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

ENVIRONMENTAL ASSESSMENT

Route 606 Improvements

Spotsylvania County

State Project: 0606-088-653, C501, P101, R201

UPC 105464

Federal Project: STP-5111(273)

From: 0.114 Miles West of Route 1

To: 0.55 Mi East of Route 606 Bridge over I-95

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

Approved for Public Availability:

10/30/2017
Date

Mark Frostick
For Division Administrator

TABLE OF CONTENTS

FIGURES

TABLES

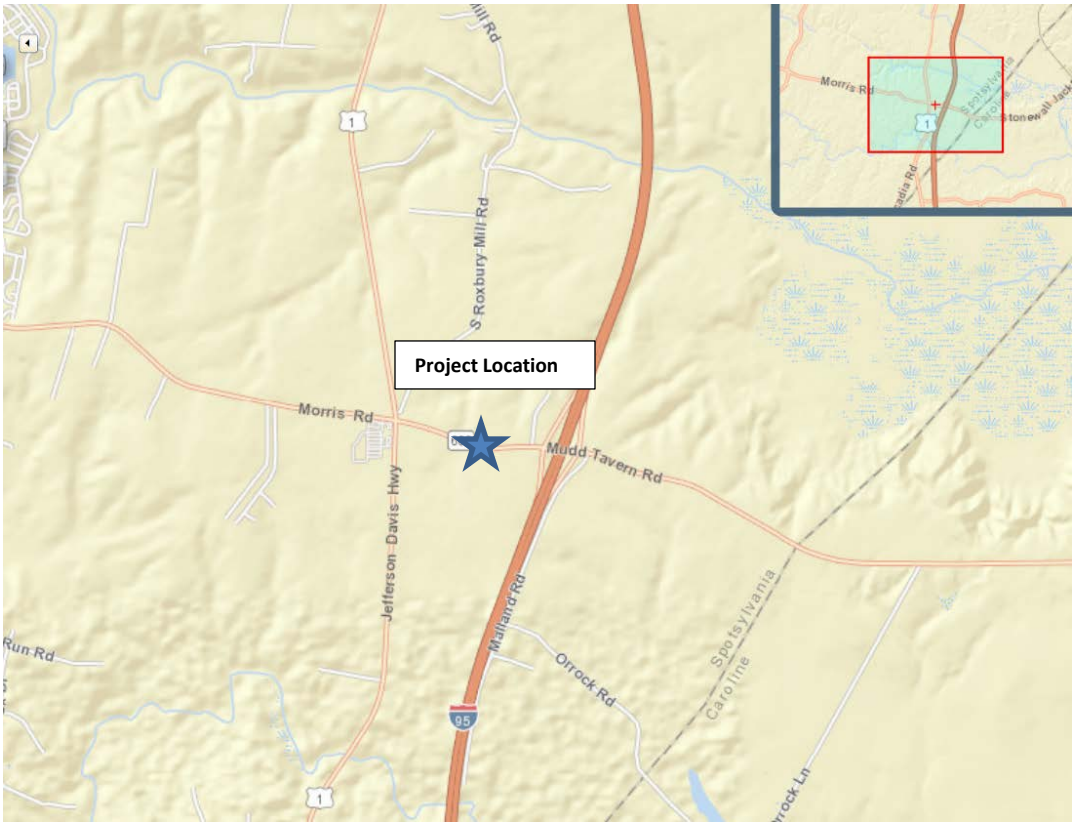
ATTACHMENTS

APPENDICES

1.1 Study Area

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA), is evaluating transportation improvements along Route 606 from US 1 to the west side of the I-95 interchange. As detailed in the sections that follow, these transportation improvements are intended to address existing and future traffic capacity, safety, and operational deficiencies at this location in Spotsylvania, Virginia. As shown in **Figure 1**, the Route 606 interchange is located in Spotsylvania County in the central portion of Virginia. The interchange of I-95/Route 606 Mudd Tavern Road is located near Thornburg, Virginia, and is one of two access points to I-95 in Spotsylvania County. Adjacent interchanges along I-95 are located at Route 1 Jefferson Davis Highway on the north and at Route 639 Ladysmith Road on the south; each interchange is located approximately 8 miles from the Route 606 interchange.

FIGURE 1 – Project Location



1.2 History

On November 14, 2013 Spotsylvania County Board of Supervisors approved a revised Comprehensive Plan (updated June 2016) which included improvements on Route 606 from west of US Route 1 to east of the I-95 interchange. Funding for the widening Route 606 and upgrading the interchange (UPC 105464) was identified in the Fredericksburg Area Metropolitan Planning Organization's (FAMPO) 2013 Constrained Long Range Plan (CLRP) and VDOT's 2014 Six-Year Improvement Program (SYIP). The Spotsylvania County Comprehensive Plan also included the Route 606 over I-95 bridge replacement project (UPC 100829) as a separate project.

In January 2014 it was agreed that the entire project corridor would require an Environmental Assessment (EA) with an Interchange Modification Report (IMR) provided to address the proposed interchange modifications but that the bridge replacement project could be advanced independently, due to the poor condition of the existing bridge, with a Programmatic Categorical Exclusion (PCE). The PCE for the bridge project was submitted to FHWA on June 17, 2014.

Due to the accelerated construction schedule of the Dominion Raceway on Route 606 to the east of the I-95 Interchange it was recognized that work on the east side of I-95 was necessary to address immediate access and capacity concerns at the interchange and eastern portion of Route 606. Additional discussions were held regarding completing the interchange modification and widening of Route 606 east of I-95 (UPC 105463) separately from the Route 606 west widening (UPC 105464). In September of 2015 FHWA concurred with completing a Categorical Exclusion (CE) for the environmental work associated with UPC 105463 including the bridge work cleared under the June 17, 2014 PCE. The CE for UPC 105463/100829 was approved for public availability by FHWA on November 18, 2015. Due to changes in the scope of proposed work at the interchange the CE document was reevaluated and FHWA approved the NEPA reevaluation of the CE in April of 2017. Early right of way and construction activity is ongoing and these projects are scheduled to be completed by late 2019 **(See Table 9 in Section 3 for Project UPC's)**.

In anticipation of work on the western section, VDOT commissioned a corridor study completed in April 2015 (Attachment 1**:** *Route 606 Corridor Study*. This report analyzed present and future corridor deficiencies and needs along the western portion of the corridor and provided alternatives analysis for correcting these deficiencies.

In the fall of 2015, Spotsylvania County with support from the Fredericksburg Area Metropolitan Planning Organization submitted an application for Smart Scale (previously referred to as HB-2) funding for the present project (http://vasmartscale.org/). Based heavily on project safety benefits, the Commonwealth Transportation Board (CTB) awarded **$**4,649,900 in funds for UPC 105464, which in turn provided full funding for the proposed project.

1.3 Need

1.3.1 Existing Conditions

The need for the project is based on existing and future capacity, safety and access management deficiencies. Route 606 is a two-lane undivided roadway that provides direct access to the community of Thornburg. It provides east-west travel through Spotsylvania County, and extends into neighboring Caroline County. Within the study area, Route 606 within the study area operates with a posted speed limit of 35 mph. Pavement width varies considerably within the study area limits, measuring 40 feet wide where paved shoulders are provided, or 24 feet where only unpaved shoulders are present. Average daily traffic (ADT) for Route 606 west of the Route 1 intersection is 12,276 vehicles. East of the intersection the ADT is 8,600 vehicles.

US Route 1 is a four-lane undivided roadway which runs generally parallel to I-95 between Washington DC and Richmond. Pavement width measures approximately 50 feet, with wider pavement provided at locations with turn lanes or pavement tapers. US Route 1 accommodates local and regional travel in a north-south direction, and provides direct access to a broad range of commercial, residential, and other land uses. The intersection of US Route 1 and Route 606 operates under traffic signal control. Near this intersection, US Route 1 operates with a posted speed limit of 45 mph. The intersection of Route 606 and US Route 1 is currently a fully actuated signalized intersection. A partial intersection upgrade was completed in 2015 as part of a project to provide dedicated northbound and southbound left-turn lanes on US Route 1 (UPC 93136). The ADT north of Route 606 is 13,054 vehicles and the ADT south of Route 606 is 9,970 vehicles.

Dan Bell Lane is a two-lane undivided private roadway that provides access to commercial properties situated north of Route 606 and west of the I-95 interchange. Dan Bell Lane operates with a pavement width of approximately 28 feet and without a posted speed limit.

The intersection of Route 606 and Dan Bell Lane is located immediately west of the interchange. It operates with no signal on the minor approach (Dan Bell Lane).

Just to the east of Dan Bell Lane are the I-95 southbound ramp terminals (stop control on the minor approach).

1.3.1.a. Safety

A query of the *Highway Traffic Records Information and Safety* (HTRIS) database identified the number of crashes, shown in **Table 1,** over a three-year reporting period from January 1, 2014 to December 31, 2016. The database indicates that in the past three years there have been 77 crashes within the corridor. A total of 388 traffic incidents have occurred within the study area from 2006 to mid-2017, including two pedestrian injuries.

Table 1: Crashes by Year (2014-2016)

Facility	Crashes by Year			Annual Average
	2014	2015	2016	
Intersections				
US Route 1/Route 606	11	8	8	9
Dan Bell Lane/Route 606	1	4	2	>3
I-95 SB Ramps/Route 606	3	1	1	>2
Segment				
US Route 1 to Dan Bell	6	4	7	<5
Totals	23	17	18	19

A majority of the crashes along Route 606 and its unsignalized intersections are angle and rear end crashes. These crashes are likely due to numerous closely spaced driveways and non-signalized intersections along Route 606.

1.3.1.b. Capacity

Existing traffic volumes were analyzed for both the AM and PM peak hours within the corridor for movement, approach, and intersection delay (Level of Service) and maximum queues. During the AM peak hour, traffic along Route 606 operates at Level of Service (LOS) A or LOS B in both directions except at the intersection with Route 1, at which the westbound direction operates at a LOS C as does the eastbound left turn onto northbound Route 1. However, turning onto Route 606 either westbound or eastbound, near the east end of the corridor can be difficult. Level of service for turns in both directions from Dan Bell Lane is D and turning out of the Exxon and Valero gas stations is LOS D westbound while the McDonald's entrance is LOS E eastbound. The delay is slightly higher during the PM peak hour however only operational problems exist at the Route 1/Route 606 intersection where some turn movements operate at LOS D and the turns out of the Exxon and Valero gas stations operate at LOS D. **Table 2a** shows existing AM and PM LOS for the three intersections.

Table 2a: Existing Level of Service

Level of Service	Existing (2015)	
	AM	PM
Route 1/Route 606*	C	C
Dan Bell/Route 606	D	D
I-95 SB Ramps/Route 606	C	C

*** Intersection is signalized**
(See Attachment 2 for Level of Service details)

As traffic volumes increase at peak periods the amount of time allocated at signalized intersections and gaps in traffic at unsignalized intersections becomes inadequate. The number of vehicles waiting to traverse the intersection backs up or queues. As the storage for this traffic is exceeded in the turn lanes the amount of traffic backed up in the main line increases. With inadequate number of turn lanes and storage within those turn lanes; the efficiency of the intersection is lessened. **Table 3a** provides the existing queue lengths at the Route 1/Route 606 intersection.

Table 3a: Existing Queue Lengths

Queue (feet)	Route 606 WB		Route 606 EB		Route 1 NB			Route 1 SB		
	Left	Thru/R*	Left	Thru/R*	Left	Thru	Right	Left	Thru	Right
AM										
Existing (2015)	105	167	112	284	100	100	119	125	125	5
PM										
Existing (2015)	105	421	120	193	98	98	21	194	194	92

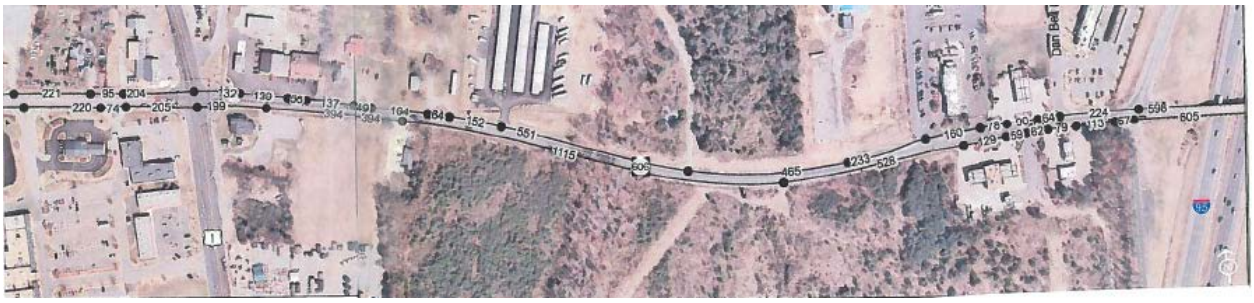
*** There is no dedicated right turn lane, queuing for this movement is contained within the thru lane queuing**

1.3.1.c. Access Management

This section of the corridor is an undivided two-lane facility with a high concentration of commercial driveways, private entrances and an unsignalized side street (Dan Bell Lane). Heavy traffic volumes, multiple turning options, vehicles turning into and across traffic, blocking traffic trying to cross, and collisions with other vehicles exasperates the existing capacity and safety issues within the project area. Under Existing Conditions, intersection sight lines and spacing to Dan Bell Lane along Route 606 emanating from the I-95 south exit ramp terminals do not satisfy current AASHTO standards. **Figure 2** depicts the existing access points and the distance between these points.

Under Existing Conditions, this segment Route 606 provides no accommodations for pedestrian or bicycle traffic although such accommodations are identified in the Spotsylvania County Trailways Master Plan. Pedestrian access to and from the Dominion Raceway facility terminates to the east of the I-95 SB ramps and is not available for the hotel and restaurant facilities in the study corridor.

FIGURE 2 – Project Area Access Points



1.3.2 Future Conditions- 2038 No Build

Growth rates for traffic volumes are predicated on the 2040 FAMPO model which includes socioeconomic data and are expected to increase of up to double existing traffic volumes along the eastern section of Route 606 (28,000 ADT). This increase is associated with a predicted growth in background traffic volumes and projected new land development activity along Route 606. The entire corridor is zoned for commercial use and commercial development is planned on the south side of Route 606. In the No-Build Condition, there are several capacity constraints in the roadway network that impact the operations throughout the network. The Corridor Studies future 2038 no-build peak hour traffic volumes and level of service utilized the *I-95/VA Route 606 Interchange Bridge Replacement Interchange Modification Report* (see Attachment 3) for the LOS projections at the intersection of Route 1/Route 606. **Tables 2b** and **3b** show future traffic projections for Route 606 and the Route 1/Route 606 intersection.

1.3.2. a. Safety

The increased traffic volumes will likely exacerbate the safety, capacity and access problems. Future level of service will degrade along the corridor leading to increased levels of traffic incidences and adverse pedestrian interaction.

1.3.2. b. Capacity

In the No-Build Condition, there are several capacity constraints in the roadway network that impact the operations throughout the network. During the PM peak, LOS F is anticipated for the Route 606/Route 1 intersection resulting in queues along westbound Route 606 that extend back to the interchange and onto the mainline I-95 in both directions. This will impact operations for through traffic on I-95. During both the peak hours, the Route 1/Route 606, Dan Bell/Route 606 and I-95 SB Ramps/Route 606 intersections will operate with severe congestion with queues exceeding the available storage lengths. See **Table 2b** for projected LOS the 2038 No-Build Condition and **Table 3b** for projected queueing under the 2038 No Build Condition.

Table 2b: 2038 No-Build Level of Service

Level of Service	No Build (2038)	
	AM	PM
Route 1/Route 606*	F	F
Dan Bell/Route 606	F	A
I-95/Route 606	F*	D*

*** Intersection is signalized**
(See Attachment 2 for Level of Service details)

Table 3b: 2038 No-Build Queue Lengths

Queue (feet)	Route 606 WB		Route 606 EB		Route 1 NB			Route 1 SB		
	Left	Thru/R*	Left	T/R*	Left	Thru	Right	Left	Thru	Right
AM										
No Build (2038)	105	2405	700	810	165	670	145	305	795	140
PM										
No Build (2038)	105	4450	325	385	165	550	145	305	3475	305

*** There is no dedicated right turn lane, queuing for this movement is contained within the thru lane queuing**

1.3.2. c. Access Management

Under the future no build conditions existing access management deficiencies would not be addressed. Additional traffic, additional delays and additional development would serve to only exacerbate the already poor access management situation, resulting in more traffic delays and safety issues and provide no bicycle or pedestrian access.

1.4 Summary

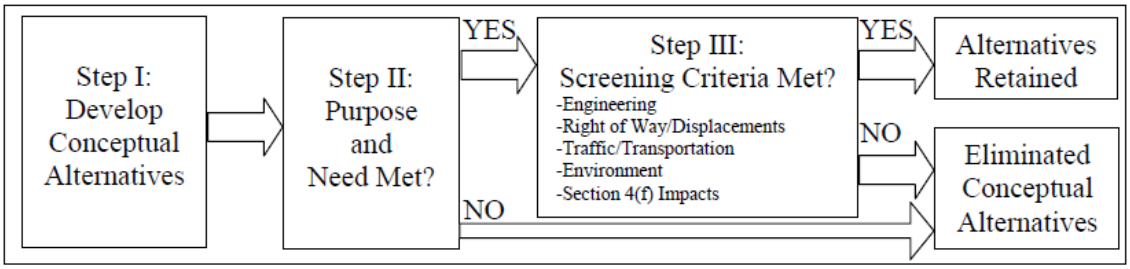
In conclusion, the purposes of this project are to increase transportation capacity, improve safety, and enhance projected operational deficiencies through access management methodology along Route 606 in Spotsylvania County. In addition, this project would support local, regional, and state planning efforts as identified by the 2040 Spotsylvania County Comprehensive Plan. The Spotsylvania County Board of Supervisors, Spotsylvania County Comprehensive Plan, VDOT and the Fredericksburg Area Metropolitan Planning Organization (FAMPO) recognize this project as a priority for the region. The project is fully funded in the FAMPO Long Range Transportation Plan.

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 single Build Alternative (Alternative 3) has been identified and is described in detail. To address the identified Purpose and Need as described in Chapter 1.0, a single alternative was the only Build Alternative evaluated in detail in this study. The evaluation of one build alternative in detail is consistent with FHWA's *Technical Advisory T 6640.8A Guidance for Preparing and Processing Environmental and Section 4(f) Documents*.

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

In addition to the No-Build Alternative, three improvement alternatives were evaluated in the 2015 Route 606 Corridor Management Plan. Through the alternatives screening process, two of these alternatives were eliminated from further consideration and not carried forward for detailed study in the Environmental Assessment.

Table 4 lists the eliminated alternatives and reasons for their elimination.

Table 4 - Alternatives Eliminated

Alternative	Alternative Description	Basis for Elimination
Alternative 1: Four-Lane Undivided Road	Alternative 1 would widen Route 606 to four lanes with no separation between directions of travel with the exception of a striped centerline. A new intersection would be constructed in the middle of the corridor to provide access to undeveloped parcels north and south of the corridor.	This alternative would require the least amount of right-of-way but would not address future access management deficiencies along the corridor. This alternative would have a lower capacity than the other alternatives. Due to the lack of access management opportunities and potential safety issues between

		speed differentials in the inside and outside lanes, and lower capacity, it was decided that this alternative would not be advanced for further study.
Alternative 2: Four-Lane Road with Center Two-Way Left Turn Lane	Alternative 2 would widen Route 606 to four lanes with a 14-foot flush median separating directions of travel. The flush median would serve as two-way left turn lane requiring vehicles turn left into and out of properties along Route 606 to share the lane. Vehicles turning left onto Route 606 will also use the lane as an acceleration lane or a spot to wait for gaps in opposing traffic. A new intersection would be constructed in the middle of the corridor to provide access to undeveloped parcels north and south of the corridor.	Because of all the conflicting traffic using the lane, flush medians typically are not as safe as raised medians. This alternative would require more right-of-way than Alternative 1. Due to the lack of access management opportunities and potential safety issues with the center two-way left turn lane, it was decided by the study team that this alternative would not be advanced for further study.

2.3 Alternatives Carried Forward

2.3.1 No-Build

Under the No-build Alternative, the Route 606 would remain a two lane facility and the roadway would remain in its current configuration. This alternative would not have any environmental impacts; however, this alternative would not satisfy the identified transportation needs because it would not address the safety, capacity deficiencies and access management deficiencies associated with this section of the corridor. The No-Build scenario, while feasible, does not meet the project purpose and need to provide additional traffic capacity, implement access management, improve overall operational safety.

2.3.2 Alternative 3 – Build Alternative

This Build Alternative retained evaluation would include reconstruction and widening of Mudd Tavern Road (Route 606) from a two-lane undivided to a four-lane divided road. A raised 15’ median will be built to restrict the majority of left turn movements while providing left turns at Dan Bell Lane and the US Post Office. All other entrances along Route 606 would be right in/right out only, thereby requiring vehicles to utilize a central roundabout to complete the desired left and U turn movements. The roundabout will be designed to accommodate the turning radii of tractor-trailers and other large vehicles. The roundabout would also be the access point for any future connections to the north and south of the corridor.

Sidewalks would be built from the Best Western hotel/Taco Bell property east towards the new bridge crossing I-95 and a shared use path on the south side of Route 606 will provide pedestrian and bike accommodations from I-95 west towards the Route 606/Route 1 Intersection. No sidewalks or shared use paths exist within the corridor or on Route 1 at this time.

Route 606 Westbound at the Route 1 intersection would be widened to include dual left turn lanes, one through lane, and one dedicated right turn lane. Route 606 Eastbound at the Route 1intersection would be widened to include one left turn lane, one through lane, and one dedicated right turn lane.

2.3.3 Ability to Meet Purpose and Need

The Build Alternative would provide additional traffic capacity resulting in better LOS, provide additional turn lane storage to lessening queuing through the corridor (see **Tables 5a** and **5b**), implement access management by eliminating uncontrolled left turn movements, and improve overall operational safety. It would also reduce the number of conflict points throughout the corridor and provide for safe bicycle and pedestrian accessibility.

Projected no build LOS would have all three intersection failing in the AM and two performing poorly or failing in the PM. The Build Alternative provides for better LOS at all intersections in both the AM and PM scenarios as indicated in **Table 5a**.

Table 5a: Projected Level of Service for Build Alternative

Level of Service	No Build (2038)		Build (2038)	
	AM	PM	AM	PM
Route 1/Route 606*	F	F	D	E
Dan Bell/Route 606	F	A	A**	A**
I-95/Route 606	F*	D*	C*	C*

(See Attachment 2 for Level of Service details)

* intersection is signalized

** intersection will have restricted movement with no left turn to the Route 606 eastbound lane

The added capacity provided by a second lane in each direction, combined with longer storage distances for the existing turn lanes will reduce projected queuing at the Route 606/Route 1 intersection. In addition, the Build Alternative would add a second dedicated west bound left turn lane from the Route 606/Route 1 intersection and dedicated right turn lane at the Route 606/Route 1 intersection to further reduce queuing. **Table 5b** illustrates the queuing length improvements between the No-Build and the Build Alternative for the Route 1/Route 606 intersection.

Table 5b: Projected Queuing for Build Alternative

Queue (feet)	Route 606 WB			Route 606 EB		Route 1 NB			Route 1 SB		
	Left	Thru	Right*	Left	T/R	Left	Thru	Right	Left	Thru	Right
AM											
No Build (2038)	105	2405	(no lane)	700	810	165	670	145	305	795	140
Build (2038)	170	315	80	255	665	165	540	145	155	210	105
PM											
No Build (2038)	105	4450	(no lane)	325	385	165	550	145	305	3475	305
Build (2038)	305	2795	2025	255	225	165	435	145	305	3155	305

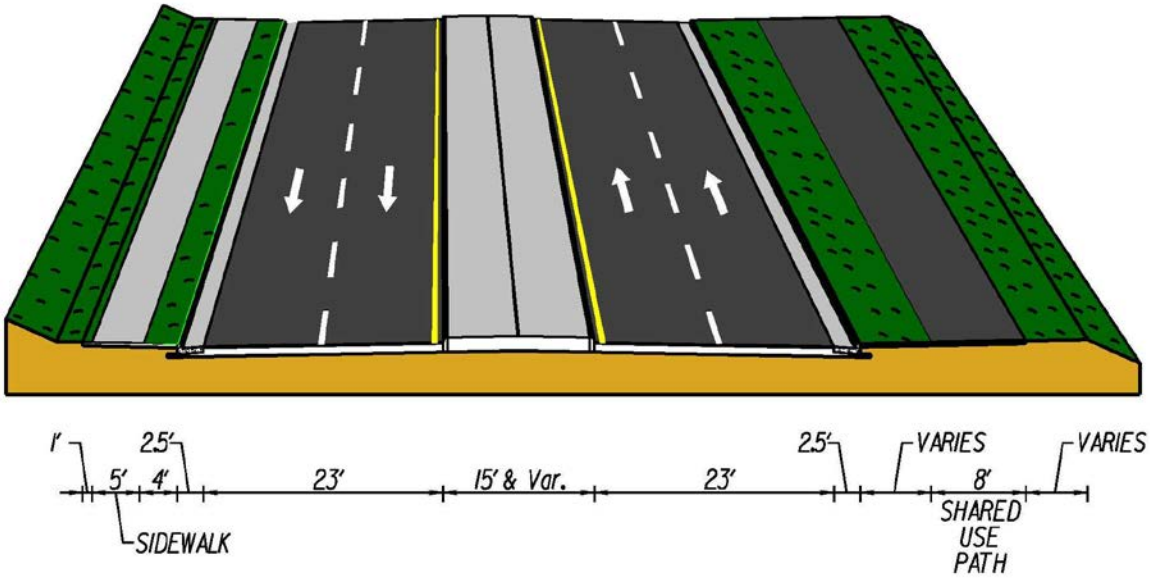
* No existing lane, queuing for this movement is contained within Thru lane queuing

TABLE 6 – ESTIMATED COST

ESTIMATED COST	
Alignment Length (miles)	0.63
Preliminary Engineering Cost (millions)	$2.00
Right-of-Way & Utilities Relocation Cost (millions)	$7.915
Roadways & Bridge Construction Cost (millions)	$11.335
TOTAL COST (MILLIONS)	**$21.25**

Figure 3: Preferred alternative

Figure 4: Typical Sections



3.1 Overview of Environmental Consequences

The purpose of this section is to identify and analyze the environmental consequences resulting from the proposed project. The following assessment of the environmental consequences is focused on the study area of the proposed project. This assessment is based on the impacts associated with the typical section described in the previous section.

Table 7 summarizes the environmental issues, and **Table 8** further quantifies the impacts associated with the Build Alternative. A discussion of construction effects, indirect effects, and cumulative effects follows **Table 8**.

TABLE 7: Environmental Issues

Resources/Issue	Comments
Land Use	Land development in the study area is predominately comprised of commercial uses as the entire corridor is zoned C-3. The development consists primarily of hotels, fast food restaurants, and travel service facilities on the east end of the corridor. The land use in the western end of the corridor is low density commercial, and mostly consists of strip development. Businesses in this section of the corridor vary and include laundromats, restaurants, a grocery store, a bank, and multiple auto parts stores. The project is consistent with the land use and future land use policy outline in Chapter 2 of the 2013 Spotsylvania County Comprehensive Plan.
Socioeconomics /Relocations	Using 2010 Census Data, the median income level ($68,125) for the residents within the project area is below the county median ($78,505) but above the state and U.S. median. Based on preliminary design, the Right of Way Plan Sheet and the Stage 1 Relocation Assistance Report a total of 24 parcels will be affected; There is one proposed business owner acquisition (Parcel 005) with six potential tenant relocations that includes a convenience store, barber and laundry mat. A second parcel (004) will require the demolition of a presently unused business building. There are additional barber shops, convenience stores and laundry mats within a five mile radius of the project area. There is also no scarcity of office and business space available presently and/or proposed to be provided in the near future for business relocation. The acquisition of property and the relocation of residents, businesses, farms, and non-profit organizations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act.

	No residential or community services facilities will be impacted.
Environmental Justice	Based on a review of the 2010 Census data an Environmental Justice (EJ) analysis was performed. This analysis concluded that the minority and/or low-income population of the environmental justice study area does not exceed the minority percentage of Spotsylvania County. While one displaced owner may be a minority, overall no EJ population is considered present on this project. The traveling public, including Environmental Justice (EJ) populations, will experience travel pattern changes due to temporary closures, travel delays and the closing of most median cross-overs. No EJ concerns have been raised by the locality or from the public as part of the early public involvement efforts. There would not be disproportionately high or adverse effects to EJ populations. No minority or low-income populations have been identified that would be adversely impacted by the proposed project as determined above. Therefore, in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23, no further EJ analysis is required. (See Attachment 4: EJ Analysis for UPC 105464)
Parks and Recreation	There are no existing parks or recreational areas that would be impacted. The project will involve no "use" of any Section 4(f) properties and will have no impact of any Section 6(f) properties.
Stormwater Management and Water Quality	Stormwater management facilities would be located near the proposed road to minimize long-term effects of the project on water quality.
Floodplains	FEMA flood maps indicate that the project is within zone X (Areas determined to be outside 500-year floodplain). Executive Order 11988 prohibits federal support of incompatible floodplain development unless there is no practical alternative. This project will have an approximate impact of 0.25 acres. Efforts to minimize floodplain encroachment would be considered during design to avoid or minimize impacts on natural and beneficial floodplain values. Therefore, the project is consistent with Executive Order 11988.
Waters of the U.S., including Wetlands	The project crosses the upper reaches of an un-named tributary to the Po River and is anticipated to impact approximately 440 square feet (70 linear feet) of the stream channel and approximately 4000 square feet of forested wetland. No stream or wetland mitigation requirements are expected. VDOT will continue to coordinate with the appropriate regulatory agencies and

	work to avoid and minimize impacts to these resources as design and permitting progresses.
Permits	The project is anticipated to qualify for Corps of Engineers SPGP and Virginia Department of Environmental Quality (DEQ) WP3 permits. All permits will be acquired prior to construction.
Agricultural and Forestal Districts, Prime Farmland and Soils	There are no Agricultural or Forestal Districts or prime farmlands within the study area.
Threatened and Endangered Species	The Northern long-eared bat was identified within the 2-mile search radius of the project area. VDOT will submit 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. Reviews/clearances will be updated periodically throughout project development to determine if new species are identified within the project area.
Hazardous Materials	Consideration regarding hazardous materials relates to the potential for acquisition of properties at which petroleum products have previously been or are currently stored, and where leaks or spills may have occurred at those sites. A Phase I Environmental Site Assessment (ESA) was completed looking at all appropriate properties within the project's area of potential effect to determine if hazardous materials are present. Based on this assessment a Phase II Hazmat investigation was conducted at the five fuel service stations located within the corridor. Minor soil and water contamination was encountered at two sites and appropriate steps will be taken to avoid or mitigate these conditions. The acquisition of the parcel with the 7-11 store will necessitate the closure and removal of the existing underground storage tanks associated with the operating service station operation. The Hazardous Materials Report is included as Appendix A in this Environmental Assessment.
Air Quality	This project is located within an Attainment area for all of the National Ambient Air Quality Standards (NAAQS), and in a volatile organic compounds (VOC) and nitrogen oxides (NOx) Emissions Control Area. As such, all reasonable precautions should be taken to limit the emissions of VOC and NOx. The project is not expected to cause or contribute to any violations of the NAAQS or to interfere with the attainment or

	maintenance of the applicable NAAQS. The Air Report is included as Appendix B in this Environmental Assessment.
Noise	A preliminary noise analysis was performed for the project. Under the design year build conditions one residence and one outdoor restaurant facility are predicted to experience noise impacts. Though noise barriers for these two sites are warranted they are not considered feasible due to property access constraints along the corridor, therefore noise abatement is not recommended for this project. The Preliminary Noise Analysis is included as Appendix C in this Environmental Assessment.
Cultural Resources	VDOT conducted an archaeological and architectural survey of approximately 0.8 miles associated with the project and no historical properties were identified. Coordination with the Virginia Department of Historic Resources (DHR) resulted in a determination of No Effect pursuant to Section 106 of the National Historic Preservation Act.

TABLE 8: Summary of Impacts

Category	Impact
Owner Families Displaced *	0
Owner Individuals Displaced *	2 (6 tenants)
Tenant Families Displaced	0
Tenant Individuals Displaced *	0
Businesses Displaced*	7 (2 owners)
Schools Displaced	0
Churches Displaced	0
Other Community Facilities	0
4(f) Property Use (acres)	0
Stream Impact (Linear feet)	70
Wetlands Impacted (acres)	>0.1
Threatened & Endangered Species	0
Floodplains crossed (acres)	>0.1
Cultural Resources	0
Forest Land Displaced (acres)	1
Farmland Displaced (acres)	0
Impacted Noise Receptors	2
Hazmat sites impacted	2
VOF (acres)	0
Right of Way (acres) (24 parcels)	3.64 Fee Simple 0.39 Permanent Easement 0.71 Utility Easement

*****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 relocates without discrimination.

3.2 Construction

During construction, temporary environmental impacts usually can be controlled, avoided, 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 specifications for 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.

3.4 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 most common indirect effects associated with highway projects have to do with induced development, that is, development and the impacts of such development that would not otherwise occur if the project were not constructed. As noted in Section 3.1 "Land Use" the entire corridor area is zoned C-3 for commercial development and is targeted for development in the future land use planning. A portion of the properties in the project area currently can be accessed directly by the existing road network. Other areas to the north and south are identified in the Spotsylvania County Comprehensive Plan as targeted development areas with anticipated private and locality sponsored road networks. A connector road designed to provide access to businesses on the north side of the corridor was approved by the County in August 2017 (see **Table 9** in the next section). Therefore, these project areas are subject to development even in the absence of implementation of this project. This project is consistent with local comprehensive planning regarding land use goals in the surrounding area and the project would be expected to improve overall mobility and connectivity among surrounding land uses and transportation facilities. Therefore, no indirect effects are expected.

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 and natural resources.

As noted in previous sections, several transportation projects besides the action being studied have been constructed, are being constructed or are planned in the future. **Table 9** summarizes these projects included the proposed build alternative.

Table 9: VDOT Projects in Corridor Area

Project UPC	Project Description	Project Status
UPC 105464	Route 606 West from I-95 Interchange to east of Route 1	Preliminary engineering and environmental review (EA) underway
UPC 105463	Route 606 East and I-95 Interchange Modifications; combined with UPC 100829	Construction started
UPC 100829	Bridge Replacement over I-95; combined with UPC 105463	Construction started
UPC 111456	Locality project to provide access to businesses north of Route 606 west.	Preliminary engineering and environmental review started
UPC 93136	Intersection improvements to Route 1 north and southbound at Route 606	Construction completed.

Table 10 summarizes the more prominent environmental or human resources in the project study area that would be impacted by the proposed build alternative, the other VDOT projects in the study area (bold highlight) and other impacts that these resources have experienced from past and present actions, the incremental impact expected from the proposed project, identification of potential reasonably foreseeable future actions, and the potential impacts that may occur from other reasonably foreseeable future actions in or near the study area.

Despite the dramatic changes in the landscape that have occurred over time due to human settlement in the surrounding area, the intensity of the incremental impacts of the project is considered small when viewed in the context of impacts from other past, present, and reasonably foreseeable future actions and would not rise to a level that would cause significant cumulative impacts.

Table 10: Summary of Cumulative Effects

Environmental and Human Resources in the Study Area	Impacts from Past and Present Actions	Impacts from Proposed Action	Reasonable Foreseeable Actions	Potential Impacts on Resources from Reasonable Foreseeable Actions
Unnamed tributary to Po River	**UPC 93136: impact to 20 linear feet;** past commercial development may have resulted in minor degradation of water quality	Impact to 70 linear feet**;** temporary siltation during construction and increase in pollutant loadings, which would be minimized through implementation of E&S Controls and stormwater management measures	**UPC 111456**; future commercial development consistent with local zoning and the County's comprehensive planning	**UPC 111456: impact to 60 linear feet;** Minor inputs of sediment to surface waters during construction. Increased storm water discharges **(no impacts from UPC 100829 or UPC 105463)**
Palustrine forested wetlands	**UPC 93136: impact to 556 sq. feet;** past commercial development may have resulted in minor reduction and/or degradation to wetlands	Impact to 4000 sq. feet of forested wetlands	**UPC 111456**; future commercial development consistent with local zoning and the County's comprehensive planning	**UPC 111456: impact to 8000 sq. feet of forested wetlands; i**ncreased storm water runoff from impervious areas leading to alter stream flows and water chemistry, increased nutrient inputs, and losses of in-stream habitat, all offset to the extent practical by implementation of stormwater management measures and temporary and permanent erosion and sediment control measures in accordance with state law and local ordinances. **(no impacts from UPC 100829 or UPC 105463)**
Residential & Commercial Properties	**UPC 93136: one residential property**	Parcel 005 acquisition will affect the strip mall owner and up to 6 tenants. The acquisition of property and the	Future commercial development consistent with local zoning and the County's comprehensive planning	Future development could result in voluntary sale by owners of any affected properties. **(no relocations**

		relocation of the businesses will be in accordance with all federal, state and local laws. All displacements and relocations will be in accordance with Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.		**associated with UPC 100829 or UPC 105463)**

4.1 AGENCY COORDINATION

In 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.

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Virginia Department of Historic Resources
- Virginia Department of Environmental Quality - Air, Water and Waste Divisions
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Forestry
- Virginia Outdoors Foundation
- Virginia Department of Health, Office of Drinking Water
- Virginia Department of Conservation and Recreation
- Virginia Department of Agriculture and Consumer Services
- Spotsylvania County Administrator
- Spotsylvania County Department of Parks, Recreation, and Community Services
- Spotsylvania County Health Department
- Spotsylvania County Department of Planning
- Spotsylvania County Superintendent of Schools
- Spotsylvania County Emergency Services
- Natural Resource Conservation Service
- Fredericksburg Area Metropolitan Planning Organization (FAMPO)

4.2 PUBLIC INVOLVEMENT

A Citizen Information Meeting was held on May 20, 2014, for the combined corridor work which included a similar design to the present proposed Build Alternative (the round-about was not included), the bridge replacement over I-95 (UPC 100829) and the original concept for the changes on the east side of I-95 (UPC 105463) . The Build Alternative proposal was exhibited for initial public review at the UPC 105463/100829 “Pardon Our Dust” pre-construction public meeting held on September 18, 2017.

VDOT will hold a public hearing for this project on November 14, 2017. The purpose of this hearing is to present the preliminary project design and findings of the Environmental Assessment (EA), provide a discussion forum between the public and the project team, and obtain input and comments from the community. There will be 30-day public comment period following the notice of availability of the EA.