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U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION and VIRGINIA DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL ASSESSMENT

Route 7 Widening

Fairfax County State Project: 0007-029-128, B610, C502, P102, R202; UPC No. 52328 Federal Project: DEMO-5A01(439) From: Reston Avenue To: Jarret Valley Drive

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

Approved for public availability:

10/6/16 Date

In Dronking

og Division Administrator Federal Highway Administration

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1.1 STUDY AREA

The Virginia Department of Transportation (VDOT) in cooperation with the Federal Highway Administration (FHWA) is studying the environmental consequences of a project that would improve capacity, safety, and access management deficiencies of an approximate 7-mile section of Route 7 (Leesburg Pike) in Fairfax County, Virginia. The improvements consist of widening from four to six lanes from Reston Avenue to the west approach of the bridge over the Dulles Toll Road to match and tie into existing six lane sections of roadway. The proposed roadway will provide an additional lane in each direction with the widening to the inside median where possible. A raised median, multipurpose trail and turn lanes at intersections are also proposed. A bridge replacement is proposed for the Difficult Run stream crossing with the wider typical section. The study area is bounded by Reston Avenue to the west and Dulles Toll Road to the east (Figure 1: Location Map).



FIGURE 1: Location Map

1.2 HISTORY

Planning for the widening of the Route 7 corridor from four to six lanes west of Tysons Corner has been ongoing since 1999. The first section of this effort began construction west of the project limits in 2013 with widening between Rolling Holly Drive and Reston Avenue. Construction of this western section was completed in February 2016. Bridge deck replacement and widening of Route 7 over the Dulles Airport Access Highway and Toll Road east of the project limits began construction in the Summer of 2015 and is expected to be completed in the Spring of 2018.

In 2008 a Technical Memorandum was prepared to document analysis of the corridor an intersection improvement alternatives analysis for Route 7 from Reston Parkway and the Dulles Toll Road which concluded that the implementation of conventional at-grade intersection improvements alone to the current 4-lane corridor would not provide sufficient intersection capacity. A Safety Assessment was completed in 2013 to document the current and historical safety performance of the study corridor. In 2015 an Alternative Intersection Analysis and Design Report was prepared to analyze and assess the operations of the intersection configuration alternatives and to recommend the preferred alternative for each intersection in the project corridor.

The widening of this section of Route 7 from four to six lanes is included in Fairfax County's *Comprehensive Plan 2013 Edition (as amended)* for Transportation. The County's interest in Route 7 is also found in the County's *Third Four Year Transportation Program (FY2013-FY2016)* and the *FY2015-FY2020 Transportation Project Priorities (TPP)*. This project has long been a part of the Metropolitan Washington Council of Governments (the Region's Metropolitan Planning Organization) Constrained Long Range Plan (CLRP) and the *Transportation Improvement Plan (TIP)*. In addition to being included in this regional plan, the Northern Virginia Transportation Authority's regional transportation plan entitled *TransAction 2040* designates the Dulles/VA 7 corridor as their top corridor for improvements. This project is also included in VDOT's *2025 State Highway Plan*. This plan is included as part of the *2035 Virginia Surface Transportation Plan Update*.

1.3 NEED

1.3.1 Existing Conditions

The need for this project is based on existing and future capacity and access management deficiencies. Route 7 is classified as an Urban Principal Arterial with a design speed of 60 miles per hour in the project area.

The existing corridor is a four lane roadway with approximately 24-feet of asphalt pavement with a grass median of varying width separating the east and west bound lanes and 6-foot paved shoulders. Multiple side streets, private entrances and business entrances are located along the project corridor. Throughout the corridor, intersections are un-signalized as well as signalized with designated right and left turn lanes.

Based on these previous studies, there are two existing deficiencies that would be addressed by the proposed project: capacity and access management.

1.3.1.a. Capacity

The 2011 average daily traffic (ADT) volume was approximately 46,000 vehicles per day (VPD) from Reston Avenue to Difficult Run and approximately 54,000 VPD from Difficult Run to Dulles Toll Road. Daily Service Volumes (DSV), based on the geometrics of the existing roadway (pavement widths, shoulders, radius of curve, sight distance, etc.), represent the acceptable traffic volume for a segment of roadway. Comparison of the Route 7 calculated DSV and the measured average daily traffic (ADT) of the existing year (2011) indicates the existing roadway geometrics are currently overcapacity by 31.4% - 54.3% of the DSV. (see Table 1: Existing 2011 Capacity Deficiencies).

Route 7 Segment	DSV	Existing 2011 ADT	% Overcapacity		
Reston Avenue to	35.000 V/PD	46.000 VPD	31 4%		
Diffcult Run	55,000 VI D	40,000 VI D	51.470		
Difficult Run to			EA 20/		
Dulles Toll Road	33,000 VPD	54,000 VPD	04.0%		

The Alternative Intersection Analysis and Design Report dated May 2015 analyzed traffic volumes and delays to determine the Intersection Level of Service (LOS) at the signalized intersections within the study area. The 2010 Highway Capacity Manual characterizes Intersection LOS by "control delay" which quantifies the increase in travel time due to traffic signal control. (see Table 2: Signalized Intersection LOS Criteria)

Control Delay (s/veh)	Level of Service (LOS)
<u><</u> 10	А
> 10-20	В
> 20-35	С
> 35-55	D
> 55-80	E
> 80	F

TABLE 2: Signalized Intersection LOS Criteria

1 The existing traffic data was collected in 2011. Traffic counts were obtained in 2015 at the intersection of Route 7 and Lewinsville Road and were found to be consistent with the 2011 data. Therefore, the 2011 traffic data was used to project the 2040 design year traffic volumes.

Each Signalized Intersection Level of Service (LOS) is described in the 2010 Highway Capacity Manual. A summary of those descriptions are:

- LOS A describes operations with a control delay of 10 seconds per vehicle (s/veh) or less. This level is typically assigned when progression is exceptionally favorable or the cycle length is very short. Most vehicles arrive during the green indication and travel through the intersection without stopping.
- LOS B describes operations with control delay between 10 and 20 s/veh. This level is typically assigned when progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
- LOS C describes operations with control delay between 20 and 35 s/veh. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued/stopped vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
- LOS D describes operations with control delay between 35 and 55 s/veh. This level is typically assigned when progression is ineffective or cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
- LOS E describes operations with control delay between 55 and 80 s/veh. This level is typically assigned when progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.
- LOS F describes operations with control delay exceeding 80 s/veh. This level is typically assigned when progression is very poor and the cycle length is long. Most cycles fail to clear the queue.

Table 3 summarizes the Existing 2011 AM and PM Delay and corresponding LOS for the signalized intersections along Route 7 as reported in the Alternative Intersection Analysis and Design Report dated May 2015.

	Existing	2011 AM	Existing 2011 PM	
	Delay		Delay	
Signalized Intersection	(s/veh)	LOS	(s/veh)	LOS
Reston Parkway	17.0	В	99.0	F
Utterback Store Road	16.3	В	35.8	D
Baron Cameron Avenue/Springvale Road	78.9	E	82.0	F
Delta Glen Court/Colvin Run Road (West)	21.3	С	47.0	D
Carpers Farm Way/Colvin Run Road (East)	46.8	D	29.8	С
Beulah Road/Forestville Drive	31.9	С	22.9	С
Towlston Road	18.0	В	19.4	В
Lewinsville Road	28.2	С	32.0	С
Dulles Toll Road WB Off-Ramp/Jarrett Valley Drive	51.5	D	8.4	A

 TABLE 3: Existing 2011 AM/PM Delay and LOS at Signalized Intersections

1.3.1.b. Access Management

As documented in the Safety Assessment from February 2013, the study corridor is a divided facility with at-grade intersections. Median openings are located at all of the signalized intersections and at most of the un-signalized intersections. Most properties along Route 7 have direct access to the corridor. Access management of the study corridor directly affects the safety performance of the study corridor.

1.3.2 Future Conditions – 2040 No-Build

Growth rates for traffic volumes on this segment of Route 7 were determined examining the Transportation Planning Board 2010 CLRP models with Cooperative Land Use Forecasts Round 8.0, the Statewide Planning System (SPS) and historical traffic trends. All analyzes indicated a traffic growth rate of 1.6% per year from Existing year 2011 through the Design year 2040.

1.3.2.a. Capacity

The 2040 average daily traffic (ADT) volumes were projected to be 73,000 vehicles per day (VPD) from Reston Avenue to Difficult Run and 86,000 VPD from Difficult Run to Dulles Toll Road. If capacity improvements are not incorporated, Route 7 is projected to be overcapacity in the design year (2040) by 108.6% - 145.7% of the DSV (see Table 4: 2040 No-Build Capacity Deficiencies).

Route 7 Segment	DSV	2040 ADT	% Overcapacity	
Reston Avenue to Diffcult Run	35,000 VPD	73,000 VPD	108.6%	
Difficult Run to Dulles Toll Road	35,000 VPD	86,000 VPD	145.7%	

TABLE 4: 2040 No-Build Capacity Deficiencies

The Alternative Intersection Analysis and Design Report dated May 2015 analyzed traffic volumes and delays to determine the Intersection Level of Service (LOS) at the signalized intersections within the study area. VDOT's unwritten rule of thumb is to strive for a minimum LOS D at urban signalized intersection; however, the overall goal is simply to provide any level of improvement to traffic operations. Table 5 compares the Existing 2011 and the 2040 No-Build AM and PM Delay and LOS for the signalized intersections along Route 7.

Section 1 PURPOSE AND NEED

	AM				РМ			
	Existing 2011		2040 No-Build		Existing 2011		2040 No-Build	
Signalized Intersection	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Reston Parkway	17.0	В	100.2	F	99.0	F	90.6	F
Utterback Store Road	16.3	В	107.9	F	35.8	D	105	F
Baron Cameron Avenue/Springvale Road	78.9	Е	236	F	82.0	F	113.6	F
Delta Glen Court/Colvin Run Road (West)	21.3	С	156.2	F	47.0	D	36	D
Carpers Farm Way/Colvin Run Road (East)	46.8	D	137.1	F	29.8	С	21.3	С
Beulah Road/Forestville Drive	31.9	С	97.6	F	22.9	С	47.6	D
TowIston Road	18	В	60.2	E	19.4	В	59	E
Lewinsville Road	28.2	С	82.5	F	32.0	С	72	E
Dulles Toll Road WB Off- Ramp/Jarrett Valley Drive	51.5	D	46.8	D	8.4	А	35.4	D

TABLE 5: Existing 2011 vs. 2040 No-Build AM/PM Delay and LOS at SignalizedIntersections

1.3.2.b. Access Management

Existing access management deficiencies would not be addressed under the future no build conditions. Additional traffic, delays and development along Route 7 would worsen the already poor access management situation, resulting in more traffic delays and safety issues.

1.4 SAFETY

The Safety Assessment dated February 2013 documents 911 reported crashes at intersections and on segments along the corridor from 2006 to 2010. These crashes involved a total of 1,947 vehicles and 2,011 occupants which resulted in two fatalities and 466 injuries. As a result, the estimated property damage associated with these crashes is \$5,101,385 and the estimated societal cost is \$47,300,028. The Safety Assessment documents that the predominant type of collision along this corridor is rear-end crashes due to congestion and queuing. While safety is not a need in the context

of this Environmental Assessment, reducing congestion and improving access management should improve overall safety of the corridor.

1.5 SUMMARY

To summarize, the purpose of the proposed project is to address existing and future capacity and access management deficiencies along the corridor.

2.1 INTRODUCTION

This section discusses the range of alternatives considered, including the No-Build Alternative and the Build Alternative. This section also describes the basis for the alternatives and options being either eliminated or carried forward for detailed analysis in this document. The No-Build Alternative was retained for detailed study and serves as a baseline for comparison. A preferred Build Alternative has been identified and is described in detail.

The flowchart below illustrates the steps in the alternatives development and screening process. This process involved identifying a range of alternatives initially and then narrowing the options to a preferred Build Alternative for detailed consideration.

Alternatives Development and Screening Process



2.2 ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Through the alternatives screening process, two alternatives were not retained for further consideration and not carried forward for detailed study. Table 6 lists the alternatives eliminated and the basis for their elimination.

Alternative	Basis for Elimination
Transportation System Management (TSM) Alternative	"TSM" generally means implementation of relatively low-cost actions to improve efficiency of existing transportation systems. Examples include traffic controls, signal synchronization, turn lanes, parking management, access management, operations modifications, flexible work hours, van pools, transit scheduling, bicycle and pedestrian improvements, modifying driver behavior with incentives, pricing, or restrictions. Although such actions are important elements in the overall transportation plan for any urbanized area, there are none that would meet the identified needs for this project because they would not address the capacity and access management deficiencies.
Mass Transit Alternative	This alternative would increase mass transit service in the study area. The travel hazards along Route 7 mostly stem from the uncontrolled access points and the current and future carrying capacity issues. Increasing the use of mass transit will not solve the capacity and access management problems nor would it substantially reduce the congestion and capacity deficiencies. Since it does not meet the project purpose or need, the Mass Transit Alternative has been eliminated from further study.

TABLE 6: Alternatives Eliminated

2.3 ALTERNATIVES CARRIED FORWARD

2.3.1 No-Build

Under the No-Build Alternative, Route 7 would remain a four lane divided facility with its current configuration. This alternative would not have environmental impacts; however, the identified transportation needs would not be satisfied because the capacity, safety, and access management deficiencies along the corridor would not addressed. Therefore, the No-Build Alternative does not meet the project's purpose and need of increased traffic capacity and access management implementation.

2.3.2 Build Alternative

The proposed project would provide an additional lane on each side of the existing roadway for a total of six 11-foot lanes with curb and gutter divided with a minimum 16-foot raised median. Turn lane lengths would also be improved to meet the full AASHTO requirements for deceleration and storage to eliminate backups into through lanes. Unsignalized median cross overs not meeting signal warrants would either be closed or converted to median left turn lanes.

There are additional improvements proposed for the corridor as listed below.

- There are number of deficient vertical curves that do not meet the required lengths for stopping sight distance and speed. These vertical curves would be corrected to meet the required design speeds.
- The intersection sight distance at the Trap Road/Route 7 intersection is deficient. The Build Alternative would convert the intersection to a right in/right out from the existing full access intersection to prohibit traffic movements that would be unsafe.
- The Utterback Store Road intersection with Route 7 would be re-aligned to eliminate the existing severe skew.
- The project would replace the existing bridge over Difficult Run with a new structure to eliminate flooding issues experienced with the existing structure.
- 10-foot wide shared use paths would be provided along both the westbound and eastbound lanes creating a continuous pedestrian route for the entire corridor.
- Protected signalized pedestrian movements would be provided at all signalized intersections.

2.3.3 Ability to Meet Purpose and Need

The Build Alternative would provide additional traffic capacity and implement access management from Reston Avenue to the west approach of the bridge over Dulles Toll Road (see Figure 1), as described below.

Capacity

In the Design year 2040, the Build Alternative's wider typical section and improved turn lane lengths substantially decrease the AM and PM intersection delays from those of the No-Build Alternative. The Build Alternative also achieves a more desirable AM and PM intersection LOS (all between A and C, except for one D) than the No-Build Alternative (primarily F). These results are summarized in Table 7: No-Build vs. Build 2040 AM/PM Delay and LOS at Signalized Intersections.

	2040 AM			2040 PM				
	No-Build		Build		No-Build		Build	
Signalized Intersection	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Reston Parkway	100.2	F	23.9	С	90.6	F	21.5	С
Utterback Store Road	107.9	F	12.1	В	105.0	F	19.2	В
Baron Cameron Avenue/Springvale Road	236.0	F	19.8	В	113.6	F	37.7	D
Delta Glen Court/Colvin Run Road (West)	156.2	F	8.5	А	36.0	D	10.1	В
Carpers Farm Way/Colvin Run Road (East)	137.1	F	17.1	В	21.3	С	25.0	С
Beulah Road/Forestville Drive	97.8	F	20.6	С	47.6	D	22.7	С
Towlston Road	60.2	E	19.4	В	59.0	Е	26.9	С
Lewinsville Road	82.5	F	30.2	С	72.0	E	26.3	С
Dulles Toll Road WB Off- Ramp/Jarrett Valley Drive	46.8	D	4.3	А	35.4	D	5.3	А

TABLE 7: No-Build vs. Build 2040 AM/PM Delay and LOS at Signalized Intersections

Access Management

Access management deficiencies would be addressed for the un-signalized median cross overs not meeting signal warrants. A number of these would be closed, while the remaining would be converted to median left turn lanes. These changes eliminate traffic from side roads making unprotected movements across multiple lanes of traffic. Service drives would be constructed as needed for access to driveways/entrances and to complete connections.

Estimated Project Costs			
Build Alternative			
Alignment Length (miles) 7			
Preliminary Engineering Cost (millions)	\$15.4		
Right-of-Way & Utilities Relocation Cost (millions)	\$62		
Construction Cost (millions)	\$168.5		
Total Cost (millions)	\$233.9		

Table	8:	Estimated	Project	Costs
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3.1 OVERVIEW OF ENVIRONMENTAL CONSEQUENCES

Table 9 (pages 14-17) summarizes the environmental issues along the project corridor. Table 10 further identifies the impacts of the proposed project. A discussion of construction effects and the indirect and cumulative effects follows Table 10.

Resource/Issue	Comments
Land Use	The land use along this section of Route 7 (Leesburg Pike) is mostly residential with some areas of planned development housing and planned residential community. There are very few areas of general industrial, neighborhood retail and office space. (Fairfax County Zoning Maps)
Socioeconomics and Relocations	Based on the 2010 Census Data, Environmental Justice populations have been identified within the project area. There is one proposed residential relocation. The Stage I Relocation Assistance Report identifies the displaced family as belonging to a minority group. The displaced persons will receive all benefits that they are eligible for under the Uniform Relocation Assistance Program.
Parks and Recreation	Fairfax County Park Authority (FCPA) lands within the project area include Colvin Run Mill Park, Great Falls Nike Park, and Difficult Run Stream Valley Park. Minimization/mitigation efforts for the minor use of FCPA lands have been coordinated with FCPA to obtain preliminary concurrence that the temporary occupancy, permanent easement, and fee taking, based upon current design information and the commitment on the part of VDOT to protect the park property, follow the proposed revised mitigation to minimize harm, and follow FCPA's design requirements, impacts to park property that could be expected to result from the project's temporary occupancy, permanent easement, and fee taking will not adversely affect activities, features, and attributes of the park, subject to VDOT providing notice and opportunity for public review and comment. This preliminary concurrence does not constitute an endorsement of the project or conveyance of any temporary or permanent interests in or access to parklands. This preliminary concurrence is provided to FCPA by VDOT during project development and that further consultation with FCPA will be undertaken by VDOT to ensure, prior to granting of any temporary or permanent property interests, that harm to park property by the proposed project will be minimized and the conditions upon which this preliminary concurrence is based have not changed. Final concurrence will be requested after VDOT provided notice and

Table 9: Environmental Issues

Stormwater Management and	opportunity for public review and comment. The Federal Highway Administration (FHWA) intends to make findings of de minimis impact pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966 for the minor use of FCPA lands. There are no Section 6(f) properties within the project area. Stormwater management facilities would be located near the proposed road to minimize long-term effects of the project on
Water Quality	water quality.
Floodplains	The project lies in FEMA Designation Zones X, A, and A/AE. Based on the hydraulic analysis, the project as proposed does not increase the 100 year floodplain elevation at any of the floodplain crossings.
Waters of the U.S., including wetlands	 The project crosses Colvin Run, Colvin Mill Run, Difficult Run, Dog Run, Piney Run, and associated tributaries. There are palustrine forested, palustrine scrub/shrub, and palustrine emergent wetlands associated with these streams. Open water is also within the project area. VDOT has been in consultation with permitting agencies for avoidance and minimization of impacts to these resources and will continue through final design: August 14, 2014 – (VDOT, USACE, USFWS, USEPA, FHWA, NOAA, Parsons) The project was presented for review of the stream relocation and constraints from the Section 106 resources. December 22, 2015 – (VDOT, USACE, VADEQ) VDOT held an in-field walkthrough of the project to acquire the Preliminary Jurisdictional Determination of Waters of the U.S. Areas of preliminary proposed impacts including SWM pond locations and the stream relocation were reviewed. February 10, 2016 – (VDOT, USACE, VADEQ, USEPA, JMT, FCPA) VDOT and JMT presented six alternatives for the stream relocation design to garner comments regarding these alternatives in obtaining the LEDPA decision for the project. In addition, value engineering of the stormwater design as well as the trail alignment in Colvin Run Park and Difficult Run Park reduced the proposed impacts to wetlands, streams and open water.
Water Quality Permits	 The proposed project will require a Virginia Department of Environmental Quality (VDEQ) Individual VWPP, a Virginia Marine Resources Commission (VMRC) VGP-1, and an United States Army Corps of Engineers (USCOE) Individual permit. Consultation and coordination with the permitting agencies have begun: August 14, 2014 – USACE indicated the project would qualify for an Individual Permit due to the stream relocation.

	USACE requested a site visit.
	 December 22, 2015 – (VDOT, USACE, VADEQ) VDOT held an in-field walkthrough of the project to acquire the Preliminary Jurisdictional Determination of Waters of the U.S. Areas of preliminary proposed impacts including SWM pond locations and the stream relocation were reviewed. February 10, 2016 – (VDOT, USACE, VADEQ, USEPA, JMT, FCPA) VDOT and JMT presented six alternatives for the stream relocation design to garner comments regarding
	these alternatives in obtaining the LEDPA decision for the project.
	All permits will be acquired prior to construction.
Agricultural Forestal Districts, Prime Farmland and Soils	There is one Agricultural/Forestal District adjacent to the project. Less than one acre is proposed to be converted, therefore, a detailed Ag/Forestal Report is not required. Based on the NRCS- CPA-106 form, the corridor does not contain prime, unique statewide or local important farmland; therefore, the Farmland Protection Policy Act does not apply.
Threatened and Endangered Species	The Northern long-eared bat was identified within the 2-mile search radius of the project area. VDOT submitted the project to the U.S. Fish and Wildlife Service (USFWS) relying upon the findings of the 1/5/2016 Programmatic Biological Opinion for Final 4(d) Rule on the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions to fulfill project-specific Section 7 responsibilities. No response was received from USFWS; therefore, USFWS concurs with VDOT's determination of Not Likely to Adversely Affect/May Affect (NLAA/MA). Reviews/clearances are updated throughout project development to determine if new species are identified within the 2-mile search radius of the project area.
Cultural Resources and Section 4(f)	Coordination with the Virginia Department of Historic Resources (DHR) resulted in a determination of No Adverse Effect pursuant to Section 106 of the National Historic Preservation Act. The Federal Highway Administration (FHWA) intends to make findings of de minimis impact pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966 for the minor use of land from the Hunter Mill Road Historic District (DHR ID 029-5180), Colvin Run Mill (DHR ID 029-5462).
Air Quality	This project is located within a Moderate Ozone Nonattainment area, a Fine Particulate Matter (PM2.5) Nonattainment area, and a volatile organic compounds (VOC) and oxides of nitrogen (NOx) Emissions Control Area. The Air Report is included as Appendix A in this Environmental Assessment.
Noise	A preliminary noise analysis was performed for the project. Under

	the Design year 2040 Build conditions, a total of 205 receptors (173 residencies, 13 cemetery grid units, 15 proposed trail units, one soccer field (two units), two playgrounds (seven grid units), and one historic site) are predicted to experience noise impacts. Noise barriers were evaluated and determined to be both feasible and reasonable. Further study is required during Final Design to refine the abatement options. The Preliminary Noise Analysis is included as Appendix B in this Environmental Assessment.
Hazardous Materials	A Phase I Hazardous Materials Investigation identified six properties for additional investigations. A Phase II Hazardous Materials Investigation of selected properties discovered petroleum-contaminated soil within the proposed R/W adjacent to a former Exxon station located at 10516 Leesburg Pike. Naturally occuring asbestos is documented along or near Route 7. Special Provisions for petroleum-contaminated soil and naturally occuring asbestos will be included in the Contract.

Table 10: Summary of Impacts

Category	Impact			
Environmental	Citizens, including Environmental Justice (EJ) populations, will			
Justice	experience travel pattern changes due to the closing of some			
	median cross-overs. No EJ concerns have been raised by the			
	localities or from the public as part of the extensive public			
	involvement efforts. There would not be disproportionately high			
	or adverse effects to EJ populations.			
Owner Families	One*			
Displaced*				
Section 4(f) Property	Colvin Run Mill Park			
Use	 0.40 acres Right-of-Way 			
	 0.10 acres Permanent Easement 			
	 2.6 acres Temporary Easement 			
	Great Falls Nike Park			
	 0.20 acres Right-of-Way 			
	 0.40 acres Permanent Easement 			
	 0.10 acres Temporary Easement 			
	Difficult Run Stream Valley Park			
	 1.80 acres Right-of-Way 			
	 0.20 acres Permanent Easement 			
	 7.90 acres Temporary Easement 			
	Hunter Mill Road Historic District			
	 5.225 acres Right-of-Way 			
	 1.497 acres Permanent Easement 			
	 1.445 acres Temporary Easement 			

	Colvin Run Mill
	 0.076 acres Temporary Easement
	Colvin Run Mill Historic District
	 0.041 acres Right-of-Way
	 0.076 acres Temporary Easement
	Colvin Run Mill is within the Colvin Run Mill Historic District:
	therefore, the 0.076 acres of Temporary Easement from each
	resource is the same piece of property.
	The Federal Highway Administration (FHWA) intends to make
	findings of de minimis impact pursuant to Section 4(f) of the
	U.S. Department of Transportation Act of 1966 for each Section
	4(f) property listed above.
Wetlands	4.84 acres of permanent impacts
	0.05 acres of temporary impacts
	0.14 acres of conversion impacts
Streams	3,659.17 linear feet of permanent impacts
	152.64 linear feet of temporary impacts
Open Water	0.02 acres
Cultural Resources	Colvin Run Miller's House; No Effect
and Section 106	Hunter Mill Road Historic District; No Adverse Effect
Effect Determinations	Andrews Chapel School/Lyons House; No Adverse Effect
	Colvin Run Mill; No Adverse Effect
	Colvin Run Historic District; No Adverse Effect
	Alexandria/Leesburg Turnpike roadbed; No Effect
	Overall Project; No Adverse Effect
Noise Receptors	205 impacted; Noise barriers preliminarily feasible and
	reasonable; Further study required
Hazardous Materials	Petroleum-contaminated soil and naturally occurring asbestos

*The acquisition of property and the relocation of residents, businesses, farms, and non-profit organizations will be conducted in accordance with all applicable Federal laws, regulations and requirements, including but not limited to, 23 CFR Part 710, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and its implementing regulations found in 49 CFR Part 24. All persons displaced on Federally-assisted projects will be treated fairly, consistently, and equitably so that they do not suffer disproportionate injuries as a result of projects that are designed for the benefit of the public as a whole. Relocation resources will be available to all residential and business relocatees without discrimination.

3.2 CONSTRUCTION

During construction, temporary environmental impacts usually can be controlled, minimized, or mitigated through careful attention to prudent construction practices and methods. Potential temporary construction impacts and preventive practices are summarized below.

3.2.1 Water Quality

During construction, non-point source pollutants could possibly enter groundwater or surface water from stormwater runoff. To minimize these impacts, appropriate erosion and sediment control practices will be implemented in accordance with VDOT's most current *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.

3.2.2 Air

Air quality impacts from construction, consisting of emissions from diesel-powered construction equipment, burning of debris, fugitive dust, and the use of cutback asphalt (particularly during the months of April through October), would be temporary. This project would comply with all applicable local, state, and federal regulations, including the Virginia Environmental Regulation 9 VAC 5-130 regarding open burning restrictions, 9 VAC 5-50, Article 1 regarding fugitive dust precautions, and 9 VAC 5-45, Article 7 regarding cutback asphalt restrictions. To control dust, measures would be taken to minimize exposed earth by stabilizing with grass, mulch, pavement, or other cover as early as possible. Other measures will be implemented per VDOT's most current *Road and Bridge Specifications* to minimize air pollution.

3.2.3 Noise

Construction activity may cause intermittent fluctuations in noise levels. During the construction phase of the project, all reasonable measures would be taken to minimize noise impacts from these activities. VDOT's *Road and Bridge Specifications* establish construction noise limits and the contractor would be required to conform to this specification to reduce any impacts of construction noise.

3.2.4 Solid Waste and Hazardous Materials

All solid waste material resulting from clearing and grubbing, demolition, or other construction operations would be removed from the project and disposed of in an appropriate manner. If contaminated soils are encountered during construction, VDOT would develop and implement appropriate procedures for their proper management and coordinate the removal, disposal, and/or treatment of the soil, as necessary. If contaminated groundwater is encountered during construction, VDOT would implement appropriate proper management and treatment of the water, as necessary.

3.2.5 Late Discoveries

During construction, should the discovery of archaeological, paleontological, or rare mineralogical articles occur, work would be suspended immediately. VDOT's *Road and Bridge Specifications* establish the protocol that would be followed should a "late discovery" occur.

3.3 INDIRECT EFFECTS

The Council on Environmental Quality (CEQ) defines indirect effects as "...effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508(a)). These induced actions are those that would or could not occur without the implementation of the proposed project.

The study area, along with input from the scoping process, was used to inform the identification of resource-specific study areas for this indirect effects analysis. Specific indirect effect study areas were developed for each of the following resource topics:

- <u>Socioeconomics, Environmental Justice, Land Use and Recreation</u>: This study area includes the communities along the Route 7 corridor that would likely use Route 7 as their primary means for travel between their communities and major employment centers in the Greater Washington, D.C. metropolitan area. The study area is broad enough to consider whether the proposed project would result in significant induced growth effects and how direct impacts to homes, community facilities, recreational lands and businesses might affect availability of the these resources within each community as a whole.
- <u>Historic Properties</u>: This study area is the same as the area of potential effects (APE) for architectural and archaeological resources as defined in the historic properties analysis. The APE for architecture is based on the viewshed of the project. The APE for archaeology encompassed all of the proposed right-of-way, including 13 Storm Water Management (SWM) areas and any current right-ofway that extends more than 50 feet (ft) from the edge of the road. Indirect effects such as altering the setting, feeling and association of archaeological and architectural historic properties were considered under Section 106 of the National Historic Preservation Act (NHPA).
- <u>Natural Resources</u>: This study area includes the eight-digit hydrologic unit code (HUC) watershed boundary (Middle Potomac-Catocin 02070008) that encompasses the project limits. This is the area within which there are potential for indirect effects on waters downstream of the project limit and within which mitigation of steam and wetland impacts would likely occur. It is also a suitable area for consideration for the potential effects of habitat loss on the availability and connectivity of wildlife habitat within the Greater Washington, D.C. metropolitan area.

The above study areas are within Fairfax County, a jurisdiction that has experience steady growth since the 1950s. Population is projected to increase by 36% to 743,300 and employment projected to grow by 34% to 736,100 jobs by 2040. Much of the land use is designated as predominately residential with some commercial business along the study area; the largest tracts of protected open space areas are Colvin Run Mill Historic Site, Colvin Run Stream Valley Park and Difficult Run Stream Valley Park. The Fairfax County Comprehensive Plan notes that the County should "concentrate most future development intensity in areas of transportation advantage, i.e., Tysons Corner Urban Center. The proposed project is in conformance with the Fairfax County Comprehensive Plan and will support the future growth planned for the Tysons area.

No-Build Alternative

Under the No-Build Alternative, indirect effects related to increased traffic delays and lack of travel reliability would have negative impacts on businesses and residents. Proximity effects associated with the existing facility, including noise, air quality, and visual intrusions would continue to affect parks and historic resources. Potential indirect effects could be associated with petroleum from vehicles, and salt or chemicals due to road maintenance.

Build Alternative

Indirect effects from the Build Alternative are expected to be minimal since the proposed improvements are to an existing facility primarily within existing Right-of-Way in an environment that is highly developed and influenced by highway-related pressures. The Build Alternative is expected to improve travel times and reduce congestion, encouraging businesses to remain in place.

Potential indirect impacts to wetlands, streams, water quality, floodplains, wildlife habitat, and threatened or endangered species could result from increased stormwater runoff due to increases in impervious surfaces. However, indirect effects associated with sediment transport should be minor during construction through the proper use of stormwater control measures. During construction, VDOT would adhere to standard erosion and sediment control and stormwater measures and the associated required monitoring protocols.

Proximity effects associated with the existing facility would continue to impact historic resources; however, based on coordination with the Virginia Department of Historic Resources (VDHR) the Build Alternative would not adversely affect historic resources. Mitigation measures for the project's noise impacts are under consideration and final decision on such measures will be made after completion of the final design noise analysis.

No significant induced growth is expected as a result of the Build Alternative. The study area is already highly developed and growth is expected to continue regardless of whether the Build Alternative is constructed.

3.4 CUMULATIVE EFFECTS

CEQ defines cumulative effects (or impacts) as "...the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). Cumulative effects include the total of all impacts, direct and indirect, experienced by a particular resource that have occurred, are occurring, and would likely occur as a result of any action or influence, including effect of a federal activity (EPA, 1999). Both the No-Build Alternative and Build Alternative would contribute minimal incremental effects to socioeconomic, natural, and historic resources.

The geographic limits for cumulative effects analysis are the same as the indirect effect study areas described in Section 3.3. The analysis of cumulative effects must consider past, present, and reasonably foreseeable future actions.

Past and Present Actions

Route 7 is a major primary state highway and commuter in northern Virginia. Its western terminus begins in the City of Winchester and ends at its eastern terminus in the City of Alexandria, the highway is part of the National Highway System. Route 7/Leesburg Pike began as a buffalo trail connecting the Potomac River in present-day Old Town Alexandria to the foot of the Blue Ridge Mountains at the Town of Leesburg. Tolls were once levied on Leesburg Pike beginning in 1785 to pay for maintenance but the advent of the Civil War put an end to the practice. During the 20th century, especially following the 1950's, the population and the economy start to expand. Land use gradually changed beginning westward from the City of Falls Church from agricultural to tract housing and retail shopping. This was due largely to growth of the federal government, migration to the suburbs, and growth in commercial, industrial, educational and medical facilities to serve the growing population. Route 7 and other state roadways were also improved to accommodate the resulting growth in traffic.

To the east of the proposed project is Tysons, home to many Fortune 500 corporate headquarters and is Fairfax County's central business district with the largest concentration of office space in Northern Virginia including a regional commercial center Tysons Corner. Tysons is the 12th largest employment center in the United States. As of 2012, 75.6% of the population over the age of 16 was in the labor force. 0.6% was in the armed forces, and 75.0% was in the civilian labor force with 70.4% employed and 4.5% unemployed. The occupational composition of the employed civilian labor force was: 66.4% in management, business, science, and arts; 20.3% in sales and office occupations; 10.5% in service occupations; 2.1% in natural resources, construction, and maintenance; 0.7% in production, transportation, and material moving. The three industries employing the largest percentages of the working civilian labor force were: professional, scientific, and management, and administrative and waste management

services (28.8%); educational services, health care, and social assistance (13.3%); and public administration (12.8%). It has been characterized as a quintessential example of an edge city in close proximity to the area's four Metro Silver Line stations. Land use in Fairfax County west of the project is characterized predominately by residential properties and Historic Dranesville Tavern. Just before the Loudoun County line is the interchange with Algonkian Parkway to the north and Fairfax County Parkway to the south. The *Fairfax County Parkway*, is a primary four-lane <u>state highway</u> providing a north–south arterial route terminating at US Route 1 in Fairfax County. The first segment of the roadway opened in 1987 with final completion in 2010.

West of the proposed project is Loudoun County; it population has grown dramatically since the 1980s with heavy suburbanization since 1990. Loudoun has a full-fledged service economy and is home to world headquarters for several Internet-related and high tech companies. Land use between the Fairfax County line and Route 28 consists of residential communities and retail shopping including the Loudoun Campus of the *Northern Virginia Community College*. The Loudoun Campus consists of eight buildings on 93 acres and provides a variety of academic programs, workforce development classes, student activities, events and campus facilities to more than 11,000 students each year.

At the Route 7 and Route 28 interchange is the **Dulles Town Center** which encompasses 1,400,000 square feet of retail shops and is the largest enclosed shopping center in Loudoun County.

Construction of *One Loudoun* began in 2011 and comprises 358 acres of residential, retail, dining, and entertainment. When complete, One Loudoun will include 1040 residences of single family homes, townhomes and condominiums with more than 100 acres of parks and trails, extensive outdoor amenities, and a ballpark.

The Route 7 Corridor Transit Study, referred to as EnvisionRoute7, is being conducted by the Northern Virginia Transportation Commission (NVTC) and is funded by the Northern Virginia Transportation Authority. The Route 7 Corridor Transit Study will include an in-depth assessment of existing travel needs along the corridor and develop recommendations to improve mobility and accessibility in the Route 7 corridor between Tysons and Alexandria. The primary objective of this study will be to assess the project for viability and, if desired, prepare for entrance into the Federal Transit Administration's (FTA) Project Development process. The study is being conducted in two phases. Phase I identified and evaluated a suite of potential transit options that could improve mobility and accessibility in the Route 7 corridor based on planning-level feasibility assessments. Transit options were narrowed for further evaluation in a Phase II which will identify a transit option that most effectively and efficiently addresses not only the existing issues and needs along the Route 7 corridor, but also best accommodates the future demands along the corridor. The Route 7 Corridor Transit Study was completed in the Spring of 2016 but there is presently no set timeline or funding to complete required design and environmental review and advancing a transit option to construction.

Route 7 Widening - Rolling Holly Drive to Reston Avenue: This VDOT project widened a mile and a half of Route 7 from four to six lanes with a raised median and included a10-foot-wide shared-use path in both directions, lengthened turn lanes, and improved intersection operation, particularly at Georgetown Pike, Route 7 and Seneca Road. Construction was completed in February 2016.

The **Dulles Corridor Metrorail Project** is a 23-mile extension of Washington's existing Metrorail System. It is being built in two phases by the Metropolitan Washington Airports Authority (MWAA). Phase 1 of the new line opened on July 26, 2014, connecting East Falls Church with Tysons Corner and Reston, Virginia's largest employment centers, with downtown Washington and Largo, Maryland. Known as the Silver Line, the extension is operated by the Metropolitan Washington Area Transit Authority (WMATA). Phase 1 includes four stations are in the Tysons Corner area: (1) the McLean Station on the northwest side of Route 123 at Scotts Crossing/Colshire Drive, (2) the Tysons Corner Station is on the north side of Route 123 at Tysons Boulevard, (3) the Greensboro Station in the median of Route 7, just west of the Route 123 overpass and (4) the Spring Hill Station is in the median of Route 7 at Spring Hill Road. Preliminary construction for Phase 2 began in 2014 from the eastern edge of Reston west to Washington Dulles International Airport and to Ashburn in eastern Loudoun County. While construction of Phase 2 will take five years, a completion date has not been set. When both phases are complete, the line will provide a one-seat, no transfer ride from Dulles to downtown Washington, D.C.

Reasonably Foreseeable Future Actions

Transforming Tysons: In June 2010, the Board of Supervisors adopted a **Comprehensive Plan Amendment** for Tysons Corner Urban Center. The Plan was designed to take advantage of the four new Metro stations coming to Tysons in 2014. By 2050 Tysons will be transformed into a walkable, green urban center. It will be home to up to 100,000 residents and 200,000 jobs in that year. Tysons is envisioned as Fairfax County's "downtown," or a 24-hour urban center where people live, work and play. Three-quarters of future growth will be within a half mile of the stations. Many offices and homes will be a three to six minute walk from the stations, allowing people to get around on foot, bicycle, bus or subway.

Approved by the county in 2010, planned development of *Kincora* is for more than 2 million square feet of office space as well as retail space, two hotels, a state-of-the-art performing arts center, and 1,400 multifamily-residential units on 424 acres at the southwest corner of Route 7 and Route 28. Construction is scheduled to begin in the spring of 2017 with occupancy in the spring or summer of 2018; full build out of Kincora is planned over the next 15 to 20 years.

The Federal Aviation Administration (FAA) and the Metropolitan Washington Airports Authority (MWAA) plan to advance the commercial development of a 416-acre parcel of property that it owns at Washington Dulles International Airport (Duties Airport) by entitling the land through a series of pre-development decisions and approvals. As a result, the Authority has commissioned the development of a General Plan and Environmental Assessment (EA) for this property, which is located along the western edge of Dulles Airport. The property, known as the **Western Land Area (Western Lands)** represents one of the largest remaining undeveloped parcel of land in the rapidly developing Route 606 (Old Ox Road) corridor. NEPA scoping began in September 2016 and the Draft EA is anticipated to be available for public review and comment in 2017.

As highlighted above by the past, present, reasonably foreseeable future actions, the study area has been and will be in a steady progression of development. Conversion of natural areas to developed land has had the greatest impact on the area. This development has helped lead to the degradation and/or loss of natural resources over time.

No-Build Alternative

Under the No-Build Alternative impacts to natural areas would continue to occur due to the projected development in the study area.

Build Alternative

The Build Alternative would alleviate congestion, contributing minor beneficial cumulative effects to socioeconomics, land use, and community facilities. Once complete, the project is not anticipated to create significant induced growth or development beyond what is anticipated without the project.

The Build Alternative's impacts to wetlands and water quality would contribute to the cumulative effects that have occurred in the past to natural resources within the study area. However, mitigation measures would compensate for impacts to wetlands and water quality.

4.1 AGENCY COORDINATION

During the process of preparing this document, the federal, state, and local agencies listed below were consulted to obtain pertinent information and to identify key issues regarding potential environmental impacts. All comments have been reviewed and evaluated as part of the preparation for this document.

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Department of Agriculture, Natural Resources Conservation Service
- Virginia Department of Conservation and Recreation
- Virginia Department of Environmental Quality Air, Water and Waste Divisions
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Health
- Virginia Department of Historic Resources
- Virginia Marine Resources Commission
- Virginia Outdoors Foundation
- Fairfax County Department of Health
- Fairfax County Department of Housing and Community Development
- Fairfax County Department of Transportation
- Fairfax County Economic Development Authority
- Fairfax County Fire and Rescue Department
- Fairfax County Local Bay Act Coordinator
- Fairfax County Park Authority
- Fairfax County Public Schools
- Fairfax County Water Authority
- Northern Virginia Soil and Water Conservation District
- Bethel Washington Primitive Baptist Church
- McLean Bible Church, Tysons Campus
- Providence Baptist Church

Coordination has been ongoing with the U.S. Army Corps of Engineers and the Environmental Protection Agency (EPA) regarding the impacts to waters of the U.S. and wetlands. VDOT will continue to coordinate with these agencies throughout project development to ensure avoidance and minimization of these impacts have occurred to the greatest extent practicable and to obtain the necessary water quality permits prior to construction.

4.2 PUBLIC INVOLVEMENT

Multiple public involvement activities for this project have occurred since 2012, including two project newletters issued in December 2015 and May 2016. Public meetings were held on November 28, 2012, November 6, 2013, June 24, 2014, September 24, 2015

and June 16, 2016. In addition, community briefings have been held with the following individual homeowner associations (HOA) and community groups:

- Route 7 Corridor Improvements Project Working Group
- Wolf Trap Woods Homes Association
- Woodside Estates HOA
- Carrington HOA
- Carpers Farm HOA
- Brandermill Estates HOA
- Piney Run HOA
- Ascot HOA
- Coventry Springs HOA
- Lewinsville Coalition
- Great Falls Citizens Association
- Brandermill HOA
- Colvin Meadow Estates HOA
- Great Falls Crossing HOA
- Ciara Estates HOA
- Shaker Woods HOA
- Colvin's Landing Community Association
- Wolftrap Meadows HOA
- Colvin's Glen Citizens Association
- Middleton HOA
- Bradley Oaks HOA
- Towlston Meadow HOA
- Shouse Village HOA
- Shain Court Community
- Hawthorne at Great Falls HOA
- Old Ash Grove Community
- Great Falls Crossing HOA
- Cedar Chase at Great Falls HOA
- Lockmeade HOA
- Great Falls Glen HOA

Specific details about previous public involvement activities, including project newletters, can be found at <u>http://www.connectroute7.org/learn_more/documents.asp</u>.

VDOT will hold a Location and Design Public Hearing for this project in November 2016. The purpose of the hearing will be to present the preliminary project design and findings of this Environmental Assessment (EA), provide a discussion forum between the public and project team, and obtain input and comments from the community. In addition, there will be a minimum of a 30-day public comment period following notice of availability of the EA. Any comments received during the public hearing and public comment period will become part of the public hearing record.

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Appendix B PRELIMINARY NOISE ANALYSIS

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