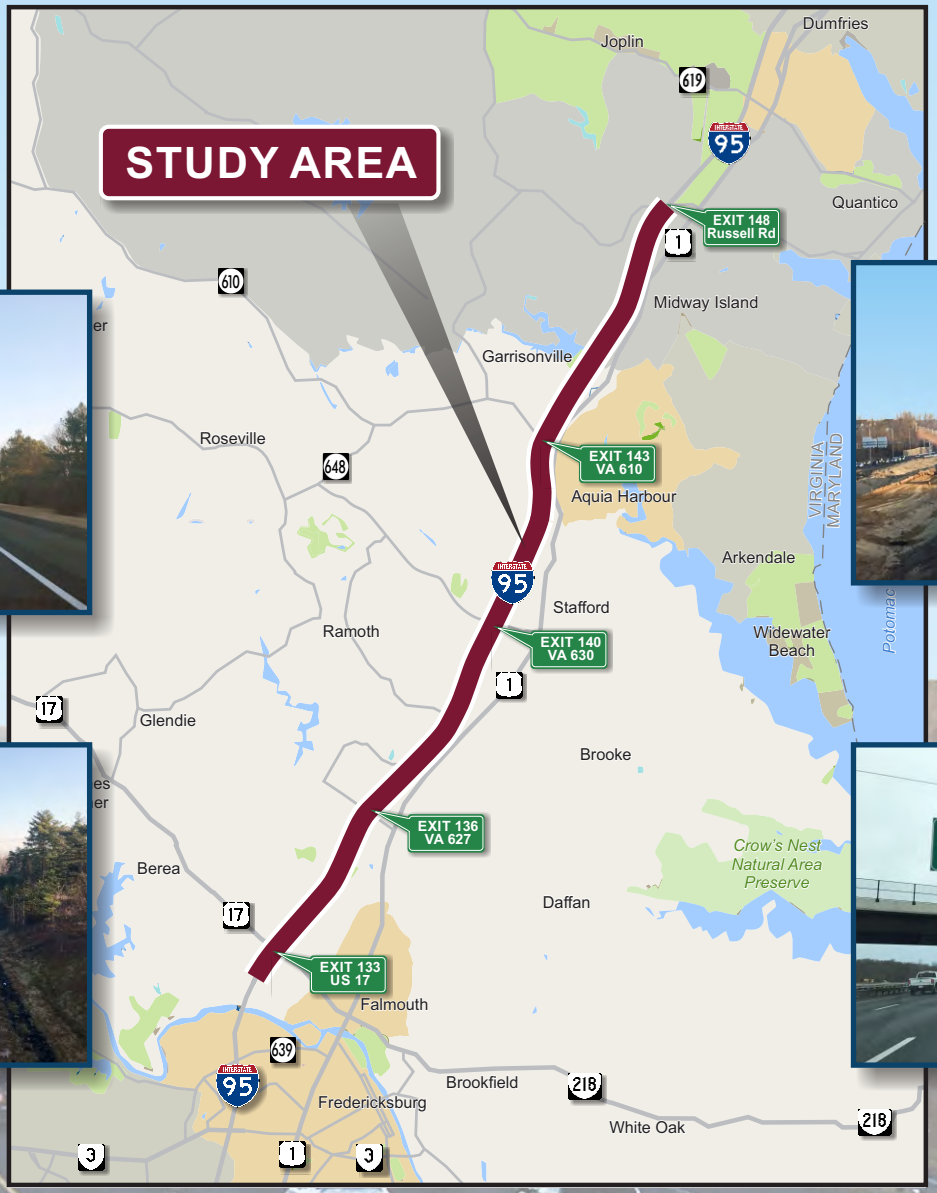
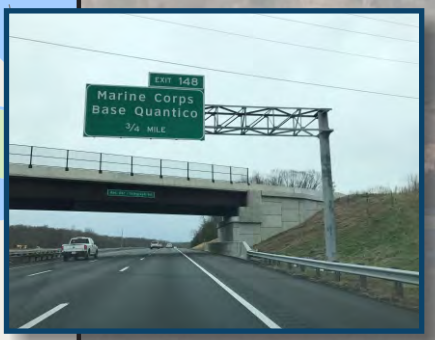
Interstate 95 Express Lanes Fredericksburg Extension Study

SOCIOECONOMICS, LAND USE, AND RIGHT-OF-WAY TECHNICAL REPORT





VDOT Virginia Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

AUGUST 2017

SOCIOECONOMICS, LAND USE, AND RIGHT-OF-WAY TECHNICAL REPORT

INTERSTATE 95 EXPRESS LANES FREDERICKSBURG EXTENSION STUDY

Prepared in support of the Revised Environmental Assessment

VDOT Project #: 0095-969-739

UPC Number: 110527

August 2017

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LIST OF ACRONYMS

ACS	American Community Survey
CEQ	Council on Environmental Quality
CLRP	Constrained Long-Range Plan
DC	District of Columbia
EA	Environmental Assessment
EJ	Environmental Justice
EPA	Environmental Protection Agency
FAMPO	Fredericksburg Area Metropolitan Planning Organization
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GIS	Geographic Information Systems
GP	General Purpose
HHS	Department of Health and Human Services
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
I-95	Interstate 95
LEP	Limited English Proficiency
LOD	Limits of Disturbance
MWCOG	Metropolitan Washington Council of Governments
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
RDA	Redevelopment Area
TGA	Targeted Growth Area
TIP	Transportation Improvement Program
USDOT	US Department of Transportation
VDOT	Virginia Department of Transportation
VPD	Vehicles per Day

1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA) as the lead federal agency, is preparing a Revised Environmental Assessment (Revised EA) for the Interstate 95 (I-95) HOT Lanes Project, for which a Finding of No Significant Impact (FONSI) was issued by FHWA in 2011. The Revised EA, which is being completed for the I-95 Express Lanes Fredericksburg Extension Study (or the "Fredericksburg Extension Study"), presents improvements identified in a portion of the 2011 FONSI-selected Alternative, from the I-95 / US 17 North interchange at Warrenton Road (Exit 133) to south of the I-95 / Russell Road interchange (Exit 148). The Revised EA also includes new access points along this portion of the 2011 FONSI-selected Alternative. As part of the current study, environmental resources along the corridor were updated according to the latest available data and information.

The purpose of this technical report is to identify the existing socioeconomic resources and land use characteristics in the study area and assess the potential impacts of the No-Build and Build Alternatives retained for analysis in the EA. Information in this report, described below, will support discussions presented in the Revised EA.

- Section 1 provides an overview of the study and outlines the methods used to assess impacts to socioeconomic resources and land use.
- Section 2 provides an overview of existing conditions and environmental consequences by resource.
- Section 3 includes the references cited.

1.1.1 Purpose and Need

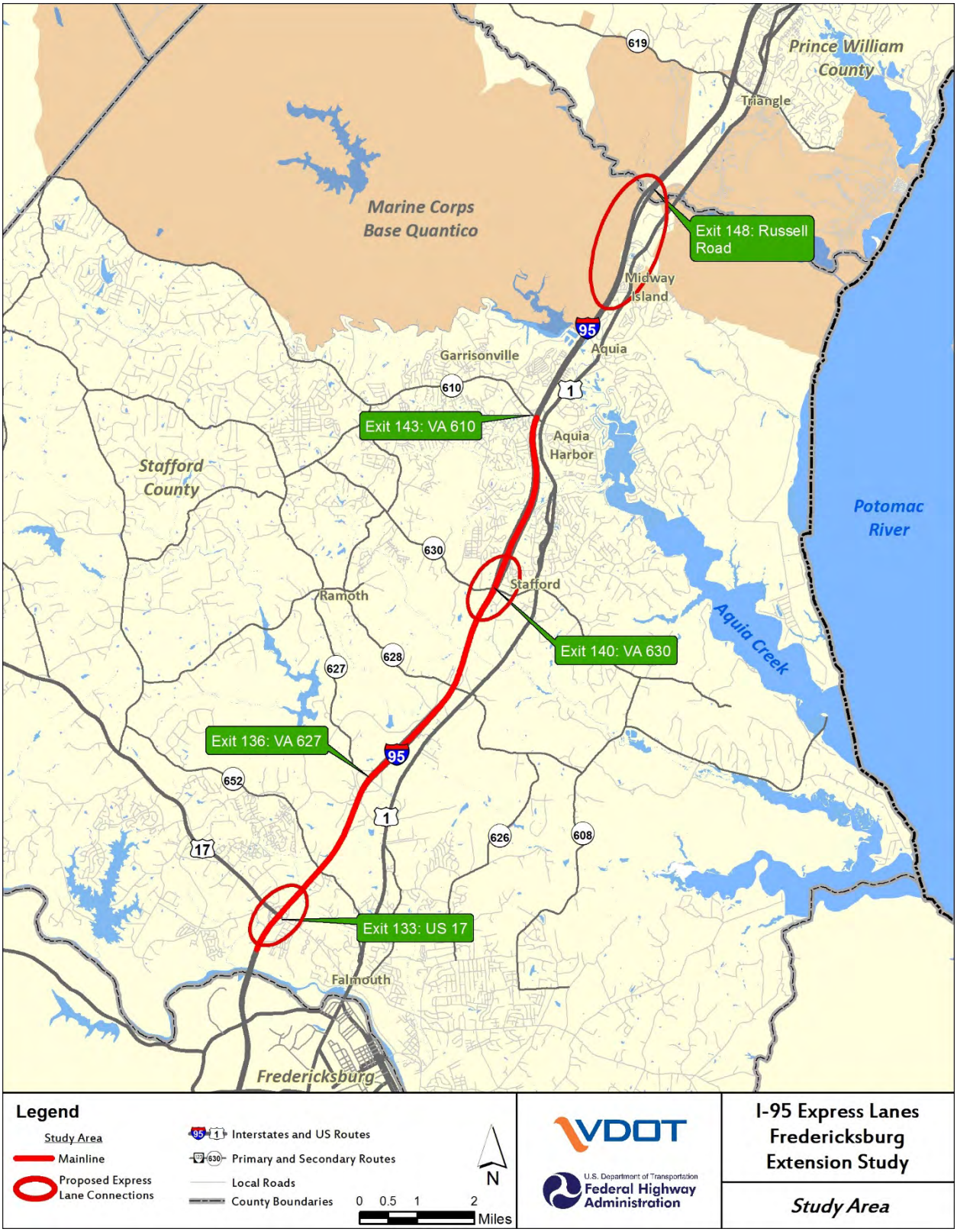
The purpose of the Fredericksburg Extension Study is to:

- Reduce daily congestion and accommodate travel demands more efficiently. Existing traffic volumes exceed available highway capacity, and the forecasts prepared using the regional travel demand models show continuing traffic growth in the corridor, with much of the Fredericksburg region's workforce continuing to commute north.
- Provide higher reliability of travel times. People place a high value on reaching their destinations in a timely manner, and in recent years, I-95 has become so congested that the existing I-95 facilities cannot provide reliable travel times during the peak periods.
- Expand travel choices by increasing the attractiveness and utility of ridesharing and transit usage while also providing an option for single-occupant vehicles to bypass congested conditions.

1.1.2 Alternatives

The proposed Build Alternative and the No-Build Alternative are under consideration. The proposed limits of the Build Alternative and areas identified for access improvements are shown on **Figure 1-1**. Additional information on the alternatives is included in the *Fredericksburg Extension Study Alternatives Technical Report* (VDOT, 2017b), and in the Revised EA (VDOT, 2017a).

Figure 1-1: Study Area



No-Build Alternative

Under the No-Build Alternative, the Express Lanes would not be extended beyond the southern terminus of the Southern Extension project, which is currently under construction south of VA 610 / Garrisonville Road (Exit 143). There would be no change to existing access points, and I-95 would remain in its present configuration. VDOT would continue maintenance and repairs of the existing roadway, as needed, with no substantial changes to current capacity or management activities. The No-Build Alternative was not identified as the Preferred Alternative in the 2011 EA and subsequent FONSI, but is retained as a baseline for comparison in this technical report.

Build Alternative

The Build Alternative would extend two reversible Express Lanes in the median of I-95 from the vicinity of the I-95 / US 17 North Interchange at Warrenton Road (Exit 133) to south of the I-95 / VA 610 Interchange at Garrisonville Road (Exit 143) to tie into the Southern Extension Project. It would also provide Express Lane access in the vicinity of the I-95 / US 17 North Interchange at Warrenton Road (Exit 133), the I-95 / VA 630 Interchange at Courthouse Road (Exit 140), and the I-95 / Russell Road Interchange (Exit 148). The Build Alternative is consistent with the 2011 FONSI-selected alternative.

1.2 METHODOLOGY

The study area within which the existing environment is characterized is generally defined as 1,000 feet on either side of I-95, approximately between Exits 133 and 148 (**Figure 1-1**). The study area is depicted as a line in **Figure 1-1** because its scale compared to the long length of the study corridor is small. The Limits of Disturbance (LOD) of the Build Alternative within which direct impacts to land use and socioeconomic resources could occur would be almost entirely within existing right-of-way. The LOD includes both the area where improvements are anticipated and the area necessary for construction access to implement the improvements. The LOD would vary along the length of the Build Alternative, but on a planning level, would generally be within 250 feet of existing I-95 right-of-way (with the exception of at flyovers and certain interchanges). Both Stafford County and Prince William County are included within the study area.

Study Census block groups within or immediately adjacent to the study area are included for analysis with data based on the 2011-2015 American Community Survey (ACS) 5-Year dataset. Where data is not available at the Census block group level, Census tracts or statistics by zip code are used. ACS data is based on sample surveys that can have large margins of error at the Census block group level. Thus, when ACS block group data is used in this study, it is the best available information at the time and/or is more reflective of existing conditions in the study area. The margins of error are presented for ACS data at the Census block group level. More resource-specific methodology is included in this document under land use and each socioeconomic resource evaluated.

Potential displacements from the estimated acquisition of right-of-way that could impact socioeconomic resources in the study area were determined by using Geographic Information Systems (GIS) software to overlay the Build Alternative's conceptual right-of-way drawings on tax parcel data for the study area. As potential property impacts are only being estimated for the Revised EA, potentially impacted property owners were not contacted to determine family or household size. Similarly, individual businesses potentially subject to property impacts were not contacted to determine further information. Such actions would be taken during more detailed design when final property impacts would be determined.

2. EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

2.1 COMMUNITY FACILITIES

2.1.1 Methodology

Community facilities identified within the 1,000 feet on either side of the I-95 study area include cemeteries, fire stations, healthcare, libraries, police stations, post offices, places of worship, schools/universities, publicly-owned parks, and outdoor recreational facilities, including bike paths and recreational trails. Community facilities data in the study area are based on Prince William County and Stafford County GIS data, Google Maps searches, and digitizing from aerials. **Figure 1-1** presents the Prince William County and Stafford County boundaries in relation to the project corridor.

2.1.2 Existing Conditions

No community facilities are within the Prince William County portion of the study area. Community facilities within the study area in Stafford County are presented in **Table 2-1** and **Figure 2-1**. One cemetery, one fire station, two parks, six health care facilities, six places of worship, five schools/universities, the East Coast Greenway (ECG) bike trail and recreational trails at Smith Lake Park (Stafford County, 2017) are within the study area. The ECG bike trail is temporarily designated as along Route 1 while a permanent trail is sought (ECG Alliance, 2017).

Table 2-1: Study Area[1] Community Facilities

Facility Name	Address
Public Parks and Outdoor Recreation	
Smith Lake Park	370 Doc Stone Road, Stafford, VA22556
Chichester Park	125 Ralph Williams Drive, Fredericksburg, VA 22405
Bike Paths and Recreational Trails	
Smith Lake Trail	Smith Lake Park at 370 Doc Stone Road, Stafford, VA22556
East Coast Greenway	Route 1
Fire and Rescue	
Fire Company 2/Rescue Center 1	305 Jason Mooney Drive, Stafford, VA 22554
Places of Worship	
Colonial Baptist Church and Academy	2726 Jefferson Davis Highway, Stafford, VA 22554
Little Forest Baptist Church	Quantico Station, 54 Little Forest Church Road, Stafford, VA 22554
Aquia Episcopal Church	2938 Jefferson Davis Highway, Stafford, VA 22554
Calvary Southern Methodist Church	279 Bells Hill Road, Stafford, VA 22554
Regester Chapel United Methodist Church	85 Bells Hill Road, Stafford, VA 22554
United Faith Christian Ministry	150 Susa Dr. Stafford, VA 22554

Facility Name	Address
Cemetery	
Aquia Cemetery	2938 Jefferson Davis Highway, Stafford, VA 22554
School/University	
Colonial Baptist Church and Academy	2726 Jefferson Davis Highway, Stafford, VA 22554
Anthony Burns Elementary School	60 Gallery Road, Stafford, VA 22554
Stafford High School	63 Stafford Indians Lane, Fredericksburg, VA 22405
Minnieland Academy at Aquia Park	2785 Jefferson Davis Hwy, Stafford, VA 22554
Helping Hands Private Day School	2680Jefferson Davis Hwy, Stafford, VA 22554
Germanna Community College	2761 Jefferson Davis Hwy #107, Stafford, VA 22554
Healthcare	
Children's Hospital of Richmond at VCU- Stafford Therapy Center	2781 Jefferson Davis Highway, Stafford, VA 22554
Kids First Pediatrics of Stafford	2773 Jefferson Davis Hwy, Stafford, VA 22554
Wee Care Pediatrics	2712 Jefferson Davis Hwy, Stafford, VA 22554
Sentara Surgery Specialists	2761 Jefferson Davis Hwy, Stafford, VA 22554
Aquia Dental Care	2712 Jefferson Davis Hwy, Stafford, VA 22554

[1]Study area dimensions are 1,000 feet either side of I-95 between Exits 133 to 148

2.1.1 Environmental Consequences

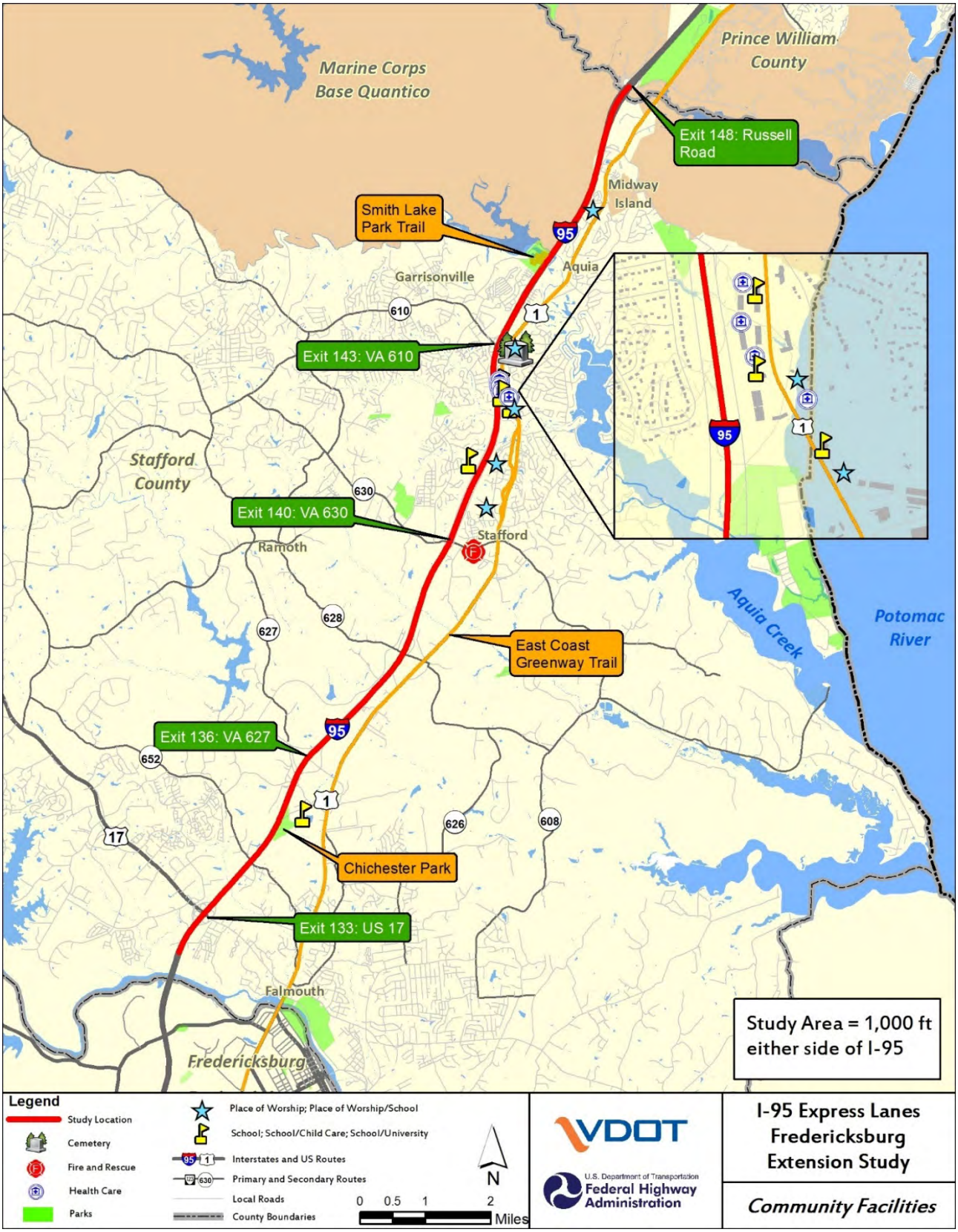
No-Build Alternative

The No-Build Alternative assumes that no improvements to the existing I-95 corridor would occur other than projects currently underway, or planned projects for which construction funding has been identified in the Metropolitan Washington Council of Governments (MWCOG) Fiscally Constrained Long-Range Plan (CLRP), the Fredericksburg Area Metropolitan Planning Organization (FAMPO) CLRP, or the Transportation Improvement Program (TIP). No direct impacts to community facilities would occur. Under the No-Build Alternative, existing transportation options on I-95 in the study area would continue in the future.

Build Alternative

No community facilities are within the LOD of the Build Alternative. The Build Alternative would be constructed primarily within existing I-95 right-of-way. No community facilities are located where new right-of-way would be acquired.

Figure 2-1: Study Area Community Facilities



2.2 POPULATION AND HOUSING

2.2.1 Methodology

Population and housing is identified based on the 2011-2015 ACS 5-Year data at the Census block group level available online at American FactFinder[1]. Data was gathered for the Census block groups within and immediately adjacent to the study area and compared to similar data for Prince William and Stafford counties and Virginia. The study area contains 12 Census block groups. However, Census block group 9801.00 BG 1 is on Marine Corps Base Quantico, and does not contain any residents. Thus, no demographic data is available for this location. Potential displacements from the acquisition of right-of-way could impact population in the study area.

2.2.2 Existing Conditions

Population

Table 2-2 summarizes the study Census block group populations and **Table 2-3** provides similar data for the total study Census block groups, Prince William and Stafford counties, and statewide. Per the 2011-2015 ACS 5-Year data, the resident population of the study area Census block groups is approximately 35,600 persons. Of these, most residents live in Stafford County (92 percent). Census block group 0102.10 BG 1 is the most populated (7,681 residents), Census block group 0102.11 BG 3 is the least populated (761 residents), and both block groups are in Stafford County.

Table 2-2: Study Area Census Block Group Resident Population

Census Block Group	Total Population	Percent of Total Study Census Block Group Population	Census Block Group	Total Population	Percent of Total Study Census Block Group Population
9011.00 BG 1	2,544	7	0102.10 BG 1	7,681	22
9801.00 BG 1	0	0	0102.11 BG 3	761	2
0102.01 BG 1	2,225	16	0103.03 BG 2	7,268	20
0102.04 BG 2	2,601	7	0103.03 BG 3	960	3
0102.07 BG 2	3,972	11	0103.04 BG 1	3,275	9
0102.07 BG 3	1,920	5	0103.04 BG 2	2,538	7

Source: American Community Survey, 2016
[1]No demographic data available

Table 2-3: Resident Population of Study Geographic Areas

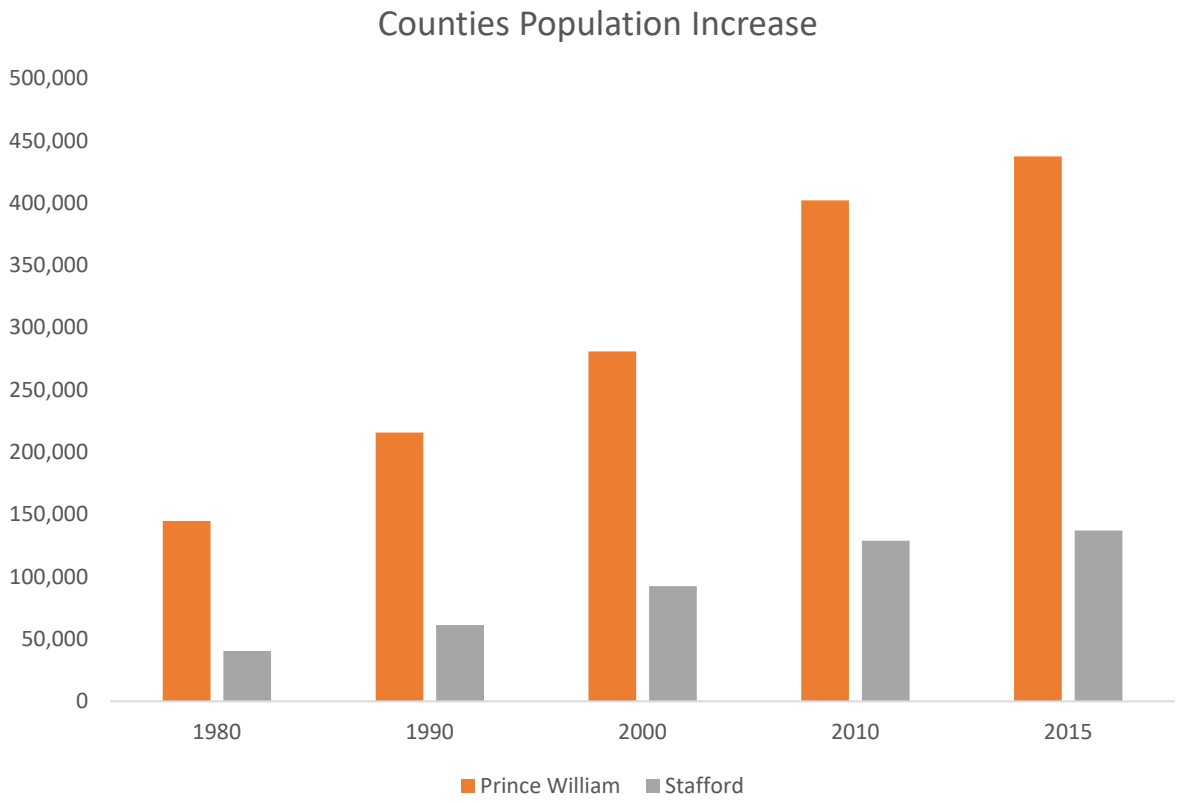
Geographic Area	Total Population	Percentage of Population within Study Census Block Groups
Study Area Block Groups Total Population	35,571	100.0
Prince William County	437,271	0.6
Stafford County	137,145	24.0
Virginia	8,256,630	Less than 1.0

Source: American Community Survey, 2016

[1] https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

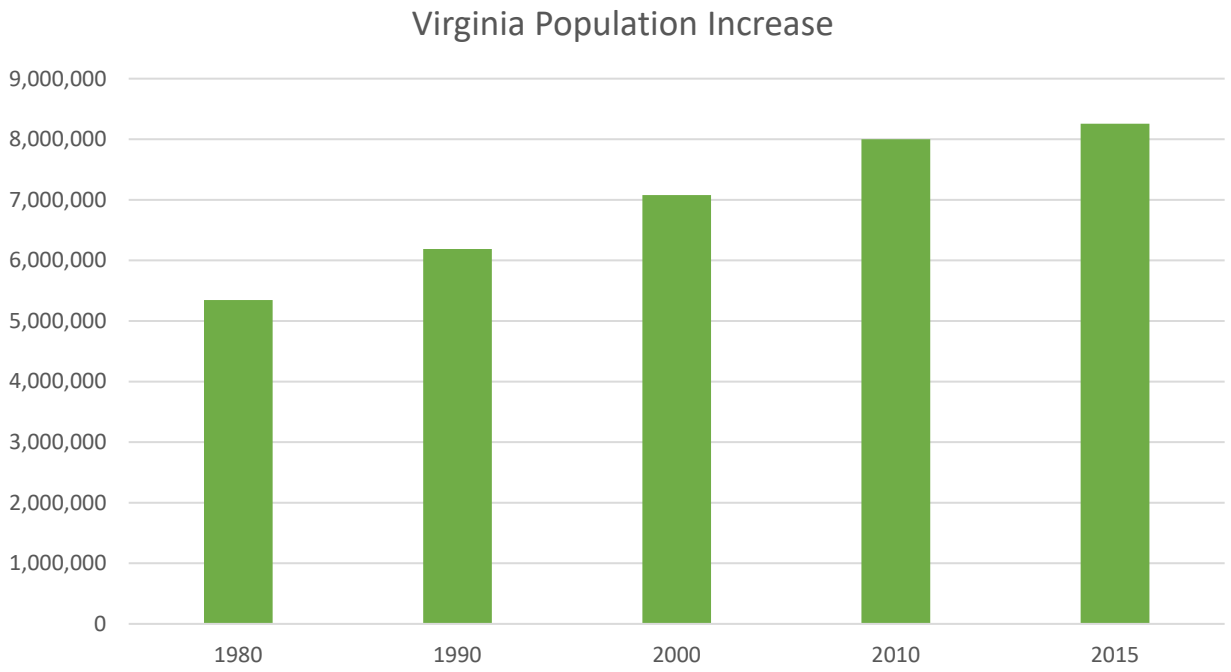
Figure 2-2 illustrates population trends for localities in the study area from 1980 to 2015. Because Census block group configurations have changed through time, population trends at that geographic level were not analyzed. During the study period, Stafford County had the largest population increase (238.9 percent) compared to other localities in the study area and statewide, and population increase during the study period was 202.2 percent in Prince William County. During the study period, a 54.4 percent population increase occurred statewide **(Figure 2-3)**.

Figure 2-2: 1980 to 2015[1,2] Population Growth in Study Area Counties



Source: US Census Bureau, 1980-2010 and American Community Survey, 2016.
[1]1980-2010 population data are Decennial Census whereas 2015 population data are 2011-2015 ACS 5-Year dataset.
[2]Margin of error statistical test for sampling variability in the 2011-2015 ACS population dataset is not appropriate because the estimate is controlled.

Figure 2-3: 1980 to 2015[1,2] Population Increase in Virginia



Source: US Census Bureau, 1980-2010 and American Community Survey, 2016.
[1]1980-2010 population data are Decennial Census whereas 2015 population data are 2011-2015 ACS 5-Year dataset.
[2]Margin of error statistical test for sampling variability in the 2011-2015 ACS population dataset is not appropriate because the estimate is controlled.

Housing

Table 2-4 presents housing characteristics in the study area Census block groups based on the 2011-2015 ACS 5-Year data. A total of approximately 11,400 housing units are within the study Census block groups. Of these, approximately 10,900 are occupied, with the greatest number (2,312) in Census block group 0102.10 BG 1 in Stafford County. Approximately 70 percent of occupied housing units in the study area Census block groups are owner-occupied and 30 percent are renter-occupied. A mix of housing types occurs in the study area ranging from detached single family homes and townhouses, to apartment buildings and at least one mobile home park.

Table 2-4: Housing Characteristics in Study Census Block Groups

Census Block Group	County	Total Housing Units	Total Occupied Housing Units	Owner-Occupied	Renter-Occupied
9011.00 BG 1	Prince William	893	893	780	113
9801.00 BG 1	Prince William	0	0	0	0
0102.01 BG 1	Stafford	26	22	7	15
0102.04 BG 2	Stafford	524	524	436	88
0102.07 BG 2	Stafford	1,522	1,357	967	390

Census Block Group	County	Total Housing Units	Total Occupied Housing Units	Owner-Occupied	Renter-Occupied
0102.07 BG 3	Stafford	607	607	328	279
0102.10 BG 1	Stafford	2,418	2,312	1,471	841
0102.11 BG 3	Stafford	224	224	180	44
0103.03 BG 2	Stafford	2,305	2,230	1,809	421
0103.03 BG 3	Stafford	374	374	203	171
0103.04 BG 1	Stafford	1,484	1,426	1,205	221
0103.04 BG 2	Stafford	1,046	927	192	735

Source: American Community Survey, 2016

2.2.3 Environmental Consequences

No-Build Alternative

No improvements to I-95 would occur in the study area under the No-Build Alternative, except for independent projects currently underway or planned projects for which construction funding has been identified in the CLRP or TIP. No project-related impacts to population in the study area would occur.

Build Alternative

It is anticipated that no residential or commercial displacements would occur under the Build Alternative. In the long term, traffic patterns would change with the addition of two Express Lanes and new access points. All current I-95 interchanges in the LOD would be maintained, ensuring continued community access to I-95. No major disruption to community cohesion would occur.

Construction of the Build Alternative would occur primarily in the median of I-95, limiting the potential for disrupting travel or commuting patterns through detours. However, limited disruptions may occur during construction where the new lanes would tie into I-95. Maintenance of traffic would be determined during the design phase of the project. These effects would be temporary and not result in substantial impacts to community cohesion.

2.3 ENVIRONMENTAL JUSTICE (EJ)

2.3.1 Methodology

Title VI of the Civil Rights Act of 1964, as amended, requires no person in the United States shall, on the ground of race, color, or national origin (including individuals with Limited English Proficiency (LEP)), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. Title VI bars intentional discrimination, as well as disparate impact discrimination (i.e., a neutral policy or practice that has an unequal impact on protected groups). The FHWA Technical Advisory T6640.8A *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* implements Title VI in assessing environmental effects. It states the following:

> The "general population served and/or affected (city, county, etc.) by the proposed action should be identified by race, color, national origin, and age" and identify if there are foreseeable impacts

> on "general social groups specially benefitted or harmed by the proposed project" including "effects of a project on the elderly, handicapped, non-drivers, transit-dependent, and minority and ethnic groups" (FHWA, 1987).

The FHWA Title VI Program is broader than the Title VI statute and encompasses other nondiscrimination statutes and authorities, including:

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

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

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

The Fredericksburg Extension Study EJ analysis is prepared in accordance with the definitions, methodologies, and guidance provided in Executive Order 12898; Executive Order 13166; the Council on Environmental Quality (CEQ) Environmental Justice Guidance Under the National Environmental Policy Act (1997); US Department of Transportation (USDOT) Order 5610.2(a), *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (2012 revision): FHWA EJ Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (2012); FHWA memorandum Guidance on Environmental Justice and NEPA (2011); the FHWA Environmental Justice Reference Guide (2015); and FHWA Technical Advisory T6640.8A: *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*. The strategies developed under Executive Order 12898 and 13166, and the USDOT/FHWA policies on EJ, take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal transportation projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law, while ensuring EJ communities are proactively provided meaningful opportunities for public participation in project development and decision-making.

Identification of Environmental Justice Populations

Executive Order 12898 itself does not define the terms "minority" or "low-income," but these terms have been defined in the USDOT and FHWA EJ Orders as below and will be used in the Fredericksburg Extension Study EJ analysis:

- Minority Individual – The USDOT and FHWA EJ Orders define a minority individual as belonging to one of the following groups: (1) Black: a person having origins in any of the black racial groups of Africa; (2) Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South

American, or other Spanish culture or origin, regardless of race; (3) Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent; (4) American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through Tribal affiliation or community recognition; or (5) Native Hawaiian and Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

- Low-Income Individual – The FHWA and USDOT EJ Orders define a "low-income" individual as a person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. While the 2016 HHS poverty guidelines are available, the 2015 guidelines are appropriate to be used for consistent comparison to the latest available 2011-2015 ACS *Median Household Income in the Past 12 Months (in 2015 Inflation-adjusted Dollars)* data available at the Census block group level. The 2015 HHS poverty guidelines for persons living in the contiguous 48 states and District of Columbia (DC) will therefore be used and are presented in **Table 2-5**.

Table 2-5: Health and Human Services 20151 Poverty Guidelines for the Contiguous 48 States and District of Columbia

Persons in Family/Household	Poverty Guideline
1	$11,770
2	$15,930
3	$20,090
4	$24,250
5	$28,410
6	$32,570
7	$36,730
8	$40,890
For families/households with more than 8 persons, add $4,160 for each additional person	

Source: HHS, 2015.

[1] 2015 HHS Poverty guidelines are used to be contemporaneous with ACS 5-Year (2011-2015) median household income data at the Census block group level.

Executive Order 12898 and the USDOT/FHWA EJ Orders are concerned with identifying minority and low-income populations. The Fredericksburg Extension Study EJ analysis is based on the following population definitions:

- Minority Populations – Any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT/FHWA program, policy, or activity (USDOT and FHWA EJ Orders). A minority population is present when: (a) the minority population of the affected area exceeds 50 percent of total population or (b) the minority population percentage in the affected area is "meaningfully

greater" than the minority population percentage in the general population or other appropriate unit of geographical analysis (CEQ, 1997). For the purposes of this study, the minority population for a Census block group will be found to be "meaningfully greater" than surrounding block groups in the study area if the value was greater than the value of the locality that has the lowest percentage of minority populations (Stafford County with 25 percent minority), plus an additional ten percent of that value (2.5 percent). This establishes a "meaningfully greater" threshold of 28 percent (rounded). As people that identify themselves as ethnic Hispanics may be of any race, Hispanic ethnicity is calculated separately in this analysis. The study County with the lowest Hispanic ethnicity is Prince William at one percent, establishing a meaningfully greater threshold of 1.1 percent. This methodology has been agreed upon by the Environmental Protection Agency (EPA), FHWA, and VDOT, as appropriate, for the identification of minority populations for discussion in NEPA documents.

- Low-Income Population – Any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT/FHWA program, policy, or activity (USDOT/FHWA EJ Orders). In the Fredericksburg Extension study area block groups, 2.91 persons on average occupy households, based on the 2011-2015 ACS 5-Year data. The 2011-2015 ACS Census block group margin of error for an average household size averaged to 0.42 persons. Therefore, to be conservative for this EJ analysis, low-income populations are identified where the median household income for a study Census block group is at or below the 2015 HHS poverty threshold for a family of four.

The study area for analysis of direct effects is defined as those Census block groups within approximately 1,000 feet of the proposed alternative's alignment. The study area contains 12 Census block groups; however, Census block group 9801.00 BG 1 is on Marine Corps Base Quantico and has no demographic data.

As discussed in **Section 1.2 Methodology**, the 2011-2015 ACS 5-Year data are used by this study to estimate Census block group total population and identify minority populations. Existing demographic conditions were reviewed by federal, state, and local cooperating agencies during development of this Revised EA.

Executive Order 13166 LEP has been addressed in outreach to potential EJ populations and LEP individuals through advertising public meetings in minority, low-income, and LEP media outlets as well as other widely disseminated sources of news in the study area. See **Chapter 4** of the Revised EA for a detailed description of these efforts.

2.3.2 Existing Conditions

Minority Populations

Out of the 12 Census block groups within the study area, 11 are identified as minority populations based on minority racial data or Hispanic ethnicity. **Table 2-6** provides a summary of racial and minority characteristics by study Census block group per 2011-2015 ACS 5-Year data. Only Census block group 9801.00 BG 1 that has no resident population is not a minority population. **Figure 2-4** shows the minority population status of study Census block groups. Minority composition of study Census block group resident population ranges from 0.0 percent in block group 9801.00 BG 1 on Marine Corps Base Quantico to 41 percent in block group 0103.04 BG 2 in the southwest extent of the study area. Census block group 0102.10 BG 1 has the highest percent of ethnic Hispanic residents just north of the town of Stafford in the northern part of the study area, whereas block groups 0103.03 BG 2 and 0103.04 BG 2 have the least in

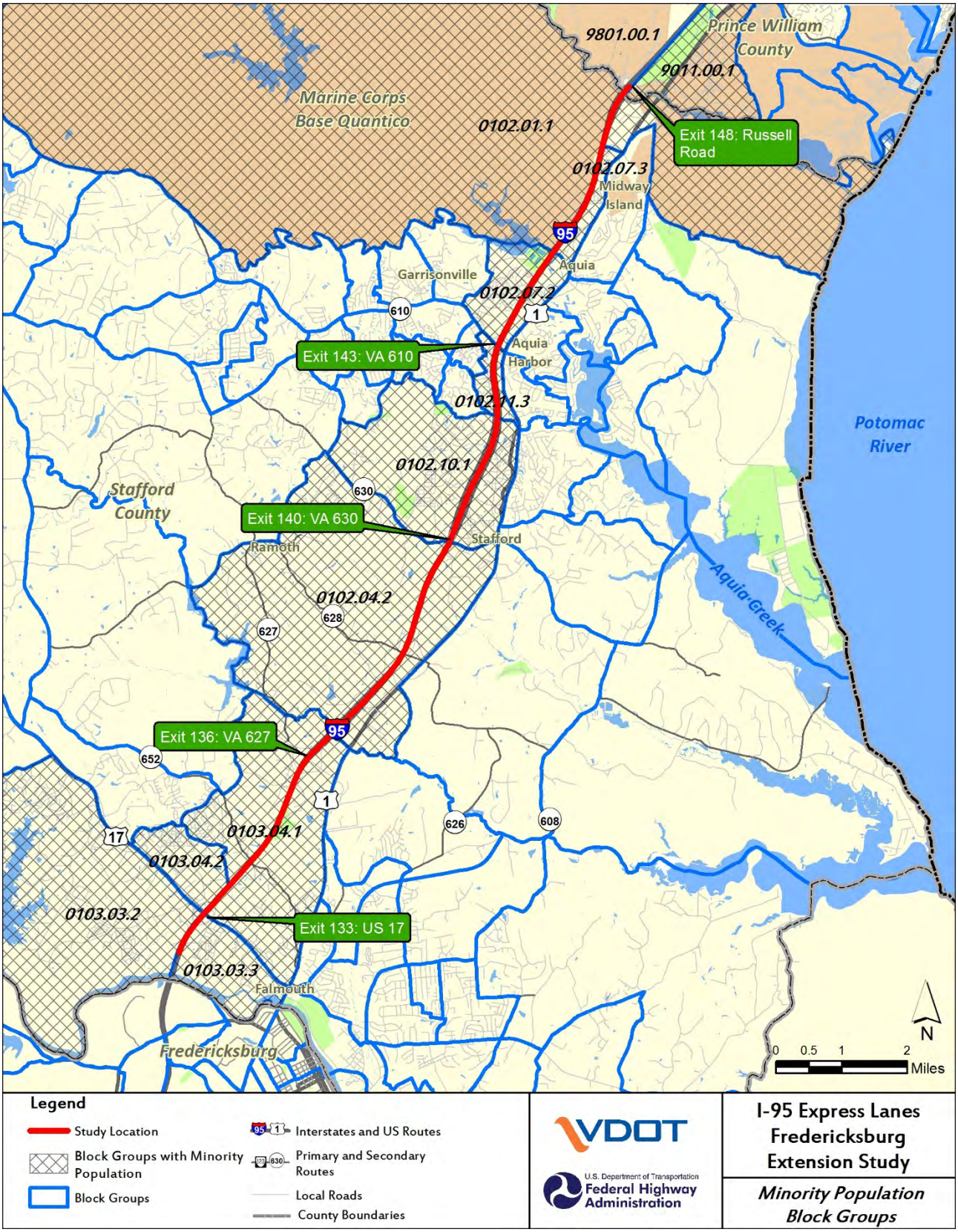
Table 2-6: Block Group Minority Characteristics (#1/%) and EJ Population Status

Geographic Area / Census Block Group	Total Pop-ulation	Margin of Error[2]	White (#/%)	Margin of Error	Black or African American (#/%)	Margin of Error	American Indian and Alaska Native (#/%)	Margin of Error	Asian (#/%)	Margin of Error	Native Hawaiian and Other Pacific Islander (#/%)	Margin of Error	Some Other Race (#/%)	Margin of Error	Two or More Races (#/%)	Margin of Error	Hispanic or Latino (#/%)	Margin of Error	Total Block Group Minority (#/%)[3]	EJ Pop-ulation Minority [3]	Hispanic EJ Pop-ulation
Prince William County Study Census Block Groups Total	**2,544**	**N/A**	1,453/57	**N/A**	**198/8**	**N/A**	**0/0**	**N/A**	**10/0**	**N/A**	**18/1**	**N/A**	**0/0**	**N/A**	**375/15**	**N/A**	**490/19**	**n/a**	**601/24**	**N/A**	**N/A**
9011.00 BG 1	2,544	+/-325	1,453/57	+/-295	198/8	+/-148	0/0	+/-12	10/0	+/-18	18/1	+/-31	0/0	+/-12	375/15	+/-190	490/19	+/-183	601/24	**No**	**Yes**
9801.00 BG 1	0	+/-12	0/0	+/-	0/0	+/-12	0/0	+/-12	0/0	+/-12	0/0	+/-12	0/0	+/-12	0/0	+/-12	0/0	+/-12	0/0	**No**	**No**
Stafford County Study Census Block Groups Total	**33,027**	**N/A**	**18,104/55**	**N/A**	**6,918/21**	**N/A**	**111/0**	**N/A**	**1,365/4**	**N/A**	**31/0**	**N/A**	**0/0**	**N/A**	**1,255/4**	**N/A**	**5,243/16**	**N/A**	**9,680/29**	**N/A**	**N/A**
0102.01 BG 1	2,225	+/-946	1,420/64	+/-491	149/7	+/-94	0/0	+/-12	42/2	+/-46	21/1	+/-32	0/0	+/-12	111/5	+/-125	482/22	+/-472	323/15	**No**	**Yes**
0102.04 BG 2	2,601	+/-473	1,686/65	+/-418	470/18	+/-136	13/0	+/-17	120/5	+/-116	0/0	+/-12	0/0	+/-12	51/2	+/-55	267/10	+/-128	654/25	**No**	**Yes**
0102.07 BG 2	3,972	+/-647	1,563/39	+/-570	1,210/30	+/-448	78/2	+/-71	58/1	+/-72	0/0	+/-12	0/0	+/-12	38/1	+/-44	1,025/26	+/-495	1,384/35	**Yes**	**Yes**
0102.07 BG 3	1,920	+/-539	724/38	+/-382	293/15	+/-194	0/0	+/-12	180/9	+/-161	0/00	+/-12	0/0	+/-12	0/0	+/-12	723/38	+/-405	473/25	**Yes**	**Yes**
0102.10 BG 1	7,681	+/-435	3,486/45	+/-491	2,167/28	+/-463	0/0	+/-17	311/4	+/-126	0/0	+/-17	0/0	+/-17	427/6	+/-259	1,290/17	+/-381	2,905/38	**Yes**	**Yes**
0102.11 BG 3	761	+/-340	451/59	+/-176	48/6	+/-54	0/0	+/-12	12/2	+/-19	0/0	+/-12	0/0	+/-12	43/6	+/-72	207/27	+/-275	103/14	**Yes**	**Yes**
0103.03 BG 2	7,268	+/-530	4,457/61	+/-523	1,513/21	+/-463	20/0	+/-29	359/5	+/-122	10/0	+/-20	0/0	+/-17	363/5	+/-374	546/8	+/-209	2,265/31	**Yes**	**Yes**
0103.03 BG 3	960	+/-369	666/69	+/-257	104/11	+/-110	0/0	+/-12	0/0	+/-12	0/0	+/-12	0/0	+/-12	46/5	+/-66	144/15	+/-178	150/16	**No**	**Yes**
0103.04 BG 1	3,275	+/-534	2,545/78	+/-384	271/8	+/-214	0/0	+/-12	37/1	+/-37	0/0	+/-12	0/0	+/-12	71/2	+/-64	351/11	+/-348	379/12	**No**	**Yes**
0103.04 BG 2	2,538	+/-502	1,106/44	+/-493	693/27	+/-258	0/0	+/-12	246/10	+/-162	0/0	+/-12	0/0	+/-12	105/4	+/-76	208/8	+/-90	1,044/41	**Yes**	**Yes**
Study Area Block Groups Total	**35,571**	**N/A**	**19,557/55**	**N/A**	**7,116/20**	**N/A**	**111/0**	**N/A**	**1,375/4**	**N/A**	**49/0**	**N/A**	**0/0**	**N/A**	**1,630/6**	**N/A**	**5,733**	**N/A**	**10,281/29**	**N/A**	**N/A**

Source: American Community Survey, 2016.

[1]All numbers rounded.
[2]The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value.
[3]Not including Hispanic Ethnicity.

Figure 2-4: Minority and Low-Income Populations in Study Census Block Groups



the southwest study area. All study area Census block groups containing minority populations are accessible via I-95 exits.

Table 2-7 provides a summary of racial and minority characteristics for the total study Census block groups in comparison to Prince William and Stafford counties, and statewide. Study area percent minority resident population (29 percent) is higher than that of Stafford County (24 percent) and statewide (28 percent), but is lower than that of Prince William County (32 percent). Ethnic Hispanic resident population is higher in the study area Census block groups (16 percent) than in Prince William (one percent) or Stafford Counties (two percent), or the statewide proportion (nine percent).

Table 2-7: Study Geographic Area Minority Characteristics

Geographic Area	Total Population	Hispanic Population (#/%)	Minority Population (#/%)
Study Area Block Groups Total	35,571	5,733/16	10,281/29
Prince William	437,271	93,909/1	141,032/32
Stafford	137,145	14,625/2	32,568/24
Virginia	8,256,630	709,156/9	2,309,626/28

Source: American Community Survey, 2016.

Low-Income

Average household size in the counties within the study area is approximately 2.91 family members. At least one mobile home park is in the study area. **Table 2-8** presents the median household income of study Census block groups and **Table 2-9** identifies the median household income of all the study Census block groups compared to Prince William and Stafford counties, and statewide. None of the study Census block groups have a median household income below the HHS family of four poverty threshold of $24,250. Thus, no low-income populations are within the study area.

Table 2-8: Median Household Income by Study Census Block Group

County	Census Block Group	Median Household Income (Dollars)	Margin of Error
Prince William	9011.00 BG 1	51,042	+/-6,964
	9801.00 BG 1	-	-
Stafford	0102.01 BG 1	53,167	+/-12,632
	0102.04 BG 2	101,731	+/-56,175
	0102.07 BG 2	68,363	+/-15,457
	0102.07 BG 3	65,547	+/-6,954
	0102.10 BG 1	90,536	+/-22,474
	0102.11 BG 3	74,205	+/-8,846
	0103.03 BG 2	120,491	+/-11,465
	0103.03 BG 3	41,406	+/-17,923

County	Census Block Group	Median Household Income (Dollars)	Margin of Error
	0103.04 BG 1	64,697	+/-8,706
	0103.04 BG 2	53,063	+/-18,159

Source: American Community Survey, 2016.

Table 2-9: Median Household Income by Study Geographic Area

Geographic Area	Median Household Income (Dollars)	Margin of Error
Study Area Block Groups Total	71,295	+/-16,760
Prince William County	98,657	+/-1,268
Stafford County	97,144	+/-2,422
Virginia	65,015	+/-270

Source: American Community Survey, 2016.

Transportation and Tolling

Interstate 95 in the Fredericksburg Extension study area contains three general purpose (GP) lanes in each direction. In addition, two Express Lanes in the median extend from Russell Road (Exit 148) to approximately Garrisonville Road (Exit 143). Currently, in the study area, the only entry to northbound Express Lanes is at approximately mile marker 145.4, south of Russell Road (Exit 148), and the only exit from the southbound Express Lanes is currently provided at approximately mile marker 144.4, just north of the Garrisonville Road (Exit 143) interchange. Northbound exit and southbound entry to the I-95 Express Lanes in the study area are provided further north.

VDOT is currently extending one existing reversible Express Lane approximately 2.2 miles south from its current termination point at Garrisonville Road (Exit 143) as part of the independent I-95 Express Lanes Southern Extension project. When completed, the newly constructed lane will split into northbound and southbound merge ramps and connect to the GP lanes in the area.

Express Lanes require single-occupancy vehicles and other vehicles not meeting HOV-occupancy requirements to pay a variable toll to use the Express Lanes during peak travel times. This increases travel choice for I-95 users. Having both Express Lanes and GP lanes provides options for those willing to pay for express service and those not willing to pay.

The Courthouse Road (Exit 140) interchange is currently being reconstructed by VDOT as a diverging diamond interchange on a new alignment immediately south of existing Courthouse Road. As part of this project, the Park & Ride currently in the southwest portion of the Courthouse Road (Exit 140) interchange is being relocated to the southeast quarter of the existing interchange. The Park & Ride facilitates access to carpooling and transit, benefitting all users of I-95 in the study area.

2.3.3 Environmental Consequences

No-Build Alternative

The No-Build Alternative would not result in any project-related construction and would therefore not result in new beneficial or adverse impact to minority or low-income populations. Minority and low-income populations would be subjected to the same, unreliable travel times as the overall population.

Build Alternative

Under the Build Alternative, both beneficial and adverse impacts would occur to minority populations residing along I-95 in the study area; however, there would be no disproportionately high and adverse impacts to minority populations. The Build Alternative would add capacity to the I-95 corridor in the study area and provide new access points to the managed lanes system. The proposed project would provide two dedicated lanes for multi-occupant vehicles south of VA 610 / Garrisonville Road (Exit 143) where none exists today, as well as additional access points for vehicles to enter and exit the Express Lanes from US 17 / Warrenton Road (Exit 133) to Russell Road (Exit 148). This would benefit all travelers on I-95, including minority populations residing along I-95 in the study area that use I-95. Existing access in the study area to and from I-95 would continue under the Build Alternative.

North of Exit 143, the daily volumes in the I-95 GP lanes would decrease by approximately 4,000 vehicles per day (vpd), and between Exits 133 and 143, the daily I-95 GP volumes would decrease by approximately 14,000 vpd. This reduction in daily traffic volume would improve travel reliability in the GP lanes for the overall population, including minority and low-income populations. Maintenance of traffic would be determined during the design phase of the project.

Making improvements to the median of an existing interstate facility reduces impacts to minority or low-income populations than otherwise could occur. Anticipated new right-of-way would be acquired in Census block groups that meet the established threshold for minority populations on either side of I-95 through the study area. However, because the Build Alternative would not require acquisition of complete parcels or structures, the impact would not be highly adverse. Whether potentially affected parcels are owned by minority persons would not be known until the right-of-way acquisition phase if the Build Alternative was implemented.

The Build Alternative would cause noise impacts to minority populations residing in the study area (see the *Fredericksburg Extension Study Noise Technical Report,* [VDOT 2017g]). In accordance with FHWA Order 6640.23, mitigation for noise impacts would be provided when warranted and determined to be reasonable and feasible, without discrimination.

2.4 ECONOMICS

2.4.1 Methodology

This economic analysis focuses on employment, travel to work characteristics, and tolling in the study area. Specifically, the 2011-2015 ACS 5-Year employment data was collected by Census block group within the study area. These employment data are the most reflective of conditions within the study area today and the margin of error is provided for this sample data. Travel to work characteristics were obtained from the US Census Bureau's Center for Economic Studies OnTheMap Application - Longitudinal-Employer Household Dynamics Program. Only 2014 travel to work data was available and only at the locality level. The tolling analysis is qualitative, focusing on vehicular access to Express Lanes and GP lanes.

2.4.2 Existing Conditions

Employment

The study Census block groups' labor force and employment data (2011-2015 ACS 5-Year) are summarized and compared to Prince William County, Stafford County, and Virginia in **Table 2-10**. As defined by the ACS, the labor force includes the civilian and US Armed Forces population over 16 years of age working as paid employees, the self-employed (including farmers), or those who worked 15 hours or more as unpaid workers for a family farm/business. Excluded from the labor force are those over 16 years of age who are students, homemakers, and unpaid volunteers; retirees; those institutionalized; and those who worked

less than 15 hours a week as unpaid workers for a family farm/business. The unemployed are over 16 years of age and not currently working, but are actively looking for work and are generally available to work. Per the ACS data, approximately 95.6 percent of the labor force in the study Census block groups is employed. This is higher than the proportion of employed labor force in Prince William County (94.7 percent), Stafford County (94.8 percent), and Virginia (93.7 percent).

Table 2-10: Study Census Block Group Employment Characteristics

Geographic Area	Total Population in Labor Force	Total Population in Labor Force Margin of Error	Total Employed (Civilian and Military)	Total Employed (Civilian and Military) Margin of Error	Total Percent Employed
9011.00 BG 1	1,027	+/-209	971	+/-260	94.5
9801.00 BG 1	-	-	-	-	-
0102.01 BG 1	2,153	+/-946	2,153	+/-1037	100.0
0102.04 BG 2	784	+/-287	772	+/-261	98.5
0102.07 BG 2	1,830	+/-424	1,750	+/-341	95.6
0102.07 BG 3	778	+/-354	744	+/-269	95.6
0102.10 BG 1	4,623	+/-406	4,407	+/-596	95.3
0102.11 BG 3	412	+/-192	363	+/-148	88.1
0103.03 BG 2	3,540	+/-437	3,471	+/-424	98.1
0103.03 BG 3	347	+/-232	278	+/-139	80.1
0103.04 BG 1	1,590	+/-540	1,553	+/-455	97.7
0103.04 BG 2	1,318	+/-355	1,124	+/-280	85.3
Study Area Block Groups Total	**18,402**	**+/-11,679**	**17,586**	**+/-4,234**	**95.6**
Prince William County	**242,801**	**+/-408**	**229,902**	**+/-2,422**	**94.7**
Stafford County	**72,937**	**+/-241**	**69,155**	**+/-2,102**	**94.8**
Virginia	**4,376,786**	**+/-2,131**	**4,100,756**	**+/-11,490**	**93.7**

Source: American Community Survey, 2016.

The ACS presents the number of resident employees per North American Industry Classification System (NAICS) category by Census tract; this information is not available at the Census block group level. Census data at the tract level is more accurate than Census block groups; thus, the margin of error is not provided for this data set. **Figure 2-5** shows the Census tract boundaries intersecting the study area. **Table 2-11** presents the industry employment data for study Census tracts, Prince William County, Stafford County, and Virginia (2011-2015 ACS 5-Year). Detailed industry employment data is not available at the Census block group level. Of the industry categories, most civilian workers residing in the study Census tracts are engaged in public administration (21.2 percent) and educational services, health care, and social assistance industry sectors (19.3 percent). In comparison, the same categories account for 12.1 percent

and 16.9 percent of respective employed residents in Prince William County, 19.4 percent and 18.0 percent in Stafford County, and 8.6 percent and 20.4 percent in Virginia.

Travel to Work

Per 2014 commuter and worker profile data obtained from the US Census Bureau for the City of Fredericksburg, Stafford, and Prince William counties, the number of in-commuters and out-commuters exceeded those who lived and worked in each locality (**Table 2-12**) (US Census Bureau, 2016). In Prince William County, most in-commuters arrived from Census-designated places within the county. For Fredericksburg, the number of jobs available exceeded that of resident workers able to fill the positions, requiring an influx of workers from outside the locality. In Stafford and Prince William counties, labor force (**Table 2-12**) exceeded the number of jobs available, with more workers out-commuting than the combined total of those working in, or in-commuting, to each locality, respectively. The 2014 commuter source and destination data suggest that most in-commuter trip sources and out-commuter destinations for these localities are located along the I-95 corridor, or accessed via I-95, inside the Capital Beltway (US Census Bureau, 2016).

Although no comparable commuting data is available for Marine Corps Base Quantico, data suggests most workers commute to the base. The base reports the 2016 estimated population was 28,376, and of those, 3,962 marines and their family members lived on base (MCBQ, 2016). Thus, approximately 24,000 persons could have been in-commuters to Marine Corps Base Quantico.

The means by which residents in the study localities get to work is presented in **Table 2-13**. Most commuters within the study Census block groups (66.1 percent) commute alone by car, truck, or van. In the study localities, the proportion of driving resident commuters who travel alone ranges from 77.5 percent statewide, to 72.7 percent in Stafford County, and 74.1 percent in Prince William County.

Figure 2-5: Study Census Tracts

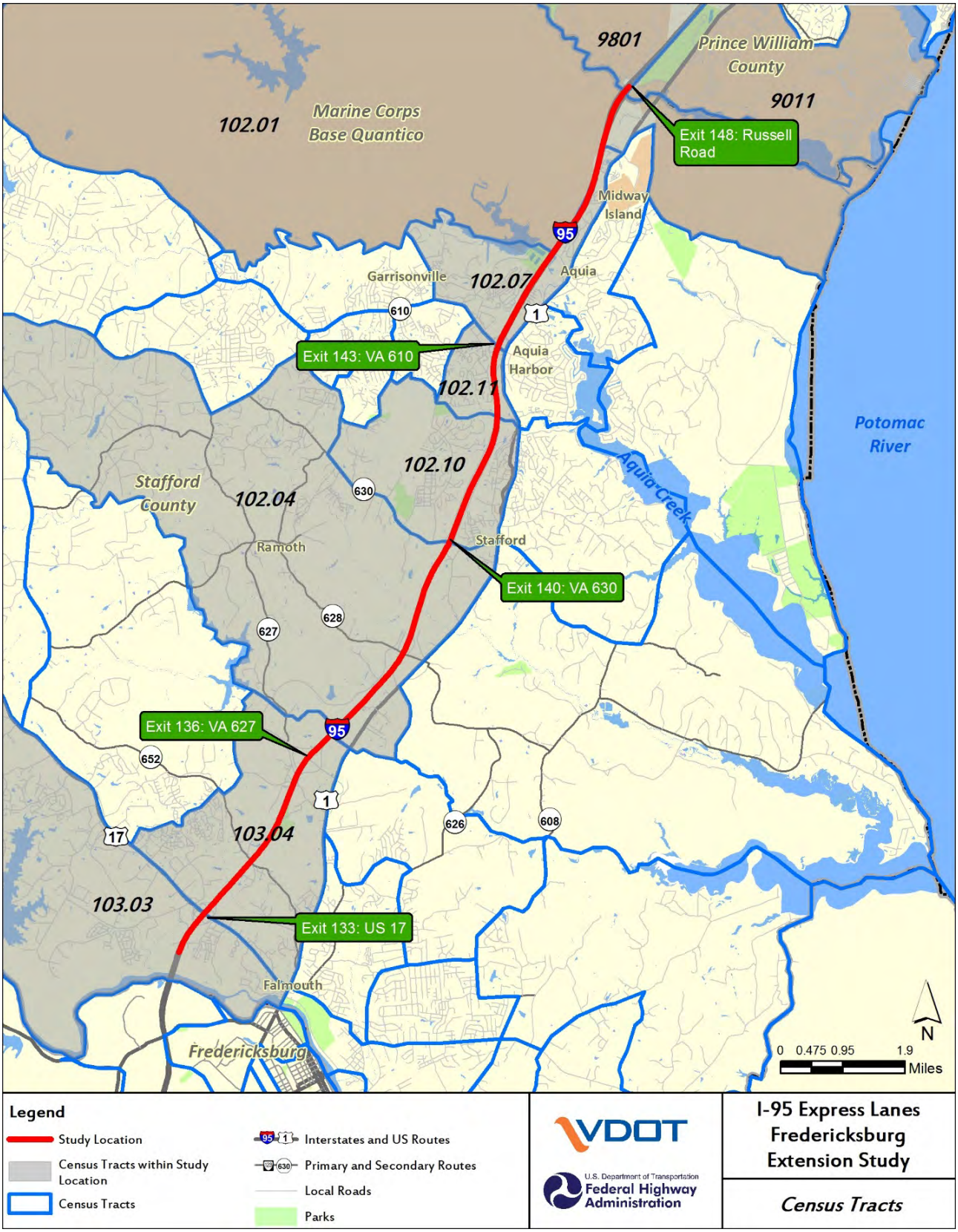


Table 2-11: Resident Employees in Study Census Tracts and Localities by Industry (2015)

NAICS Industry Sector	Census Tract 901.1	Census Tract 9801	Census Tract 102.01	Census Tract 102.04	Census Tract 102.07	Census Tract 102.1	Census Tract 102.11	Census Tract 103.03	Census Tract 103.04	Study Area Census Tracts	Prince William County	Stafford County	Virginia
Civilian Employed Population 16 Years and Older	1,200	0	82	3,476	3,727	4,378	2,145	4,761	2,895	22,664	236,838	68,401	4,266,800
Agriculture, Forestry, Fishing, Hunting, and Mining	0	0	15	0	0	9	0	0	0	24	505	159	40,547
Construction	25	0	0	185	243	343	146	226	349	1,517	19,136	4,930	254,569
Manufacturing	15	0	10	27	221	73	112	164	146	768	7,492	2,038	289,554
Wholesale Trade	0	0	15	151	0	54	7	14	0	241	3,488	854	76,555
Retail Trade	77	0	0	344	127	346	116	614	302	1,926	24,545	6,569	431,999
Transportation and Warehousing, and Utilities	17	0	0	64	236	213	78	83	60	751	10,769	2,669	167,393
Information	2	0	0	37	0	0	56	52	31	178	4,642	1,008	83,818
Finance and Insurance, Real Estate, and Rental and Leasing	50	0	0	210	87	263	66	245	215	1,136	11,925	3,563	252,597
Professional, Scientific, Management, Administrative, and Waste Management Services	86	0	0	342	447	452	395	816	541	3,079	42,049	9,538	588,520
Educational Services, and Health Care and Social Assistance	218	0	15	614	934	1,000	284	898	415	4,378	40,045	12,316	871,802

NAICS Industry Sector	Census Tract 9011	Census Tract 9801	Census Tract 102.01	Census Tract 102.04	Census Tract 102.07	Census Tract 102.1	Census Tract 102.11	Census Tract 103.03	Census Tract 103.04	Study Area Census Tracts	Prince William County	Stafford County	Virginia
Arts, Entertainment, and Recreation, and Accommodation and Food Services	138	0	17	250	378	443	228	273	48	1,775	18,779	4,929	355,541
Other Services, except Public Administration	19	0	0	126	84	249	82	248	74	882	11,901	2,764	212,220
Public Administration	424	0	10	957	824	717	440	960	483	4,815	28,663	13,282	365,655

Source: American Community Survey, 2016.

Table 2-12: Study Locality Worker Travel Profile (2014)

Pattern	Fredericksburg	Stafford County	Prince William County
Total Population	26,632	134,672	428,772
Live and Work in Locality	2,326	11,648	47,344
In-Commuters	19,925	23,848	70,159
Top 3 In-Commuter Sources	Spotsylvania County Orange County Richmond	Fredericksburg Virginia Beach Prince William County	Centreville Lake Ridge Linton Hall
Out-Commuters	7,989	40,319	150,399
Top 3 Out-Commuter Destinations	Stafford County Washington, DC Arlington County	Fredericksburg Washington, DC Arlington County	Washington, DC Arlington County Alexandria

Source: US Census Bureau, 2016.

Table 2-13: Means of Transportation to Work

Geography	Total Commuters	Total Commuters Margin of Error	Total Public Transportation Use	Total Public Transportation Use Margin of Error	Total Car/Truck/Van Alone	Total Car/Truck/Van Alone Margin of Error	Total Car/Truck/Van Carpool of 2 or More Persons	Total Car/Truck/Van Carpool of 2 or More Persons Margin of Error	Percent Study Area Population that Commutes by Car/Truck/Van Alone	Percent Study Area Population that Commutes by Car/Truck/Van Carpool of 2 or More Persons
9011.00 BG 1	962	+/-177	10	+/-18	841	+/-161	48	+/-42	87.4	5.0
9801.00 BG 1	0	+/-12	0	+/-12	0	+/-12	0	+/-12	0.0	0.0
0102.01 BG 1	2,128	+/-944	17	+/-34	455	+/-182	116	+/-128	21.4	5.5
0102.04 BG 2	772	+/-234	0	+/-12	706	+/-240	36	+/-47	91.5	4.7
0102.07 BG 2	1,733	+/-298	52	+/-45	1,458	+/-331	83	+/-55	84.1	4.8
0102.07 BG 3	744	+/-228	0	+/-12	536	+/-197	119	+/-102	72.0	16.0
0102.10 BG 1	4,319	+/-428	159	+/-83	2,853	+/-377	936	+/-254	66.1	21.7
0102.11 BG 3	348	+/-123	0	+/-12	331	+/-111	17	+/-26	95.1	4.9
0103.03 BG 2	3,452	+/-371	303	+/-208	2,400	+/-319	361	+/-109	69.5	10.5
0103.03 BG 3	278	+/-106	0	+/-12	232	+/-97	46	+/-47	83.5	16.5
0103.04 BG 1	1,536	+/-436	36	+/-43	1,076	+/-279	353	+/-338	70.1	23.0
0103.04 BG 2	1,124	+/-261	10	+/-17	615	+/-258	409	+/-157	54.7	36.4
Study Block Groups Total	17,396	+/-3,618	587	+/-508	11,503	+/-2,564	2,524	+/-1,317	66.1	14.5
Prince William County	225,994	+/-1,557	13,006	+/-984	167,420	+/-2,015	30,968	+/-1,543	74.1	13.7
Stafford County	68,014	+/-1,001	2,582	+/-346	49,429	+/-987	10,535	+/-774	72.7	15.5
Virginia	4,020,679	+/-9,014	183,183	+/-3,403	3,117,644	+/-9,722	379,361	+/-5,167	77.5	9.4

Source: American Community Survey, 2016.

Transportation and Tolling

The I-95 corridor is the main economic conduit for the entire US eastern seaboard. It is a key part of the national freight transportation system and connects to several highway, rail, seaport, and airport facilities in Virginia, including I-64, I-66, US 58, US 17, and US 460; Norfolk Southern and CSX rail lines; the Port of Richmond; and Dulles, Washington Reagan National, and Richmond Airports. I-95 through the study area is a major route connecting employees to jobs and production to consumption sites for local and East Coast traffic. I-95 provides 24 hours a day, seven days a week service for interstate and intrastate commerce and is a part of the National Primary Freight Network (FHWA, 2016) and the National Interim Multimodal Freight Network (US Department of Transportation, 2016). Approximately 48 percent of the freight tonnage moving along the corridor is pass-through freight, with the remainder originating or reaching its final destination in Virginia (VDOT and DRPT, 2016).

I-95 in the Fredericksburg Extension study area contains three GP lanes in each direction. In addition, two Express Lanes in the median extend from Russell Road (Exit 148) to approximately Garrisonville Road (Exit 143). VDOT is currently extending one existing reversible Express Lane approximately 2.2 miles further south from its current termination point at Garrisonville Road (Exit 143) as part of the independent I-95 Express Lanes Southern Extension project. Express Lanes require single-occupancy vehicles and other vehicles not meeting HOV-occupancy requirements to pay a variable toll to use the Express Lanes during peak travel times in a peak travel direction.

The Courthouse Road (Exit 140) interchange is currently being reconstructed by VDOT as a diverging diamond interchange on a new alignment immediately south of existing Courthouse Road. As part of this project, the Park and Ride currently in the southwest portion of the Courthouse Road (Exit 140) interchange is being relocated to the southeast quarter of the existing interchange. The Park and Ride facilitates access to carpooling and transit.

2.4.3 Environmental Consequences

No-Build Alternative

No improvements to I-95 would occur in the study area under the No-Build Alternative, except for independent projects currently underway or planned projects for which construction funding has been identified in the CLRP or TIP. The existing Express Lanes extending from Russell Road (Exit 148) to approximately Courthouse Road (Exit 143) increase capacity on this section of I-95 through the study area. This provides additional travel choices for users of I-95. This alternative would not provide improved regional access or travel time savings in the southern study area beneficial to economic conditions.

Build Alternative

The Build Alternative would add capacity to the I-95 corridor in the study area south of Garrisonville Road (Exit 143) and provide new access points to the managed lanes system. By providing additional travel choice and the benefits of increased capacity, the Build Alternative would provide improved access to the study area in terms of shorter travel time and increased travel reliability (see the *Fredericksburg Extension Study Transportation and Traffic Technical Report*). The additional lanes would improve travel times for commuters outside of HOV hours as well, while increasing highway capacity during rush hours for the peak direction of traffic (I-95 north in the morning and south in the evening). The Build Alternative, as part of the Atlantic Gateway Project, is expected to result in travel time savings, shipping cost savings, and reduced vehicle operation costs (VDOT and DRPT, 2016). These benefits would extend to local Fredericksburg to Washington, DC traffic on I-95, as well as intra-regional travelers and freight using I-95.

The Build Alternative would extend Express Lanes, requiring that single-occupancy vehicles and other vehicles not meeting HOV occupancy requirements to pay a variable toll to use the Express Lanes. The existing GP lanes would remain free for travelers using the facility. This provides a choice to travelers whom, based on individual needs, may or may not choose to pay a toll. No adverse impact to employment or income is expected to occur under the Build Alternative.

The Build Alternative would be constructed primarily within existing right-of-way, minimizing impacts to the local economy from right-of-way acquisition. It is anticipated that approximately 38 acres of right-of-way would be acquired without causing any residential or commercial displacements.

2.5 LAND USE, PROPERTY IMPACTS, AND RIGHT-OF-WAY

2.5.1 Methodology

Land use within the study area was identified using GIS data from Prince William and Stafford counties, planning documents from these local jurisdictions, and aerial photography from Google Maps and Google Earth. The land use categories defined by Prince William and Stafford Counties are not the same. Therefore, zoning data acquired from these counties are used in this analysis as the most representative of existing land use. The following land use classifications based on zoning are used in this analysis:

- Agricultural
- Commercial
- Residential
- Industrial
- Federal
- Planned Development
- Right-of-Way

New right-of-way may be required for the Build Alternative. Anticipated impacts to property were identified by overlaying the conceptual LOD on Prince William and Stafford Counties parcel data in GIS. The LOD includes both the area where improvements are anticipated and the area necessary for construction access to implement the improvements. This analysis is planning level only. See **Section 1.2** for a detailed description of the right-of-way impact identification methodology. Temporary right-of-way use is short-term and upon construction would be returned to property owners in condition similar to prior, original use. Temporary land use is therefore not considered land use conversion.

2.5.2 Existing Conditions

Growth in the Washington, DC metropolitan region and the Fredericksburg metropolitan area has resulted in substantial residential and commercial development in Northern Virginia, including Prince William and Stafford Counties. This relatively intensified land use is particularly evident in places along I-95, such as Midway Island, Garrisonville, Aquia, Stafford, and Berea.

As shown in **Figure 2-6** and **Table 2-14**, the most prominent land use within the study area as indicated by zoning is roadway right-of-way, followed by residential, agricultural, commercial, industrial, Federal and planned development.

Figure 2-6: Study Area Land Use

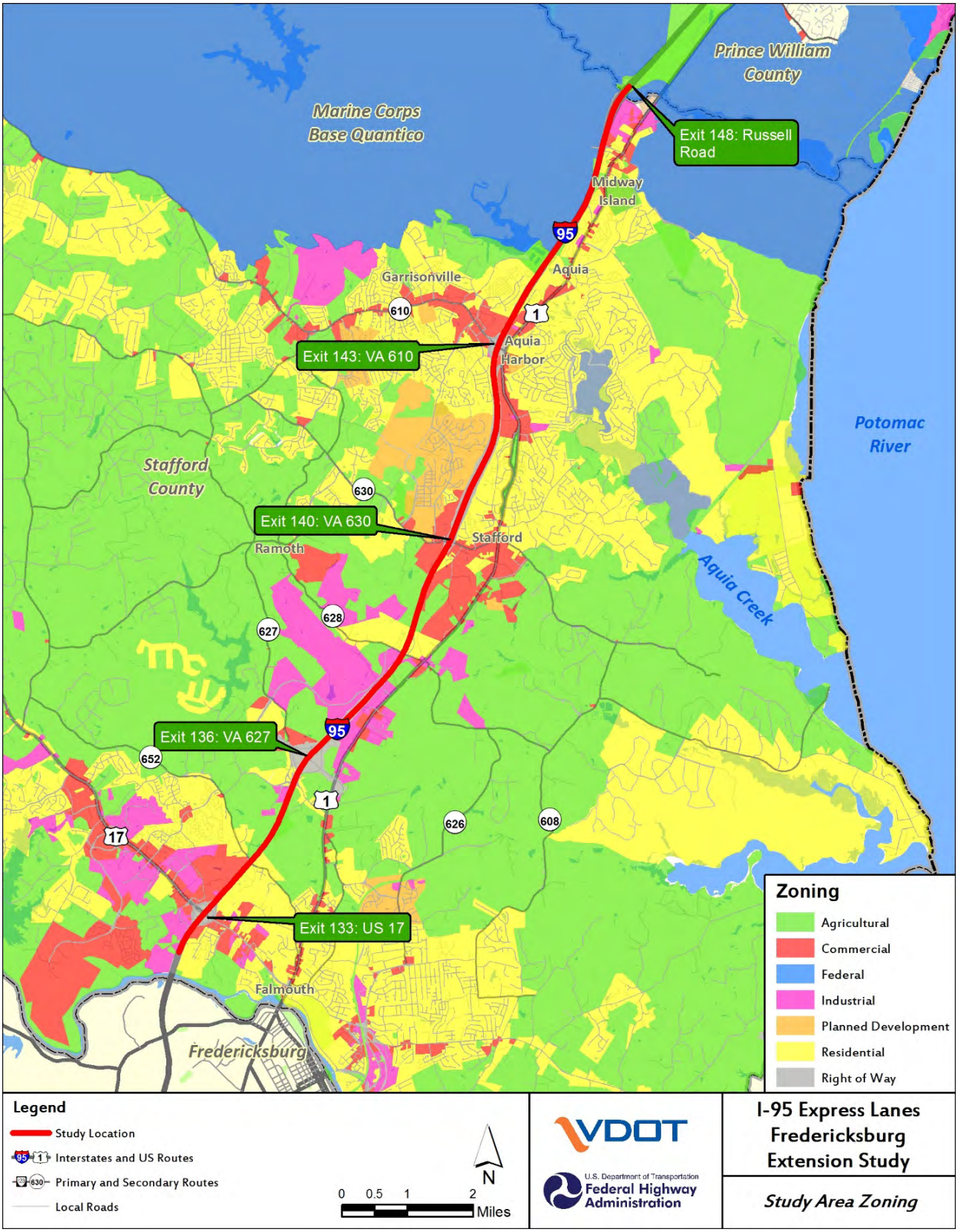


Table 2-14: Study Area Land Use

Land Use	Total Acreage within Study Area	Percent of Total Acreage within Study Area
Agricultural	537	14
Commercial	487	12
Federal	270	7
Planned Development	84	2
Residential	814	21
Industrial	342	9
Right-of-way	1,305	35
Total	**3,839**	**100%**

Locality Plans

National Capital Region Transportation Planning Board

The National Capital Region Transportation Planning Board is the metropolitan planning organization for the Washington, DC metropolitan area. The Board is responsible for developing the TIP, which identifies regionally significant transportation projects that are approved for funding and likely to be implemented within six years of the publication date. On February 3, 2017, the Board approved an amendment to add the I-95 Express Lanes Extension Study to the Fiscal Year 2017-2022 TIP.

Prince William County

Prince William County, located north of Stafford County and south of Fairfax County along I-95, is part of the Washington, DC Metropolitan Region. As such, it has experienced significant population growth over the last several decades and it is currently the second most populous county in Virginia per the 2010 US Census (US Census Bureau, 1980-2010).

Prince William County's urban and suburban land uses surround the I-95 corridor in the eastern portion of the county, as well as the City of Manassas. Further from these dense centers, the remainder of the county is composed of semi-rural and rural/agricultural land uses, as well as large parks and public lands, such as Manassas National Battlefield Park and Prince William Forest Park. The northern portion of the Marine Corps Base Quantico is also located in Prince William County.

The *Prince William County 2008 Comprehensive Plan* (including the 2012 update of the *Long-Range Land Use Plan*) identifies general land use goals that mirror Smart Growth principles. These principles believe that by concentrating population, employment, and public infrastructure within mixed-use and transit-oriented centers, development pressure on existing communities, cultural resources, open space, and environmentally-sensitive areas will be reduced.

Prince William County is divided into two general geographic planning areas: Development Area and the Rural Area. The Development Area includes urban, suburban, and semi-rural sub-areas; and features established residential, commercial, and industrial areas, as well as underdeveloped areas designated for future growth. The Rural Area features low-density residential, agricultural or estate, and convenience

retail land uses. Per the Comprehensive Plan, higher density development should not be directed to the Rural Area.

The Comprehensive Plan acknowledges that a well-functioning transportation system within Prince William County is key to economic growth, because it allows for the efficient movement of people and goods and provides an attractive quality of life for residents and employers. Transportation improvements recommended by the Plan include the construction of a fourth GP lane along I-95 from the Fairfax County line to the Stafford County line to ease commuter traffic issues stemming from neighboring jurisdictions.

Stafford County

Stafford County, located approximately 40 miles south of Washington, DC, is affected by the rapid growth of both the Washington, DC metropolitan region and the Fredericksburg metropolitan area. Historically rural and agricultural Stafford County has become increasingly suburban since the construction of I-95 in the 1960s. Residences and businesses are clustered most densely around the I-95 corridor, just south of Marine Corps Base Quantico and north of the City of Fredericksburg.

The *Stafford County Comprehensive Plan*, 2016-2036, directs future development into the Urban Services Area, a growth boundary that envelops the length of the I-95 corridor through Stafford County. The Urban Services Area has been delineated to include available vacant and underutilized land along the corridor that will accommodate the County's projected population growth over the next 20 years. By encouraging compact and infill development patterns within the Urban Services Area, and by focusing government and community services and infrastructure within this area, the Comprehensive Plan aims to preserve agricultural and rural areas located further from the interstate.

Within the larger Urban Services Area boundary are Planning Areas. Planning Areas indicate locations where significant commercial and residential development/redevelopment is anticipated. Planning Areas feature either Targeted Growth Areas (TGAs) or Redevelopment Areas (RDAs). TGAs designate an area for concentrated urban or higher density suburban development patterns located near primary road networks, transportation hubs, and the rail corridor. RDAs focus on economic revitalization via the development of mixed-use projects.

The *Stafford County Comprehensive Plan* identifies I-95 as a "major north-south transportation route for commuters, vacationers, business travelers, residents who use the facilities for local trips, and trucks traveling within and through the County." To reduce traffic congestion on I-95, the Plan supports several proposed transportation improvements to the Interstate, including the Express Lane extension from Garrisonville Road to Exit 126.

2.5.3 Environmental Consequences

No-Build Alternative

The No-Build Alternative would not result in any new project related construction and would therefore not directly impact right-of-way or land use.

Build Alternative

Table 2-15 shows the planning-level Build Alternative impacts to land use based on zoning. The planning-level Build Alternative would result in the conversion of approximately 38 acres to transportation land use, impacting primarily commercial and agricultural land use. According to the planning-level analysis, a total of 51 parcels would be impacted (see **Appendix A** for the Right-of-Way table).

Table 2-15: Build Alternative Land Use Conversion to Transportation Use

Zoning Category	Acres
Existing VDOT Right-of-Way	338.0
New Right-of-Way	37.8
Agricultural	*12.5*
Commercial	*15.4*
Residential	*4.7*
Industrial	*5.2*
Total Right-of-Way Required for Build Alternative	**375.8**

Because most Build Alternative construction would occur in existing transportation right-of-way, new right-of-way conversions would be generally limited to slivers of land bordering I-95. Therefore, the Build Alternative would not change the overall existing and planned land use pattern in the study area or Prince William and Stafford counties. It is anticipated that no residential or commercial displacements would be required.

3. REFERENCES

American Community Survey (ACS). 2016. *American Community Survey 5-year 2011-2015.* American FactFinder. Accessed February 2017: http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.

Council on Environmental Quality (CEQ). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act.* Accessed February 2017. http://www.epa.gov/oecaerth/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf. on. East Coast Greenway Alliance. Virginia Map. Retrieved May 2017: http://map.greenway.org/.

Federal Highway Administration (FHWA). 1987. *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*. Technical Advisory T6640.8a. Accessed February 2017. https://www.environment.fhwa.dot.gov/projdev/impTA6640.asp.

Federal Highway Administration (FHWA). 2016. National Highway Freight Network. Accessed November 2016: http://www.ops.fhwa.dot.gov/Freight/infrastructure/nfn/index.htm.

Fredericksburg Area Metropolitan Planning Organization (FAMPO). Constrained Long Range Plan. Accessed March 2017: https://www.fampo.gwregion.org/long-range-transportation-planning/.

Human Health and Services (HHS). 2015. 2015 Poverty Guidelines for the Contiguous 48 States and District of Columbia. Accessed February 2017: https://aspe.hhs.gov/interactive/2015-poverty-guidelines.

Marine Corps Base Quantico. Fast Facts. Accessed May 2017: http://www.quantico.marines.mil/Portals/147/Docs/Fast%20Facts%202015-2016.pdf.

Metropolitan Washington Council of Governments (MWCOG). 2017. Transportation Improvement Plan. Accessed March 2017. https://www.mwcog.org/transportation/plans/transportation-improvement-program/.

Prince William County. Prince William County 2008 Comprehensive Plan. Accessed March 2017. http://www.pwcgov.org/government/dept/planning/pages/comprehensive-planning.aspx.

Stafford County. 2017. Parks and Scenic Trails: Smith Lake Park. Retrieved May 2017: http://va-staffordcountyparksandrec.civicplus.com/Facilities/Facility/Details/Smith-Lake-Park-10

Stafford County Planning Commission. 2016. Stafford County Comprehensive Plan, 2016-2036. Accessed March 2017. http://staffordcountyva.gov/DocumentCenter/View/9317.

United States Census Bureau. 2016. OnTheMap Application-Longitudinal-Employer Household Dynamics Program. Center for Economic Studies. Accessed March 2017. http://onthemap.ces.census.gov/.

United States Census Bureau. 2016. *Census of Population and Housing.* Accessed February 2017. https://www.census.gov/prod/www/decennial.html

United States Census Bureau. 2010. US Decennial Census 2010. American FactFinder. Accessed February 2017: http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.

United States Department of Transportation. 2016. Virginia State NIMFN Map. Retrieved November 2016: https://www.transportation.gov/Freight/INMFNmaps/Virginia-State-Map2016.

Virginia Department of Transportation and Department of Rail and Public Transportation. 2016. FASTLANE Grant Application: I-95 Multimodal Corridor Initiative- Pathway to Progress. On file at the Virginia Department of Transportation Central Office, 1401 E. Broad St., Richmond, VA 23219.

Virginia Department of Transportation (VDOT). 2017a. Interstate 95 Express Lanes Fredericksburg Extension Study Revised Environmental Assessment. Richmond, Virginia: Virginia Department of Transportation. Unpublished Report.

Virginia Department of Transportation (VDOT). 2017b. Interstate 95 Express Lanes Fredericksburg Extension Study Alternatives Technical Report. Richmond, Virginia: Virginia Department of Transportation. Unpublished Report.

APPENDIX A
RIGHT-OF-WAY TABLE

Right-of-Way Table

Parcel ID	Zoning	Parcel Acreage	Impact Acreage	# of Properties	Type of Impact	Address (if available)	City (if available)
1214	A1	3.17	0.96	1	Partial		
2987	B2	8.94	0.11	1	Partial		
2988	B2	0.97	0.37	1	Partial	1115 Courthouse Road	Stafford
2989	B2	0.72	0.12	1	Partial		
2996	B2	2.40	0.01	1	Partial		
3835	A1	2.01	0.07	1	Partial	1204 American Legion Road	Fredericksburg
3850	A2	3.17	0.97	1	Partial		
3851	A2	1.34	0.01	1	Partial		
3851	A2	4.30	0.09	1	Partial		
3877	B2	0.31	0.02	1	Partial		
3877	B2	20.51	1.06	1	Partial		
4515	B2	225.01	13.03	1	Partial	140 Auction Drive	Fredericksburg
4540	M1	1.46	0.06	1	Partial		
45133	A1	21.16	0.28	1	Partial	544 Truslow Road	Fredericksburg
45141	A1	0.86	0.02	1	Partial	536 Truslow Road	Fredericksburg
45142	R1	1.81	0.30	1	Partial		
45143	R1	1.48	0.00	1	Partial	490 Truslow Road	Fredericksburg
45145	R1	5.02	0.25	1	Partial	478 Truslow Road	Fredericksburg
45246	A1	13.81	0.68	1	Partial		
45292	A1	6.12	0.05	1	Partial	60 Stafford Indians Lane	Fredericksburg
38E11	A2	1.31	0.04	1	Partial		
1213A	A1	1.53	0.12	1	Partial		
13CA	B2	11.31	1.36	1	Partial	1010 Corporate Drive	Stafford
13CA1	M1	0.11	0.00	1	Partial		
13CA2	M1	0.11	0.02	1	Partial		

Parcel ID	Zoning	Parcel Acreage	Impact Acreage	# of Properties	Type of Impact	Address (if available)	City (if available)
13CE	M1	9.26	1.27	1	Partial	1000 Corporate Drive 111	Stafford
2987A	B2	0.61	0.12	1	Partial	1118 Courthouse Road	Stafford
2988A	B2	0.17	0.09	1	Partial		
2989A	B2	2.19	0.07	1	Partial		
2990A	B2	0.72	0.04	1	Partial	1139 Courthouse Road	Stafford
2997A	B2	0.27	0.03	1	Partial		
3814G	M2	10.65	0.30	1	Partial		
3814H	M1	12.40	1.35	1	Partial	20 Centreport Parkway	Fredericksburg
3832A	A1	0.23	0.02	1	Partial	38 Nats Court Road	Fredericksburg
3834C	M2	10.17	0.80	1	Partial	1190 Ramoth Church Road	Fredericksburg
3852A	A2	4.18	0.33	1	Partial	86 Bowers Lane	Fredericksburg
45101A	R1	1.23	0.01	1	Partial	27 Old Falls Road	Fredericksburg
45101B	R1	2.36	0.09	1	Partial		
45101L	R1	6.68	1.69	1	Partial	69 Old Falls Road	Fredericksburg
45104F	R1	1.52	0.05	1	Partial	8 Beagle Road	Fredericksburg
45104J	R1	0.58	0.13	1	Partial	2 Beagle Road	Fredericksburg
45104K	R1	2.93	0.31	1	Partial	48 Old Falls Road	Fredericksburg
45133B	A1	21.00	0.01	1	Partial		
45133C	A1	6.31	1.40	1	Partial	54 Samuels Lane	Fredericksburg
45133D	R1	1.84	0.44	1	Partial		
45133E	A1	6.68	2.24	1	Partial	60 Samuels Lane	Fredericksburg
45220K	A1	43.48	0.17	1	Partial	125 Ralph Williams Drive	Fredericksburg
45220L	A1	174.03	3.56	1	Partial		
45220M	A1	22.90	2.82	1	Partial		
4538A	B2	9.60	0.32	1	Partial	60 South Gateway Drive	Fredericksburg

Parcel ID	Zoning	Parcel Acreage	Impact Acreage	# of Properties	Type of Impact	Address (if available)	City (if available)
4540A	M1	1.51	0.13	1	Partial		
			37.79 acres	51 partial acquisitions			

Note: Property impacts are based on the proposed limits of disturbance developed for the Revised EA and are subject to further refinement.