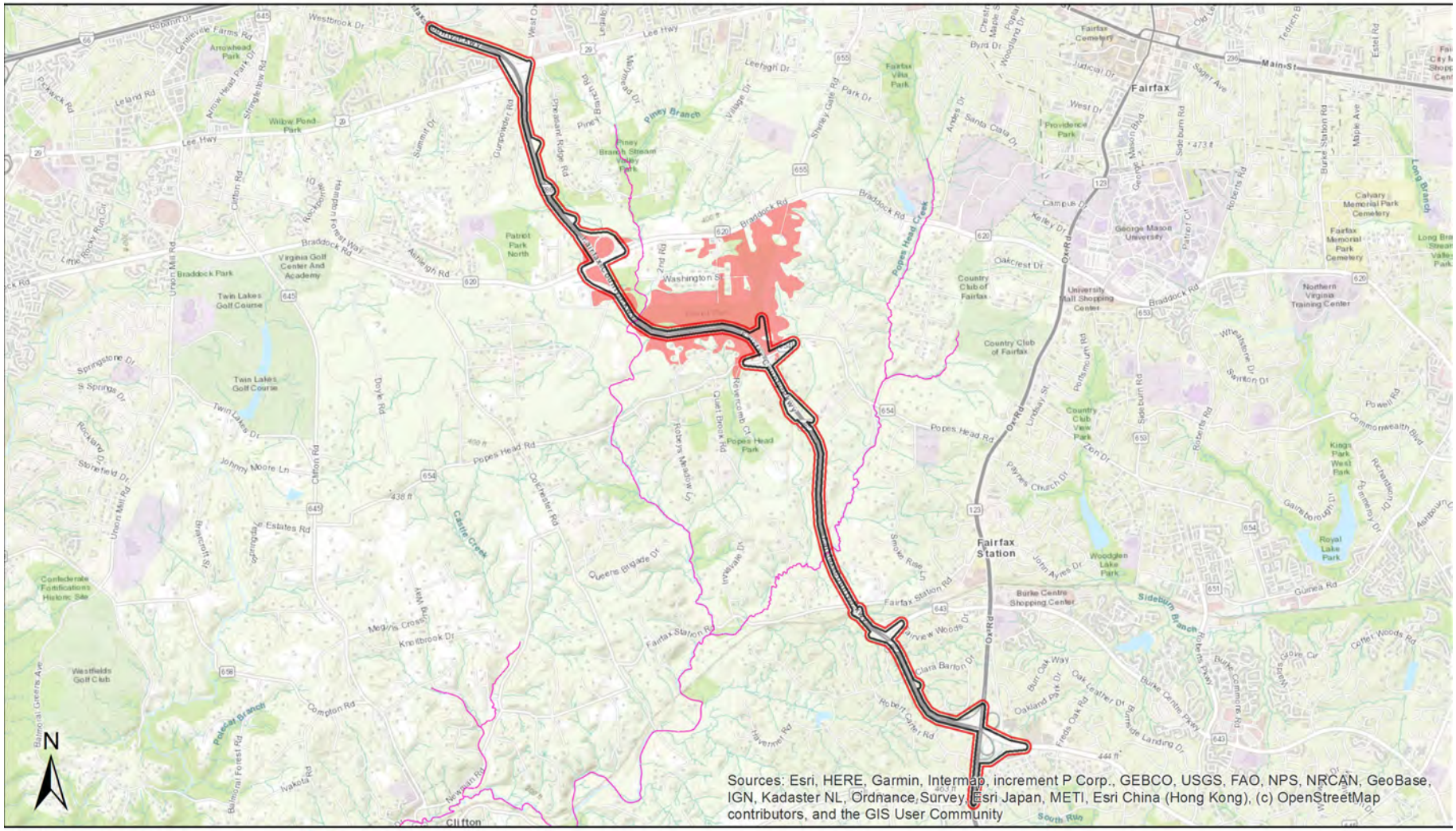
Natural Heritage Screening Features Intersecting Project Boundary

Site Name	Group Name	Common Name	Scientific Name	GRANK	SRANK	Fed Status	Species of Concern	State Status	EO Rank	Last Obs Date	Precision

Natural Heritage Resources Intersecting Project Boundary

Intersecting Predictive Models
Diabase Screening Layer
Predictive Model Results

Fairfax County Parkway Widening



Project Boundary

Buffered Project Boundary

NH_Screening_Layer

NH Screening Features

Conservation Site

SCU

Predictive Models

1:48,582

0 0.4 0.8 1.6 mi

0 0.5 1 2 km

Quads: Fairfax; Manassas

Counties: Fairfax

Company: Virginia Department of Transporation

Lat/Long: 384747 / -772014

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

The project mapped as part of this report has been searched against the Department of Conservation and Recreation's Biotics Data System for occurrences of natural heritage resources from the area indicated for this project. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in Biotics files, NATURAL HERITAGE RESOURCES HAVE BEEN DOCUMENTED within the submitted project boundary including a 100 foot buffer and/or PREDICTED HABITAT MODELS FOR NATURAL HERITAGE RESOURCES intersect the project area.

You have submitted this project to DCR for a more detailed review for potential impacts to natural heritage resources. DCR will review the submitted project to identify the specific natural heritage resources within the proposed project area including a 100 foot buffer. Using the expertise of our biologists, DCR will evaluate whether your specific project is likely to impact these resources. DCR's response will indicate whether any negative impacts are likely and, if so, make recommendations to avoid, minimize and/or mitigate these impacts. If the potential negative impacts are to species that are state- or federally-listed as threatened or endangered, DCR will also recommend coordination with the appropriate regulatory agencies: the Virginia Department of Game and Inland Fisheries for state-listed animals, the Virginia Department of Agriculture and Consumer Services for state-listed plants and insects, and the United States Fish and Wildlife Service for federally listed plants and animals. If your project is expected to have positive impacts we will report those to you with recommendations for enhancing these benefits.

There will be a charge for this service for "for profit companies": $60, plus an additional charge of $35 for 1-5 occurrences and $60 for 6 or more occurrences.

Please allow up to 30 calendar days for a response, unless you requested a priority response of 5 business days at an additional surcharge of $500 or 15 calendar days at an additional surcharge of $300. An invoice will be provided with your response.

We will review the project based on the information you included in the Project Info submittal form, which is included in this report. Also any additional information including photographs, survey documents, etc. attached during the project submittal process and/or sent via email referencing the project title (from the first page of this report).

Thank you for submitting your project for review to the Virginia Natural Heritage Program through the NH Data Explorer. Should you have any questions or concerns about DCR, the Data Explorer, or this report, please contact the Natural Heritage Project Review Unit at 804-371-2708.

Commonwealth of Virginia
Department of Conservation and Recreation
MEMORANDUM

TO: Bryan Campbell, VDOT

FROM: Barbara Gregory, DCR-DNH

DATE: August 14, 2019

SUBJECT: UPC 107937, Fairfax County Parkway Widening
Due August 14, 2019

The Department of Conservation and Recreation (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Piney Creek – Popes Head Creek – Castle Creek Stream Conservation Unit is located within the project site. Stream Conservation Units (SCUs) identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Piney Creek – Popes Head Creek – Castle Creek SCU has been given a biodiversity ranking of B3, which represents a site of high significance. The natural heritage resources associated with this site are:

Aquatic Natural Community (NP-Middle Potomac-Anacostia-Occoquan First Order Stream)	G3G4/S3S4/NL/NL
Aquatic Natural Community (NP-Middle Potomac-Anacostia-Occoquan Second Order Stream)	G2G3/S2S3/NL/NL

The documented Aquatic Natural Communities are based on Virginia Commonwealth University's **INSTAR** (*Interactive Stream Assessment Resource*) database which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Communities are significant on multiple levels. First, these streams are a grade B, as per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. These stream reaches also hold as a "Healthy" stream designation as per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of these streams to ideal stream conditions of biology and habitat for this region. Lastly, these streams contribute to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Communities and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow.

For other natural heritage resources including listed species as identified in the Natural Heritage Data Explorer Report generated on July 15, 2019, DCR does not anticipate adverse impacts from the proposed project.

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

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

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

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

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

All VDOT projects on state-owned lands must comply with the Virginia Erosion & Sediment Control (ESC) Law and Regulations, the Virginia Stormwater Management (SWM) Law and Regulations, the most current version of the DCR approved VDOT Annual ESC and SWM Specifications and Standards, and the project-specific ESC and SWM plans. [Reference: VESCL §10.1-560, §10.1-564; VESCR §4VAC50-30 et al; VSWML §10.1-603 et al; VSWMR §4VAC-3-20 et al].

The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis, or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Thank you for the opportunity to comment on this project.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

September 17, 2018

Steven Varner
Virginia Department of Transportation
Via email: steven.varner@vdot.virginia.gov

RE: DEQ Scoping Response; Fairfax County Parkway (Route 286)

Dear Mr. Varner:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. Similarly, DEQ-OEIR coordinates Virginia's review of federal consistency documents prepared pursuant to the Coastal Zone Management Act which applies to all federal activities which are reasonably likely to affect any land or water use or natural resources of Virginia's designated coastal resources management area must be consistent with the enforceable policies Virginia Coastal Zone Management (CZM) Program.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the NEPA document and/or federal consistency documentation, notification of the NEPA document and/or federal consistency documentation should be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (10 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITAShare file transfer system (https://vitashare.vita.virginia.gov). We request that the review of these two documents be done concurrently, if possible.

The NEPA document and the federal consistency documentation (if applicable) should include U.S. Geological Survey topographic maps as part of their information. We strongly encourage you to issue shape files with the NEPA document. In addition, project details should be adequately described for the benefit of the reviewers.

ENVIRONMENTAL REVIEW UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT: PROJECT SCOPING AND AGENCY INVOLVEMENT

As you may know, NEPA (PL 91-190, 1969) and its implementing regulations (Title 40, *Code of Federal Regulations*, Parts 1500-1508) requires a draft and final Environmental Impact Statement (EIS) for federal activities or undertakings that are federally licensed or federally funded which will or may give

rise to significant impacts upon the human environment. An EIS carries more stringent public participation requirements than an Environmental Assessment (EA) and provides more time and detail for comments and public decision-making. The possibility that an EIS may be required for the proposed project should not be overlooked in your planning for this project. Accordingly, we refer to "NEPA document" in the remainder of this letter.

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document. Traditionally, VDOT coordinates directly with localities and other state agencies. Below is a list those entities that VDOT should include:

- Department of Environmental Quality:
- DEQ Regional Office*
- Air Division*
- Office of Wetlands and Stream Protection*
- Office of Local Government Programs*
- Division of Land Protection and Revitalization
- Office of Stormwater Management*

Department of Conservation and Recreation
Department of Health*
Department of Agriculture and Consumer Services
Department of Game and Inland Fisheries*
Virginia Marine Resources Commission*
Department of Historic Resources
Department of Mines, Minerals, and Energy
Department of Forestry
Department of Transportation

Note: The agencies noted with a star (*) administer one or more of the enforceable policies of the Virginia CZM Program.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the federal Coastal Zone Management Act of 1972, as amended, and its implementing regulations in Title 15, *Code of Federal Regulations*, Part 930, federal activities, including permits, licenses, and federally funded projects, located in Virginia's Coastal Management Zone or those that can have reasonably foreseeable effects on Virginia's coastal uses or coastal resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the Virginia CZM Program.

Additional information on the Virginia's review for federal consistency documents can be found online at
http://www.deq.virginia.gov/Programs/EnvironmentalImpactReview/FederalConsistencyReviews.aspx

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems

  Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge

Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:

- www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)

  Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:
  - http://128.172.160.131/gems2/

- MARCO Mid-Atlantic Ocean Data Portal

  The Mid-Atlantic Ocean Data Portal is a publicly available online toolkit and resource center that consolidates available data and enables users to visualize and analyze ocean resources and human use information such as fishing grounds, recreational areas, shipping lanes, habitat areas, and energy sites, among others.

  http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true

- DHR Data Sharing System

  Survey records in the DHR inventory:
  - www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search

  Produces lists of resources that occur in specific counties, watersheds or physiographic regions:
  - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- DGIF Fish and Wildlife Information Service

  Information about Virginia's Wildlife resources:
  - http://vafwis.org/fwis/

- Total Maximum Daily Loads Approved Reports
  - https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx

- Virginia Outdoors Foundation: Identify VOF-protected land
  - http://vof.maps.arcgis.com/home/index.html

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:

- www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search

  Information on hazardous waste facilities:

  - www.epa.gov/enviro/facts/rcrainfo/search.html

- EPA Envirofacts Database

  EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:

  - www.epa.gov/enviro/index.html

- EPA NEPAssist Database

  Facilitates the environmental review process and project planning:

  http://nepaassisttool.epa.gov/nepaassist/entry.aspx

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

I hope this information is helpful to you.

Sincerely,

Bettina Rayfield, Program Manager
Environmental Impact Review and
Long-Range Priorities

Commonwealth of Virginia

Varner, Steven <steven.varner@vdot.virginia.gov>

UPC 107937; VDOT Project 0286-029-259, B619, B620, B621, B622, B623, B624, B625, B627, B628, B629, B630, B631, B632, D604, D605, P101; RTE 286 (FAIRFAX COUNTY PARWAY) - WIDEN FROM 4 TO 6 LANES

ImpactReview <impactreview@vofonline.org> Mon, Sep 17, 2018 at 11:23 AM
To: "Steven.Varner@Vdot.Virginia.Gov" <Steven.Varner@vdot.virginia.gov>

Mr. Varner,

The Virginia Outdoors Foundation has reviewed the project referenced above. As of 17 September 2018, there are not any existing nor proposed VOF open-space easements within the immediate vicinity of the project.

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

Thanks,
Mike

Mike Hallock-Solomon, AICP
Virginia Outdoors Foundation
[Quoted text hidden]

Commonwealth of Virginia

Varner, Steven <steven.varner@vdot.virginia.gov>

UPC 107937; VDOT Project 0286-029-259, B619, B620, B621, B622, B623, B624, B625, B627, B628, B629, B630, B631, B632, D604, D605, P101; RTE 286 (FAIRFAX COUNTY PARWAY) - WIDEN FROM 4 TO 6 LANES

Warren, Arlene <arlene.warren@vdh.virginia.gov> Fri, Sep 14, 2018 at 9:32 AM
To: "Varner, Steven" <Steven.Varner@vdot.virginia.gov>

Project Name: VDOT; RTE 286 (FAIRFAX COUNTY PARWAY) - WIDEN FROM 4 TO 6 LANES
Project #: 0286-029-259, B619, B620, B621, B622, B623, B624, B625, B627, B628, B629, B630, B631, B632, D604, D605, P101
UPC #: 107937
Location: FAIRFAX COUNTY

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

The following public groundwater wells are located within a 1-mile radius of the project site:

PWS ID Number	City/County	System Name	Facility Name
6059512	FAIRFAX COUNTY	FRIENDS OF FAIRFAX STATION INC	FRIENDS OF FAIRFAX STATION

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

The project is within the watershed of the following public surface water sources:

PWS ID Number	System Name	Facility Name
6059501	FAIRFAX COUNTY WATER AUTHORITY	OCCOQUAN RESERVIOR INTAKE

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren

GIS Program Support Technician

Office of Drinking Water

Virginia Department of Health

109 Governor Street

Richmond, VA 23219

(804) 864-7781

[Quoted text hidden]