INTERSTATE 395 EXPRESS LANES NORTHERN EXTENSION

SOCIOECONOMICS & LAND USE

TECHNICAL REPORT | SEPTEMBER 2016

VDOT

U.S. Department of Transportation Federal Highway Administration

395 ExpressLanes

INTERSTATE 395 EXPRESS LANES

NORTHERN EXTENSION

Socioeconomic and Land Use Technical Report

City of Alexandria, and Arlington and Fairfax Counties
Project Number: 0395-969-205, P101; UPC: 108313
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List of Acronyms

ACS	American Community Survey
BEA	Bureau of Economic Analysis
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
DOT	Department of Transportation
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
FHWA	Federal Highway Administration
GIS	Geographic Information Systems
HHS	Health and Human Services
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
I-395	Interstate 395
LMI	Labor Market Information
NB	Northbound
NEPA	National Environmental Policy Act
NHS	National Highway System
OMB	Office of Management and Budget
PPTA	Public-Private Transportation Act
SB	Southbound
SOV	Single-Occupancy Vehicle
STRAHNET	Strategic Highway Network
USDOT	United States Department of Transportation
VDOT	Virginia Department of Transportation
VRE	Virginia Railway Express

1. INTRODUCTION

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), has initiated a study for the Interstate 395 (I-395) Express Lanes Project (Northern High Occupancy Toll [HOT] Lanes) to extend the I-95 Express Lanes in the City of Alexandria, and Arlington and Fairfax Counties, Virginia. Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA), and in accordance with FHWA regulations, an Environmental Assessment (EA) has been prepared to analyze and document the potential social, economic, and environmental effects associated with the proposed transportation improvements.

The purpose of this Technical Report is to identify and assess the impact to socioeconomic resources and land use within the study area. Information in this report, described below, will support discussions presented in the EA.

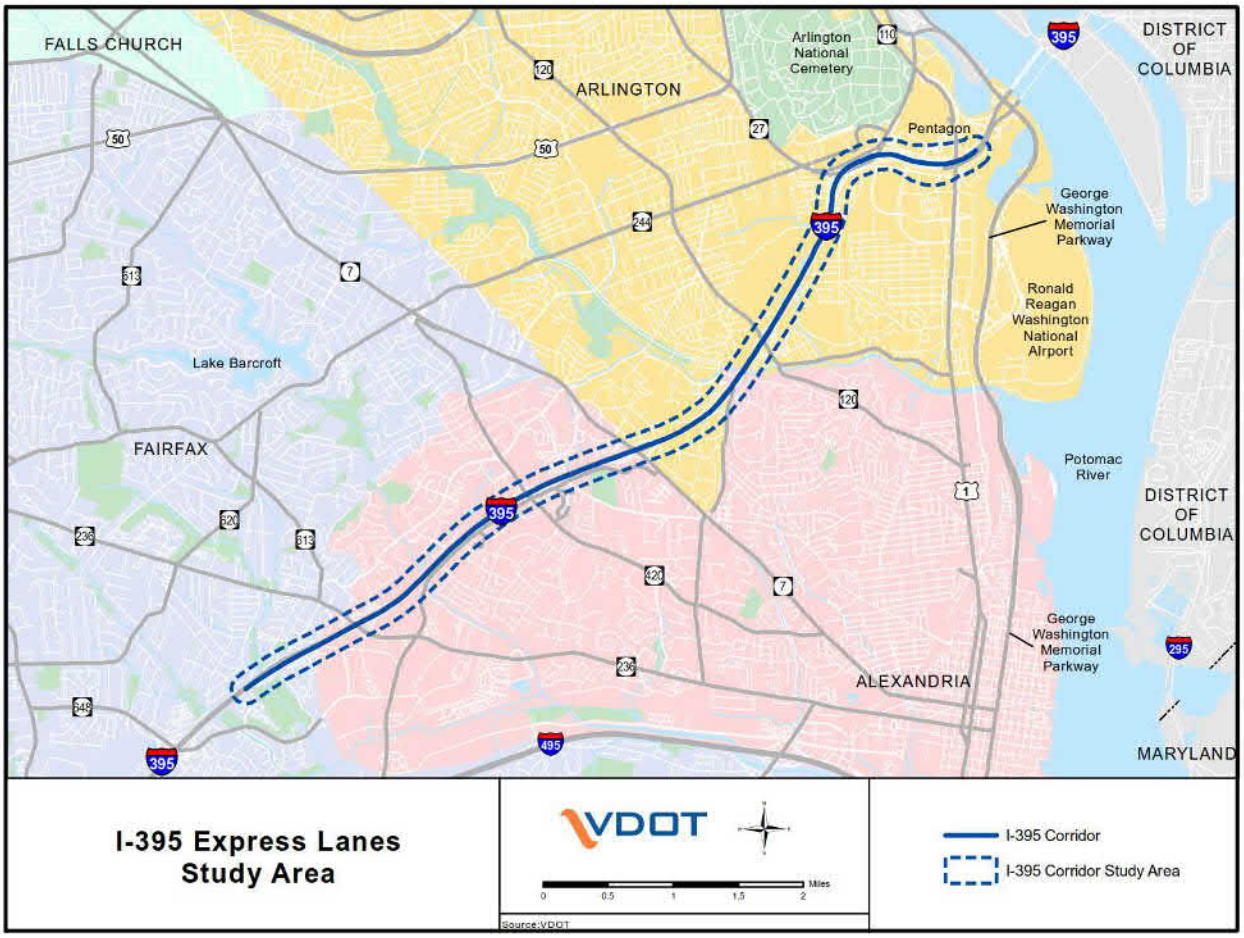
- **Section 1** provides an overview of the study and purpose and need of the project**;**
- **Section 2** describes the social characteristics of the study area and evaluates the potential for impact;
- **Section 3** describes the economic characteristics of the study area and evaluates the potential for impacts;
- **Section 4** discusses environmental justice, identifies the minority and/or low-income block groups within the study area, and assesses potential impacts to these areas;
- **Section 5** describes the land use and planned developments within the study area and evaluates the potential for impacts;
- **Section 6** identifies community facilities within the study area and evaluates the potential for impact; and
- **Section 7** describes the recreational resources within the study area evaluates the potential for impacts.

1.1 DESCRIPTION OF THE STUDY AREA

The study area encompasses approximately eight miles of the I-395 corridor from Turkeycock Run in Fairfax County to the vicinity of Eads Street near the Pentagon in Arlington County, as shown in **Figure 1-1**. Transition areas extending slightly beyond these termini are included in order to connect the proposed improvements with the existing facility on either end. Additional signage, maintenance of traffic, and noise barrier activities are anticipated to occur beyond the study area. Crossroads and interchange areas also are included in the study area, as well as lands adjacent to the corridor[1].

[1] The study area is approximately 600 feet to either side of the existing corridor for a distance of eight miles. The study area was established to identify the full extent of environmental resources and their relevance to the project. Specific potential environmental consequences resulting from the expansion and conversion of the two existing reversible High Occupancy Vehicle (HOV) lanes on I-395 to three managed HOT lanes are documented in **Chapter 3.0, Environmental Consequences** of the EA.

Figure 1-1: Study Area



The following interchanges along I-395 are located within the study area, moving south to north:

- Turkeycock Run;
- Duke Street/Little River Turnpike (Route 236);
- Seminary Road (Route 420);
- King Street (Route 7);
- Shirlington Road;
- Glebe Road (Route 120);
- Washington Boulevard (Route 27); and
- Eads Street near the Pentagon.

1.2 BACKGROUND

In 1995, the Public-Private Transportation Act (PPTA) was signed into law and was amended and re-enacted in 2005. PPTA allows for private entities to solicit VDOT to develop and/or operate and maintain transportation facilities that VDOT determines demonstrate a need. In November 2005, the conceptual proposal submitted by Fluor and Transurban was selected by the PPTA Advisory Panel. As proposed at that time, the project improvements would expand the High Occupancy Vehicle (HOV) system in the I-95

/ I-395 corridor and apply the HOT concept. As a result of this action, VDOT, in cooperation with FHWA, initiated an environmental analysis on the following proposal:

- Convert the existing two-lane HOV facility to three HOT lanes along I-395 from Eads Street to just south of Route 234 Interchange near Dumfries;
- Construct two new HOT lanes in the median from the existing terminus south of Route 234 to just north of Route 610 (Garrisonville Road);
- Add new entry/exit points between the general purpose lanes and the HOT lanes and modify existing entry/exit points; and
- Build new structures associated with the Lorton Bus-rail transfer station, flyovers, and replace existing structures at Telegraph Road over I-95 and the Franconian-Springfield pedestrian bridge.

In January 2009, FHWA issued a Categorical Exclusion (CE) for the project. In February 2011, VDOT reduced the project scope by eliminating approximately six miles of HOT lanes on I-395 including modifications to the existing interchanges, instead, focusing traffic improvements on the I-95 corridor. VDOT then announced plans for a new I-95 HOT Lanes Project and prepared an EA and then a Revised EA to assess HOT lanes on I-95 from Garrisonville Road in Stafford County to I-395 at Edsall Road in Fairfax County and link those lanes directly to the new I-495 HOT lanes already under construction. In December 2011, upon review of the Revised EA and supporting documentation, FHWA issued a Finding of No Significant Impact.

In 2012, VDOT and 95 Express Lanes, LLC (95 Express) entered into a Comprehensive Agreement for the development of the I-95 Express Lanes. The I-95 Express Lanes project was completed in December 2014. The Comprehensive Agreement allows for the future development of the extension of the I-95 Express Lanes along the I-395 corridor similar to the limits originally proposed in 2005. In 2015, the VDOT signed a Development Framework Agreement with 95 Express to extend the I-395 Express Lanes as a Concessionaire's Enhancement under the Comprehensive Agreement. The Development Framework Agreement outlines the responsibilities of both VDOT and the Concessionaire. The Agreement notes that improvements would be built largely within VDOT's existing right of way, VDOT and 95 Express would work together to finalize the scope, finance plan and agreement, and 95 Express would fund an annual transit payment.

1.3 EXISTING CONDITIONS

The I-395 corridor begins at the I-95 / I-495 Capital Beltway Interchange and ends at the New York Avenue NW (Route 50) intersection in northwest Washington, D.C, an approximate distance of 14 miles. I-395 is part of the National Highway System (NHS)[2] and the Strategic Highway Network (STRAHNET)[3]. Additionally, I-395 is the primary north-south interstate into Washington, D.C. from Virginia serving local, commuter, and regional traffic. The existing I-395 facility within the study limits generally includes four northbound (NB) and four southbound (SB) general purpose lanes and two reversible HOV lanes between

[2] NHS consists of major roadways important to the nation's economy, defense, and mobility. The NHS includes the interstate highway system as well as other roads connecting to major ports, airports, public transportation facilities, or other intermodal transportation services (http://www.fhwa.dot.gov/planning/national_highway_system/).

[3] STRAHNET is a system of highways important to the United States' strategic defense policy providing defense access, continuity and emergency capabilities for defense purposes (http://www.fhwa.dot.gov/planning/national_highway_system/).

the NB and SB general purpose lanes. The HOV lanes operate in the NB direction between 2:30 AM and 11:00 AM with HOV 3+ restrictions in effect from 6:00 AM to 9:00 AM. The HOV lanes operate in the SB direction from 1:00 PM to 12:00 AM with HOV 3+ restrictions in effect from 3:30 PM to 6:00 PM. During the summer months, the midday closure of the reversible HOV lanes to reverse the lanes from NB to SB travel occurs one hour earlier, beginning at 10:00 AM to accommodate higher traffic demands in both the general purpose, HOV, and Express Lanes. Nighttime closures remain the same during the summer months.

1.4 PURPOSE AND NEED

The Purpose and Need includes consideration of both the base year 2015 and future year 2040 conditions along the I-395 Corridor. Based on the background information discussed above, information gathered during public and agency meetings, and the analysis of recent data collected for this study, the following transportation needs have been identified for the study area:

- Reduce congestion;
- Provide additional travel choices;
- Improve travel reliability; and,
- Improve roadway safety.

1.5 DESCRIPTION OF THE ALTERNATIVES

VDOT and 95 Express have been involved in discussions, reviews, and decisions related to HOT lanes proposals in the I-95/I-395 corridor since 2004. The alternatives development process for this project was shaped by this early coordination between VDOT and 95 Express, the initial project proposal concept and previously completed NEPA documentation and technical studies. The No Build Alternative and the Build Alternative are under consideration for the EA.

No Build Alternative

The No Build Alternative would retain the existing I-395 interstate and associated interchanges in their present configurations, and allow for routine maintenance and safety upgrades, but assumes no major improvements to the I-395 corridor with the exception of the previously committed projects.

Build Alternative

The Build Alternative extends eight miles along I-395 beginning at Turkeycock Run, just north of Edsall Road Interchange, to the vicinity of Eads Street Interchange and converts the two existing reversible HOV lanes to three HOT lanes within the median area between the northbound and southbound I-395 general purpose lanes. Modifications are proposed to the Eads Street Interchange to address existing capacity deficiencies and improve transit access to the Pentagon Transit Center and Pentagon Reservation. All other access points to the proposed HOT lanes along the study corridor would remain in their current configuration, but would be converted to HOT access with the exception of the south facing Seminary Road ramp. The south facing Seminary Road ramp will remain an HOV ramp at all times.

2. SOCIAL CHARACTERISTICS

Social characteristics of the study area consists of an evaluation of population, racial and ethnic characteristics, and housing occupancies. A detailed review of the characteristics and the results of the analysis are shown below.

2.1 METHODOLOGY

The study area encompasses approximately eight miles of the I-395 corridor from Turkeycock Run in Fairfax County to the vicinity of Eads Street near the Pentagon in Arlington County.

Population, race and ethnicity, income levels, and housing occupancy data were gathered from the U.S. Census Bureau (Census). The Census collects and reports data for jurisdictions, as well as for several geographical units that are subsets of the jurisdictional total (i.e. Census tract, block group, and block). To provide for regional comparisons, Census data are collected and presented at the following levels: state, city/county, and Census block group. Delineated by the Census, Census block groups are groupings of Census blocks that are bounded by visible features, such as streets, roads, streams, and railroad tracks, or by nonvisible boundaries such as selected property lines and city or county limits. For the purposes of this report, 2010-2014 American Community Survey (ACS) 5-Year Estimates Census data were used wherever possible.

In order to determine the demographic makeup and population size of the study area, a map of the study area was placed over a Census block group map using geographic information systems (GIS) software. A manual review identified those block groups that are located entirely within the study area boundary and those that are only partially located within the study area boundary; the review identified building structures within each block group and their relative location to the study area. Population data for any Census block group located entirely within the study area are reflected in the population totals for the study area. If a Census block group was located partially within the study area, and had one or more building structures within the study area corridor, the full information for the Census block group was included within the study area demographic information. If a Census block group was partially located within the study area, but contained no building structures within study area corridor, demographic information for that Census block was excluded from study area counts.

Additional demographic information was obtained from the Virginia Employment Commission - Virginia Labor Market Information (LMI), *Community Profiles*, which was last updated in May, 2016. General information regarding communities and public facilities was gathered from field review and correspondence with local representatives, which primarily occurred during early 2016. Additional information was gathered from local comprehensive plans and reports and secondary mapping sources (e.g., GIS data provided by localities, Google Map, Google Earth, and aerial photography).

2.2 EXISTING CONDITIONS

2.2.1 Population

Table 2-1 provides population data from the 2010-2014 ACS 5-Year Census for the study area. There are over 73,000 residents within the study area. While the populations of Fairfax County (Fairfax) and

Arlington County (Arlington) that reside within the study area are one and 12 percent, respectively, the City of Alexandria (Alexandria) has the lowest locality population within the study area with nearly 30 percent.

Table 2-1: Population for the Study Area and Localities

Locality	Study Area Population	Locality Total Population	Percentage of Population within Study Area
Fairfax	6,963	1,117,072	1%
Alexandria	39,123	146,422	27%
Arlington	27,164	220,173	12%
Study Area Total	73,250	1,483,667	5%

Source: U.S. Census Bureau, ACS 2010-2014, Population Totals, B01003.

Table 2-2 illustrates population trends for localities in the study area from 1980 to 2014. In 34 years, Fairfax has seen a larger percent change (87 percent) in total population than the state of Virginia (53 percent). Alexandria has seen a 42 percent population increase and Arlington a 44 percent population increase.

Table 2-2: Population Trends for Localities within the Study Area

Locality	1980	1990	2000	2010	2014	Total Population Change	Total Percent Change
Fairfax	596,901	818,584	969,749	1,081,726	1,117,072	520,171	87%
Alexandria	103,217	111,183	128,283	139,966	146,422	43,205	42%
Arlington	152,599	170,936	189,453	207,627	220,173	67,574	44%
Virginia	5,346,818	6,187,358	7,078,515	8,001,024	8,185,131	2,838,313	53%

Source: U.S. Census Bureau, Census 1980-2010 and ACS 2010-2014, Total Population, B01003.

Table 2-3 presents the breakdown of age groups in the study area. Persons between the ages of 25 and 34 comprise the largest percentage of the study area population with just over 21,000 residents, representing approximately 29 percent of the study area. The Virginia State average is about 14 percent. The percentage of persons between the ages of 35 and 44 in the study area is also higher than in Virginia, with 17 percent as compared to 13 percent. The study area is composed of 16 percent persons under the age of 18, while the Virginia percentage is 23 percent.

Table 2-3: Population Age for the Study Area

Locality	Under 18	18-24	25-34	35-44	45-59	60-64	65 and Over	Total
Study Area	11,910	5,712	21,030	12,707	13,693	2,797	5,401	73,250
Percentage of Total Study Area Population	16%	8%	29%	17%	19%	4%	7%	100%
Virginia	1,862,284	821,722	1,137,877	1,098,730	1,732,696	470,774	1,061,048	8,185,131
Percentage of Total Virginia Population	23%	10%	14%	13%	21%	6%	13%	100%

Source: U.S. Census Bureau, ACS 2010-2014; Sex by Age, B01001.

2.2.2 Racial and Ethnic Characteristics

Table 2-4 provides a summary of racial and minority characteristics by locality within the study area. White is the largest racial group and Black or African American is the second largest racial group for the portions of the study area within Alexandria (51.1 percent and 30.6 percent) and Arlington (65.2 percent and 19.3 percent). The largest racial group within the study area total is White with 55.2 percent of the population. Black or African American is the second largest racial group with 26.4 percent. The category "Hispanic or Latino Alone or with Another Race" within the study area, consists of over 12,000 residents. Alexandria has the largest population of "Hispanic or Latino Alone or with Another Race" with just under 8,000 residents, followed by Arlington with approximately 3,000, and Fairfax with approximately 2,000 residents.

As defined by the 2010-2014 Census, minority populations consist of all but the non-Hispanic white population and Hispanic or Latino Alone or with Another Race as the data often overlaps. Hispanic or Latino Alone or with Another Race allows for individuals to identify as another race in addition to Hispanic or Latino meaning that some individuals are counted twice. In order to prevent the overlap of data, and for the purposes of this Technical Report, Hispanic or Latino Alone or with Another Race is considered a separate category. Minority populations consist of all but the non-Hispanic White population. In Virginia, minority populations comprise approximately 36.1 percent of the total population (refer to **Table 2-5**). Within the study area, minority populations' account for 57.2 percent of the population, which is a larger minority percentage than Fairfax (46.8 percent), Alexandria (47.3 percent), and Arlington (36.8 percent).

2.2.3 Housing

Table 2-5 presents housing occupancy data for the study area and Virginia. Within the study area block groups there is a higher percentage of renter occupied housing (65 to 69 percent) than owner occupied housing (31 to 35 percent) across all localities. The Virginia average has more owner occupied than renter occupied houses with 67 percent and 33 percent, respectively.

Table 2-4: Study Area Racial and Ethnic Characteristics by Locality

	Total Population	White[1]		Black or African American[1]		American Indian and Alaska Native[1]		Asian[1]		Native Hawaiian and Other Pacific Islander[1]		Some Other Race[1]		Two or More Races[1]		Hispanic or Latino - White[2]		Hispanic or Latino - Other Races[2]		Total Block Group Minority and/or Hispanic/Latino Population[3]	
		Number	%t	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Virginia	**8,185,131**	**5,668,363**	**69.3%**	**1,577,943**	**19.3%**	**23,421**	**0.3%**	**475,632**	**5.8%**	**5,485**	**0%**	**179,166**	**2.2%**	**255,121**	**3.1%**	**440,948**	**5.4%**	**246,317**	**3.0%**	**2,957,716**	**36.1%**
Fairfax	**1,117,072**	**705,991**	**63.2%**	**104,083**	**9.3%**	**3,630**	**0.3%**	**20,2094**	**18.1%**	**814**	**0%**	**51513**	**4.6%**	**4,8947**	**4.4%**	**11,1862**	**10.0%**	**67,060**	**6.0%**	**522,943**	**46.8%**
Alexandria	**146,422**	**93,493**	**63.9%**	**3,1614**	**21.6%**	**373**	**0.3%**	**9,298**	**6.4%**	**65**	**0%**	**5482**	**3.7%**	**6,097**	**4.2%**	**16,273**	**11.1%**	**7,839**	**5.4%**	**69,202**	**47.3%**
Arlington	**220,173**	**158,046**	**71.8%**	**18,354**	**8.3%**	**1,190**	**0.5%**	**21,399**	**9.7%**	**213**	**0%**	**13711**	**6.2%**	**7,260**	**3.3%**	**18,791**	**8.5%**	**15,223**	**6.9%**	**80,918**	**36.8%**
Fairfax Portion of the Study Area	***6,963***	***2,765***	***39.7%***	***2,123***	***30.5%***	***31***	***0.4%***	***1,357***	***19.5%***	***0***	***0.0%***	***590***	***8.5%***	***97***	***1.4%***	***1,287***	***18.5%***	***668***	***9.6%***	***5,485***	***78.8%***
Alexandria Portion of the Study Area	***39,123***	***19,973***	***51.1%***	***11,963***	***30.6%***	***38***	***0.1%***	***3,574***	***9.1%***	***24***	***0%***	***1,760***	***4.5%***	***1,791***	***4.6%***	***5,680***	***14.5%***	***2,542***	***6.5%***	***24,830***	***63.5%***
Arlington Portion of the Study Area	***27,164***	***17,724***	***65.2%***	***5,231***	***19.3%***	***431***	***1.6%***	***2,603***	***9.6%***	***79***	***0.3%***	***453***	***1.7%***	***643***	***2.4%***	***2,171***	***8.0%***	***779***	***2.9%***	***11,611***	***42.7%***
Study Area Total	**73,250**	**40,462**	**55.2%**	**19,317**	**26.4%**	**500**	**0.7%**	**7,534**	**10.3%**	**103**	**0.1%**	**2,803**	**3.8%**	**2,531**	**3.5%**	**9,138**	**12.5%**	**3,989**	**5.4%**	**41,926**	**57.2%**

[1] Regardless of Hispanic/Latino designation

[2] The U.S. Census Bureau defines Hispanic or Latino as a person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race. Because Hispanic or Latino may be any race, data may overlap for other race categories and percentages were not calculated.

[3.] Total minority and/or Hispanic/Latino is the sum of all non-White races plus Hispanic or Latino – White; block groups with percentages of minority and/or Hispanic/Latino greater than the 40.5 percent threshold are highlighted in yellow.

Source: *U.S. Census Bureau, ACS 2010-2014 5-Year Estimates, Hispanic or Latino by Race, B03002.*

Table 2-5: Study Area Housing Data - Occupancy

Locality	Total Occupied Housing Units	Owner Occupied	Percent of Owner Occupied	Renter Occupied	Percent of Renter Occupied
Fairfax	2,278	791	35%	1,487	65%
Alexandria	17,219	5,417	31%	11,802	69%
Arlington	13,831	4,243	31%	9,588	69%
Study Area Total	33,328	10,451	31%	22,877	69%
Virginia	3,041,710	2,028,244	67%	1,013,466	33%

Source: U.S. Census Bureau, ACS 2010-2014 5-Year Estimate, Tenure, B25003.

Table 2-6 presents the rate of vacancy and value of housing units within the study area and Virginia. and Alexandria has the least percentage of vacant housing with nine percent and Arlington has the highest percentage of vacant housing units with 15 percent. The study area block groups have an average of 12 percent vacant housing units compared to occupied housing units. Alexandria has the lowest median value at approximately $308,000 while Arlington has the highest median value of owner-occupied units at over $486,000 while (Census, 2014). Comparatively, the study area's weighted average median value of owner-occupied units for the portions of the localities within the study area is over $397,820.87, while Virginia's median value is over $243,000.

Table 2-6: Study Area Housing Data - Vacancy and Value

Locality	Total Housing Units	Number Vacant	Percent Vacant	Median Value of Owner-Occupied Units[1]
Fairfax	2,552	274	11%	$469,467
Alexandria	18,960	1,741	9%	$308,029
Arlington	16,203	2,372	15%	$486,707
Study Area Total	37,715	4,387	12%	$397,821
Virginia	3,403,241	361,531	11%	$243,500

Source: U.S. Census Bureau, Census 2010-2014 ACS 5-Year Estimate, Housing Units, B25001 and Vacancy Status, B25004

[1] Averaged across block groups within study area. The study area total was calculated by using the weighted average.

2.3 FUTURE CONDITIONS

No Build Alternative

The No Build Alternative would not improve travel through the study area, the lack of improvements would likely not cause people to relocate from the area, as discussed further in the ***Indirect and Cumulative Effects Technical Report*** (VDOT, 2016e). An additional evaluation of the study area's social characteristics may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors.

Build Alternative

Although the Build Alternative would reduce congestion and overall travel times in both the I-395 general purpose and HOV lanes during peak periods, the extension of the I-395 Express Lanes would increase roadway safety, provide additional travel choices, and improve travel reliability. The improvements would not likely cause people to relocate in or out of the area, as discussed further in the ***Indirect and Cumulative Effects Technical Report*** (VDOT, 2016e). Therefore, the Build Alternative would not materially affect population characteristics of the study area.

Construction of the Build Alternative would provide temporary local employment opportunities and support existing local businesses around the corridor (e.g. gas stations and restaurants).

Since the Build Alternative would not impact population, economic, or housing characteristics of the study area, no mitigation measures are proposed.

3. ECONOMIC CHARACTERISTICS

3.1 METHODOLOGY

Employment trends were provided by the U.S. Bureau of Economic Analysis (BEA) and reflect total full and part time employment from 1990 to 2014. Data from the 2010-2014 ACS 5-Year Estimates, Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Residence Geography was used to indicate the level and direction of commuter travel for journey to work data for the localities within the study area. Calculations were then run on each data set, as appropriate, to determine the totals and percentages for each category. Totals were calculated by summing the appropriate locality or block group information. Percent and percent change were calculated by determining the difference of the newest data set from the oldest data set, dividing the difference by the old data set and then multiplying that answer by 100 (Percent Change Example- Table 3-1: Alexandria: [(114,969 – 109,971) / 109,971] x100).

The majority of the project would be constructed within existing VDOT right of way, there would be no displaced residences or businesses. The project would likely result in permanent and/or temporary easements for the placement of signs and noise barriers; however, this would grant access to the property, but would not affect the use or ownership of the property. Further information regarding easements is included in the ***Right of Way Technical Report*** (VDOT, 2016h).

3.2 EXISTING CONDITIONS

3.2.1 Employment

Locality level data from the BEA provides a comparison between Virginia and the study area localities as a whole (**Table 3-1**). Fairfax is the only study area locality to have a higher positive employment percent change (16 percent) than that of Virginia (12 percent), from 2001-2014. Alexandria and Arlington both have lower employment percent increases at five and seven percent, respectively.

Table 3-1: Locality Employment Trends

Locality	2001	2010	2014	Total Employment Change 2001 - 2014	Total Percent Change 2001 - 2014
Fairfax	755,429	839,604	875,279	119,850	16%
Alexandria	109,971	116,420	114,969	4,998	5%
Arlington	199,692	210,110	213,277	13,585	7%
Virginia	4,415,272	4,749,625	4,938,586	523,314	12%

Source*: U.S. Bureau of Economic Analysis, 2014, Regional Data.*

Employment within the study area is largely dependent on the Professional, Scientific, and Technical Service industry. According to the Virginia LMI, the Professional, Scientific, and Technical Service industry ranks as the largest industry in Fairfax, Alexandria, and Arlington with 26 percent, 24 percent, and 19 percent respectively. Additionally, the Federal Government ranks as the second largest industry in Alexandria and Arlington. The top employment industries within in each locality are listed below.

Fairfax

1. Professional, Scientific, and Technical Services (26%)
2. Retail Trade (9.2%)
3. Health Care and Social Assistance (8.9%)

Alexandria

1. Professional, Scientific, and Technical Services (24%)
2. Federal Government (16%)
3. Accommodation and Food Services (10%)

Arlington

1. Professional, Scientific, and Technical Services (19%)
2. Federal Government (15%)
3. Other Services (except Public Administration) (11%)

Federal, State, and Local government divisions make up the industry: Government Total. Government Total is not included in the lists above as Government Total is made up of the three industries combined and cannot be equally compared to the other industries. Government Total makes up 13 percent of Fairfax's employment industry and 23 percent of Alexandria and Arlington's employment industry, making this industry competitive with non-government industries in the study area.

Identified within the LMI Demographic Profile, organizations or corporations within the localities employing the largest number of people include:

Fairfax

1. Fairfax County Public Schools
2. County of Fairfax
3. U.S. Department of Defense

Alexandria

1. U.S. Department of Commerce
2. U.S. Department of Defense
3. City of Alexandria

Arlington

1. U.S. Department of Defense
2. Arlington County School Board
3. U.S. Department of Homeland Security

The U.S. Department of Defense is listed as one of the top three largest employers within each locality in the study area. Within the City of Alexandria and Arlington County, two Federal departments make the top three largest employers of those localities.

3.2.2 Travel to Work

Table 3-2 compares the percentage of residences within each locality who work and reside within the same county with those who travel out of the county for work. Between eight and 28 percent of residents within the study area localities work and reside within the same county (LMI, 2016). Fairfax has a distinctly higher percentage (28 percent) of residents who work within their residence county than that of Alexandria

(9 percent) and Arlington (8 percent). D.C. is the number one location that residents are commuting to (out-commute) for all three localities. This is likely due to the fact that I-395, in addition to numerous other roadways and public transportations provide access into D.C., a major source of employment in the region. While not following the I-395 corridor, the Metrorail also provides a mode of transportation for out-commuting.

Table 3-2: Travel to Work for Study Area Localities

Residence Locality	Percent Who Work Within Residence County	Out-Commute Destination and Percent
Fairfax	28%	District of Columbia (27%) Arlington (15%) Alexandria (11%)
Alexandria	9%	District of Columbia (35%) Fairfax County (29%) Arlington (14%)
Arlington	8%	District of Columbia (41%) Fairfax County (31%) Alexandria (7%)

Source*: LMI, Demographic Profile by county*

The methods by which residents within the study area get to work are identified in **Table 3-3**. The study area has over 46,000 total commuters. Of those, eight percent carpool with two or more persons to work; whereas 59 percent commute to work alone.

Table 3-3: Means of Transportation to Work

Transportation Method	Fairfax	Alexandria	Arlington	Study Area Total
Total Commuters within Study Area	2,168	24,783	19,167	46,118
Total Public Transportation Use	442	4,683	5,785	10,910
Total Car / Truck / Van Alone	1,327	15,646	10,345	27,318
Total Car / Truck / Van Carpool of 2 or More Persons	278	2,482	1,090	3,850
Percent of Study Area Population that Commutes by Car / Truck / Van Alone	61%	63%	54%	59%
Percent of Study Area Population that Commutes by Car / Truck / Van Carpool of 2 or More Persons	13%	10%	6%	8%

Source: U.S. Census Bureau, Census 2010-2014 ACS 5-Year Estimate, Means of Transportation to Work, Workers 16 years and over, B08301.

Study area residents within Fairfax have the highest percentage of carpool commuters with 13 percent, whereas Alexandria has the highest percentage of driving alone commuters with 63 percent. Over 10,000 study area residents, 22 percent of the commuters, use public transportation. The remaining 11 percent of commuters walk, bicycle, use motorcycles, take taxicabs, or work from home, as defined by the Census.

3.2.3 Income

Median Household Income

Table 3-4 illustrates income characteristics for the study area and localities as a whole, at the household level. Data from 2010-2014 ACS 5-Year Estimates, *Median Income in the Past 12 Months (in 2014 Inflation-Adjusted Dollars)* was used to generate median household income data for localities within the study area. The difference was calculated by subtracting the whole locality from the study area. Percent difference was calculated by taking the difference and dividing by the study area and multiplying by 100.

Table 3-4: Median Household Income

Locality	Study Area[1]	Whole Locality	Difference	Percent Difference
Fairfax	$86,777	$112,102	$25,325	29%
Alexandria	$73,091	$87,319	$14,228	19%
Arlington	$107,159	$105,120	-$2,039	-2%
Virginia		$64,792		

[1] Averaged across block groups within study area.

Source: U.S. Census Bureau, ACS 2010-2014 5-Year Estimate Median Income in the Past 12 Months (in 2014 Inflation-Adjusted Dollars), B19013.

The average median household income within the study area localities is between $87,319 and $112,102, while Virginia's median household income is just under $65,000. Arlington and Virginia have a higher median household income within the study area compared to the locality as a whole. Fairfax has the highest percent difference (23 percent) between the county and the population within the study area, while Alexandria has a 16 percent difference.

Poverty

Following the Office of Management and Budget's (OMB) Directive 14, the Census uses a set of monetary income thresholds that vary by family size and composition to detect poverty. If a family's total income is less than the family's threshold, then that family and every individual within the family, is considered poor. The poverty thresholds do not vary geographically but are updated annually for inflation. The Census determines persons below the poverty level by:

- The income of the householder;
- The age of the householder;
- The number of related individuals within the household (unrelated members such as roommates are excluded); and,
- The number of children within the household.

Poverty guidelines are issued annually in the Federal Register and are a "simplified version of the poverty thresholds that the Census Bureau uses to prepare estimates of the number of the individuals and families in poverty" (HHS, 2014). **Table 3-5** describes the poverty characteristics for the localities compared with Virginia as well as the poverty characteristics of the study area.

All of the localities had less than 8.8 percent of people below the poverty level compared to 11.5 percent for Virginia. Within the study area, Fairfax had the highest percentage of persons below poverty level with 21.3 percent. Alexandria and Arlington had much lower percentages, with 10.1 percent and 9.5 percent persons below poverty level, respectively. The study area average is 10.9 percent.

Table 3-5: Poverty Characteristics for Localities within the Study Area and the Study Area

Locality	Persons for Whom Poverty Level is Determined[1]	People Below Poverty Level	Percent of People Below Poverty Level
Virginia	7,939,332	914,237	11.5%
Fairfax	1,107,694	66,251	6.0%
Alexandria	145,129	12,661	8.7%
Arlington	217,382	19,115	8.8%
Fairfax Portion of the Study Area	6,961	1,481	21.3%
Alexandria Portion of the Study Area	38,899	3,918	10.1%
Arlington Portion of the Study Area	27,161	2,577	9.5%
Study Area Total	73,021	7,976	10.9%

[1]U.S. Census poverty status is determined for all people except institutionalized people, people in military group quarters, people in college dormitories, and unrelated individuals under 15 years old.

Source: U.S. Census Bureau, ACS 2010-2014 5-Year Estimate, Poverty Status in the Past 12 Months, S1701 and Poverty Status of Individuals in the Past 12 Months by Living Arrangement, B17021

3.3 FUTURE CONDITIONS

No Build Alternative

Under the No Build Alternative, travel patterns and access along the I-395 study area are expected to remain similar to existing conditions. An increase in travel-time and delays would not benefit the planned economic development along the I-395 corridor. This alternative would not improve regional access or provide travel time savings to any industrial park, government agency, or residential areas within the study area. Evaluation of the potential effects to economic characteristics may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These potential effects to economic characteristics would be addressed by the respective project sponsors.

Build Alternative

The Build Alternative would improve regional access and save travel time to industrial parks, government agencies, and residential areas along the I-395 corridor. The additional lane would also create more reliable travel times for commuters outside of the existing HOV hours and increase highway capacity during rush hours for the direction of traffic (I-395 North in the morning and I-395 South in the evenings). Potential employment growth associated with the Build Alternative would result from two factors, temporary employment stemming from roadway construction and infill of commercial or industrial development associated with better traffic flow. The comprehensive plans for both the City of Alexandria and Fairfax

County, state plans for infill development throughout the respective regions. This is discussed further in the ***Indirect and Cumulative Effects Technical Report*** (VDOT, 2016e).

Construction of the Build Alternative would provide temporary local employment opportunities and support existing local businesses around the corridor (e.g. gas stations and restaurants) as well as new businesses as the result of redevelopment surrounding the corridor.

Since the Build Alternative would not negatively impact economic or housing characteristics of the study area, no mitigation measures are proposed.

4. ENVIRONMENTAL JUSTICE

4.1 METHODOLOGY

Executive Order (EO) 12898 "Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations", seeks to minimize disproportionate impacts of federal programs on minority populations and low-income populations. The following steps were included in this study process to address potential EJ consequences:

- Make active efforts to identify minority and low-income populations and include them in the transportation planning process;
- Provide for their participation and community representation in the process;
- Consider all reasonably foreseeable direct, indirect, and cumulative effects on minority and low-income populations;
- Compare the impacts to minority and low-income populations to those of non-minority and non-low-income populations to determine 1) whether minority and low-income populations share equally in the benefits of the transportation project and 2) whether disproportionately high and adverse impacts to minority or low-income populations would occur with the transportation project; and,
- To the extent practicable, avoid, minimize, and mitigate adverse impacts to minority and low-income populations.

4.1.1 Minority Populations

Identification of Minority Populations

According to FHWA Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and for the purposes of this Technical Report, minority populations are comprised of members of the following population groups:

- Black or African American: a person having origins in any of the black racial groups of Africa;
- Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;
- Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent;
- American Indian or 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
- Native Hawaiian or Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa or other Pacific Islands.

Furthermore, FHWA 6640.23A provides the following definition of a minority population:

- Minority Population: 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 will be similarly affected by a proposed FHWA program, policy, or activity.

In accordance with the terms of Council on Environmental Quality (CEQ) guidance, *Environmental Justice Guidance under the National Environmental Policy Act* (1997), an area is identified as containing a minority population where either (a) the minority population of the affected area exceeds 50 percent of total population; or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis. The CEQ guidance does not define the specific percentage that should be used for determining if the minority or low-income population is "meaningfully greater" than the average in the surrounding locality. For the purposes of this Technical Report and the associated EA, the minority population for each Census block group was found to be "meaningfully greater" than the surrounding census block groups if the value was greater than the value of the locality with the block group that has the lowest percentage of minority populations (Arlington County with 36.8 percent minority), plus an additional 10 percent of that value (3.7 percent (rounded)). This establishes a "meaningfully greater" threshold of 40.5 percent.

To perform an EJ analysis, Census data were collected on the racial and ethnic composition for each of the local jurisdictions and the 45 Census block groups fully or partially within the study area. Data from 2010-2014 ACS 5-Year Estimate, Hispanic or Latino Origin by Race, were used for the purposes of identifying minority populations within the study area.

4.1.2 Low-Income Populations

Identification of Low-Income Populations

In accordance with the terms of FHWA 6640.23 and United States Department of Transportation (USDOT) Order 5610.2(a), low-income persons include any persons whose median household income is at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines (FHWA, 2012). Furthermore, FHWA Order 6640.23 defines low-income populations as follows:

- 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 will be similarly affected by a proposed FHWA program, policy, or activity.

Data from 2010-2014 ACS 5-Year Estimates, Median Household Income in the Past 12 Months (in 2014 Inflation-Adjusted Dollars) were used to generate median household income data for each of the localities within the study area. While the 2016 HHS poverty threshold data is available, the 2014 dataset is the appropriate data set for a comparison with the Census's median household income data in 2014 inflation-adjusted dollars.

4.2 EXISTING CONDITIONS

4.2.1 Minority Populations

Table 4-1 provides a summary of racial and minority characteristics by block group. As shown in Section 4.1.1 above, the minority population value of Arlington (36.8), plus an additional 10 percent of that value (3.7 [rounded]) establishes a "meaningfully greater" threshold of 40.5 percent. All Census block groups that are determined to be EJ communities based upon high percentages of minority persons are highlighted in yellow in **Table 4-1** and are shown on **Figure 4-1**. Locality and state percentages are depicted in **Table 2-4**.

Of the 45 Census block groups within the study area, 29 are identified as EJ communities. A majority of the EJ block groups within the study area are generally located on the southwestern portion of the I-395 study area corridor in Alexandria and Fairfax.

4.2.2 Low-Income Populations

The average household size of the counties within the study area range between 2.20 and 2.83 family members. A family of four was used as the poverty threshold to be conservative for identifying Census block groups with a low median household income within the study area. The HHS 2014 Poverty Guidelines of the 48 Contiguous States and the District of Columbia identifies the poverty threshold as $23,850 for a family four. **Table 4-2** identifies the median household income for each block group within the study area, as well as each locality and Virginia as a whole to serve as a measure of comparison.

As noted in the table, none of the Census block groups within the study area have a median household income below the HHS family of four poverty threshold of $23,850. Thus, no low-income populations have been identified within the project study area and no further assessment of impacts to low-income populations is required.

Table 4-1: Study Area Racial and Ethnic Characteristics by Locality

		Total Population	White[1]		Black or African American[1]		American Indian and Alaska Native[1]		Asian[1]		Native Hawaiian and Other Pacific Islander[1]		Some Other Race[1]		Two or More Races[1]		Hispanic or Latino - White[2]		Hispanic or Latino - Other Races[2]		Total Block Group Minority Population[3]	
			Number	%t	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Fairfax Portion of the Study Area		***6,963***	***2,765***	***39.7%***	***2,123***	***30.5%***	***31***	***0.4%***	***1,357***	***19.5%***	***0***	***0.0%***	***590***	***8.5%***	***97***	***1.4%***	***1,287***	***18.5%***	***668***	***9.6%***	***5,485***	***78.8%***
Census Tract 4525.02	Block Group 1	714	406	56.9%	32	4.5%	18	2.5%	204	28.6%	0	0%	12	2%	42	5.9%	126	17.6%	44	6.2%	434	60.8%
	Block Group 2	1,801	597	33.1%	729	40.5%	0	0%	370	20.5%	0	0%	59	3%	46	3%	331	18.4%	105	5.8%	1,535	85.2%
	Block Group 3	2,434	764	31.4%	993	40.8%	13	0.5%	396	16.3%	0	0%	268	11%	0	0%	635	26.1%	268	11.0%	2,305	94.7%
Census Tract 4526.00	Block Group 2	2,014	998	49.6%	369	18.3%	0	0%	387	19.2%	0	0%	251	12%	9	0.4%	195	9.7%	251	12.5%	1,211	60.1%
Alexandria Portion of the Study Area		***39,123***	***19,973***	***51.1%***	***11,963***	***30.6%***	***38***	***0.1%***	***3,574***	***9.1%***	***24***	***0%***	***1,760***	***4.5%***	***1,791***	***4.6%***	***5,680***	***14.5%***	***2,542***	***6.5%***	***24,830***	***63.5%***
Census Tract 2001.03	Block Group 2	2,493	431	17.3%	1,826	73.2%	0	0%	99	4.0%	0	0%	137	5.5%	0	0%	194	7.8%	229	9.2%	2,256	90.5%
	Block Group 3	2,685	1,125	41.9%	670	25.0%	0	0%	398	14.8%	0	0%	262	9.8%	230	8.6%	523	19.5%	234	8.7%	2,083	77.6%
	Block Group 4	1,773	968	54.6%	662	37.3%	0	0%	139	7.8%	0	0%	0	0%	4	0.2%	490	27.6%	0	0.0%	1,295	73.0%
Census Tract 2001.04	Block Group 1	2,470	1,196	48.4%	695	28.1%	0	0%	356	14.4%	0	0%	70	2.8%	153	6.2%	846	34.3%	66	2.7%	2,120	85.8%
	Block Group 2	1,272	462	36.3%	328	25.8%	0	0%	199	15.6%	0	0%	283	22.2%	0	0%	281	22.1%	272	21.4%	1,091	85.8%
Census Tract 2001.05	Block Group 2	2,455	550	22.4%	1,758	71.6%	0	0%	23	0.9%	0	0%	33	1%	91	3.7%	87	3.5%	73	3.0%	1,992	81.1%
Census Tract 2001.06	Block Group 3	2,055	1,352	65.8%	286	13.9%	0	0%	62	3.0%	0	0%	258	12.6%	97	4.7%	54	2.6%	204	9.9%	757	36.8%
Census Tract 2001.07	Block Group 1	2,525	1,892	74.9%	306	12.1%	22	0.9%	230	9.1%	0	0%	14	1%	61	2.4%	306	12.1%	28	1.1%	939	37.2%
	Block Group 3	2,251	1,050	46.6%	548	24.3%	0	0%	553	24.6%	0	0%	33	1%	67	3.0%	46	2.0%	33	1.5%	1,247	55.4%
Census Tract 2002.01	Block Group 1	1,157	692	59.8%	306	26.4%	0	0%	86	7.4%	0	0%	0	0%	73	6.3%	95	8.2%	0	0.0%	560	48.4%
	Block Group 3	876	626	71.5%	183	20.9%	0	0%	23	2.6%	24	3%	11	1%	9	1.0%	86	9.8%	35	4.0%	336	38.4%
Census Tract 2003.01	Block Group 1	2,343	1,331	56.8%	391	16.7%	0	0%	185	7.9%	0	0%	293	13%	143	6.1%	262	11.2%	309	13.2%	1,274	54.4%
	Block Group 2	932	413	44.3%	386	41.4%	8	1%	102	10.9%	0	0%	0	0%	23	2.5%	32	3.4%	14	1.5%	551	59.1%
Census Tract 2003.02	Block Group 1	1,816	1,380	76.0%	177	9.7%	0	0%	79	4.4%	0	0%	76	4%	104	5.7%	0	0.0%	76	4.2%	436	24.0%
	Block Group 2	2,274	634	27.9%	1,311	57.7%	0	0%	289	12.7%	0	0%	34	1%	6	0.3%	390	17.2%	128	5.6%	2,030	89.3%
	Block Group 3	891	275	30.9%	211	23.7%	0	0%	181	20.3%	0	0%	153	17.2%	71	8.0%	0	0.0%	180	20.2%	616	69.1%
Census Tract 2003.03	Block Group 1	900	649	72.1%	153	17.0%	8	0.9%	60	6.7%	0	0%	0	0%	30	3.3%	89	9.9%	0	0.0%	340	37.8%
	Block Group 4	1,670	830	49.7%	325	19.5%	0	0%	18	1.1%	0	0%	24	1%	473	28.3%	60	3.6%	486	29.1%	900	53.9%
Census Tract 2004.06	Block Group 1	1,082	569	52.6%	222	20.5%	0	0%	202	18.7%	0	0%	53	4.9%	36	3.3%	151	14.0%	39	3.6%	664	61.4%
Census Tract 2004.07	Block Group 1	724	114	15.7%	563	77.8%	0	0%	47	6.5%	0	0%	0	0%	0	0%	0	0.0%	0	0.0%	610	84.3%
Census Tract 2010.00	Block Group 1	1,504	1,248	83.0%	61	4.1%	0	0%	58	3.9%	0	0%	26	2%	111	7.4%	59	3.9%	53	3.5%	315	20.9%
Census Tract 2012.03	Block Group 1	2,975	2,186	73.5%	595	20.0%	0	0%	185	6.2%	0	0%	0	0%	9	0%	1,629	54.8%	83	2.8%	2,418	81.3%
Arlington Portion of the Study Area		***27,164***	***17,724***	***65.2%***	***5,231***	***19.3%***	***431***	***1.6%***	***2,603***	***9.6%***	***79***	***0.3%***	***453***	***1.7%***	***643***	***2.4%***	***2,171***	***8.0%***	***779***	***2.9%***	***11,611***	***42.7%***
Census Tract 1025.00	Block Group 1	1,992	1,614	81.0%	260	13.1%	0	0%	86	4.3%	0	0%	0	0%	32	1.6%	127	6.4%	0	0.0%	505	25.4%

		Total Population	White[1]		Black or African American[1]		American Indian and Alaska Native[1]		Asian[1]		Native Hawaiian and Other Pacific Islander[1]		Some Other Race[1]		Two or More Races[1]		Hispanic or Latino - White[2]		Hispanic or Latino - Other Races[2]		Total Block Group Minority Population[3]	
			Number	%t	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Census Tract 1029.01	Block Group 3	766	658	85.9%	20	2.6%	12	1.6%	37	4.8%	0	0%	0	0%	39	5.1%	39	5.1%	0	0.0%	147	19.2%
Census Tract 1029.02	Block Group 1	2,454	1,677	68.3%	168	6.8%	250	10%	127	5.2%	53	2.2%	124	5%	55	2.2%	267	10.9%	374	15.2%	1,044	42.5%
Census Tract 1030.00	Block Group 1	1,472	1,279	86.9%	12	0.8%	0	0%	29	2.0%	0	0%	82	6%	70	4.8%	120	8.2%	82	5.6%	313	21.3%
	Block Group 2	752	729	96.9%	0	0%	0	0%	9	1.2%	0	0%	0	0%	14	1.9%	51	6.8%	0	0.0%	74	9.8%
Census Tract 1031.00	Block Group 1	2,826	997	35.3%	1,124	39.8%	19	1%	373	13.2%	16	0.6%	134	4.7%	163	5.8%	157	5.6%	153	5.4%	1,986	70.3%
	Block Group 2	2,460	1,245	50.6%	1,089	44.3%	51	2%	75	3.0%	0	0%	0	0%	0	0%	452	18.4%	51	2.1%	1,667	67.8%
Census Tract 1032.00	Block Group 3	1,225	791	64.6%	255	20.8%	56	4.6%	123	10.0%	0	0%	0	0%	0	0%	87	7.1%	0	0.0%	521	42.5%
Census Tract 1033.00	Block Group 1	1,194	230	19.3%	772	64.7%	9	0.8%	148	12.4%	0	0%	5	0.4%	30	2.5%	23	1.9%	5	0.4%	987	82.7%
Census Tract 1034.02	Block Group 5	1,110	642	57.8%	171	15.4%	0	0%	235	21.2%	10	0.9%	0	0%	52	4.7%	12	1.1%	12	1.1%	480	43.2%
Census Tract 1035.01	Block Group 1	1,004	807	80.4%	53	5.3%	0	0%	131	13.0%	0	0%	0	0%	13	1.3%	26	2.6%	0	0.0%	223	22.2%
	Block Group 2	1,127	736	65.3%	44	3.9%	0	0%	247	21.9%	0	0%	87	8%	13	1.2%	102	9.1%	87	7.7%	493	43.7%
Census Tract 1035.02	Block Group 1	2,349	1,719	73.2%	253	10.8%	16	0.7%	286	12.2%	0	0%	0	0%	75	3.2%	275	11.7%	0	0.0%	905	38.5%
Census Tract 1035.03	Block Group 1	1,672	1,078	64.5%	257	15.4%	0	0%	296	17.7%	0	0%	15	1%	26	1.6%	138	8.3%	15	0.9%	732	43.8%
Census Tract 1037.00	Block Group 1	959	900	93.8%	0	0%	0	0%	53	5.5%	0	0%	6	0.6%	0	0%	23	2.4%	0	0.0%	82	8.6%
Census Tract 1038.00	Block Group 1	2,822	1,678	59.5%	733	26.0%	18	0.6%	332	11.8%	0	0%	0	0%	61	2.2%	124	4.4%	0	0.0%	1,268	44.9%
	Block Group 3	963	927	96.3%	20	2.1%	0	0%	16	1.7%	0	0%	0	0%	0	0.0%	148	15.4%	0	0.0%	184	19.1%
Census Tract 9801.00	Block Group 1	14	14	100.0 %	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0.0%	0	0.0%	0	0.0%
Census Tract 9802.00	Block Group 1	3	3	100.0 %	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0.0%	0	0.0%	0	0.0%
Study Area Total		**73,250**	**40,462**	**55.2%**	**19,317**	**26.4%**	**500**	**0.7%**	**7,534**	**10.3%**	**103**	**0.1%**	**2,803**	**3.8%**	**2,531**	**3.5%**	**9,138**	**12.5%**	**3,989**	**5.4%**	**41,926**	**57.2%**

[1] Regardless of Hispanic/Latino designation

[2] The U.S. Census Bureau defines Hispanic or Latino as a person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race. Because Hispanic or Latino may be any race, data may overlap for other race categories and percentages were not calculated.

[3.] Total minority population is the sum of all non-White races plus Hispanic or Latino – White; block groups with percentages of minority and/or Hispanic/Latino greater than the 40.5 percent threshold are highlighted in yellow.

Source: *U.S. Census Bureau, ACS 2010-2014 5-Year Estimates, Hispanic or Latino by Race, B03002.*

Figure 4-1: Environmental Justice Block Groups

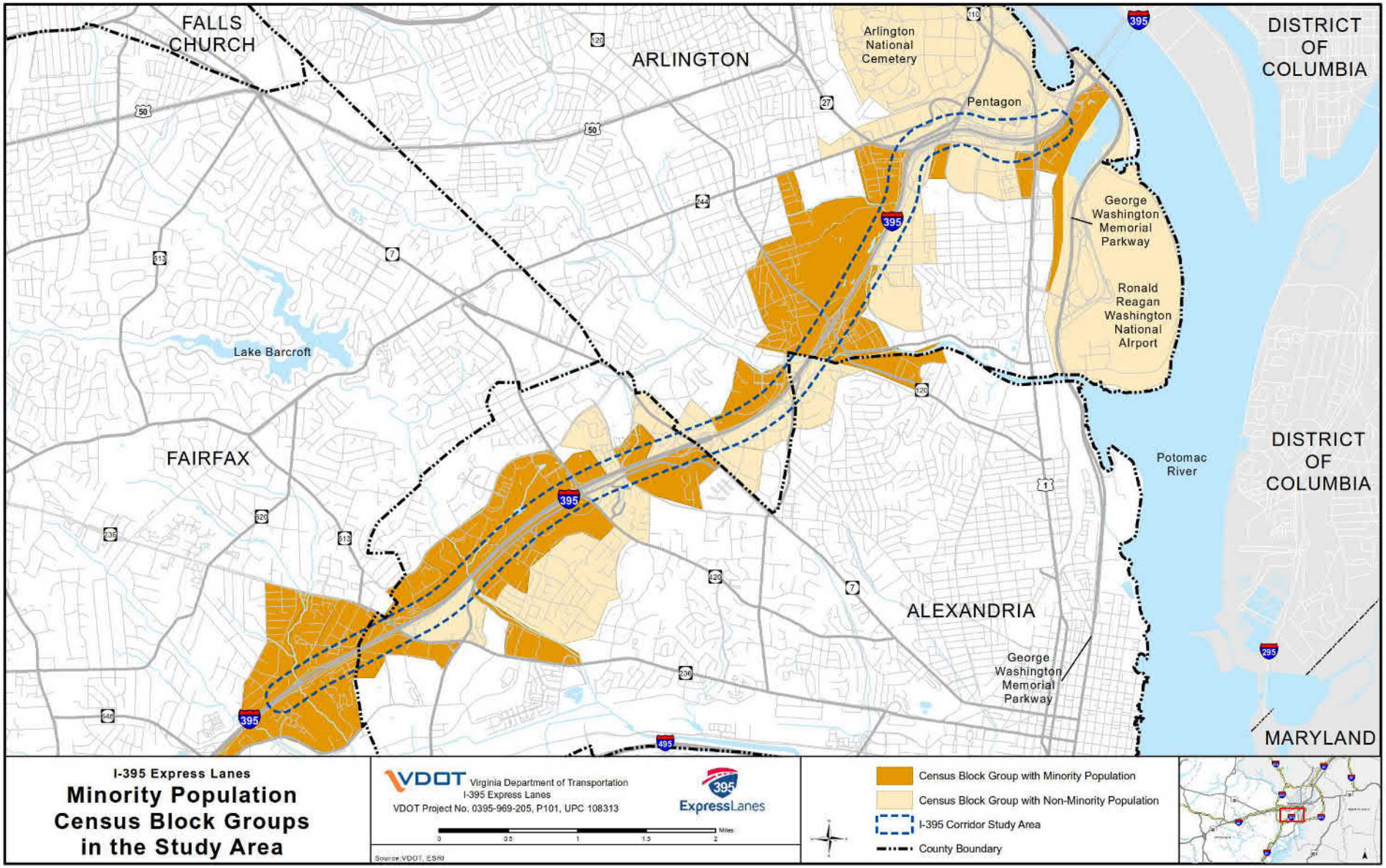


Table 4-2: Median Household Income by Census Block Group

Locality		Median Household Income
Fairfax		**$112,102**
Census Tract 4525.02	Block Group 1	$146,208
	Block Group 2	$42,188
	Block Group 3	$38,412
Census Tract 4526.00	Block Group 2	$120,300
Alexandria		**$87,319**
Census Tract 2001.03	Block Group 2	$49,708
	Block Group 3	$42,581
	Block Group 4	$46,691
Census Tract 2001.04	Block Group 1	$60,769
	Block Group 2	$59,464
Census Tract 2001.05	Block Group 2	$40,867
Census Tract 2001.06	Block Group 3	$99,750
Census Tract 2001.07	Block Group 1	$98,685
	Block Group 3	$81,250
Census Tract 2002.01	Block Group 1	$68,482
	Block Group 3	$71,713
Census Tract 2003.01	Block Group 1	$108,750
	Block Group 2	$77,500
Census Tract 2003.02	Block Group 1	$148,542
	Block Group 2	$90,883
	Block Group 3	$65,625
Census Tract 2003.03	Block Group 1	$75,508
	Block Group 4	$74,904
Census Tract 2004.06	Block Group 1	$72,579
Census Tract 2004.07	Block Group 1	$68,750
Census Tract 2010.00	Block Group 1	$88,750
Census Tract 2012.03	Block Group 1	$46,318
Arlington		**$105,120**
Census Tract 1025.00	Block Group 1	$89,750
Census Tract 1029.01	Block Group 3	$112,361
Census Tract 1029.02	Block Group 1	$66,667
Census Tract 1030.00	Block Group 1	$133,958
	Block Group 2	$128,750
Census Tract 1031.00	Block Group 1	$101,471
	Block Group 2	$67,679
Census Tract 1032.00	Block Group 3	$102,129
Census Tract 1033.00	Block Group 1	$82,344
Census Tract 1034.02	Block Group 5	$122,222
Census Tract 1035.01	Block Group 1	$100,885
	Block Group 2	$81,923
Census Tract 1035.02	Block Group 1	$134,236
Census Tract 1035.03	Block Group 1	$94,750
Census Tract 1037.00	Block Group 1	$218,333
Census Tract 1038.00	Block Group 1	$91,346
	Block Group 3	$102,159

Locality		Median Household Income
Census Tract 9801.00	Block Group 1	*Not Available
Census Tract 9802.00	Block Group 1	*Not Available
Virginia		**$64,792**

Source: *2010-2014 ACS 5-Year Estimates, Median Household Income in the Past 12 Months (in 2014 Inflation-Adjusted Dollars)*
** Median household income was not calculated by the Census Bureau because the number of sample cases was too small.*

4.3 FUTURE CONDITIONS

No Build Alternative

The No Build Alternative would not improve the travel time within the corridor; however, this delay in travel would be felt by all residents including minority populations and would not impact minority populations disproportionately. Evaluation of the potential effects to environmental justice communities may be required if programmed improvements under the No Build Alternative involve major new construction with federal funding. Potential effects to minority populations would be addressed by the respective project sponsors.

Build Alternative

The Build Alternative would reduce congestion and overall travel times in both the I-395 general purpose and HOV lanes during peak periods. The extension of the I-395 Express Lanes would increase roadway safety, provide additional travel choices, and improve travel reliability, providing benefits to all populations, including minority populations.

The Build Alternative would cause noise impacts to both non-minority and minority populations. In accordance with FHWA Order 6640.23, consideration of mitigation for noise impacts (e.g., noise barriers) would be provided without discrimination when warranted and determined to be feasible and reasonable.

The Build Alternative would convert HOV lanes to HOT lanes, requiring that single-occupancy vehicles (SOV) and double occupancy vehicles pay a toll to use the express lanes. Other options are available to users to avoid the tolls associated with the HOT lanes that offer flexibility for all income levels, including the use of the existing general purpose lanes, the use of an E-ZPass Flex which would provide free access to the HOT lanes for carpoolers with three or more people in the vehicle, as well as transit. The FHWA has stated that congestion pricing "places responsibility for travel choices squarely in the hands on the individual traveler, where it can be decided and managed" (FHWA, 2008). While the SOV is often the preferred choice of travel, with increasing benefits to shared passenger transportation alternatives, travelers may find this option attractive enough to change their travel habits (FHWA, 2008). Maintaining the general purpose lanes along with the HOT lanes allows each individual traveler to choose between the free lanes or the tolled facility based on the value that individual has placed on their time and/or the need for a reliable trip time. With the new cash-based system created by E-ZPass, families that previously could not obtain an E-ZPass transponder due to the lack of a credit card, can now purchase an E-ZPass Reload Card at local convenience stores, such as CVS and 7-11 (see http://www.ezpassva.com/reloadcard for more details).

The impacts associated with the Build Alternative would not disproportionately impact minority or low-income populations. Project-related improvements to travel time and travel reliability would benefit both minority populations and non-minority populations. Therefore, no mitigation measures are proposed.

5. LAND USE AND PLANNED DEVELOPMENT

5.1 METHODOLOGY

Existing land use was mapped using GIS data provided by local agencies. Neighborhoods were identified from desktop searches and GIS data were available. Each locality's master transportation plan and/or master comprehensive plan were reviewed to get an understanding of plans for growth and development surrounding the I-395 corridor.

5.2 EXISTING CONDITIONS

The study area is comprised mainly of highly developed urban areas and communities interspersed with parks and recreational uses. Development in the study area primarily consists of residential, commercial, and governmental properties. While much of the study area is highly developed, approximately 82 acres (or 7.3 percent) of the 1,121 acres within the study area is classified as "forested or undeveloped" for recreational use in parks or land being preserved through conservation easements. Of the remaining acres, approximately 44.2 percent of the study area is used for transportation facilities (including the I-395 roadway and ramps and the local roadways), 32.4 percent of the study area is used for residential development, 8.9 percent for commercial development, 4.6 for institutional development, 1.4 percent for industrial development, and 1.2 percent for other uses (see **Table 5-1**).

Table 5-1: Land Use / Land Cover

Land Use	Locality	Acres	Percent of Study Area Covered	Total Percentage
Commercial	Alexandria	50.17	4.5%	8.9%
	Arlington	49.96	4.5%	
	Fairfax	0	0.0%	
Industrial	Alexandria	1.94	0.2%	1.4%
	Arlington	14.08	1.3%	
	Fairfax	0	0.0%	
Institutional[1]	Alexandria	14.03	1.3%	4.6%
	Arlington	37.57	3.4%	
	Fairfax	0	0.0%	
Other[2]	Alexandria	3.92	0.3%	1.2%
	Arlington	0.91	0.1%	
	Fairfax	8.24	0.7%	
Recreational	Alexandria	13.25	1.2%	7.3%
	Arlington	65.04	5.8%	
	Fairfax	3.67	0.3%	
Residential	Alexandria	163.57	14.6%	32.4%
	Arlington	151.15	13.5%	
	Fairfax	48.53	4.3%	
Transportation (including I-395)		495.33	44.2%	44.2%
Study Area Total		**1121.36**	**100%**	**100%**

Source: *GIS and county data overlays*

[1] *Institutional land uses includes schools and religious facilities.*

[2] *Other land uses includes city-owned, open, vacant, or other public land.*

The transportation use includes the existing I-395 corridor, associated ramps and interchanges, as well as local roadways. **Figure 5-1** shows the land uses within the study area.

Following is a description of the communities in the study area by locality, and general land use of each. These communities are shown on **Figure 5-2**.

Fairfax County

Lincolnia is the only community located within the study area corridor region of Fairfax County. Much like the other communities throughout the study area, Lincolnia consists of residential development, commercial development, parks, and a mall called Plaza at Landmark. Parts of Lincolnia, such as Plaza at Landmark, have Alexandria addresses in spite of Lincolnia being a Fairfax community. Within the study area, Fairfax residential developments are classified as 2-3, 4-5, 5-8, and 16-20 dwelling units per acre.

In addition to numerous residential communities, I-395 provides access to numerous parks, town centers, as well as major highways including the I-495 Beltway and I-95. The Fairfax County Comprehensive Land Use Plan, adopted July 28, 2015, depicts the study area as primarily residential with open space and a portion of mixed use (such as office, hotel, residential, or retail) north of the I-395 corridor and southwest of the I-395 / Duke Street Interchange.

City of Alexandria

Numerous highly developed neighborhoods are located within the study area. Located at the western end of Alexandria, Landmark (also known as Van Dorn) is a mixed use neighborhood consisting of numerous shopping areas including Landmark Mall and Van Dorn Plaza, as well as commercial and business areas, and apartment and townhouse complexes. Seminary Hill/Strawberry Hill, separated from Landmark/Van Dorn by Holmes Run Park, is generally single family residential with pockets of apartment and townhouse complexes. Alexandria West and Beauregard lie on the northern side of I-395. Alexandria West consists of single family residences and apartment/townhouse complexes, mixed with several parks and nature preserves, as well as some commercial development. Beauregard is a small neighborhood consisting of the Mark Center, a guarded government property with numerous buildings, and a large multi-story apartment complex. North Ridge/Rosemont, located in the northeastern portion of Alexandria, is predominantly single family residential.

I-395 provides access to numerous parks, residential areas, the Washington and Old Dominion Trail, Landmark Mall, and Old Town Alexandria. The City of Alexandria zoning map (2015) depicts the study area corridor as varying degrees of residential development, coordinated development districts, commercial residential mixed use, office, and public open space. Residential development ranges from low to high density residential development with the most prevalent classification being high density residential development.

Figure 5-1: Land Use within in the Study Area

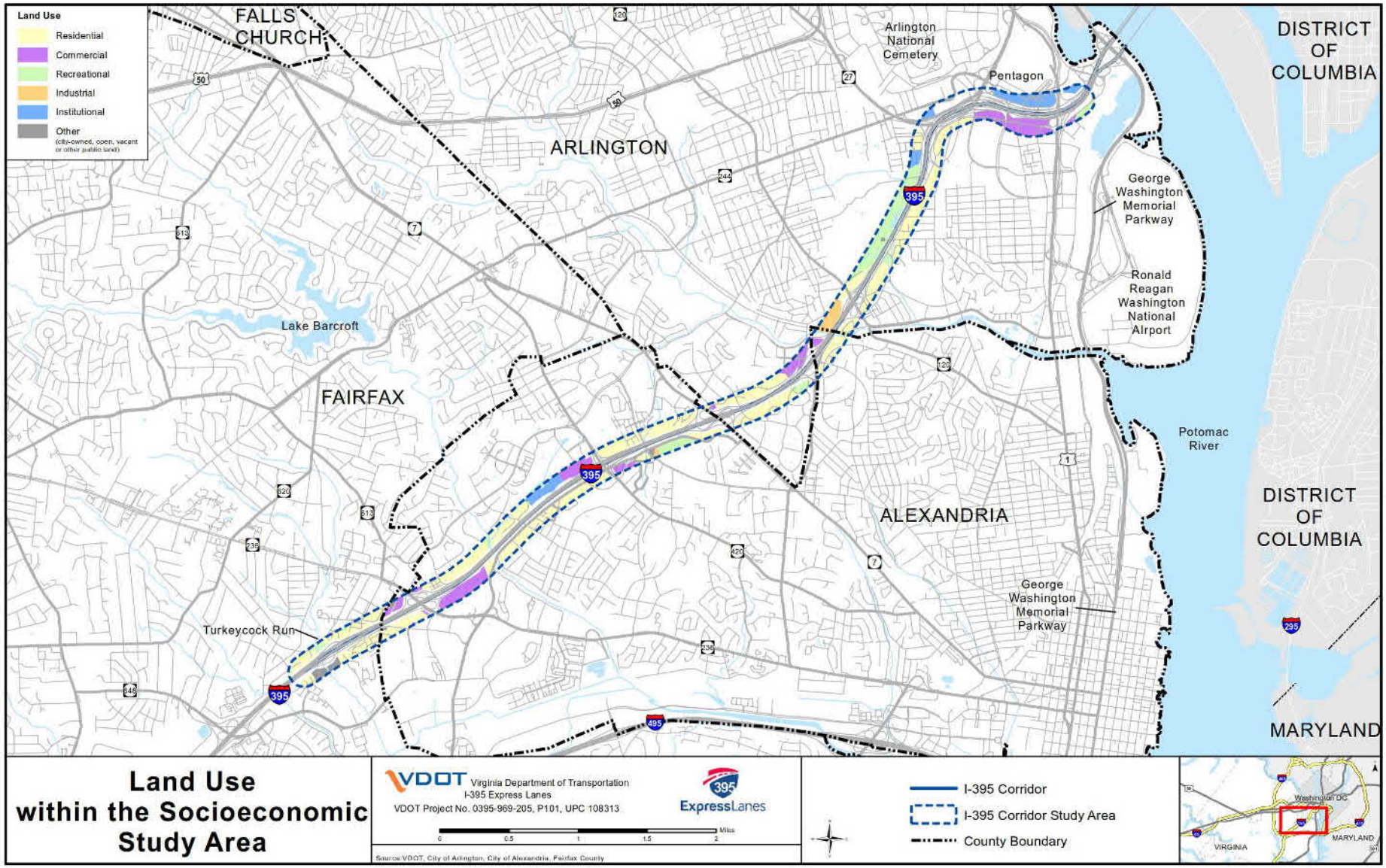
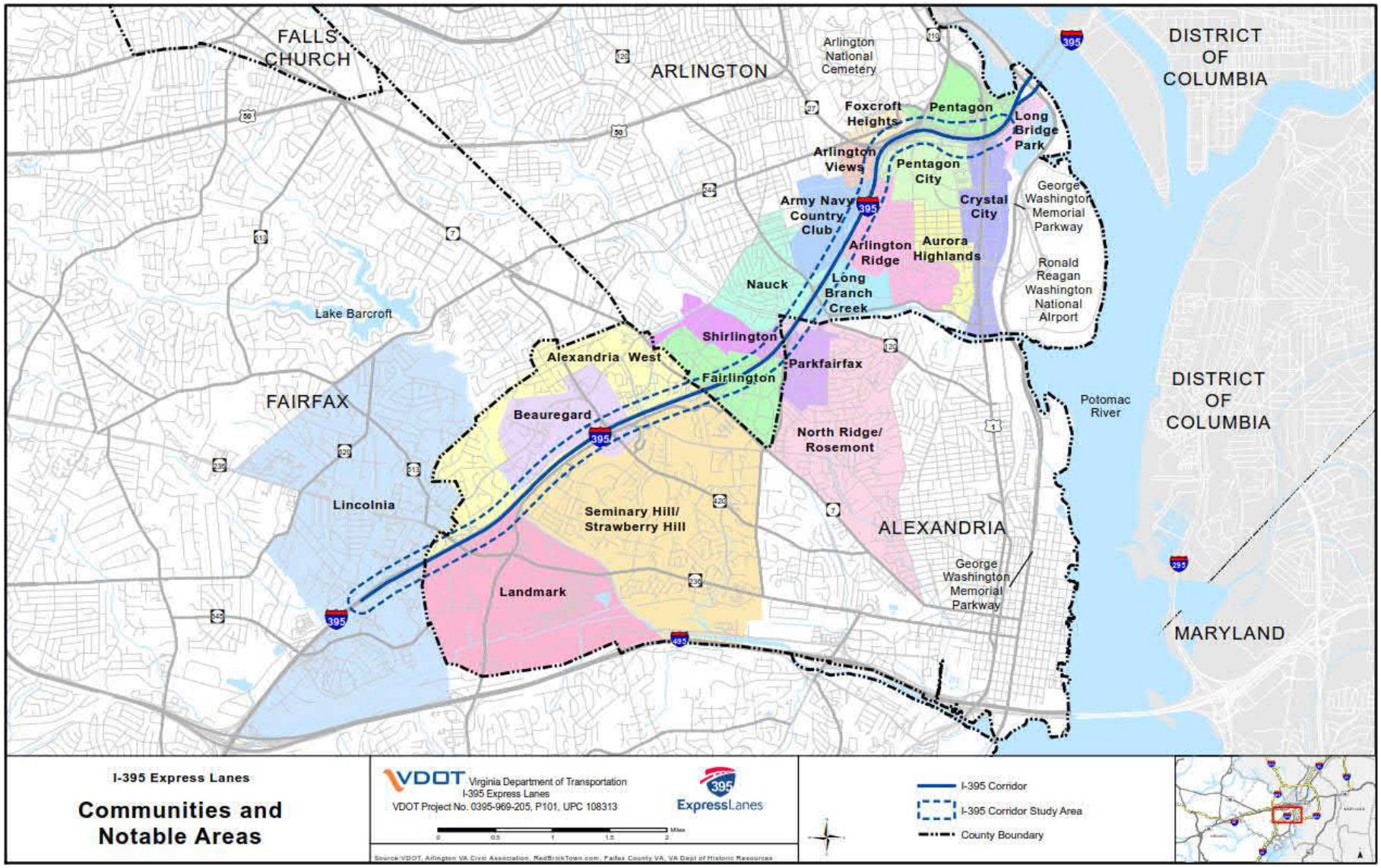


Figure 5-2: Communities and Notable Areas within the Study Area



Arlington County

Communities within Arlington County and along the I-395 corridor consist of Fairlington, Shirlington, Nacuk, Long Branch Creek, Arlington Ridge, Arlington Views, Foxcroft Heights, Pentagon City, Crystal City, and Aurora Highlands. Fairlington stretches across the I-395 corridor on the southern end of Arlington and is a historic neighborhood dominated by multifamily residential buildings, dotted with parklands. Shirlington, located north of I-395, is a mixed land use complex consisting of commercial, business, and residential lands identified as the Village at Shirlington. Nauck is a mixed use neighborhood with multifamily and single family residences, and industrial/commercial areas closer to the interstate. South of I-395 is the neighborhood of Long Branch Creek, which is comprised of a mix of single family residences and apartments, including Avalon at Arlington Square and the Grove at Arlington. Immediately adjacent to Long Branch Creek is Arlington Ridge, which is predominantly single family residences. Arlington Views is a community made up primarily of residential uses with a school and a park. A large golf course, Army Navy Country Club occurs between Nauck and Arlington Views. Foxcroft Heights consists of some residential uses, businesses, government buildings, and the Air Force Memorial. Further east, Pentagon City is a highly developed mixed use community with numerous shopping centers, residential areas, and three parks. The Pentagon City Metrorail station and Fashion Centre Mall are also located in Pentagon City. Crystal City is a highly developed area with the Crystal City Metrorail, numerous shopping centers, hotels, five parks, and a few residential complexes. Aurora Highlands overlays a majority of Pentagon City and some of Crystal City in addition to large amount of residential land.

I-395 provides access to Arlington National Cemetery, the Pentagon, Pentagon City, Ronald Reagan Washington National Airport, the Washington and Old Dominion Trail, and numerous parks and residential areas throughout the County. Arlington County's General Land Use Plan Map (2015) depicts the study area as having residential, commercial and industrial, office-apartment-hotel, and public and semi-public (including government) zoning in the study area corridor. Residential development ranges from low to high-medium density residential development. Office-apartment-hotel zoning is depicted directly south of the Pentagon and I-395 in Pentagon City.

5.3 FUTURE LAND USE

Due to the high level of development throughout the study area and the localities, options for further development are substantially limited. Following is a brief description of each locality's master plan for future land use as well as future transportation goals.

Fairfax County's Concept for Future Development Map, adopted June 2012, depicts the study area region of Fairfax as having suburban neighborhood development. The suburban neighborhood is primarily from the intersection of I-395 and Duke Street (Rd 236) southwest to approximately Edsall Road (Route 648). The Fairfax County Comprehensive Plan, 2013 Edition lists the portion of the study area within Fairfax as part of the Franconia-Springfield Transit Station Area. Plans for the Franconia-Springfield Transit Station Area region include mixed-use development, industrialization (outside of the study area but along the I-395 corridor and north of I-495), and prioritize the creation of urban patterns that support mass transit. The Fairfax County Transportation Plan, amended September 2, 2015, depicts the study area within Fairfax as having an HOV road. The Plan also notes that the section of I-395 in Fairfax needs to be expanded. Additionally, the I-395 corridor into Alexandria and Arlington is shown as HOV/HOT lanes. Therefore Fairfax has included an I-395 expansion / HOT lanes consideration in their future transportation plans.

As described in the Alexandria Master Plan & Citywide Chapters (2016), Alexandria's goals and objectives are to "promote mixed use development in major development and redevelop areas," offering a wide variety of transportation options which encourage uses other than single-occupancy vehicle use. The City of Alexandria's Comprehensive Transportation Master Plan, with an updated transit section dated January 12, 2013, stresses the need to expand and improve public transportation systems to provide an alternative to private vehicle use throughout the locality. The City of Alexandria aims to provide residents with "transportation choices, continued economic growth and a healthy environment" as a way to provide a "balance between travel efficiency and quality of life." Alexandria's Long-Range Plan, dated July 23, 2015, does not list the I-395 HOT lanes or the I-395 corridor improvements in the list of projects for consideration. Further, the City of Alexandria's Comprehensive Transportation Master Plan does not state a need to modify the existing road but does state that alternatives need to be considered to reroute traffic and increase public transportation systems as a way to ease daily commuter traffic.

Through strict zoning regulations, Arlington plans to maintain current residential areas and open spaces while creating high-density, mixed-use development for future growth. Arlington County is a proponent of smart growth which is defined as "attractive communities with a range of housing and transportation options near jobs, shops, services and schools" (Arlington County, 2016). Arlington's Master Transportation Plan, updated April 2016, depicts the I-395 corridor as a High-Occupancy-Incentive Corridor. The document further states the need to encourage high-occupancy travel through the use of "facilities, restrictions, fees, and other measures" which can include HOV lanes, HOT lanes, congestion fees, and ramp metering (Arlington County, 2016).

5.4 FUTURE CONDITIONS

No Build Alternative

Each locality has plans for future development and redevelopment around the study area. These plans for development are not likely to change under the No Build Alternative. Evaluation of the potential effects to land use may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors.

Build Alternative

Each locality has plans for future development and redevelopment around the study area. A stated need for development within each locality is more efficient travel in either the form of better public transportation or improved highway corridors. The Build Alternative would reduce congestion and overall travel times in both the I-395 general purpose and HOV lanes during peak periods. The extension of the I-395 Express Lanes would increase roadway safety, provide additional travel choices, and improve travel reliability. This would improve safety by reducing speed differentials and congested-related crashes which make up a large portion of the crashes in the HOV lanes during the hours when the HOV lanes are designated for use by HOV only and following these periods when the lanes are open to all motorists. These traffic improvements could aid each locality in future development goals by helping to provide faster more reliable commute times with improved travel times for emergency vehicles.

The Build Alternative would have no substantial impacts to land use; therefore, no mitigation is proposed.

6. COMMUNITY FACILITIES

6.1 METHODOLOGY

Community facilities that service each community were identified through a review of data provided by local agencies, mapping sources, and desktop searches.

6.2 EXISTING CONDITIONS

Community facilities are buildings or places that provide a variety of services to the public. Public community facilities generally provide services for general public benefit, and include public schools, healthcare facilities, emergency services facilities, government services, airports, and museums. Privately-held community facilities also serve as important institutions within the community, and include religious facilities, cemeteries, and private schools.

The study area contains three religious facilities, one public and two private schools, two museums, one fire station, one police station, and two post offices. The majority of these community facilities are located within Arlington's portion of the study area. **Table 6-1** lists and **Figure 6-1** identifies the locations of these public and institutional facilities.

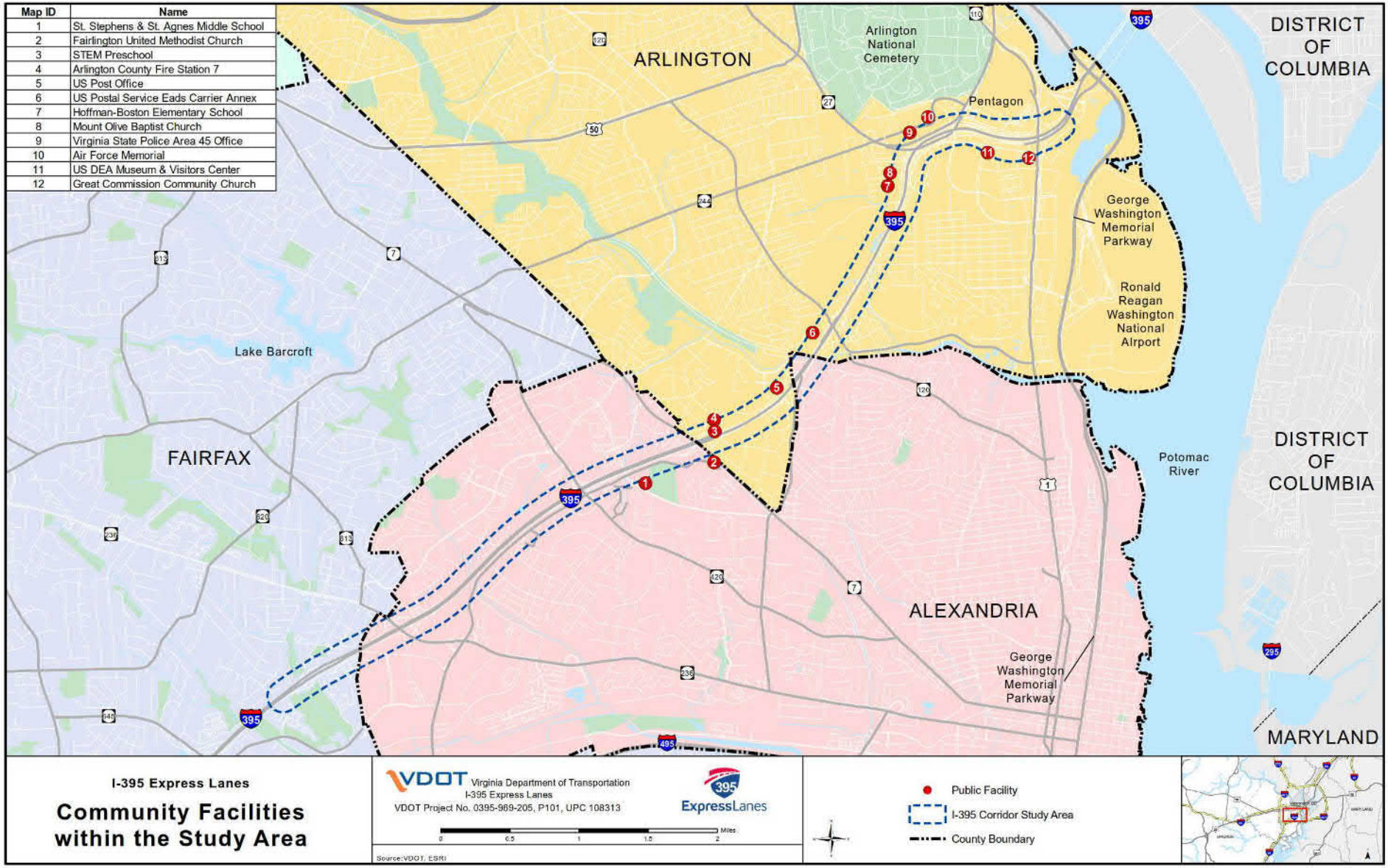
Table 6-1: Public Facilities in the Study Area

Map ID	Facility Type	Facility	Locality
1	School	St. Stephens & St. Agnes Middle School	Alexandria
2	Church	Fairlington United Methodist Church	Alexandria
3	School	STEM Preschool	Arlington
4	Fire	Arlington County Fire Station 7	Arlington
5	Post Office	US Post Office	Arlington
6	Post Office	US Postal Service Eads Carrier Annex	Arlington
7	School	Hoffman-Boston Elementary School	Arlington
8	Church	Mount Olive Baptist Church	Arlington
9	Police	Virginia State Police Area 45 Office	Arlington
10	Museum	Airforce Memorial	Arlington
11	Government	US Drug Enforcement Administration Museum and Visitor Center	Arlington
12	Church	Great Commission Community Church	Alexandria

One airport, Ronald Reagan Washington National Airport, is located south of the study area and is accessible by Metrorail, as well as vehicles and buses. The Ronald Reagan Metrorail stop is one stop farther south than the Crystal City Metrorail stop. While I-395 does not provide direct access to the airport, I-395 is a high-speed route that provides access to the George Washington Memorial Parkway, which directly connects to the airport.

The Virginia Railway Express (VRE), owned by the Northern Virginia Transportation Commission and the Potomac and Rappahannock Transportation Commission, provides access into D.C. with a farther reach into Virginia than the Metrorail system.

Figure 6-1: Community Facilities within the Study Area



Map ID	Name
1	St. Stephens & St. Agnes Middle School
2	Fairlington United Methodist Church
3	STEM Preschool
4	Arlington County Fire Station 7
5	US Post Office
6	US Postal Service Eads Carrier Annex
7	Hoffman-Boston Elementary School
8	Mount Olive Baptist Church
9	Virginia State Police Area 45 Office
10	Air Force Memorial
11	US DEA Museum & Visitors Center
12	Great Commission Community Church

The VRE runs south of the study area along I-495 with a stop near the Van Dorn Metrorail stop. Additionally, numerous public transportation systems occur within the study area as well as throughout the localities. These systems include the Metrorail and multiple bus systems that are owned by Metrorail, the state, or by a locality.

The yellow and blue Metrorail lines run under I-395, with Metrorail stops just east of the study area, trending south and turning west following I-495 into Fairfax. Two Metrorail stops, Pentagon and Pentagon City are located near the eastern end of the study area and are accessed by public bus, walking, biking, slugging (a form of carpooling), or taxicab, as there is no public parking garage associated with these stops. The Van Dorn Metrorail stop is in close proximity to the study area and has public parking available. All of the Metrorail stops inside of the I-495 beltway have access to bus stops and bike racks, making the stops accessible for multiple modes of transportation.

6.3 FUTURE CONDITIONS

No Build Alternative

Under the No Build Alternative, travel patterns and access along the I-395 study area would not be improved and travel times for emergency services may be less reliable. Evaluation of the potential effects to community facilities may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors.

Build Alternative

Implementation of the Build Alternative would reduce congestion and overall travel times in both the I-395 general purpose and HOV lanes during peak periods. The extension of the I-395 Express Lanes would increase roadway safety, provide additional travel choices, and improve travel reliability, which would likely increase reliability for emergency services.

The Build Alternative would have no substantial impacts to community facilities; therefore, no mitigation is required.

7. RECREATIONAL RESOURCES

7.1 METHODOLOGY

The assessment of impact to recreational resources was conducted with consideration given to Section 4(f) of the Department of Transportation (DOT) Act of 1966. Section 4(f) makes provisions for the preservation of public parks and recreational lands, wildlife and waterfowl refuges, and historic site on or eligible for the National Register of Historic Places. Under Section 4(f), FHWA cannot approve a transportation project that uses a Section 4(f) property, as defined in 23 CFR 774.17, unless a determination is made that:

- There is no feasible and prudent avoidance alternative to the use of land from the property, and the action includes all possible planning to minimize harm to the property resulting from such use (23 CFR 774.3(a)); or
- The use of the Section 4(f) property, including any measures to minimize harm (such as avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact on the property (23 CFR 774.3(b)).

Under Section 4(f), a use of a Section 4(f) property occurs (23 CFR 774.17):

1. When land is permanently incorporated into a transportation facility;
2. When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or
3. When there is a constructive use

For purposes of the study, recreational resources, have been identified as any protected area under the jurisdiction of a municipal, state, federal, or conservation entity; or a public area where recreation or preservation is a primary function or resource. The following resources contributed information in locating and identifying types of recreational resources in the I-395 study area:

- Aerial photography and internet resources;
- Recreational Resource / Park lists for each locality; and
- Comprehensive plans of each locality.

The following general types of recreational resources were identified:

- Regional and local parks; and
- Public and private recreation facilities.

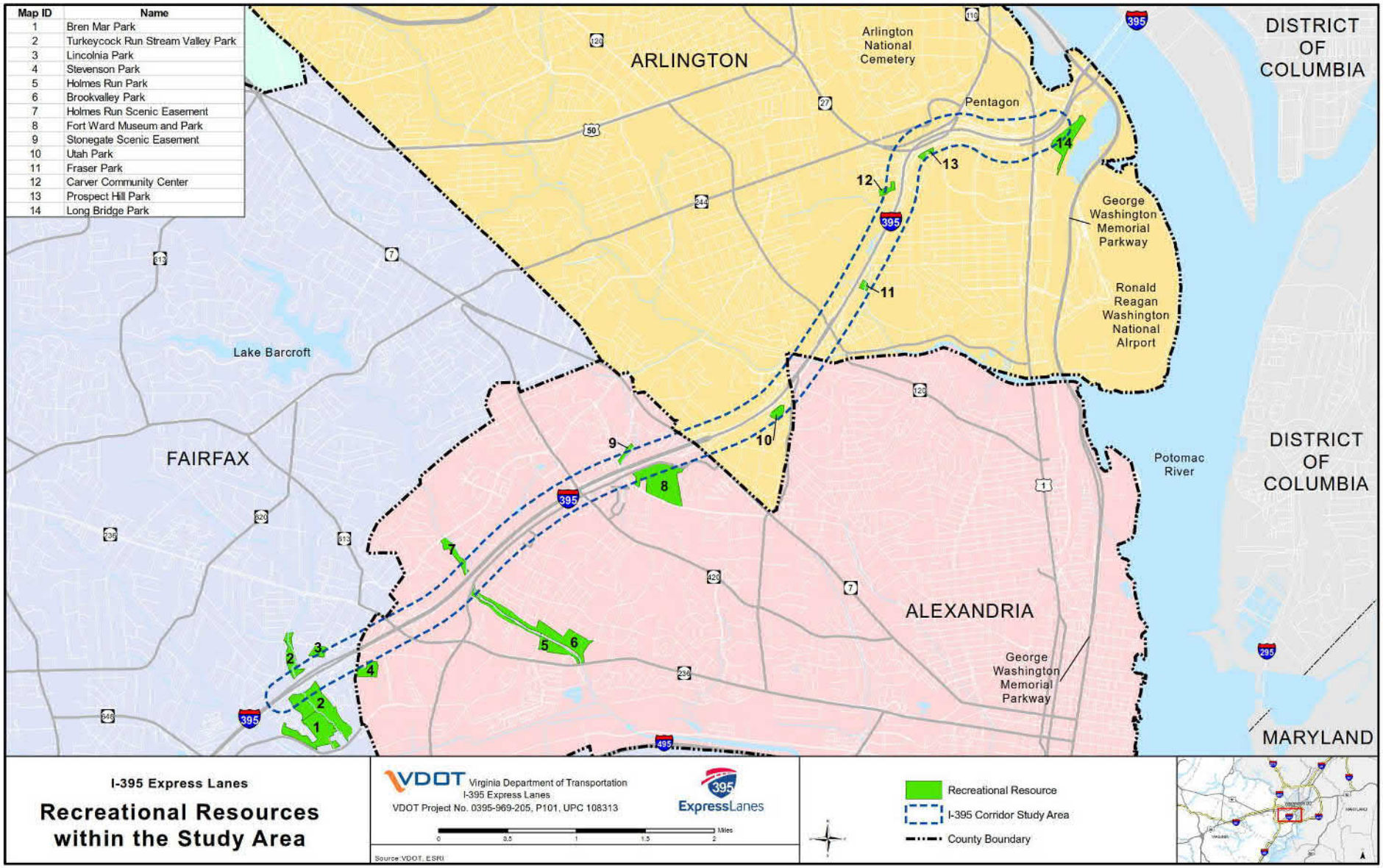
7.2 EXISTING CONDITIONS

A total of fourteen recreational resources are located within the study area. Three parks are located within the City of Fairfax; four parks (one of which is also a museum – the Fort Ward Museum and Park) and two conservation easements are located within the City of Alexandria; and four parks, and a community center are located within Arlington County. These resources are shown in **Figure 7-1** and listed in **Table 7-1**.

Table 7-1: Study Area Recreational Resources

Map ID	Name of Site	Proprietor	Type of Facility	Locality
1	Bren Mar Park	Fairfax County	Recreation	Fairfax
2	Turkeycock Run Stream Valley Park	Fairfax County	Recreation	Fairfax
3	Lincolnia Park	Community-owned	Recreation	Fairfax
4	Stevenson Park	City of Alexandria	Recreational Fields	Alexandria
5	Holmes Run Park	City of Alexandria	Recreation	Alexandria
6	Brookvalley Park	City of Alexandria	Recreation	Alexandria
7	Holmes Run Scenic Easement	City of Alexandria	Conservation	Alexandria
8	Fort Ward Museum and Park	City of Alexandria	Museum and Park	Alexandria
9	Stonegate Scenic Easement	City of Alexandria	Conservation	Alexandria
10	Utah Park	Arlington County	Recreation	Arlington
11	Fraser Park	Arlington County	Recreational Fields	Arlington
12	Carver Community Center	Arlington County	Recreation	Arlington
13	Prospect Hill Park	Arlington County	Park	Arlington
14	Long Bridge Park	Arlington County	Recreational Fields	Arlington

Figure 7-1: Recreational Resources within the Study Area



7.3 FUTURE CONDITIONS

No Build Alternative

Noise impacts are predicted to occur at portions of five recreational resources under the No Build Alternative. Evaluation of the potential effects to recreational resources may be required if any programmed improvements under the No Build Alternative involve major new construction with federal funding. These effects would be addressed by the respective project sponsors.

Build Alternative

Noise impacts are predicted to occur at portions of five recreational resources under the Build Alternative; however none of these impacts would be considered a constructive use under Section 4(f). The number of noise impacts are predicted to increase under the Build Alternative compared to the No Build Alternative, and potential noise mitigation is under consideration for the Build Alternative (refer to the ***Noise Analysis Technical Report*** (VDOT, 2016g). Additionally, the Build Alternative would reduce congestion and overall travel times in both the I-395 general purpose and HOV lanes during peak periods. The extension of the I-395 Express Lanes would increase roadway safety, provide additional travel choices, and improve travel reliability, which may contribute to an increased usage of recreational facilities as some members of the community may find that traveling to the facilities is easier. While there will not be any direct impacts to recreational resources, the resources could experience indirect effects, such as increased noise or traffic during construction and once the facility is operational. However, none of these impacts would constitute a use of Section 4(f) properties. More information on indirect impacts to recreational resources is provided in the associated ***Indirect and Cumulative Effects Technical Report (VDOT, 2016e)***.

Since no recreational resources would be substantially impacted by the project, or would experience a Section 4(f) use, no additional mitigation is proposed outside of the consideration of potential noise barriers.

8. REFERENCES

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