

Richmond Highway Bus Rapid Transit Project

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

for

Fairfax County Department of Transportation



Federal Transit
Administration

DECEMBER 2021

TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Project Description.....	1
1.2 Methodology.....	1
2. AFFECTED ENVIRONMENT / ENVIRONMENTAL ANALYSIS	3
2.1 Demographics	3
2.1.1 Existing Conditions	3
2.1.2 Impacts.....	6
2.2 Environmental Justice	6
2.2.1 Regulatory Context.....	6
2.2.2 Existing Conditions	6
2.2.3 Impacts.....	12
2.3 Limited English Proficiency	22
2.4 Neighborhoods and Planning Districts.....	23
2.4.1 Existing Conditions	27
2.4.2 Neighborhood Impacts.....	29
2.4.3 Community Facilities	29
2.4.4 Existing Conditions	30
2.4.5 Community Facility Impacts	32
2.5 Right-of-Way, Land Use, and Zoning.....	32
2.5.1 Right-of-Way	32
Existing Conditions.....	32
2.5.2 Land Use.....	33
Existing Conditions.....	33
2.6 Economic Environment	35
2.6.1 Existing Conditions	35
2.6.2 Economic Impacts	38
3. REFERENCES	39

LIST OF TABLES

Table 2-1: Population and Housing.....	3
Table 2-2: Housing Characteristics.....	5
Table 2-3: Study Race Demographics.....	10
Table 2-4: Land Use in the Study Corridor – Existing Acreage and Impact of the Project.....	33
Table 2-5: Study Corridor Major Employers	35
Table 2-6: Employment Growth Projections 2015 - 2045	37

LIST OF FIGURES

Figure 1-1: Study Location	2
Figure 2-1: Study Corridor Census Block Groups	4
Figure 2-2: Minority and Low-Income Populations in the Study Area.....	9
Figure 2-3: Residential and Community Facility Relocations.....	14
Figure 2-4: Commercial Relocations (North)	15
Figure 2-5: Commercial Relocations (South)	16
Figure 2-6: Study Census Tracts	24
Figure 2-7: Study Corridor and Fairfax County Planning Areas	25
Figure 2-8: Study Corridor and Community Planning Sectors	26
Figure 2-9: Community Facilities.....	31
Figure 2-10: Land Use	34
Figure 2-11: Richmond Highway Business District.....	36

LIST OF APPENDICES

Appendix A:	Socioeconomic Forecasts
Appendix B:	EJ Populations and Community Facilities
Appendix C:	Economic Environment

LIST OF ACRONYMS

ACS	American Community Survey
BG	Block Group
BRT	Bus Rapid Transit
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
DC	District of Columbia
EA	Environmental Assessment
EDA	Economic Development Authority

EJ	Environmental Justice
FTA	Federal Transit Administration
GIS	Geographic Information Systems
LEP	Limited English Proficiency
LOD	Limits of disturbance
MHI	Median Household Income
MWCOG	Metropolitan Washington Council of Government
NEPA	National Environmental Policy Act
ROW	Right-of-way
TAZ	Traffic Analysis Zone
US	United States
USEPA	US Environmental Protection Agency
USHHS	US Department of Health and Human Services
USHUD	Department of Housing and Urban Development
VDOT	Virginia Department of Transportation

1. INTRODUCTION

The Fairfax County Department of Transportation (FCDOT), in coordination with the Federal Transit Administration (FTA), is proposing to implement bus rapid transit (BRT) service extending along VA 241/ North Kings Highway and Richmond Highway/US Route 1 from the Washington Metropolitan Area Transit Authority (WMATA) Metrorail station at Huntington in the north to US Army Garrison Fort Belvoir in the south (**Figure 1-1**). The project includes the construction of new BRT-dedicated median lanes; nine BRT stations; roadway widening; and streetscape improvements. The project would operate in both dedicated and mixed traffic lanes within the project limits.

The purpose of this *Socioeconomic, Land Use, and Right-of-Way Technical Report* is to present the existing conditions and assessment of potential direct impacts of the project to socioeconomic resources, land use, and right-of-way (ROW). The resources evaluated herein include communities and community facilities, population and housing, economic resources, land use and ROW, and minority and low-income Environmental Justice (EJ) populations. Information in this report, described below, will support discussions presented in the Richmond Highway BRT documented CE.

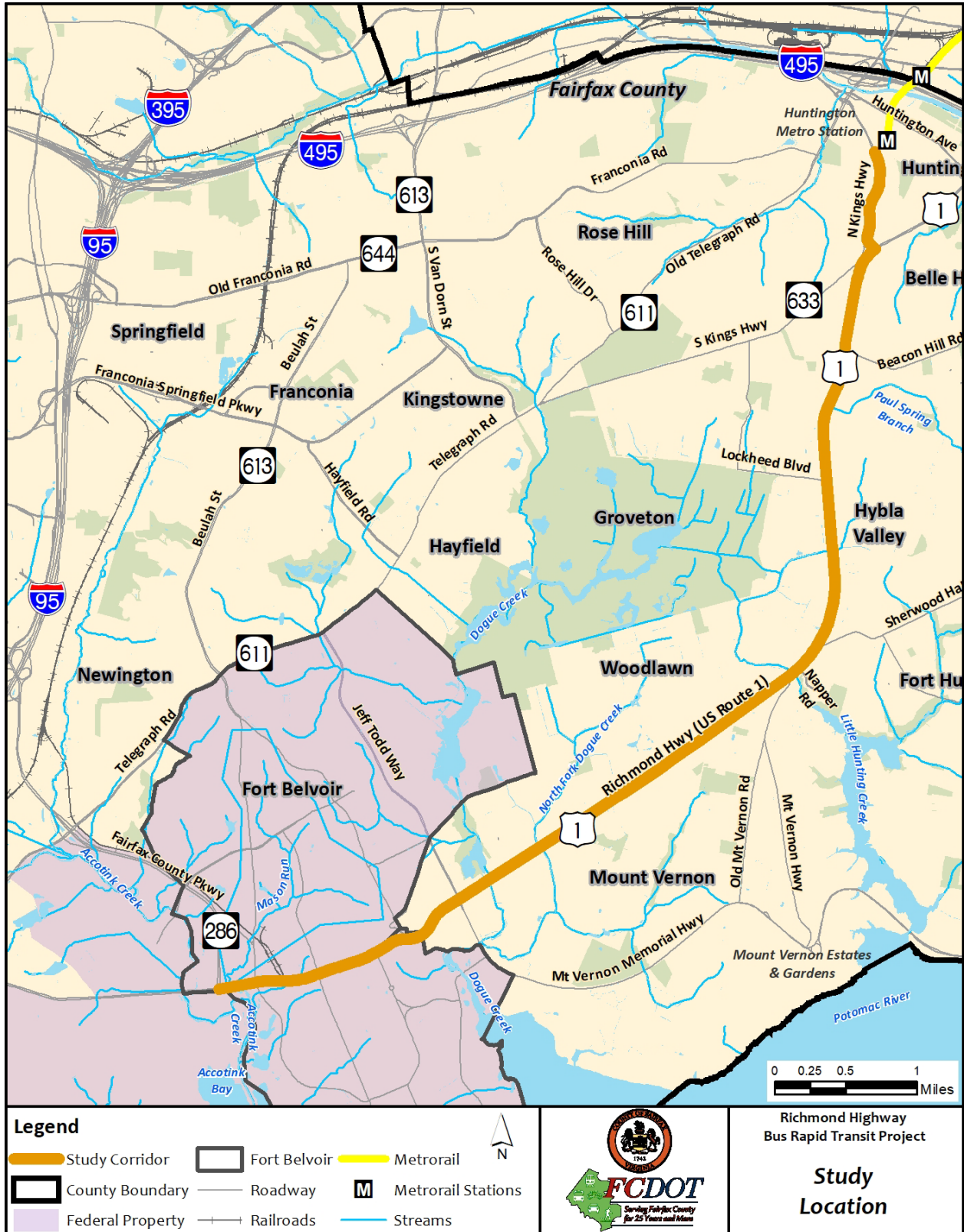
1.1 Project Description

The proposed BRT system would operate in dedicated or mixed traffic lanes within the project limits. The BRT-dedicated lanes would range in width from 32 feet to 58 feet. Beginning at the Huntington Metrorail Station at the northern end of the corridor, the project would operate in mixed traffic operations along North Kings Highway to Shields Avenue and Richmond Highway/US Route 1. From Shields Avenue south to Sherwood Hall Lane, Richmond Highway would be widened and reconstructed to accommodate dedicated transit lanes for the BRT within the road median. From Sherwood Hall Lane south to the intersection with Jeff Todd Way/Mount Vernon Memorial Highway, the BRT-dedicated lanes would be built within a future reserved median to be constructed as part of a separate Virginia Department of Transportation (VDOT) multi-modal project. South from Jeff Todd Way/Mount Vernon Memorial Highway to Fairfax County Parkway at Fort Belvoir, new BRT-dedicated lanes would be constructed within the existing road median.

1.2 Methodology

The general study corridor for socioeconomic resources, land use, and ROW is the area within a half-mile of Richmond Highway and Kings Highway. This half-mile area was selected to ensure that socioeconomic resources within a half-mile of transit stations was included in the analysis. One half-mile is generally accepted as the radius that an individual would be willing to walk from a transit station to a point of interest. The limits of disturbance (LOD) for detailed evaluation of direct effects varies along the length of the study corridor, but is generally defined as 240 feet wide, with additional areas extending as much as 300 feet from the Richmond Highway centerline for access and stormwater management. For the purposes of this analysis, socioeconomic resources, land use, and ROW were identified based on review of U.S. Census Bureau data, locality planning documents, Geographic Information System (GIS) databases and mapping, Google Earth, and field reconnaissance.

Figure 1-1: Study Location



The Virginia Department of Transportation (VDOT) Richmond Highway Corridor Improvements Project, which received a Finding of No Significant Impact (FONSI) in October 2020, is widening roughly three miles of Richmond Highway from Jeff Todd Way to Sherwood Hall Lane. The approach taken with this Socioeconomic Technical Report for the FCDOT BRT project was to evaluate conditions and resources along Richmond Highway and to calculate impacts to those resources based on the project LOD. The ROW impacts and displacements assume that the VDOT Richmond Highway Corridor Improvements Project has been completed; therefore, the ROW impacts and displacements are for the BRT project only. Potential displacements resulting from the project were determined using CAD software to overlay the project’s conceptual grading limits on tax parcels and existing survey data for the study corridor. As potential property impacts are only being estimated for the CE, potentially impacted property owners were not contacted. Final ROW impacts will be refined in more detail in later project design phases.

2. AFFECTED ENVIRONMENT / ENVIRONMENTAL ANALYSIS

This section describes the existing socioeconomic, land use, and ROW resources in the study corridor and the potential effects of the project to these resources. Measures to avoid, minimize, and mitigate potential adverse impacts are summarized.

2.1 Demographics

Figure 2-1 shows the Census block groups within the study corridor. Demographic data concerning population, housing, age, race, income, and language was gathered based on the 2015-2019 American Community Survey (ACS) 5-year estimates at the Census block group level available online via the U.S. Census Bureau. The data collected for the Census block groups within and immediately adjacent to the study corridor were compared to similar data collected for Fairfax County and Virginia. The study corridor contains portions of 55 Census block groups.

2.1.1 Existing Conditions

Population

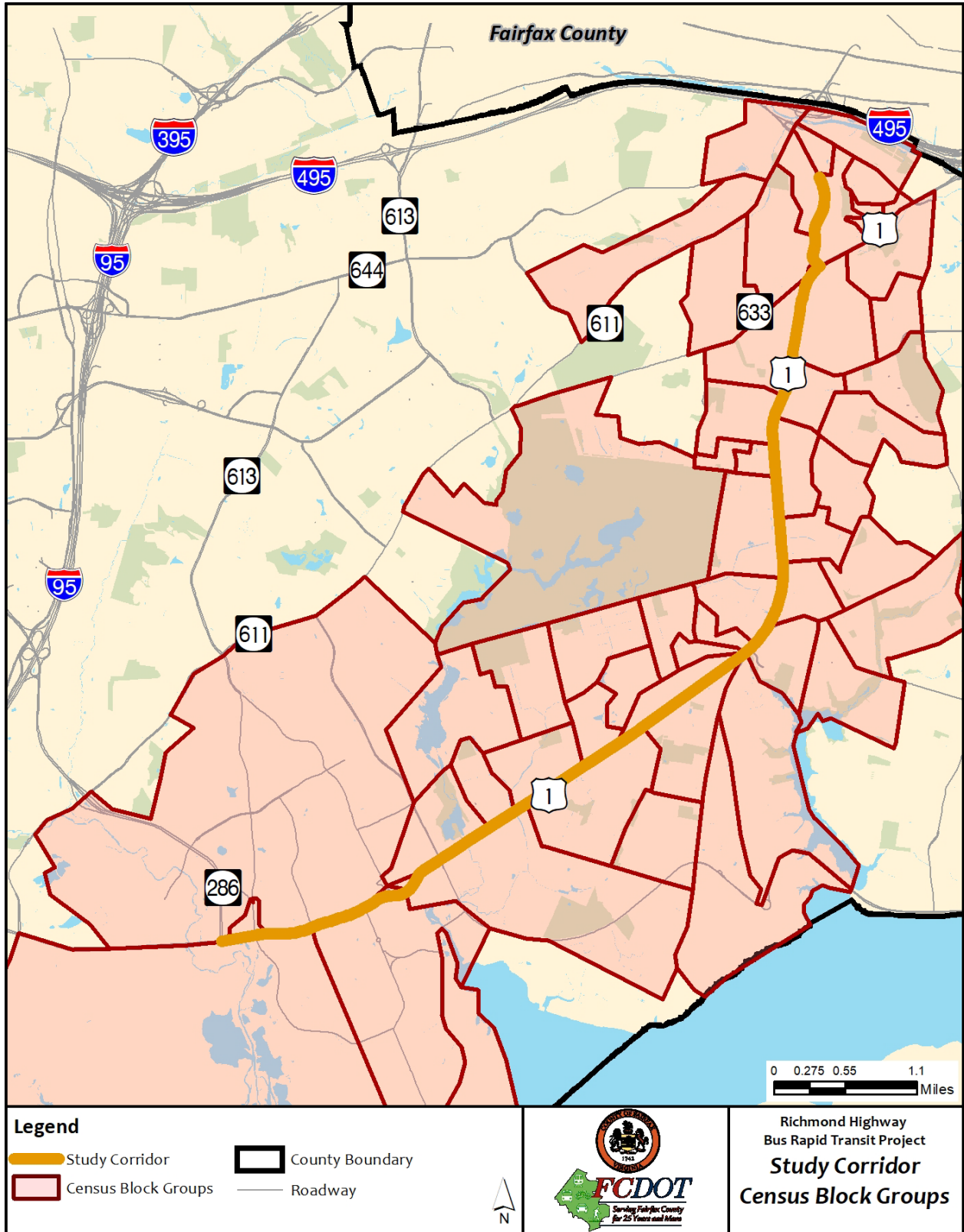
The populations of Virginia, Fairfax County, and the block groups that comprise the study corridor are provided in **Table 2-1**. The study corridor block groups account for approximately nine percent of Fairfax County’s total population, which was approximately 1,146,000 in 2019. The study corridor block groups contained a population of 101,973 residents in 2019.

Table 2-1: Population and Housing

Geographic Area	Total Population	Number of Housing Units
Virginia	8,454,463	3,514,032
Fairfax County	1,145,862	413,885
Study Block Groups Total	101,973	36,316

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates; B01003.

Figure 2-1: Study Corridor Census Block Groups



Housing

Fairfax County has 413,885 housing units which account for approximately 12 percent of all Virginia housing units (ACS 2015-2019 5-Year Estimates). There are 36,316 housing units within the study corridor block groups, which accounts for approximately nine percent of all Fairfax County’s housing units (**Table 2-1**).

According to the 2019 ACS 5-Year data, the average household size for the study corridor block groups is three people. Housing characteristics data are provided in **Table 2-2**. Of the housing units within the study corridor block groups, 34,281 units (94 percent) are occupied. Approximately 55 percent are owner-occupied, and the remaining 45 percent are renter-occupied.

Table 2-2: Housing Characteristics

Geographic Area	Occupied Housing Units	Vacant Housing Units	Owner Occupied Housing Units	Renter Occupied Housing Units	Total Units (Occupied + Vacant)
Virginia	3,151,045	362,987	2,087,711	1,063,334	3,514,032
Fairfax County	396,501	17,384	269,528	126,973	413,885
Study Block Groups Total	34,281	2,035	18,795	15,486	36,316

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates; B25002, B25009.

Fairfax County’s 2017 Comprehensive Plan recommends future residential land development through infill, redevelopment, and revitalization in areas targeted for growth. The Plan was amended in 2017 with Embark Richmond Highway (Plan Amendment 2015-IV-MV1), calling for more mixed-use development, especially residential, within a half-mile of nine proposed BRT stations. The amended Plan supports a variety of residential housing types within the County Business Centers to stabilize lower density neighborhoods.

Future Growth

The Metropolitan Washington Council of Governments (MWCOG) Round 9.1 Cooperative Forecasting (2018) in **Appendix A** provides the forecasts of population growth and household growth to the year 2045 for the Metropolitan Washington Region including Fairfax County based on Transportation Analysis Zones (TAZ). Using the MWCOG TAZ information within the study corridor, forecasts more specific to the study corridor were also calculated for this analysis. Traffic analysis zones are units of geography used in transportation planning models to identify a specific area.

The study corridor intersects with 36 TAZs (see **Appendix A**) with a combined population of 100,812 residents and 37,098 households in 2015. According to the MWCOG TAZ predictions, by 2045, the population in the study corridor TAZ is expected to grow by 48 percent and the number of households is expected to grow by 54 percent.

2.1.2 Impacts

The Richmond Highway BRT would be constructed primarily within the existing transportation ROW. The project would require ROW from residential properties for construction of the proposed improvements adjacent to the existing study corridor ROW. Eighteen residences would be displaced under the project. This equates to less than one percent of the total housing units in the study Census block groups. Displaced residents and the owners of property acquired for ROW would be compensated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Adequate replacement housing is available in the study corridor. As the number of displaced residences would be relatively low, limited impacts to population or housing in the study corridor is expected under the project.

2.2 Environmental Justice

2.2.1 Regulatory Context

Executive Order (EO) 12898 (February 11, 1994) *Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations* directs federal agencies, including FTA, to identify and address disproportionately high and adverse human health and environmental impacts of its programs, policies, and activities on EJ populations. The USDOT Order 5610.2[a] sets forth the DOT policies for implementing EJ principles in all DOT programs, policies, and activities (77 FR 27534, May 10, 2012). FTA's EJ Circular 4703.1 provides detailed guidance to applicants for FTA funding on addressing EJ.

Per FTA EJ Circular 4703.1, the guiding EJ principles of USDOT and FTA are to:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects on minority populations and low-income populations;
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The Council on Environmental Quality (CEQ) has issued additional guidance for federal agencies to consider EJ in the NEPA process in 1997.¹

The following sections provide definitions of minority and low-income populations.

2.2.2 Existing Conditions

Minority Populations Definition

A minority person is defined by USDOT Order 5610.2(a) and FTA's EJ Circular as American Indian and Native Alaskan, Asian, Black or African American, Hispanic or Latino (regardless of race), and Native

¹ Council on Environmental Quality (CEQ). 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. Accessed at http://www.epa.gov/oecaerth/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf.

Hawaiian or other Pacific Islander.

A minority population is defined by USDOT Order 5610.2(a) and FTA's EJ Circular as any readily identifiable group or groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed or transient persons who would be affected by a DOT or FTA program, policy or activity. The CEQ further states that a minority population should be identified where either (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).² Fairfax County defines minority populations for their transit programs as Census block groups with minority resident percentages above the county-wide minority percent (FCDOT, 2020).³ To be consistent with these programs, 49 percent minority residents and greater was the "meaningfully greater" threshold used in the analysis of Census race and ethnicity data. Minority data was pulled from the ACS 2015-2019 dataset at the block group level for block groups within 0.5 miles of Richmond Highway within the study limits. Additional data to identify minority populations was gathered from public outreach for the project and the Fairfax County Neighborhood and Community Services was contacted to assist in the identification of minority populations.

Low-Income Populations Definition

Low-income persons are defined by USDOT Order 5610.2(a) and FTA's EJ Circular as persons whose median household income is at or below the US Department of Health and Human Services (HHS) poverty guidelines. A low-income population is 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 U.S. DOT/FTA program, policy, or activity (per USDOT Order 5610.2(a)/FTA EJ Circular/CEQ EJ Guidance).

In areas with higher costs of living, the HHS poverty guidelines based on national averages are less reflective of local income and poverty conditions. The FTA EJ Circular provides flexibility in methods to identify low-income populations as long as the selected method is at least inclusive of households earning at or less than 150 percent of the Health and Human Services poverty guidelines. As described below, a more conservative analysis methodology for determining low-income populations was used for this project.

The method used for analysis is similar to that used by FCDOT to identify low-income populations used in the FCDOT 2020 Title VI Plan (FCDOT, 2020) that also includes compliance with EO 12898. The analysis used the median household income for the US Census Washington-Arlington-Alexandria DC-VA-MD Metropolitan Statistical Area (MSA) that includes Fairfax County. Low-income households were defined as those where the median household income was less than 50 percent of the MSA median household income for the area, adjusted for family size using the Department of Housing and Urban Development

² https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

³ Fairfax County Department of Transportation (FCDOT) . 2020. Fairfax County Title VI Program.

https://www.fairfaxcounty.gov/connector/sites/connector/files/assets/documents/pdf/title%20vi/title_vi_fcdot_p lan.pdf

(HUD) Fair Market Rents to determine low-income limits. Using this method, the low-income threshold for this analysis is \$54,600 per family of three, the average family size in the study block groups. Median household income data was pulled from the ACS 2015-2019 dataset at the block group level for block groups within 0.5 miles of Richmond Highway within the study limits.

Identification of Minority and Low-Income Populations

Identification of minority populations in the study area is based in part on US Census Bureau's ACS 2015 to 2019 five-year race and ethnicity data at the Census block level. The analysis reviewed the 55 Census block groups that are entirely or partially within one-half mile of Richmond Highway in the study area. Using the definitions described above, 33 Census block groups had minority percentages greater than that of Fairfax County as a whole, and are therefore considered minority populations. **Figure 2-2** and **Table 2-3** shows the Census block groups analyzed and the proportion of minorities living in a given study block group. Minority residents live predominantly in block groups adjacent to Richmond Highway through the study area, with the heaviest concentrations in the Mount Vernon, Woodlawn, and Groveton neighborhoods. Census Tract 4151 block group 1 in the Greater Belle Haven neighborhood has the fewest minority residents at 2 percent, whereas Census Tract 4214 block group 3 in Groveton has the most at 99 percent. See the *Richmond Highway Bus Rapid Transit Socioeconomic, Land Use and Right-of-Way Technical Report* (FCDOT, 2021d) for detailed information.

Other potential minority populations in the study area were identified using supplementary data and public comments received on the project. For example, the Gum Springs Historic District is a historically African-American community in the central portion of the study area that is qualified in this analysis as a minority population.

The low-income population identification is based in part on ACS 2015-2019 median household income using the same block groups as described above for minority populations. ACS 2015-2019 data indicate the average household size in the study block groups is a family of three. Median household income for the study block groups ranged from the lowest of \$19,235 in Census Tract 4155 block group 4 in the Fort Hunt neighborhood to the highest in Census Tract 4159 block group 1 in the Mount Vernon neighborhood at \$235,972. Based on the methodology described above, the low-income threshold for this analysis is \$54,600 per family of three using the Very Low Income limits established by the MFR. Six study block groups had median household incomes less than \$54,600, and are therefore considered low-income populations. The Census-based low-income populations were clustered in the Hybla Valley, Groveton, Woodlawn, and Fort Hunt neighborhoods (**Figure 2-2**).

Low-income populations were also identified based on other community characteristics such as low-income housing identified by Fairfax County Community Services. Six low-income assisted affordable housing complexes (Spring Garden Apartments, Stony Brook Apartments, Creekside Village, Audubon Estate, and Harmony Place Modular Homes) are located in Census block groups designated low-income. Oaks of Woodlawn is an additional low-income assistance housing development at 8799 Old Colony Way that is also considered a low-income population.

Figure 2-2: Minority and Low-Income Populations in the Study Area

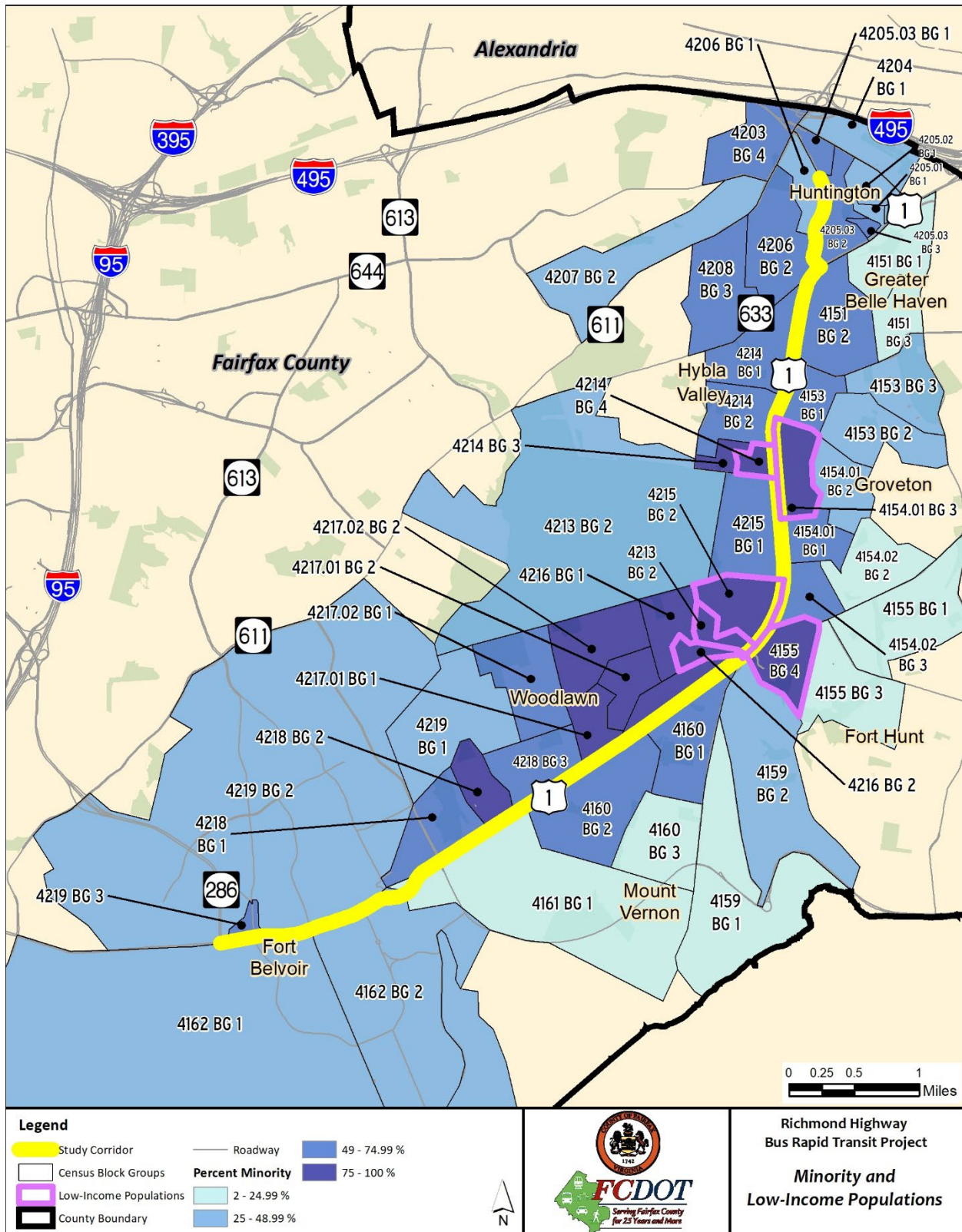


Table 2-3: Study Race Demographics

Geographic Area	Total Population	Total Minority Population		Total Hispanic or Latino ¹		Black or African American Alone		American Indian and Alaska Native Alone		Asian Alone		Native Hawaiian and Other Pacific Islander Alone		Not Hispanic/Latino Some Other Race		Not Hispanic/Latino Two or More Races	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Virginia	8,454,463	3,226,894	38	792,001	9	1,588,726	19	18,092	0*	536,076	6	5,146	0*	21,750	0*	265,103	3
Fairfax County	1,145,862	564,444	49	187,160	16	108,685	9	1,487	0*	218,484	19	684	0*	3,965	0*	43,979	4
Study Block Groups Total	101,973	62,045	61	28,017	27	21,029	21	66	0*	7,922	8	144	0*	394	0*	4,473	4
4151 BG 1	1,371	34	2	26	2	0	0	0	0	0	0	8	0*	0	0	0	0
4151 BG 2	1,338	670	50	331	25	146	11	0	0	167	12	0	0	0	0	26	2
4151 BG 3	915	220	24	156	17	0	0	0	0	13	1	0	0	22	2	29	3
4153 BG 1	924	649	70	459	50	58	6	0	0	94	10	0	0	0	0	38	4
4153 BG 2	1,821	747	41	149	8	363	20	0	0	157	9	0	0	0	0	78	4
4153 BG 3	1,210	524	43	352	29	51	4	18	1	53	4	0	0	0	0	50	4
4154.01 BG 1	1,059	669	63	338	32	331	31	0	0	0	0	0	0	0	0	0	0
4154.01 BG 2	2,482	1,104	44	387	16	428	17	0	0	271	11	0	0	0	0	18	1
4154.01 BG 3	1,562	1,353	87	956	61	353	23	0	0	29	2	0	0	15	1	0	0
4154.02 BG 2	875	190	22	115	13	0	0	0	0	75	9	0	0	0	0	0	0
4154.02 BG 3	1,275	935	73	342	27	412	32	0	0	110	9	0	0	57	4	14	1
4155 BG1	1,884	168	9	42	2	36	2	0	0	44	2	0	0	0	0	46	2
4155 BG 3	2,050	469	23	188	9	204	10	0	0	9	0	0	0	0	0	68	3
4155 BG 4	1,816	1,642	90	162	9	1,157	64	0	0	131	7	0	0	0	0	192	11
4159 BG 1	935	232	25	41	4	46	5	15	2	71	8	0	0	18	3	41	4
4159 BG 2	2,346	733	31	253	11	85	4	0	0	234	10	0	0	0	0	161	7
4160 BG 1	1,725	1,161	67	216	13	564	33	9	1	163	9	0	0	30	2	179	10
4160 BG 2	3,336	2,187	66	1,154	35	716	21	0	0	269	8	0	0	0	0	48	1
4160 BG 3	1,109	234	21	123	11	65	6	0	0	0	0	0	0	15	1	31	3
4161 BG 1	2,643	699	26	235	9	173	7	0	0	144	5	0	0	0	0	147	6
4162 BG 1	1,812	669	37	180	10	333	18	0	0	106	6	0	0	0	0	50	3
4162 BG 2	3,395	1,545	46	462	14	645	19	0	0	132	4	0	0	0	0	306	9
4203 BG 4	992	590	59	263	27	286	29	0	0	19	2	0	0	0	0	22	2
4204 BG 1	1,735	762	44	247	14	231	13	0	0	252	15	0	0	0	0	32	2
4205.01 BG 1	2,062	686	33	157	8	225	11	0	0	55	3	0	0	0	0	249	12
4205.02 BG1	1,038	491	47	288	28	94	9	0	0	78	8	0	0	15	1	16	2
4205.02 BG 2	682	329	48	126	18	129	19	0	0	48	7	0	0	0	0	26	4
4205.03 BG 1	700	349	50	139	20	137	20	0	0	57	8	0	0	0	0	16	2
4205.03 BG 2	1,875	952	51	158	8	504	27	0	0	275	15	0	0	0	0	15	1
4205.03 BG 3	857	473	55	120	14	90	11	0	0	81	9	0	0	0	0	182	21
4206 BG 1	1,655	789	48	552	33	191	12	0	0	18	1	0	0	7	0*	21	1

Geographic Area	Total Population	Total Minority Population		Total Hispanic or Latino ¹		Black or African American Alone		American Indian and Alaska Native Alone		Asian Alone		Native Hawaiian and Other Pacific Islander Alone		Not Hispanic/Latino Some Other Race		Not Hispanic/Latino Two or More Races	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
4206 BG 2	3,312	1,919	58	571	17	809	24	0	0	282	9	16	0*	0	0	241	7
4207 BG 2	2,216	1,152	52	299	13	371	17	0	0	364	16	0	0	0	0	118	5
4208 BG 3	1,874	1,093	58	705	38	261	14	0	0	63	3	0	0	0	0	64	3
4213 BG 2	1,429	484	34	161	11	139	10	0	0	159	11	0	0	11	1	14	1
4214 BG 1	3,885	2,930	75	1,396	36	799	21	0	0	479	12	0	0	0	0	256	7
4214 BG 2	1,133	680	60	63	6	191	17	0	0	124	11	0	0	36	3	266	23
4214 BG 3	1,813	1,786	99	1,097	61	479	26	0	0	52	3	0	0	0	0	158	9
4214 BG 4	1,782	1,490	84	1,185	66	196	11	0	0	109	6	0	0	0	0	0	0
4215 BG 1	2,634	1,984	75	352	13	1,064	40	0	0	531	20	0	0	37	1	0	0
4215 BG 2	3,246	2,809	87	2,199	68	523	16	0	0	87	3	0	0	0	0	0	0
4215 BG 3	1,778	1,517	85	953	54	538	30	0	0	12	1	0	0	0	0	14	1
4216 BG 1	2,697	2,495	93	1,355	50	368	14	0	0	372	14	0	0	0	0	400	15
4216 BG 2	3,144	2,881	92	1,082	34	1,425	45	0	0	302	10	48	2	0	0	24	1
4216 BG 3	1,133	1,102	97	603	53	364	32	0	0	119	11	0	0	0	0	16	1
4217.01 BG 1	3,490	3,239	93	1,864	53	1,025	29	0	0	239	7	0	0	0	0	111	3
4217.01 BG 2	1,602	1,467	92	872	54	325	20	0	0	270	17	0	0	0	0	0	0
4217.02 BG 1	2,584	1,944	75	1,491	58	190	7	0	0	75	3	0	0	0	0	188	7
4217.02 BG 2	2,627	2,183	83	749	29	1,071	41	0	0	239	9	0	0	35	1	89	3
4218 BG 1	2,006	1,513	75	89	4	806	40	10	1	500	25	21	1	0	0	87	4
4218 BG 2	3,610	3,049	84	1,489	41	1,342	37	0	0	110	3	0	0	46	1	62	2
4218 BG 3	1,458	827	57	273	19	385	26	0	0	102	7	0	0	0	0	67	5
4219 BG 1	1,354	511	38	174	13	38	3	14	1	107	8	30	2	50	4	98	7
4219 BG 2	1,465	604	41	218	15	208	14	0	0	64	4	21	1	0	0	93	6
4219 BG 3	222	131	59	60	27	59	27	0	0	6	3	0	0	0	0	6	3

Source: US Census Bureau 2015-2019 American Community Survey (ACS) Five-Year Estimates, B03002

- ¹Regardless of race
- *Less than one percent
- Green = Minority Population

Fairfax County Schools data on race and ethnicity and number of students enrolled in the school lunch program provides additional insight on potential EJ populations at the local level. Based on 2019 to 2020 data, all 10 public schools in the study area serve primarily minority students (varying between 63 percent to 95 percent of the student body), and 50 percent or more students participate in the free/reduced cost meals program at eight schools in the study area.⁴

2.2.3 Impacts

Identification of Adverse Effects

The USDOT Order 5610.2[a] defines adverse effects as including but not limited to:

- Bodily impairment, infirmity, illness or death,
- Air, noise, and water pollution or soil contamination,
- Destruction or disruption of man-made or natural resources,
- Destruction or diminution of aesthetic values,
- Destruction or disruption of community cohesion or a community's economic vitality,
- Destruction or disruption of the availability of public and private facilities and services,
- Vibration,
- Adverse employment effects,
- Displacement of persons or businesses, farms or nonprofit organizations,
- Increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broad community, and
- The denial or, reduction in, or significant delay in the receipt of, benefits of, DOT policies, programs or activities.

The FTA EJ Circular defines an adverse effect as “the totality of significant individual and cumulative human health or environmental effects to human health, the natural and social environment, community function, etc.” The following presents the types of adverse effects potentially occurring from implementing the project and the subsequent section, “Disproportionately High and Adverse Effects,” presents the specific impacts to EJ populations.

Based on the resource analyses undertaken for the project, the project would not have adverse effects to air quality, water quality, soil, historic or cultural resources, or hazardous materials that would impact human environment or health. Therefore, no potential for disproportionately high and adverse impacts on EJ populations for these resource areas would occur.

Noise and Vibration: Preliminary noise analysis indicates noise impacts that exceed the federal Noise Abatement Criteria (NAC) are predicted at 19 of the 69 Common Noise Environments (CNE) within the study area, which include 168 receptors that represent 165 residential homes and three recreational sites. A single potential noise barrier system for this project was determined to be both feasible and reasonable at CNE 21 in the Groveton neighborhood. If final noise analysis with detailed design determines a noise barrier is still warranted at CNE 21, the owners and renters of those receptor units that would benefit from the proposed noise mitigation may vote on whether or not a wall should be constructed by

⁴ Fairfax County Public Schools. 2021. School Profiles. <http://schoolprofiles.fcps.edu/schlprfl/f?p=108:8>

completing and returning the citizen survey. At least 50 percent or more of those benefited by the proposed barrier wall must be in favor of the proposed mitigation for it to be constructed.

Construction noise would be limited by adhering to VDOT specifications requiring that construction not exceed established noise limits. Using the FTA's Vibration Screening Process, the project improvements would consist of the addition of rubber-tire bus vehicles. The surface of the additional bus lanes and stations for this project would be asphalt; therefore, irregular surfaces would not be present. Due to these conditions, operational vibration impacts would not occur. Ground borne vibrations from construction equipment would be limited by specifications and restrictions placed on the construction contractor to limit vibration. Pile driving is not anticipated at this time.

Man-made and Natural Resources: Destruction of or disruption to man-made and natural resources would occur from demolition of pavement and clearing for construction of the new facilities that would predominantly occur in the Richmond Highway median. For natural resources, minimal impacts would occur due to building along an existing transportation corridor, with limited wetland (approximately 0.02 acre), stream (approximately 216 linear feet), and regulated floodplain (approximately 0.2 acre) impacts. Best Management Practices (BMPs) would be implemented to minimize impacts to stream crossings and maintain habitat connectivity wherever possible. Impacts to wetlands and streams would be minimized by implementing stormwater BMPs such as bioretention facilities, wet ponds, and underground storage facilities to reduce scour and degradation of local streams and waterways, and strict erosion control measures such as erosion control fencing and use of check dams. Unavoidable impacts from excavation, fill, and construction access due to filling slopes at culvert extensions would be mitigated per compensation developed during the permitting phase. Roughly 1.2 acres of forest habitat would be impacted, with most of the proposed project area dominated by an urban setting.

Visual Resources: A visual resources study was conducted in the study area and determined that the overall visual effect was neutral. Impact minimization measures will include landscaping to enhance the aesthetics of topography, structure, and lighting design along the corridor. Affected communities will be consulted to develop minimization measures appropriate for that community.

Displacements, Community Cohesion and Economic Vitality: The project could displace residents and businesses through the total acquisition of 18 residences and one community facility (**Figure 2-3**), and up to 42 business parcels (**Figures 2-4** and **2-5**). Currently, FCDOT is refining the design that would further reduce the total acquisitions and estimates that this effort could avoid at least another three residential relocations. Most of the project would be constructed primarily within the existing ROW and existing access to side streets would be maintained. Therefore, the proposed project would not be a new barrier or separate or isolate neighborhoods or communities along the study corridor that could adversely impact community cohesion. The project would not bisect neighborhoods and communities as the alignment is along the existing Richmond Highway.

Figure 2-3: Residential and Community Facility Relocations

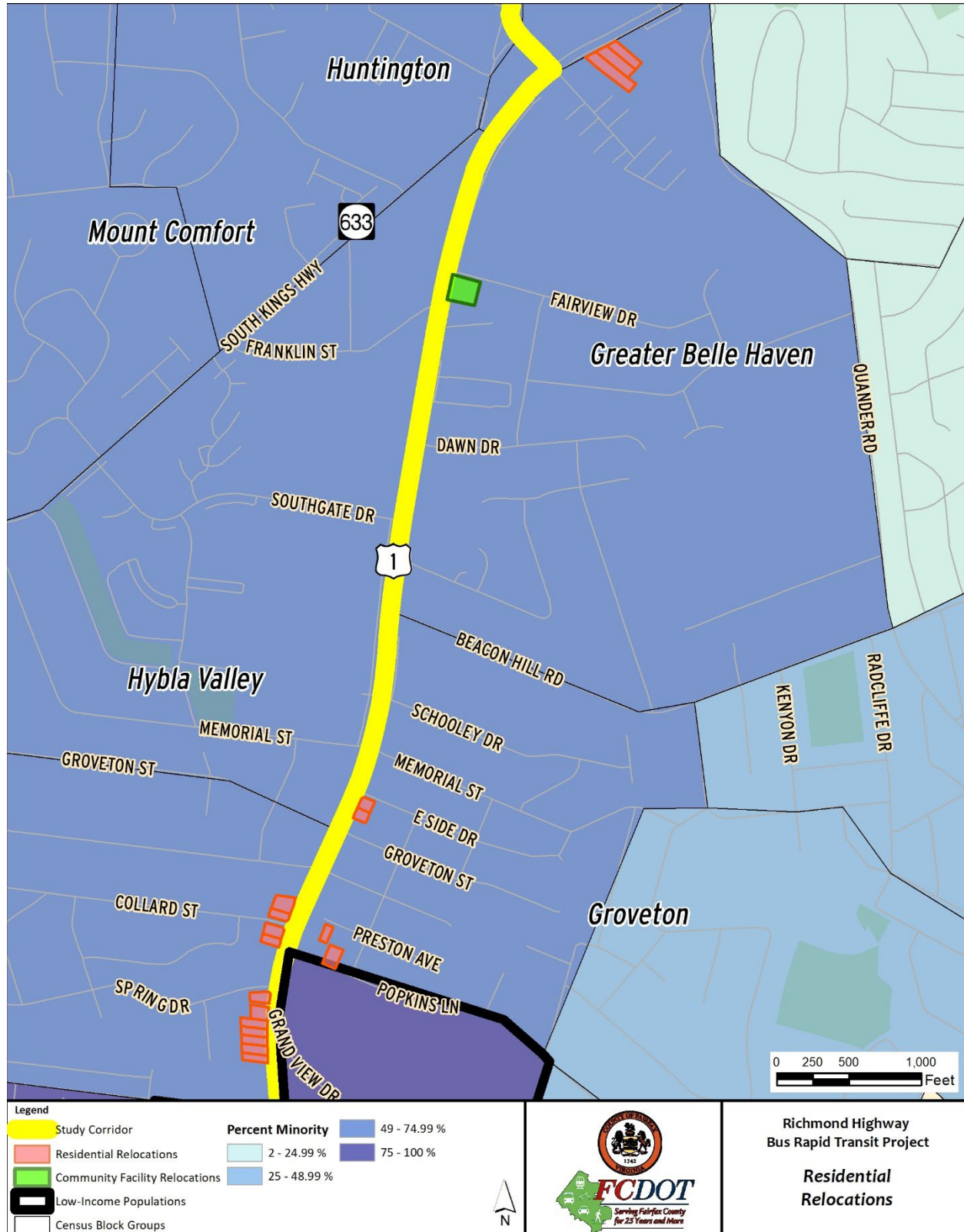


Figure 2-4: Commercial Relocations (North)

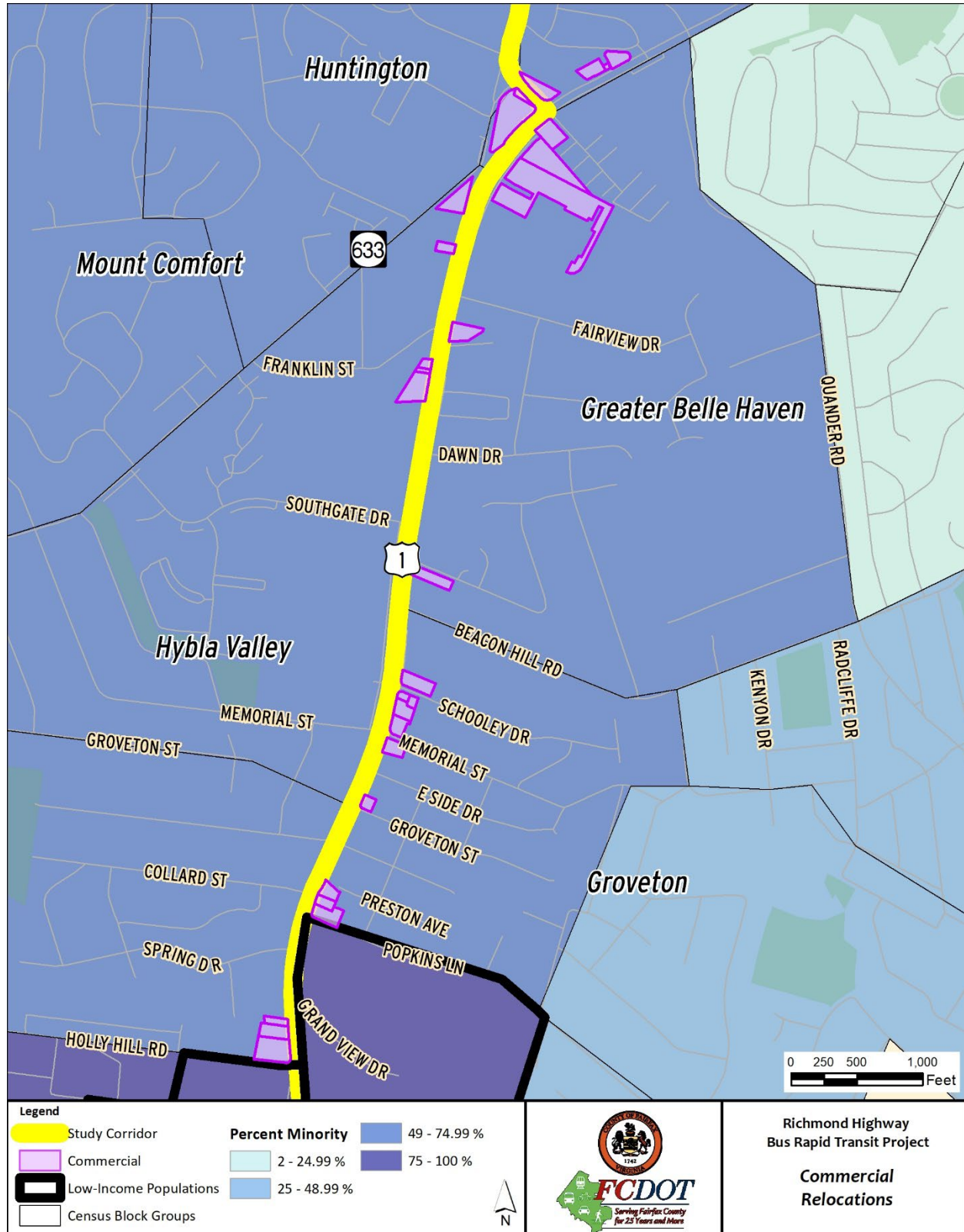
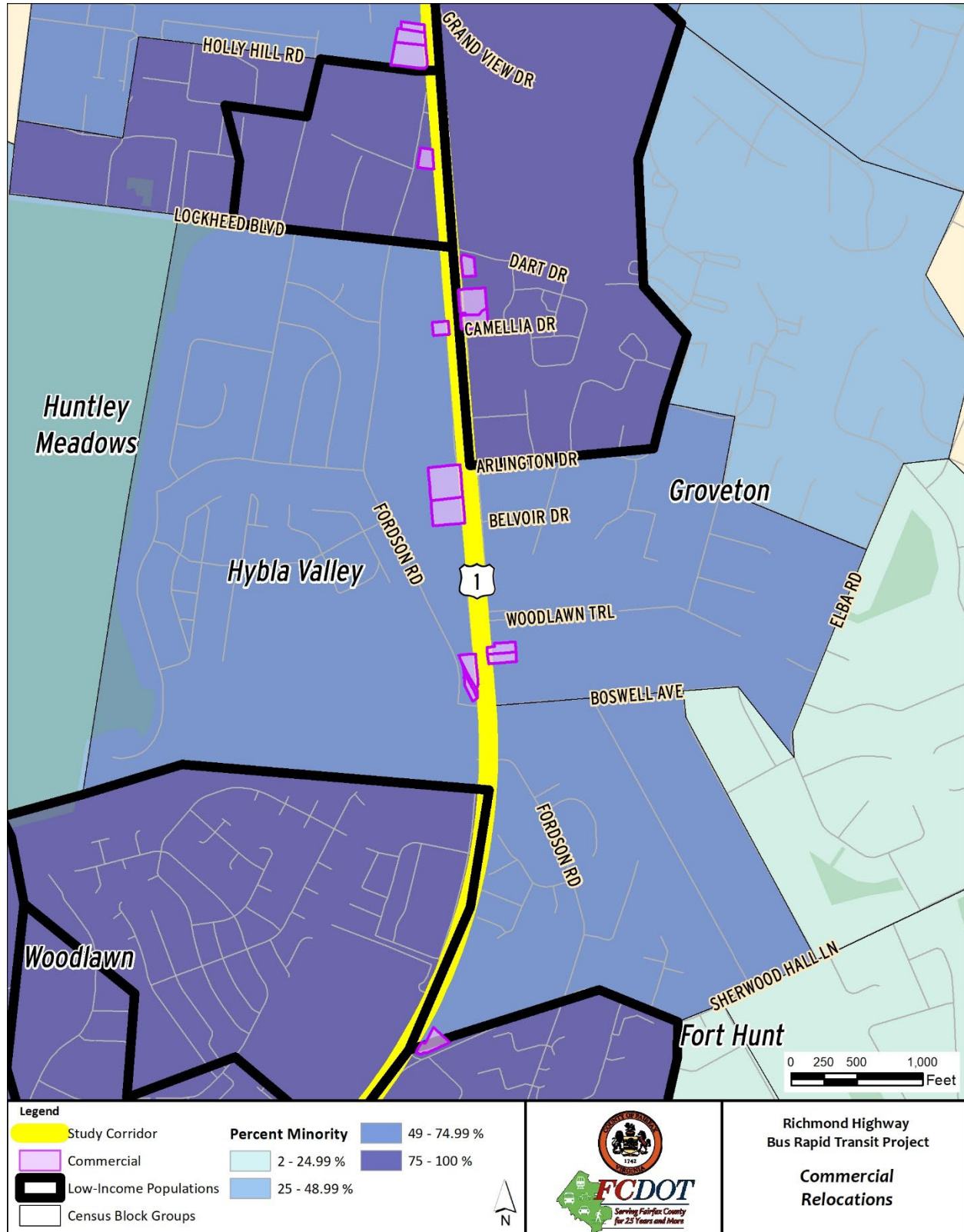


Figure 2-5: Commercial Relocations (South)



Temporary construction impacts that could impact community cohesion may include construction noise, dust, temporary lost parking and temporary detours to users of Richmond Highway through the project construction zone and to properties adjacent to the LOD. These potential temporary impacts would be minimized through the implementation of mitigation measures, such as scheduling construction to avoid loudest noise at sensitive times, dust control measures, advance notice of road closures, and clear signing of detour routes, alleviating adverse effects to community cohesion.

Property acquisitions and displacements are not expected to substantially affect economic conditions in the study area. As noted previously, the project would require total acquisition of 42 business parcels (**Figures 2-4** and **2-5**). Total acquisition of commercial properties could be reduced in the later, detailed design phase of the project. Relocation of the largest employers in the study area would not occur. Adverse construction-related impacts to businesses directly adjacent to construction could occur, but would be temporary, and cease when the project would be completed. Potential impacts include temporary detours, road closures, and loss of parking for businesses during construction. A construction mitigation plan will be prepared in the later project stages to specify communications and construction means and methods to reduce inconveniences of construction to businesses, such as noise, dust, construction traffic, and preservation of access to local streets, driveways, and parking. Ongoing coordination with area businesses, particularly those located adjacent to proposed improvements or detour routes, would occur to prevent or minimize short-term disruption.

Community Facilities: The Gateway International Christian Church at 6401 Richmond Highway in the Greater Belle Haven neighborhood would be acquired in its entirety (**Figure 2-3**), and limited ROW would be acquired from an additional six community facilities. The partial ROW community facility parcels would retain access and function during construction and operations and would not be adversely impacted.

Traffic: Increased traffic congestion from operation of the project is not anticipated. The proposed project would provide dedicated transit lanes for BRT for most of its length, rather than operating in mixed vehicular traffic, expected to improve transit service in the study area. The project would also improve bicycle and pedestrian facilities offering different modes of transportation than vehicular travel. Currently, much of the corridor lacks adequate pedestrian facilities or exhibits sub-standard sidewalk conditions. The proposed project may temporarily increase traffic congestion in the study area during construction. This would be due to temporary lane closures and detours that would cease when the project would be completed. However, these effects would be minimized by using the same measures described above for potential impacts to businesses.

Disproportionately High and Adverse Effects

The USDOT EJ Order defines a disproportionately high and adverse effect as an impact that would be predominantly borne by a minority and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the non-EJ population. In making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and enhancements measures that will be implemented and all offsetting benefits to the affected minority and low-income populations may be taken into account, as well as the design, comparative impacts and the relevant number of similar existing system elements in non-minority and non-low-income areas. If there is no potential for adverse effects, then impacts cannot be disproportionately high and adverse.

The USDOT EJ Order further states that disproportionately high and adverse effects to EJ populations will only be carried out if further mitigation or alternatives to reduce or avoid the disproportionately high and adverse effects are not “practicable.” In determining if further mitigation measures or alternatives are “practicable,” the social, economic, and environmental effects of avoiding or mitigating the adverse effects will be taken into account.

Most of the anticipated project effects described above would occur throughout the project area and affect both EJ and non-EJ populations. This includes the effects described for air quality, natural resources, historic and cultural resources, hazardous resources, visual resources, neighborhood connectivity, and temporary, short-term construction impacts that would be reduced by mitigation and minimization measures as described above. Potential effects to these resources would either not be adverse or would be minimized and would be experienced by both EJ and non-EJ populations along the corridor. These impacts would not be predominantly borne by EJ populations, nor would they be appreciably more severe to EJ populations than non-EJ populations. Mitigation, minimization, and BMPs identified for these resource areas would be applied equally on the alignment for these resources. Therefore, no potential for disproportionately high and adverse effects would occur to EJ populations from potential effects to air quality, natural resources, historic and cultural resources, hazardous materials, visual resources, neighborhood connectivity, and temporary construction impacts. The project improvements would be made primarily in the median and ROW of Richmond Highway and not in residential areas.

Preliminary noise analysis indicates noise impacts that exceed the NAC are predicted at 19 of the 69 CNE within the Study Area. Operational noise impacts adjacent to the construction zone and directly along Richmond Highway in the Study Area would occur in both EJ population areas and non-EJ areas in the Study Area. See the *Richmond Highway Bus Rapid Transit Project Noise and Vibration Technical Report* (FCDOT, 2021) for more detailed information and mapping. Only one area (Common Noise Environment or CNE 21) would benefit from a noise barrier that is warranted, feasible, and reasonable. CNE 21 is within Census tract 4154.02 block group 3, defined by the analysis as an EJ population located in the Fort Hunt neighborhood. Consideration for noise mitigation would be provided when warranted and determined to be feasible and reasonable. Receptors benefited by a warranted noise barrier at CNE 21 would vote to determine whether at least 50 percent approve a noise barrier or not. Since the noise impact at the CNE 21 barrier location could be mitigated and it is up to the affected receptors to select the mitigation, the potential adverse noise impact is considered mitigated and no potential for disproportionately high and adverse noise impacts to EJ populations would occur.

Project benefits include better access to transit and other transportation modes such as bicycle and pedestrian facilities, improved quality of transit services, improved travel times and reliability of bus service in the study area, improved connectivity among adjacent communities from new bicycle and pedestrian facilities, improved transit access to community facilities, improved access to jobs, and construction crew spending at local businesses during construction.

As the majority of the project study area includes EJ populations, the effects of the project may be predominately borne by those populations. Benefits of the project would be realized by people living in EJ block groups adjacent to the improvements and in the non-EJ areas of the project. Study Census block groups data indicate that two percent of homeowners and six percent of renters do not own vehicles (**Appendix C**). Approximately 16 percent of workers 16 years of age and older living in the study block groups use public transportation (excluding taxicabs) (**Appendix C**). Not all of these workers would live in the EJ areas of the study area, but those that do would benefit from the improved transit proposed by the

project. Eight of the nine proposed stations would be located within the median of Richmond Highway running adjacent to EJ population areas in the study limits. Because minority and low-income populations reside in areas adjacent to Richmond Highway within the study area, most of the impacts, both positive and adverse, would be borne by these populations. However, most of the project benefits would also be borne by EJ populations living adjacent to Richmond Highway in the study area. If the project alignment were shifted, impacts to other EJ populations along the corridor would be anticipated and the benefits of the project would not be realized if the project were not built.

The project includes a total of 255 acquisitions, including some partial and full acquisitions, within the three-mile corridor of the study area north of Sherwood Hall Lane. This corridor includes both EJ and non-EJ populations. One additional acquisition occurs in the southern section of the project corridor.

FCDOT has avoided or minimized property impacts along the Richmond Highway corridor in a number of ways. Measures for avoiding and minimizing ROW impacts include installing retaining walls to reduce the cut and fill necessary for grading; reducing the median or amenity panel buffers to avoid acquisitions; revising the roadway cross slope to limit grading impacts to properties; removing bus pull-offs; removing dedicated right-turn lanes and combining them with through lanes; and thoughtfully implementing stormwater facilities. These tools were considered during preliminary design and were utilized where appropriate. Specific measures that have been taken include:

- Adding retaining walls at Groveton Baptist Church, St. Louis Catholic Church and School, and Gum Springs Shopping Center.
- Reducing the BRT median or the amenity panel buffers at Groveton Baptist Church, A&A Rentals, and in the Penn Daw area.
- Revising the roadway cross slope at Kings Village, Collard Street and Popkins Lane, and in the Penn Daw area.
- Removing dedicated right turn lanes and combining them with through lanes throughout the corridor, including locations such as Clayborne Avenue, Fordson Road (east), Dawn Drive, and Sherwood Hall Lane (west).
- Removing bus pull-offs at Collard Street and Sherwood Hall Lane.
- Utilizing properties already anticipated to be full acquisitions or relocations for stormwater management in order to avoid additional full acquisitions. Nineteen properties already slated for full acquisition due to design requirements will be used for eight stormwater facilities.
- Installing underground stormwater facilities to supplement aboveground facilities. Without the underground component, the aboveground facilities would require greater capacity and would necessitate more ROW.

However, despite avoidance and minimization measures, ROW acquisitions are required for the project to be implemented in order to maintain roadway capacity for existing users and for future travel demand models. The design of the project also includes sufficient width to maintain a consistent, six-lane cross section as stated in the Locally Preferred Alternative (LPA) Recommendation from the DRPT in the 2015 Route 1 Multimodal Alternatives Analysis (DRPT, 2015). This is important for meeting existing and future roadway capacity needs and not degrading existing level of service so that the roadway continues to provide the same benefits to the community for transportation to home, work, and recreation. The LPA also includes implementation of sidewalks and bicycle paths that are currently sub-standard or non-existent throughout the project corridor.

One community facility, the Gateway International Christian Church, would be acquired in Census tract 4151 block group 2, which is 49 percent minority. The ability to avoid property impacts is limited because EJ populations exist along both sides of the Highway through most of the project study area; avoiding impacts on one side of Richmond Highway could result in impacts to minority and low-income populations on the opposite side of Richmond Highway. For example, shifting the alignment or stormwater management facility away from Census tract 4214 block group 2, which is roughly 60 percent minority (where there are 14 residences and commercial parcels that would be acquired), could force displacements in Census tract 4154.01 BG 3, which is roughly 87 percent minority and is also identified as low-income.

Residential total parcel acquisition displacements would occur in the Hybla Valley, Greater Belle Haven, and the Groveton communities (**Figure 2-3**). Affected residences are single family. Assuming an average of three persons per household, approximately 54 persons would be impacted by relocations. FCDOT would work with impacted residences with the goal of relocating affected parties within their existing neighborhood, depending on their stated preferences. Should any residences be unoccupied, it is assumed that fewer residents would be displaced. Acquisitions through these neighborhoods are partly unavoidable because of roadway widening activities in the 1970s that resulted in inadequate clear zones which have created unsafe pedestrian, roadway, and living conditions for some residences. FCDOT has explored constructing sidewalks in these communities because of the unsafe pedestrian conditions created from the widening projects in the 1970s; however, because of the short setback distances that remain, implementation of sidewalk improvements is not possible without further ROW acquisitions and displacements. The 18 residences that would be acquired are along the edge of the respective communities and do not represent a significant percentage of homes in these neighborhoods. No schools or major community recreation centers would be acquired in these neighborhoods for the project. The acquisitions would not bisect the respective communities and would not result in adverse effects to community cohesion. To-date, FCDOT has conducted extensive public outreach for affected property owners and following the completion of NEPA at the request of affected property owners, FCDOT will conduct weekly ROW meetings with affected property owners. EJ populations in these neighborhoods would be served by the future Beacon Hill Station and would experience additional beneficial effects, including greater regional connectivity, improved mobility options, improved regional air quality, and improved pedestrian and bicycle facilities.

FTA's EJ Circular requires that determinations of disproportionately high and adverse effects take into consideration "mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations."

The residential relocation activities are anticipated to take several years and residential acquisition impacts in the Groveton, Greater Belle Haven, and Hybla Valley will be mitigated through continued coordination and mitigation measures included below. Offsetting this burden, the project would provide long-term benefits in terms of enhanced mobility, safe sidewalks and bike facilities, and improved connectivity that would accrue equally to all residents in the project study area. These neighborhoods would also be served by the Beacon Hill station and over the long term, EJ populations surrounding the Beacon Hill station would enjoy improved transit accessibility and the above stated benefits of the project. The adverse effects of the project on EJ populations would not be considered disproportionately high and adverse, because the effects would not be suffered primarily by EJ communities after the consideration of mitigation measures and consideration of the benefits from the project, which would accrue equally to

all populations in the study area. Several residential parcels were adversely impacted by widening projects in the 1970s which resulted in substandard and unsafe clear zones adjacent to their properties. Any efforts to construct clear zones or to install safe sidewalks to current standards would require total acquisition of these parcels. Not building the project and entirely avoiding adverse effects associated with acquisition would result a continuation of substandard conditions on several residences and the benefits not accruing to the EJ and non-EJ populations in the project area. After the consideration of all avoidance, minimization, and mitigation measures and a balancing of off-setting benefits of the project, no disproportionately high and adverse effects are expected to occur on minority and low-income populations.

The residential displacements would be mitigated by assistance and compensation provided per the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) to ensure fair and equitable treatment. All efforts would be made to find replacement housing in the study area if desired by displaced persons or the displaced church.

Every effort will be made to expeditiously acquire real property and/or interests in real property for the project by negotiation. As soon as feasible, the agency shall notify the owner in writing of the agency's interest in acquiring the real property and the basic protections provided to the owner by law and regulation. The owner shall be provided an opportunity to accompany the appraiser during the appraiser's inspection of the property to be acquired (Section 24.102 of 49 CFR).

All displaced persons (residential, commercial, and personal property) will be provided with advisory assistance as required in Section 24.205(c) of 49 CFR.

All displaced persons will be provided with all appropriate and required relocation notices as defined in Section 24.203 of 49 CFR.

All displaced residential persons will be provided with at least one (preferably three) decent, safe, and sanitary, comparable replacement dwelling(s) pursuant to the requirements of Section 24.204 of 49 CFR.

All displaced persons will be provided with reasonable assistance necessary to complete and file any required claim for payment as required by Section 24.207 of 49 CFR. Further, expeditious payments for relocation claims shall be made and, dependent on demonstrable need, advance payments will be made in order to avoid or reduce hardships.

No relocation payments will be made to any displaced person without first obtaining certification that the person is either a citizen or national of the United States, or an alien who is lawfully present in the United States pursuant to Section 24.208 of 49 CFR.

Any person who feels that the Agency has failed to properly consider the person's application for assistance will be provided with the opportunity to appeal such determination pursuant to the requirements of Section 24.10 of 49 CFR.

Last Resort Housing benefits will be made available to all persons for whom comparable replacement housing is not available within their financial means pursuant to the requirements of Section 24.404 of 49 CFR.

Outreach Efforts to Environmental Justice Populations

To promote inclusive public participation, the Public Outreach Plan for the Richmond Highway BRT Project included strategies to engage minority and low-income populations. General strategies included, but were not limited to:

- Meeting at times and locations that are convenient and accessible for these communities,
- Varying meeting sizes and formats to provide a variety of comfort levels,
- Offering shuttle transportation to community meetings through Fairfax County Neighborhood and Community Services (NCS),
- Creating outreach materials that are inclusive and welcoming to minority, low-income, and other underrepresented populations,
- Coordinating with existing community-based organizations that reach out specifically to members of affected communities (e.g., coordinating with NCS to share information at their monthly meetings),
- Considering radio, television, or newspaper ads on stations and in publications that serve minority populations and low-income populations,
- Reaching out through trusted community leaders, schools, and churches,
- Attending community-based events, and
- Displaying Title VI public notices. FCDOT has Title VI notices on the County's website. These notices are also brought to meetings and other events to ensure that the community has access to information.

Potential residential and community facility total parcel acquisitions have been presented to the public on roll plots presented at numerous public information meetings and targeted meetings with EJ communities, and mitigation measures presented. In addition, ROW virtual meetings have been held online where residential total acquisitions were identified along with proposed mitigation; recordings of the meetings are posted on the project website. No comments were received concerning minority and low-income populations potentially affected by ROW acquisition. Individual property owner outreach will be conducted during the project's ROW phase following NEPA process approval.

Outreach to the residents of Gum Springs, identified here as an EJ community, has resulted in modifications to the project design. Gum Springs residents voiced concern regarding a station design that showed reduced access at Fordson Road. The community was presented with options for station configurations at that location in a meeting in June 2019. Based on the feedback received during the meeting, the project team incorporated the community's preferred design, in which northbound and southbound BRT platforms are split across two intersections at Fordson Road and Boswell Avenue.

2.3 Limited English Proficiency

Per the FTA EJ Circular, limited English proficiency (LEP) persons include people who do not speak English as their primary language and have a limited ability to speak, read, write, or understand English. In accordance with FTA Title VI Circular and USDOT's policy, FTA shall address the needs of LEP persons in the study area in compliance with Title VI. The following describes the strategies used to identify and engage LEP persons in the study area.

The Census Bureau has data on speaking English proficiency and languages spoken at home available from the ACS 2015-2019 at the Census Tract level (**Figure 2-6**). Twenty-five Census Tracts are within 0.5 miles of Richmond Highway through the study area. Appendix B provides English proficiency and other languages spoken data for each study Census Tract. Approximately 40 percent (37,684) of the population within the study Census Tracts speaks English “less than very well” and 2 percent do not speak English at all. Study Census Tract data for languages spoken at home indicates that the languages having at least 1,000 speakers are Spanish or Spanish Creole, other Indo-European, other unspecified, other Asian, Arabic, and French, Haitian and Cajun. Of the non-English languages spoken at home, Spanish is the most common with 25,971 speakers living in the study Census Tracts. In addition to the measures for outreach to EJ populations discussed above, Fairfax County and FTA included the following strategies in their outreach to LEP persons for the proposed project:

- Providing translation at large community meetings (Spanish by default and offering other languages by request or by expected interest and/or presence of a large number of LEP community members);
- Creating multi-lingual outreach materials that are inclusive and welcoming to LEP persons;
- Considering radio, television, or newspaper ads on stations and in publications that target LEP persons;
- Displaying Title VI public notices (FCDOT has Title VI notices on the County’s website in 11 languages. These notices are also brought to meetings and other events to ensure that the LEP community has access to information in the language with which they are most comfortable.)

2.4 Neighborhoods and Planning Districts

The study corridor is in southeastern Fairfax County. The *Fairfax County Comprehensive Plan (2017)* divides the County into four primary planning areas (**Figure 2-7**), with further subdivisions into districts and sectors (**Figure 2-8**).

The study corridor is located entirely within Planning Area IV which is broken down into the Mount Vernon and the Lower Potomac Planning Districts (**Figure 2-8**). Per the existing *Comprehensive Plan*, the Mount Vernon Area Plan contains recommendations for land use, transportation, housing, the environment, heritage resources, public facilities, and parks and recreation. The Planning Districts contain site-specific guidance that implements the countywide Policy Plan, which includes the Fairfax County Concept for Future Development. Planning Sectors contain guidance on the specific uses, ranges of residential density or land use intensity, as well as alternative or optional uses for certain tracts of land in the sector. Below is a brief summary of the planning districts and sectors as described in the *Fairfax County Comprehensive Plan (2017)*.

Figure 2-6: Study Census Tracts

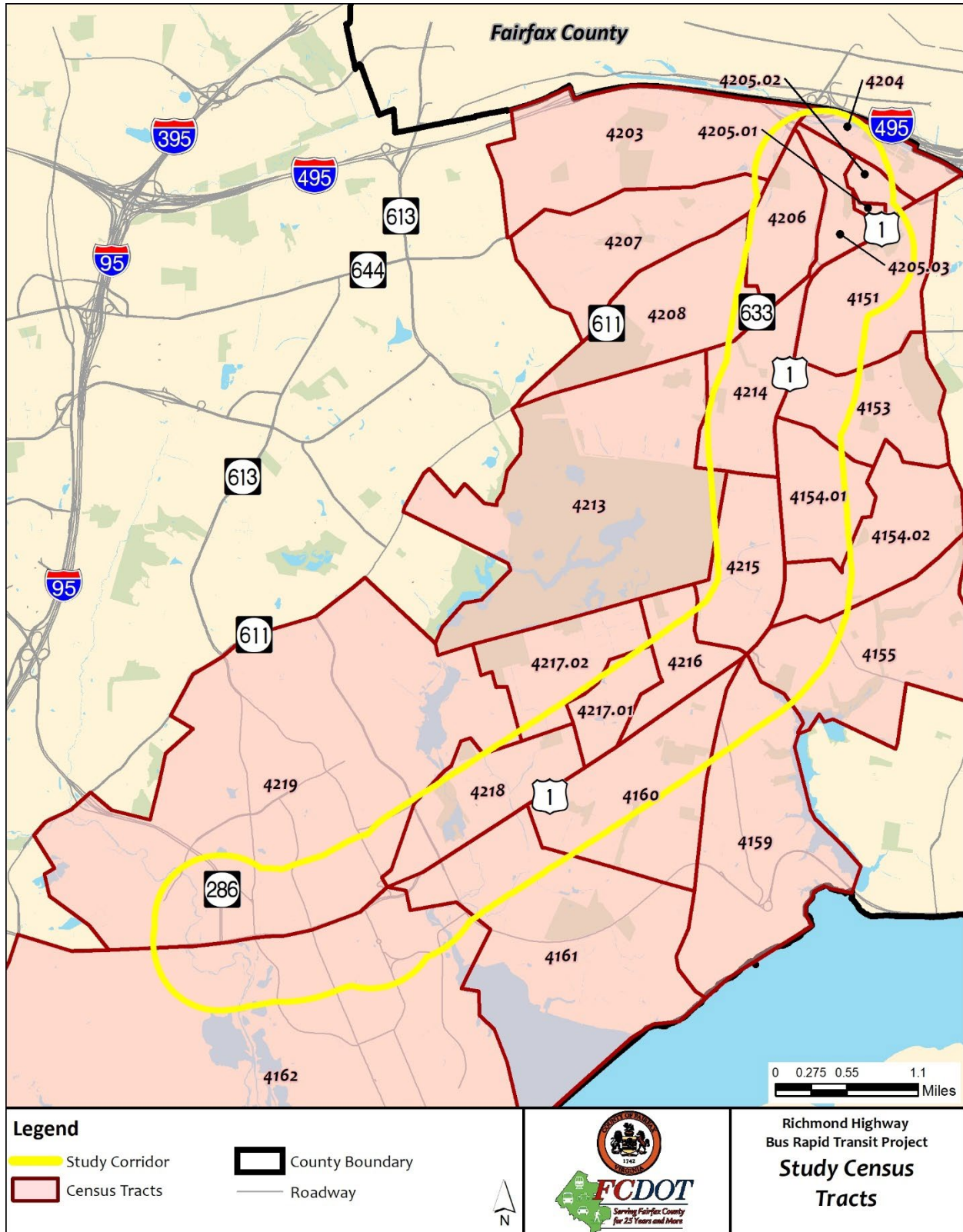


Figure 2-7: Study Corridor and Fairfax County Planning Areas

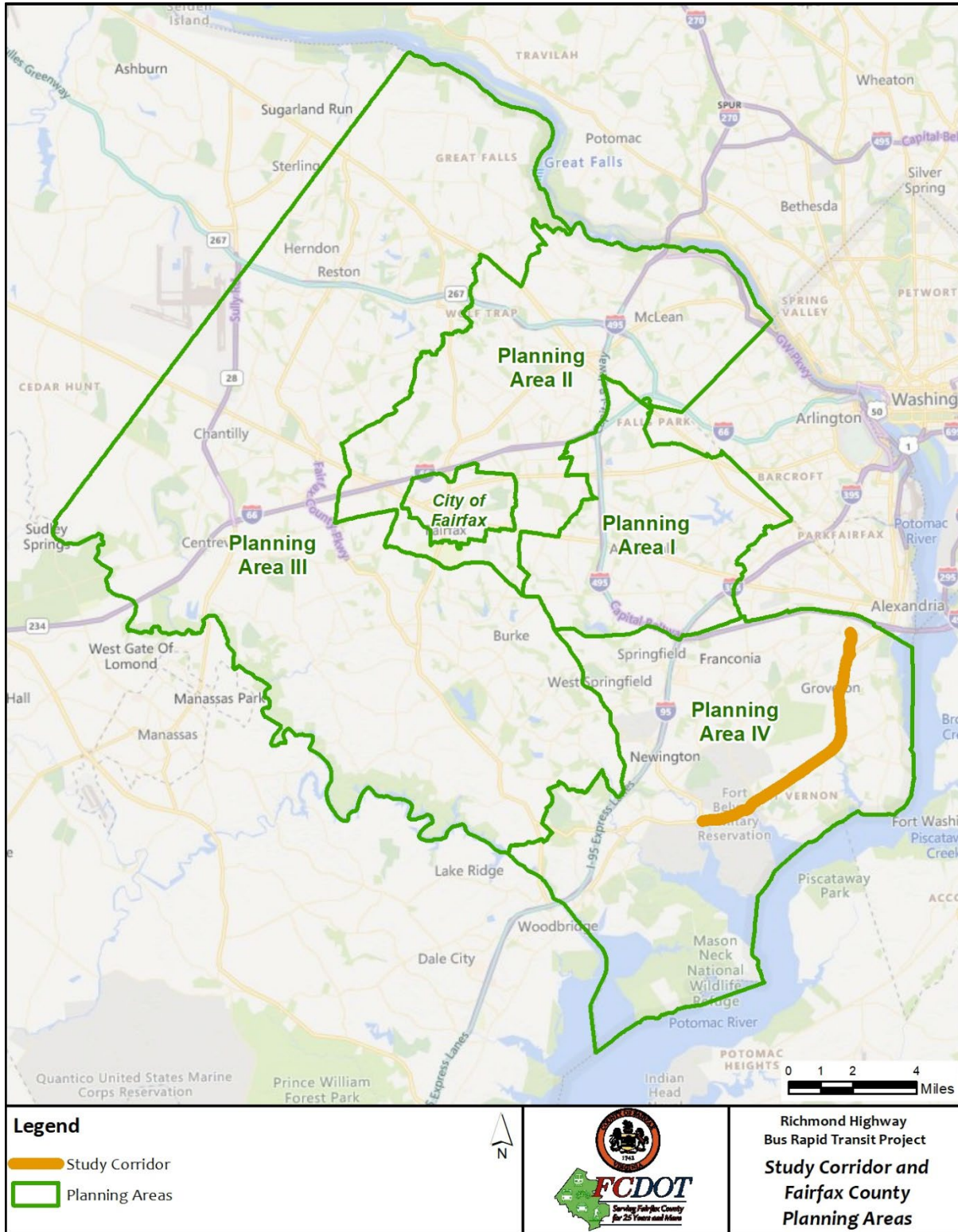
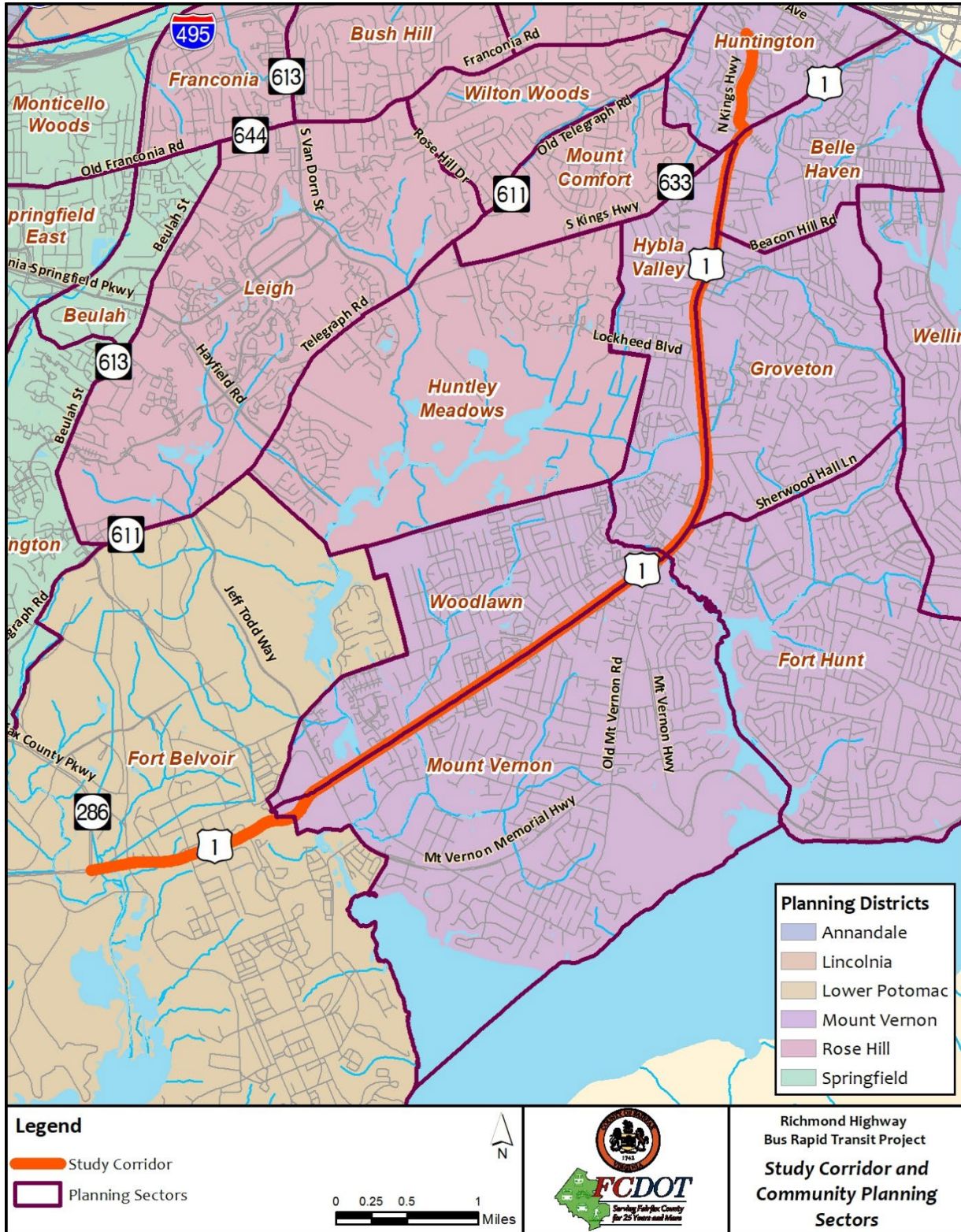


Figure 2-8: Study Corridor and Community Planning Sectors



2.4.1 Existing Conditions

Planning Districts

Mount Vernon Planning District

The Mount Vernon Planning District is bordered by I-495 / I-95 to the north, the Potomac River to the east, Dogue Creek to the South, and Huntley Meadows Park to the west. This District is diverse in character, with the Huntington Metro Station located to the north and Fort Belvoir to the southwest. The study corridor lays within the southeast portion of this Planning District. Most of this District contains single-family homes except along Richmond Highway, where there are high-density residential developments as well as commercial activity centers, including community / neighborhood shopping centers and strip malls.

Lower Potomac Planning District

The Lower Potomac Planning District is in the southernmost portion of Fairfax County. The district is bounded by the Occoquan and Potomac Rivers in the south; Fort Belvoir, Dogue Creek, and the Potomac River in the east; and Route 611 and portions of Fort Belvoir in the north. Most of this district is accessed via I-95, Richmond Highway, or the CSX Railroad. Thirty percent of the land within the Lower Potomac is within the Fort Belvoir Army Base. Most of the district contains townhomes, garden apartments, and single-family homes. The district contains community-serving retail, including several shopping plazas. Industrial uses are located along portions of the CSX railroad tracks.

Planning Sectors

Mount Vernon and the Lower Potomac Planning Districts are further subdivided into Planning Sectors (**Figure 2-8**). The following Planning Sectors in the study corridor are considered “communities” for the purposes of this study: Huntington, Belle Haven, Hybla Valley, Groveton, Fort Hunt, Woodlawn, and Mount Vernon. The Lower Potomac Planning District only has one Planning Sector, Fort Belvoir, within the study corridor. These planning sectors are briefly described below.

Huntington Planning District

The majority of the Huntington Community Planning Sector is comprised of the Huntington Transit Station. The planning sector is located between the Capital Beltway / Interstate 95 / 495, Telegraph Road, Furman Lane, South Kings Highway, and Richmond Highway. The transit station lies in the center of a developed residential area made up of single-family detached housing units, duplexes, high-rise apartments, and condominiums. Several local retail developments are also located at major intersections.

Belle Haven Planning Sector

The Belle Haven Planning Sector is bordered by Cameron Run, the City of Alexandria, the Potomac River, and Beacon Hill Road on the east; and I Street, North Kings Highway (Route 241), and Richmond Highway on the west. The predominant land use in this planning sector is residential. The planning sector includes single-family detached units, townhouses (located at the intersection of Richmond Highway and Fort Hunt Road and at the intersection of Fort Hunt Road and Belle Haven Road), two apartment and condominium complexes, and a mobile home park located along Shields Avenue near Richmond Highway.

Hybla Valley Planning Sector

The Hybla Valley Planning Sector is oriented north to south, paralleling the west side of Richmond Highway. It is geographically bound by Huntley Meadows Park to the west, Little Hunting Creek to the south, Richmond Highway to the east, and South Kings Highway to the north. Commercial uses and higher-density housing line Richmond Highway. Continuing north-northeast behind the commercial frontage along the Richmond Highway are large apartment complexes and single-family subdivisions and private recreation sites. Richmond Highway is the only road providing north-south movement throughout Hybla Valley.

Groveton Planning Sector

The Groveton Planning Sector is geographically bound by Richmond Highway to the west, Sherwood Hall Lane to the south, Fort Hunt Road to the east, and Beacon Hill Road to the north. This sector contains single-family homes, townhomes, apartments, and a mobile home park. As with the other sectors discussed, commercial and higher-density housing fronts Richmond Highway. The townhome, apartment, and mobile home communities are located adjacent to Richmond Highway while the single-family homes are further away from the roadway.

Fort Hunt Planning Sector

Fort Hunt Planning Sector is bounded by Sherwood Hall Lane to the north, Fort Hunt Road to the east, the Potomac River to the south, and Little Hunting Creek and a portion of the Potomac River to the west. Only a small portion of the study corridor extends into this sector along the south side of Richmond Highway. Fort Hunt Planning Sector contains mainly single-family developments; however, there are also several townhomes, garden apartments and several neighborhood retail centers located along Richmond Highway. This sector contains the Inova Mount Vernon Hospital.

Woodlawn Planning Sector

The Woodlawn Planning Sector is geographically bound by Fort Belvoir and Dogue Creek to the west, Richmond Highway to the south, Little Hunting Creek to the east, and Huntley Meadows Park to the north. Most of the study corridor along the north side of Richmond Highway is in this sector. A diverse mix of single-family homes, garden apartments, townhouses, condominiums, and commercial areas are in this sector. Like the other sectors discussed, the area adjacent to Richmond Highway is more commercial, interspersed with higher-density housing developments. This sector contains Fairfax County's government center.

Mount Vernon Planning Sector

The Mount Vernon Planning Sector is geographically bound by Dogue Creek to the west, the Potomac River to the south, Little Hunting Creek to the east, and Richmond Highway to the north. Most of the study corridor along the south side of Richmond Highway is in this sector. Most of this sector contains single-family homes as well as some garden apartments, townhouses, and two small mobile home parks. In general, this sector is developed with few areas of undisturbed space with the area adjacent to Richmond Highway being commercial, including a few apartment and townhouse developments. Most of the single-family homes are set back behind the commercial and higher-density housing areas fronting Richmond Highway.

Fort Belvoir Planning Sector

Fort Belvoir Planning Sector contains three distinct properties: Main Base, Davison Army Airfield, and the Fort Belvoir North Area. Fort Belvoir is surrounded by Groveton, Hayfield, Kingstowne, Mount Vernon, Newington, and Woodlawn. The army base is similar to a small city with a mix of civic, administrative, residential, and retail uses. With the population expected to grow, and due to base restrictions limiting family housing to only 10 percent of the land, the base uses residential villages consisting of an urban mixed-use town center. A 50-year plan would demolish and replace over 2,000 homes with modern day units above retail, as well as with freestanding homes, attached single-family homes, dwellings, duplexes, and townhomes (UNI Development, 2008).

2.4.2 Neighborhood Impacts

The project would construct new dedicated stations and guideway in what are already heavily traveled, automobile-oriented areas. Most of the project would be constructed primarily within the existing ROW and would not separate or isolate neighborhoods or communities along the study corridor. The new construction of dedicated BRT lanes and stations primarily along the existing Richmond Highway alignment would provide enhanced transit service and improved transit access to community facilities.

The project could displace 18 residences and one community religious facility (Gateway International Christian Church) for permanent ROW acquisition. Because these properties are on the edge of their respective neighborhoods adjacent to Richmond Highway, and relatively few displacements would occur (less than one percent of housing units in the study corridor), the impact would not substantially affect community cohesion. All ROW and easement acquisitions would be completed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended).

Direct construction-related impacts would occur in the immediate vicinity of the LOD. During construction of the project, there is potential for minor, temporary negative impacts within and adjacent to the public ROW. These impacts may include construction noise, dust, and temporary lost parking and temporary detours to properties adjacent to the LOD. These potential temporary impacts could be minimized through the implementation of mitigation measures such as scheduling construction to avoid loudest noise at sensitive times, dust control measures, advance notice of road closures, and clear signing of detour routes.

2.4.3 Community Facilities

Community facilities as defined in this study include parks and other outdoor recreation areas, community centers, emergency services (fire and police stations), post offices, government centers, human services offices, libraries, schools, the Huntington Metrorail Station, places of worship, and cemeteries. Community facilities also include recreational facilities like bike paths and recreational trails. Community facilities within the study corridor were identified using Fairfax County GIS data and planning documents.

Impacts to community facilities were quantitatively and qualitatively analyzed by determining the number of displaced facilities and assessing any changes that would impact the function or accessibility of community facilities.

2.4.4 Existing Conditions

Community Facilities

The area along Richmond Highway is an important center of development and economic activity, and thus has several large facilities serving the County and region, along with many locally oriented facilities and services. Community facilities within the half-mile study corridor are shown on **Figure 2-9** and listed in **Appendix B**. Community facilities found in the study corridor consist primarily of parks and outdoor recreation areas, places of worship, community centers, schools, and emergency services.

Bike Paths and Recreational Trails

In Fairfax County's *Bicycle Master Plan 2014*, much of Richmond Highway in the study corridor is considered a "policy road," or a road requiring further study (Fairfax County, 2014). "Policy Roads" are defined as those where selection of bicycle facilities should be coordinated with other planning decisions regarding a roadway's capacity and operation as well as the type and configuration of development alongside it.

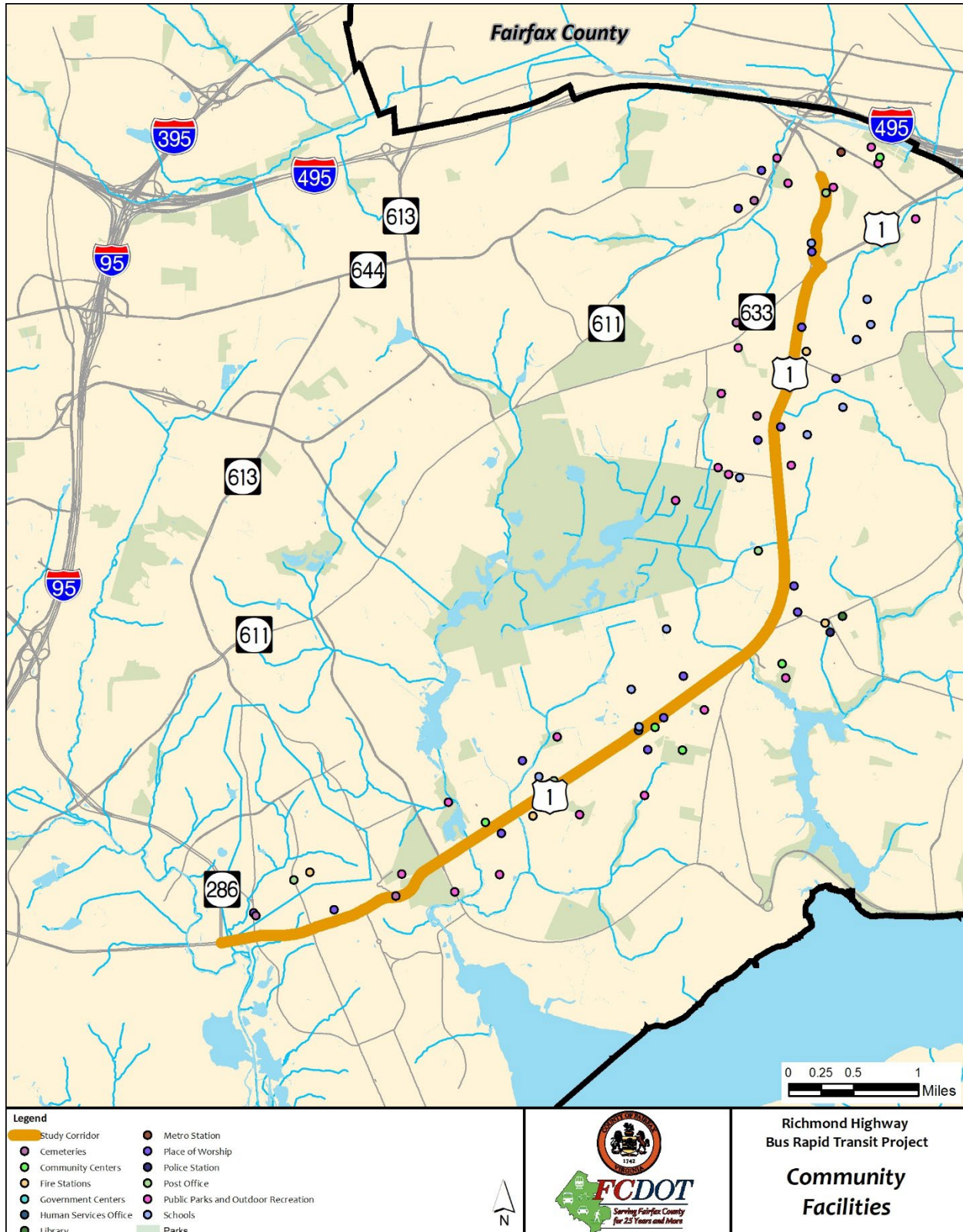
Fairfax County has not defined bike lanes, shared-use paths, or cycle tracks as being present in the study corridor along Richmond Highway, except for a shared-use bike path that runs between Fairfax County Parkway and Jeff Todd Way (Fairfax County, 2014, 2018). However, bike routes, designated by Fairfax County to be the safest cycling route from point A to point B, are found within the study corridor on local streets and along Richmond Highway. Fairfax County has deemed most of the bike routes along Richmond Highway as "use with caution" (see **Appendix B** bike routes map).

The Fairfax County *Bicycle Master Plan 2014* states that new roadway projects should include multimodal facilities that include sidewalk and bicycle facilities. The Plan further explains that where shared-use paths adjacent to a roadway are provided along roads where no on-street facilities exist, the shared-use paths should be provided on both sides of the street. In areas where it is not deemed feasible to provide shared-use paths on both sides of the road, the Plan indicates a single shared-use path should be provided on the same side of the road and not alternate sides in contiguous roadway segments.

The Plan also recommends bikeway improvements include cycle tracks in the study corridor. Cycle tracks are separated bike lanes that physically separate bicyclists from motor vehicle traffic and pedestrian traffic. According to the Plan, cycle tracks can be configured and designed in a variety of ways; therefore, no specific recommendation regarding the study corridor is made.

Paved sidewalks span much of the length of the corridor, beginning north of Woodlawn Plantation and extending in discontinuous segments to the northern terminus. A paved recreational trail runs along the edge of Richmond Highway near North Hills Park.

Figure 2-9: Community Facilities



2.4.5 Community Facility Impacts

The project would be constructed in the Mount Vernon and the Lower Potomac Planning Districts, which are densely urbanized areas containing several community facilities, parks, and recreation centers. Of the 83 community facilities identified within a half mile of the study corridor, one facility would potentially be displaced. Portions of ROW could be acquired from six additional community facility parcels (two schools, three places of worship, and one church/school), with acquisitions consisting of slivers of land along the edge of the parcel that would not preclude access to these facilities.

A number of public comments were received at the September 2019 public information meeting regarding project impacts on the St. Louis Catholic Church and School property and specifically to a structure called Walsh Hall. These impacts would have occurred due to grading issues. A follow-up meeting was held at the St. Louis Catholic Church and School in October 2019 to further discuss the potential impacts and listen to the community. FCDOT evaluated the project at the property and determined that it would be cost effective to use a retaining wall at this location, which would eliminate impacts to the Walsh Hall structure. The design reflected in this CE includes a retaining wall at this location.

Since most of the proposed improvements would be primarily within the existing Richmond Highway ROW, the project would not separate or isolate any community facilities along the study corridor. The project would construct new dedicated stations and travel lanes in a heavily traveled area that is automobile-oriented. The project would improve residents' connections to community facilities and transit access to community facilities could be positively impacted by the project's enhanced transit service. The project could improve access to adjacent communities and community facilities by improving safety and enhancing pedestrian and bicycle facilities along the study corridor. Continuous sidewalk and bicycle facilities would be provided along Richmond Highway in the study corridor along with signalized crosswalks.

Short-term impacts to community facilities could include temporary road closures, changes to travel patterns, temporary reductions in parking, and traffic detours during construction.

2.5 Right-of-Way, Land Use, and Zoning

2.5.1 Right-of-Way

Existing Conditions

The LOD encompasses approximately 200 acres, including existing right-of-way, permanent acquisitions, and temporary construction easements.

Impacts

Approximately 63 acres of ROW would be acquired for the project. Temporary construction easements are used to undertake activities necessary to construct the project, including transporting, stockpiling, and storing construction materials, equipment, and vehicles and providing egress for vehicles and pedestrians. Temporary construction easements only exist during construction and the land would be returned to the previous land use upon completion of the project. All ROW acquisitions, including easements, would be performed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies

Act of 1970 (as amended) to ensure the fair and equitable treatment of persons displaced as a result of federal and federally-assisted programs.

2.5.2 Land Use

Existing land use in the study corridor and the surrounding areas was gathered to provide a baseline for analysis of the potential impacts of the project. The most recent available data was compiled by Fairfax County and was supplemented from local comprehensive and land use plans, aerial photography, and field reconnaissance. Impacts were assessed based on conversion of other land uses to transportation use.

Existing Conditions

Land use surrounding Richmond Highway is typical of residential and commercial development in Northern Virginia and the Washington, DC metropolitan region. Transportation projects have the potential to impact land use and zoning through the conversion of land to transportation purposes by ROW acquisition.

A half-mile area surrounding the project study corridor, which extends from the Huntington Metrorail Station south to Fairfax County Parkway, was analyzed for existing land uses. Current land use in over half (52 percent) of the area within the half-mile buffer is designated as residential land use (**Figure 2-10; Table 2-4**). Twenty-one percent of the study area land use is designated as institutional of which a majority is US Army Base Fort Belvoir.

Table 2-4: Land Use in the Study Corridor – Existing Acreage and Impact of the Project

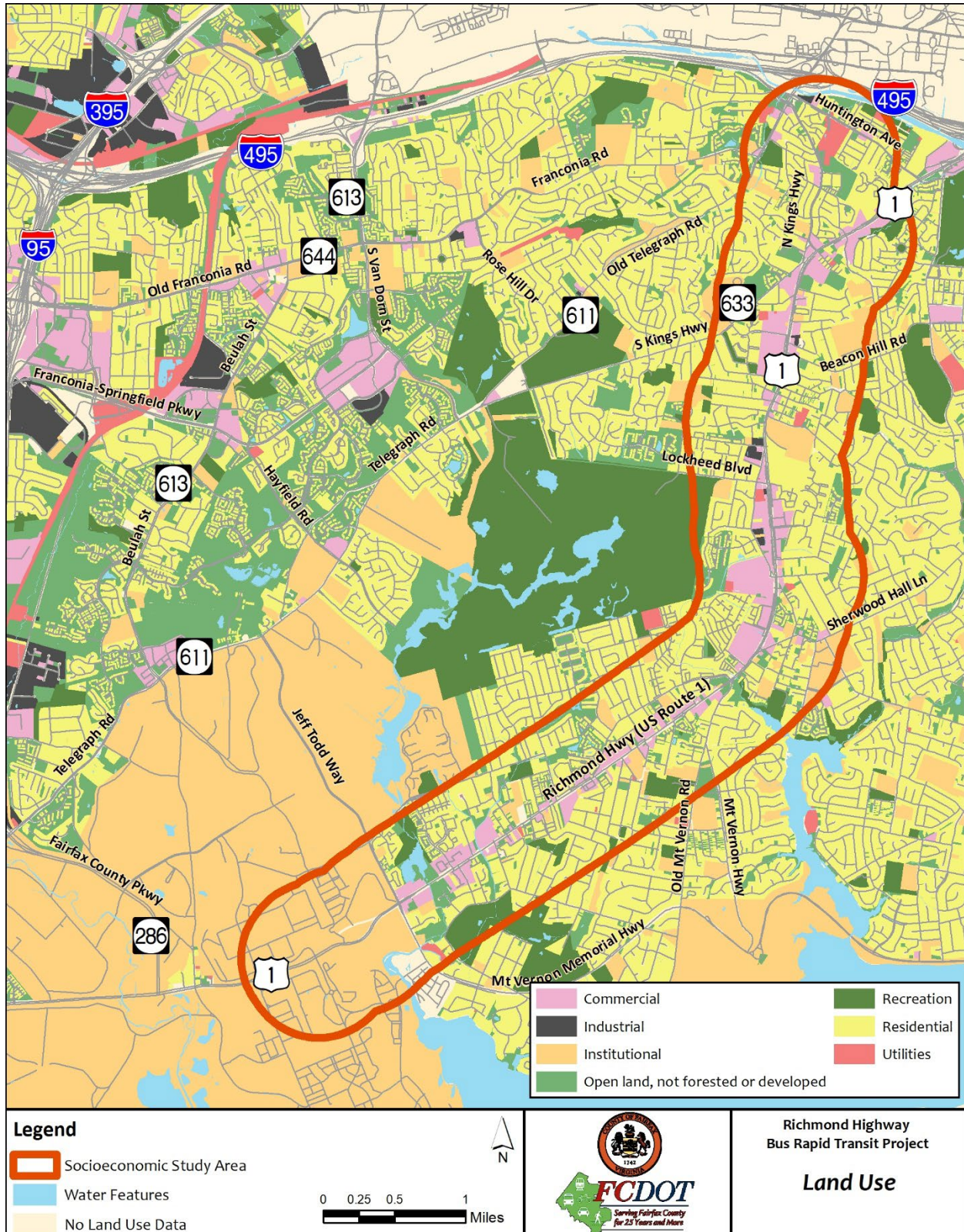
Land Use	Number of Acres Current	Percent of Study Corridor	Acres Converted to Transportation Use by the Project
Commercial	445	9.0%	33
Residential	2,570	52.0%	10
Industrial	17	<0.1%	1
Institutional	1,049	21.2%	11
Open Land	517	10.5%	8
Recreation	272	5.5%	0
Utilities	62	1.3%	<1
Public	7	<0.1%	0
Total	4,938	100%	63

Source: Fairfax County GIS

Impacts

A total of 63 land use acres may be converted to transportation use. The 2017 *Fairfax County Comprehensive Plan* contains recommendations for improving the Richmond Highway corridor including improvements to transportation and public facilities. The Plan recommends the evaluation of using the median of Richmond Highway for development of a rail or bus rapid transit system. Furthermore, the Comprehensive Plan Amendment adopted on March 20, 2018 recommended implementing a BRT system. As such, the project would not change the overall existing land use patterns and would be consistent with local land use planning and zoning. No zoning changes or exceptions are anticipated.

Figure 2-10: Land Use



2.6 Economic Environment

This economic analysis focuses on business, employment, and means of transportation to work in the study corridor. The 2015-2019 ACS Five-Year employment data was collected per Census block group within the study corridor. The Census Bureau provides information about a person’s occupation (type of work) and employer type by Census tract data. Census tract-level data was used because the desired economic information was not available at the Census block group level. These employment data are the most reflective of conditions within the study corridor today. Forecasted population and employment to 2045 within the study corridor is based on the MWCOG *Round 9.1 Cooperative Forecasting* data. Travel to work characteristics were obtained from the ACS 2015-2019 5-Year Estimates

2.6.1 Existing Conditions

Business

According to Fairfax County’s Economic Development Authority (EDA), the Richmond Highway corridor has nearly four million square feet of retail development with over one million square feet of office space and nine hotels with more than 1,000 rooms. In addition, Fort Belvoir and its contractors occupy 8,700 acres with over 10 million square feet of office space on-post (Fairfax County EDA, 2018a). **Figure 2-11** shows the concentration of commercial space along Richmond Highway in the study corridor (Fairfax County EDA, 2004).

The study corridor is predominately an employment area, home to many government, academic, and private industry research facilities and offices. As shown in **Figure 2-11** and **Table 2-5**, several large businesses with over 1,000 employees are located along the study corridor. The table provides the name and the estimated number of employees per major business. Many of the businesses along the study corridor are related to military and healthcare professions. The study corridor’s largest employer is Fort Belvoir, which employs 30,000 military and civilian personnel (Fairfax County EDA, 2018b).

Table 2-5: Study Corridor Major Employers

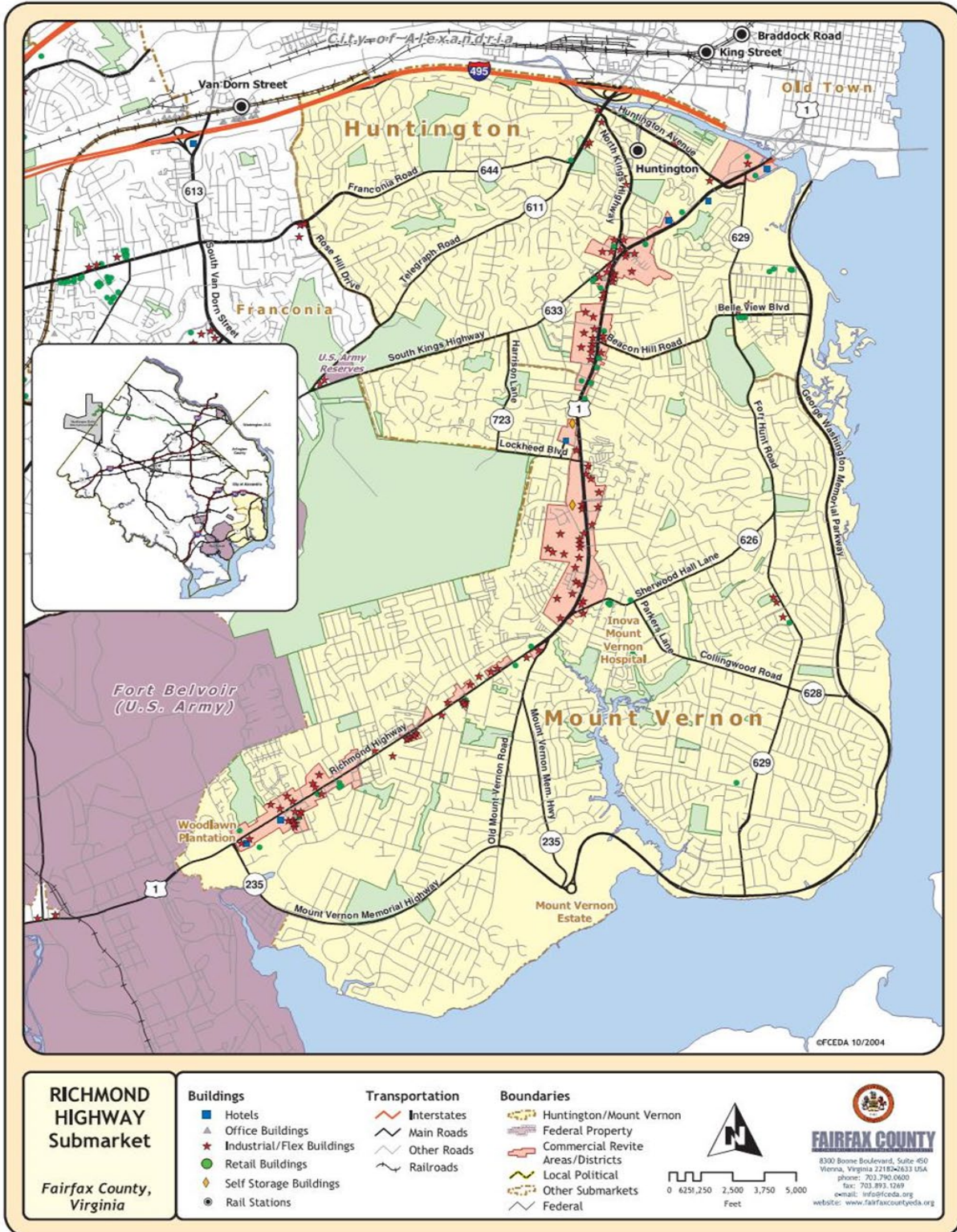
Employer	Location
Department of Defense (Fort Belvoir)	30,000 +
Defense Contract Audit Agency	4,600+
Defense Logistics Agencies	20,000+
Fairfax County Public Schools	1,000+
Inova Mount Vernon Hospital	1,000+

Source: https://www.fairfaxcountyeda.org/sites/default/files/publications/ABR_richmond_hwy_0_0.pdf
<https://www.fairfaxcountyeda.org/media-center/fact-sheets>
<https://www.fairfaxcountyeda.org/richmond-highway-business-area>

Existing Employment Characteristics

Seventy-four percent of residents aged 16 years and older within the study block groups are in the labor force. The study block groups have an unemployment rate of three percent. **Appendix C** presents employment and labor force information for the block groups encompassed by the study corridor.

Figure 2-11: Richmond Highway Business District



Appendix C also shows the types of employers that residents work for (i.e., private, government, self-employed, or unpaid family worker) by Census Tract. Sixty-one percent of the employed residents in the study corridor block groups are considered private for-profit workers, and ten percent of the working population is private not-for-profit workers. Six percent are self-employed workers, and 23 percent work for the local, state, or federal government.

The Census Bureau provides information about a person’s occupation (type of work) by Census Tract. As shown in **Appendix C**, the top three occupations in the study corridor Census Tracts are in the fields of management, business, science, and arts; the service industry; and sales and office work.

Future Employment Forecast

The *Round 9.1 Cooperative Forecasting: Employment Forecasts to 2045* (2018) predicts that the localities within the MWCOG would continue to be employment centers. Employment in the Metropolitan Washington Region is expected to grow by 35 percent, while employment in Fairfax County is expected to grow by 36 percent from 2015-2045 (**Table 2-6**). Employment growth in the TAZ overlapping the study corridor is expected to increase by 47 percent by 2045.

Table 2-6: Employment Growth Projections 2015 - 2045

Resource	2015	2025	2035	2045	Percent Change 2015 2045
Metropolitan Washington Region					
Employment	3,160,800	3,573,300	3,946,900	4,273,800	35%
Fairfax County					
Employment	654,100	745,400	820,400	889,900	36%
Study Traffic Analysis Zones					
Employment	52,327	60,099	68,244	77,047	47%

Source: MWCOG Round 9.1 Cooperative Forecast (2018)

Transportation to Work

The study corridor area suffers from substantial roadway congestion, and future growth is expected to create additional pressure on the transportation network. Existing bus routes provide commuter connections but must travel in general traffic lanes and are thus subject to the same congestion delays as single-occupancy vehicles.

According to US Census Bureau data, 39,921 people (75 percent of workers aged 16 years or over) within the study corridor block groups commute by car (ACS 2015-2019) (**Appendix C**). Approximately 8,670 residents in the labor force (16 percent) in the study block groups use public transportation for their commutes, which is 6 percent more than the proportion of Fairfax County residents who report using public transport (10 percent) and greater still than reported statewide (4 percent). A relatively high percentage of individuals rely on public transportation within the Richmond Highway corridor. Means of transportation to work for each Census block group in the study corridor is presented in **Appendix C**. Commuting residents in 21 of the 55 study block groups have a higher rate of public transportation use

than that of the entire study corridor block groups (16 percent) (highlighted in gold in **Appendix C**, Means of Transportation). Census block group 4205.03 BG 1 had the highest percentage of individuals relying on public transportation at 52 percent. Census block group 4219 BG 3 had the lowest rate of residents using public transportation as the principal means of travel to work (zero percent).

This densely urban and high-income area supports a relatively high number of households that do not own cars. Within the study corridor block groups, eight percent of households do not own a car, which is two percent higher than the rate in Virginia (six percent) and double that of Fairfax County (four percent). Another 36 percent of households have only one car (**Appendix C**).

2.6.2 Economic Impacts

Based on preliminary engineering, 42 total acquisition commercial property displacements would occur for permanent ROW acquisition. Minimal ROW and easement acquisitions would occur on 100 commercial parcels. All ROW acquisitions would comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 without discrimination, minimizing potential adverse effects. The potentially displaced businesses do not include any large employers, and every effort would be made to find comparable replacement properties in or near the study corridor. Additionally, the ROW impacts of the project may be reduced in advanced design phases. Therefore, the impact of the project would not be substantially adverse to socioeconomic resources.

The proposed improvements could increase access to businesses along the study corridor as well as improve commute times for the study corridor's residents and business deliveries. The anticipated increase in the use of Richmond Highway's public transportation system associated with the project could result in added benefits, such as better job accessibility (that could increase employment) and reduced travel times and congestion.

As discussed above, approximately eight percent of households in the study block groups do not own vehicles. Fewer cars per household could indicate the need for a strong transit service, and that a substantial portion of study corridor households could benefit from more efficient transit service as proposed to access jobs, school, and services.

Potential impacts to businesses during construction, like temporary detours, road closures, and loss of parking, would be minimized through careful planning during future phases of this study. Ongoing coordination with area businesses, particularly those located adjacent to proposed improvements or detour routes, would occur to prevent or minimize short-term disruptions.

3. REFERENCES

Council on Environmental Quality (CEQ). 1997. Environmental Justice Guidance Under the National Environmental Policy Act. Accessed at:

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/ej_guidance_nepa_ceq1297.pdf.

Fairfax County. 2013. *Fairfax County Comprehensive Plan: Mount Vernon Planning District, Amended October 2015*. Accessed at:

<http://www.fairfaxcounty.gov/dpz/comprehensiveplan/area4/mtvernon.pdf>.

Fairfax County. 2014. Countywide Bicycle Master Plan. Accessed at:

<https://www.fairfaxcounty.gov/transportation/bike/master-plan>.

Fairfax County. 2017. Fairfax County Comprehensive Plan. Accessed at:

<https://www.fairfaxcounty.gov/planning-zoning/fairfax-county-comprehensive-plan>.

Fairfax County. 2018. Fairfax County Comprehensive Plan Land Use Amended. Accessed at:

<https://www.fairfaxcounty.gov/planning/zoning/sites/planning/zoning/files/assets/compplan/policy/landuse.pdf>.

Fairfax County Department of Planning and Zoning. 2018. Embark Richmond Highway- Plan Amendment 2015- IV-MV1: ADOPTED Amendment No. 2017-10 & 2017P-02. Accessed at

<https://www.fairfaxcounty.gov/planning-zoning/embark-richmond-highway>

Fairfax County Economic Development Authority. 2004. Richmond Highway Fairfax County Submarket Map. https://www.fairfaxcountyeda.org/sites/default/files/pdf/map_richmondhwy.pdf

Fairfax County Economic Development Authority. 2017. Fairfax County, Virginia Workforce. Accessed at:

<https://www.fairfaxcountyeda.org/sites/default/files/pdf/workforce.pdf>.

Fairfax County Economic Development Authority. 2018a. Richmond Highway Business Area. Accessed at:

<https://www.fairfaxcountyeda.org/richmond-highway-business-area>.

Fairfax County Economic Development Authority. 2018b. Base Realignment and Closure Commission.

Accessed at: <https://www.fairfaxcountyeda.org/brac>.

Fairfax County, Department of Transportation (FCDOT). 2021c. *Richmond Highway Bus Rapid Transit Project Noise and Vibration Technical Report*.

Fairfax County Park Authority. 2018. Park Locator. Accessed at:

<https://www.fairfaxcounty.gov/parks/locator>.

Fast Facts Fort Belvoir, Virginia. 2018. Military Installations. Accessed at:

http://apps.militaryonesource.mil/MOS/f?p=MI:CONTENT:0:::::P4_INST_ID,P4_CONTENT_TITLE,P4_CONTENT_EKMT_ID,P4_CONTENT_DIRECTORY:4810,Fast%20Facts,30.90.30.30.60.0.0.0,1

Metropolitan Washington Council of Governments. 2010. Growth Trends to 2040: Cooperative Forecasting in the Washington Region: Round 8.0. Accessed at:

<https://www.mwcog.org/documents/2016/11/16/growth-trends-cooperative-forecasting-in-metropolitan-washington-cooperative-forecast-growth--development/>.

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

Metropolitan Washington Council of Governments (MWCOG). 2018. Round 9.1 Cooperative Forecasting to 2045 by Traffic Analysis Zone. Accessed at <https://www.mwcog.org/documents/2018/10/17/cooperative-forecasts-employment-population-and-household-forecasts-by-transportation-analysis-zone-cooperative-forecast-demographics-housing-population/>

Network News. 2011. Recalculating Medians and their Margin of Errors for the Aggregated ACS Data. Accessed at: http://www.dof.ca.gov/Forecasting/Demographics/Census_Data_Center_Network/documents/How_to_Recalculate_a_Median.pdf

Smart Growth America. 2018. What is Smart Growth? Accessed at: <https://smartgrowthamerica.org/our-vision/what-is-smart-growth/>

ULI Development Case Studies. 2008. The Villages at Belvoir- US Army Garrison Fort Belvoir. Accessed at <https://casestudies.uli.org/wpcontent/uploads/sites/98/2015/12/C038007.pdf>.

US Department of Commerce. 2020. Bureau of Census. 2015-2019 American Community Survey 5-Year Estimates. Accessed at: <https://data.census.gov/cedsci/>.

US Department of Health and Human Services. 2016. Computations for the 2016 Annual Update of the HHS Poverty Guidelines for the 48 Contiguous States and the District of Columbia. Accessed at: <https://aspe.hhs.gov/computations-2016-poverty-guidelines>.

US Department of Justice. 2016. Title VI of the Civil Rights Act of 1964. Accessed at: <https://www.justice.gov/crt/fcs/TitleVI-Overview>.

US Department of Transportation. 1987. Environmental Review Toolkit. Accessed at: https://www.environment.fhwa.dot.gov/legislation/nepa/guidance_preparing_env_documents.aspx.

US Department of Transportation 2012a. FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Accessed at: <https://www.fhwa.dot.gov/legsregs/directives/orders/664023a.pdf>

US Department of Transportation. 2012b. Federal Transit Administration FTA C 4703.1. Environmental Justice Policy Guidance for Federal Transit Administration Recipients. Accessed at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_EJ_Circular_7.14-12_FINAL.pdf.

US Environmental Protection Agency. 1994. Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Accessed at: <https://www.epa.gov/environmentaljustice/federal-actions-address-environmental-justice-minority-populations-and-low>.

US Environmental Protection Agency. 2016. Promising Practices for EJ Methodologies in NEPA Reviews. Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee.

Accessed at: https://www.fws.gov/environmental-justice/pdfs/nepa_promising_practices_document_2016.pdf

World Resources Institute. 2013. Social, Environmental and Economic Impacts of Bus Rapid Transit.

Accessed at: <https://wri.org/cities/research/publication/social-environmental-and-economic-impacts-bus-rapid-transit>.

Appendix A: Socioeconomic Forecasts

Population and Household Growth Projections 2015 - 2045

Resource	2015	2025	2035	2045	Change 2015 2045
Metropolitan Washington Region					
Population	5,390,600	5,976,400	6,497,000	6,9257,000	29%
Households	2,011,700	2,254,700	2,476,800	2,659,900	32%
Fairfax County					
Population	1,125,400	1,210,800	1,325,300	1,416,800	19%
Households	403,900	436,800	487,400	528,100	19%
Study Corridor Traffic Analysis Zones					
Population	100,812	112,689	136,850	149,519	48%
Households	37,098	41,718	51,894	57,118	54%

Source: Metropolitan Washington Council of Governments (MWCOC) Round 9.1 Cooperative Forecasting

Traffic Analysis Zones in the Study Corridor

Traffic Analysis Zones within the Study Corridor								
2036	2042	2044	2045	2046	2047	2049	2058	2059
2060	2061	2062	2063	2065	2069	2070	2072	2073
2074	2075	2076	2077	2078	2079	2080	2081	2082
2083	2084	2085	2086	2087	2089	2090	2111	2112

Metropolitan Washington Council of Governments (MWCOC) Round 9.1 Cooperative Forecasting

Appendix B EJ Populations, Limited English Proficiency, and Community Facilities

Department of Housing and Urban Development 2019 Low-Income Limits Survey for the Washington-Arlington-Alexandria, DC-VA-MD HUD Metro FMR Area¹

Persons in Family	State of Virginia	HUD Metro FMR Area
1	\$31,000	\$42,500
2	\$35,400	\$48,550
3	\$39,850	\$54,600
4	\$44,250	\$60,650
5	\$47,800	\$65,550
6	\$51,350	\$70,400
7	\$54,850	\$75,250
8	\$58,400	\$80,100

Source: Department of Housing and Urban Development, FY 2019 Income Limits Survey.

¹HUD very low income

Yellow = study low-income limit

Median Household Income

Geographic Area	Median Household Income (US Dollars)
Virginia	\$74,222
Fairfax County	\$124,831
4151 BG 1	\$182,283
4151 BG 2	\$98,571
4151 BG 3	\$139,539
4153 BG 1	\$125,028
4153 BG 2	\$119,674
4153 BG 3	\$95,375
4154.01 BG 1	\$62,198
4154.01 BG 2	\$67,028
4154.01 BG 3	\$38,453
4154.02 BG 2	\$203,333
4154.02 BG 3	\$100,804
4155 BG 1	\$178,839
4155 BG 3	\$164,750
4155 BG 4	\$19,205
4159 BG 1	\$235,972
4159 BG 2	\$181,012
4160 BG 1	\$122,143
4160 BG 2	\$63,494
4160 BG 3	\$178,681
4161 BG 1	\$157,614
4162 BG 1	\$120,313
4162 BG 2	\$75,614
4203 BG 4	\$143,359

Geographic Area	Median Household Income (US Dollars)
4204 BG 1	\$116,650
4205.01 BG 1	\$96,389
4205.02 BG1	\$103,068
4205.02 BG 2	\$86,699
4205.03 BG 1	\$97,500
4205.03 BG 2	\$115,150
4205.03 BG 3	\$73,993
4206 BG 1	\$110,714
4206 BG 2	\$79,063
4207 BG 2	\$168,056
4208 BG 3	\$140,909
4213 BG 2	\$129,861
4214 BG 1	\$85,820
4214 BG 2	\$121,136
4214 BG 3	\$59,326
4214 BG 4	\$32,384
4215 BG 1	\$92,596
4215 BG 2	\$49,614
4215 BG 3	\$27,611
4216 BG 1	\$58,750
4216 BG 2	\$38,242
4216 BG 3	\$64,227
4217.01 BG 1	\$75,393
4217.01 BG 2	\$77,759
4217.02 BG 1	\$109,375
4217.02 BG 2	\$104,260
4218 BG 1	\$87,315
4218 BG 2	\$64,348
4218 BG 3	\$93,480
4219 BG 1	\$63,750
4219 BG 2	\$66,287
4219 BG 3	\$79,886

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, B19013.

Orange = low-income population; green = highest MHI; red = lowest MHI

Language Spoken at Home by Ability to Speak English for the Population 5-Years of Age and Over

Geographic Area	Total Population	English Speaking Only		Speaks English "Very Well"		Spanish Speaks English Less than Very Well		Indo European Speaks English "Less than Very Well"		Asian Speaks English "Less than Very Well"		Other Languages Speaks English "Less than Very Well"		Total Speaks English "Less than Very Well"		Total Speaks English Not at all"	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Virginia	7,946,064	6,649,105	84%	825,314	10%	214,127	3%	63,807	1%	100,946	4%	32,940	0%*	378,880	5%	46,248	1%
Fairfax	1,071,858	55,776	60%	261,813	24%	58,964	6%	9,361	10%	45,894	1%	13,026	1%	126,493	12%	14,318	1%
Study Block Groups Total	93,367	55,776	60%	22,279	24%	9,361	10%	1,645	2%	1,097	1%	2,005	2%	12,115	13%	1,888	2%
4151 BG 1	1,298	1,235	95%	63	5%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
4151 BG 2	1,247	649	52%	377	30%	152	12%	0	0%	49	4%	0	0%	201	16%	12	1%
4151 BG 3	827	657	79%	163	20%	0	0%	0	0%	0	0%	0	0%	0	0%	7	1%
4153 BG 1	892	356	40%	356	40%	114	13%	22	2%	11	1%	0	0%	147	16%	33	4%
4153 BG 2	1,668	1,429	86%	150	9%	20	1%	0	0%	47	3%	0	0%	67	4%	0	0%
4153 BG 3	1,154	767	66%	266	23%	121	10%	0	0%	0	0%	0	0%	121	10%	0	0%
4154.01 BG 1	982	594	60%	284	29%	104	11%	0	0%	0	0%	0	0%	104	11%	0	0%
4154.01 BG 2	2,386	1,078	45%	537	23%	527	22%	115	5%	0	0%	0	0%	642	27%	129	5%
4154.01 BG 3	1,390	467	34%	417	30%	361	26%	0	0%	2	0%	38	3%	363	26%	105	8%
4154.02 BG 2	822	722	88%	81	10%	0	0%	0	0%	0	0%	0	0%	0	0%	19	2%
4154.02 BG 3	1,253	597	48%	452	36%	106	8%	0	0%	26	2%	45	4%	132	11%	0	0%
4155 BG1	1,728	1,589	92%	122	7%	0	0%	0	0%	0	0%	0	0%	12	1%	17	1%
4155 BG 3	1,901	1,500	79%	324	17%	68	4%	0	0%	0	0%	936	49%	68	4%	9	0%*
4155 BG 4	1,701	1,297	76%	142	8%	64	4%	100	6%	7	0%*	45	3%	171	10%	28	2%
4159 BG 1	873	714	82%	99	11%	31	4%	29	3%	0	0%	18	2%	60	7%	0	0%
4159 BG 2	2,234	1,767	79%	336	15%	59	3%	36	2%	9	0%*	17	1%	104	5%	10	0%
4160 BG 1	1,666	1,237	74%	288	17%	53	3%	0	0%	8	0%*	80	5%	61	4%	0	0%
4160 BG 2	2,822	1,306	46%	860	30%	417	15%	70	2%	73	3%	56	2%	560	20%	40	1%
4160 BG 3	1,043	926	89%	64	6%	47	5%	0	0%	0	0%	0	0%	47	5%	6	1%
4161 BG 1	2,494	2,227	89%	189	8%	32	1%	11	0%	17	1%	0	0%	60	2%	0	0%
4162 BG 1	1,575	1,285	82%	240	15%	30	2%	9	1%	11	1%	0	0%	50	3%	0	0%
4162 BG 2	2,819	2,630	93%	115	4%	0	0%	68	2%	6	0%*	0	0%	74	3%	0	0%
4203 BG 4	961	671	70%	199	21%	91	9%	0	0%	0	0%	0	0%	91	9%	0	0%
4204 BG 1	1,666	1,186	71%	341	20%	68	4%	34	2%	18	1%	13	1%	120	7%	0	0%
4205.01 BG 1	1,939	1,453	75%	317	16%	18	1%	106	5%	9	0%*	0	0%	133	7%	36	2%
4205.02 BG1	989	672	68%	224	23%	44	4%	23	2%	19	2%	7	1%	86	9%	0	0%
4205.02 BG 2	663	459	69%	175	26%	23	3%	6	1%	0	0%	0	0%	29	4%	0	0%
4205.03 BG 1	639	485	76%	122	19%	18	3%	0	0%	14	2%	0	0%	32	5%	0	0%

Geographic Area	Total Population	English Speaking Only		Speaks English "Very Well"		Spanish Speaks English Less than Very Well		Indo European Speaks English "Less than Very Well"		Asian Speaks English "Less than Very Well"		Other Languages Speaks English "Less than Very Well"		Total Speaks English "Less than Very Well"		Total Speaks English Not at all"	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
4205.03 BG 2	1,739	1,453	84%	101	6%	16	1%	0	0%	100	6%	0	0%	116	7%	69	4%
4205.03 BG 3	804	375	47%	251	31%	50	6%	90	11%	0	0%	38	5%	140	17%	0	0%
4206 BG 1	1,565	835	53%	378	24%	273	17%	12	1%	0	0%	19	1%	285	18%	48	3%
4206 BG 2	3,027	1,770	58%	817	27%	256	8%	0	0%	53	2%	83	3%	309	10%	34	1%
4207 BG 2	2,026	1,303	64%	621	31%	14	1%	7	0%*	65	3%	0	0%	86	4%	0	0%
4208 BG 3	1,727	1,145	66%	342	20%	220	13%	0	0%	0	0%	0	0%	220	13%	0	0%
4213 BG 2	1,325	1,000	75%	305	23%	7	1%	0	0%	13	1%	0	0%	20	2%	0	0%
4214 BG 1	3,704	1,169	32%	1,407	38%	361	10%	134	4%	28	1%	232	6%	523	14%	373	10%
4214 BG 2	932	786	84%	117	13%	0	0%	0	0%	29	3%	0	0%	29	3%	0	0%
4214 BG 3	1,635	592	36%	572	35%	370	23%	12	1%	13	1%	0	0%	395	24%	76	5%
4214 BG 4	1,534	139	9%	742	48%	594	39%	0	0%	0	0%	59	4%	594	39%	0	0%
4215 BG 1	2,371	1,328	56%	677	29%	107	5%	163	7%	66	3%	0	0%	336	14%	11	0%*
4215 BG 2	3,022	498	16%	1,053	35%	1,188	39%	32	1%	0	0%	103	3%	1,220	40%	148	5%
4215 BG 3	1,593	369	23%	753	47%	340	21%	44	3%	12	1%	0	0%	396	25%	75	5%
4216 BG 1	2,560	1,045	41%	946	37%	505	20%	64	3%	0	0%	0	0%	569	22%	0	0%
4216 BG 2	2,715	1,187	44%	840	31%	335	12%	109	4%	40	1%	57	2%	484	18%	147	5%
4216 BG 3	1,056	302	29%	445	42%	213	20%	0	0%	50	5%	0	0%	263	25%	46	4%
4217.01 BG 1	3,060	1,143	37%	993	32%	501	16%	109	4%	0	0%	59	2%	610	20%	255	8%
4217.01 BG 2	1,437	428	30%	689	48%	222	15%	44	3%	28	2%	0	0%	294	20%	0	0%
4217.02 BG 1	2,394	1,093	46%	740	31%	493	21%	20	1%	0	0%	0	0%	513	21%	48	2%
4217.02 BG 2	2,515	1,668	66%	425	17%	164	7%	77	3%	43	2%	29	1%	284	11%	98	4%
4218 BG 1	1,920	1,259	66%	298	16%	9	0%*	68	4%	221	12%	0	0%	298	16%	0	0%
4218 BG 2	3,042	1,964	65%	526	17%	478	16%	31	1%	0	0%	34	1%	509	17%	9	0%*
4218 BG 3	1,428	728	51%	609	43%	44	3%	0	0%	10	1%	37	3%	54	4%	0	0%
4219 BG 1	1,141	1,041	91%	89	8%	11	1%	0	0%	0	0%	0	0%	11	1%	0	0%
4219 BG 2	1,241	1,066	86%	153	12%	22	2%	0	0%	0	0%	0	0%	22	2%	0	0%
4219 BG 3	222	135	61%	87	39%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, B16004

*= less than 1%

Community Facilities

FACILITY NAME	ADDRESS
Public Parks and Outdoor Recreation	
Huntington Park	Liberty Dr. and Arlington Terrace, Alexandria, VA 22307
Old Mount Vernon School Site	8333 Richmond Hwy, Alexandria, VA 22309
Heritage Hill Park	5744 Telegraph Rd., Alexandria, VA 22303
Woodlawn Park	4800 Manor Dr., Alexandria, VA 22309
Mount Vernon Manor Park	8600 McNair Dr., Alexandria, VA 22307
Groveton Heights Park	3429 Clayborne Ave., Alexandria, VA 22306
Dogue Creek Stream Valley Park.	Franconia Rd/Potomac Shore Line, Alexandria, VA 22309
Jefferson Manor Park	2909 Farmington Dr., Alexandria, VA 22303
Little Hunting Creek Park	Richmond Hwy/George Washington Mem. Pkwy, Alexandria, VA 22308
Lenclair Park	6625 Lenclair St., Groveton, VA 22306
Mount Zephyr Park	8601 Richmond Ave., Alexandria, VA 22309
Huntley Meadows Park	3701 Lockheed Blvd, Alexandria, VA 22306
George Washington Park	8426 Old Mt. Vernon Rd., Alexandria, VA 22309
Hybla Valley Park	3431 Lockheed Blvd., Alexandria, VA 22306
Martin Luther King Jr. Park	8115 Fordson Rd., Alexandria, VA 22306
Paul Spring Stream Valley Park	Beacon Hill Rd/Collingwood Rd, Alexandria, VA 22307
Farrington Park	2213 Farrington Ave., Alexandria, VA 22303
Belle Haven Park	6036 Grove Dr, Alexandria, VA 23607
Vernon Heights Park	8225 Central Ave., Alexandria, VA 22309
Pole Road Park	5701 Pole Road, Alexandria, VA 22309
Creighton Square Park	3510 Lockheed Boulevard, Alexandria, VA 22306
North Hill Park	East side of Dart Rd and Richmond Highway
Mount Eagle Park	5919 North Kings Hwy., Alexandria, VA 22303
Privately Owned Parks	
Mount Vernon Golf Course	5111 Old Mill Rd, Alexandria, VA 22309
Woodlawn Plantation	9000 Richmond Hwy, Alexandria, VA 22309
George Washington's Distillery	5513 Mount Vernon Memorial Hwy, Alexandria, VA 22309
Community Centers	
Gum Springs Community Center	8100 Fordson Rd, Alexandria, VA 22306
Huntington Community Center	5751 Liberty Dr., Alexandria, VA 22306
South County Senior Center	8350 Richmond Hwy, Alexandria, VA 223608
Teen Center at Original Mount Vernon High School	8333 Richmond Hwy, Alexandria, VA 22309
George Washington Recenter	8426 Old Mount Vernon Rd, Alexandria, VA 22309
Sacramento Neighborhood Center	8792 E Sacramento Dr. Alexandria, VA 22309
Mount Vernon Country Club	5111 Old Mill Rd, Alexandria, Virginia 22309-3999

FACILITY NAME	ADDRESS
Fort Belvoir Community Center	10300 Taylor Rd, Fort Belvoir, VA 22060
South County Teen Center	8350 Richmond Hwy, Alexandria, VA 22309
Fire Stations	
Fire Station 9- Mount Vernon	2601 Sherwood Hall Lane, Alexandria, VA 22306
Fire Station 11 - Penn Daw	6624 Hulvey Terrace, Alexandria, VA 22306
Fire Station 24 - Woodlawn	8701 Lukens Lane, Alexandria, VA 22309
Fire Station 63 - Fort Belvoir HQ	6100 Abbott Rd, Fort Belvoir, VA 22060
Government Centers	
Mount Vernon Government Center	2511 Parkers Ln, Alexandria, VA 22306
South County Center	8350 Richmond Hwy, Alexandria, VA 22309
Hospitals	
Fort Belvoir Community Hospital	9300 DeWitt Loop, Fort Belvoir, VA 22060
Inova Mount Vernon Hospital	2501 Parkers Ln, Alexandria, VA 22306
Human Services Office	
South County Center	8350 Richmond Hwy, Alexandria, VA 22309
Library	
Sherwood Regional Library	2501 Sherwood Hall Ln, Alexandria, VA 22306
Police Station	
Mt. Vernon Station	2511 Parkers Ln, Alexandria, VA, 22306
Post Office	
Community PO	7676 Richmond Hwy, Alexandria, VA 22306
Jefferson Manor PO	5834 C N. Kings Hwy, Alexandria 22303
Engelside PO	8588 Richmond Hwy, Alexandria 22309
North Post PO	9001 Gunston Rd, Fort Belvoir, 22060
Schools	
Quander Rd School (Special Education)	6400 Quander Rd, Alexandria, VA 22307
Bucknell Elementary School	6925 University Dr, Alexandria, VA 22307
Hybla Valley Elementary School	3415 Lockheed Blvd, Alexandria, VA 22306
Fairfield Elementary School Site (new under design)	Location Unknown YTD
Woodlawn Elementary School	8505 Highland Ln, Alexandria, VA 22309
Riverside Elementary School	8410 Old My Vernon Rd, Alexandria, VA 22309
Bryant High School (alternative)	2709 Popkins Ln, Alexandria, VA 22306
Mount Eagle Elementary School	6116 N. Kings Hwy, Alexandria, VA 22303
Whitman Middle School	2500 Parkers Ln, Alexandria, VA 22306
Aquinas Montessori School	8334 Mount Vernon Hwy, Alexandria, VA 22309
Alternative Paths Training School	5632 Mount Vernon Memorial Hwy, Alexandria, VA 22309
Quander Road School	6400 Quander Rd, Alexandria, VA 22307
Browne Academy	5917 Telegraph Rd, Alexandria, VA 22310
Fordson Road KinderCare	7901 Fordson Rd, Alexandria, VA 22306
St. Louis Catholic School	2901 Popkins Ln, Alexandria, VA 22306

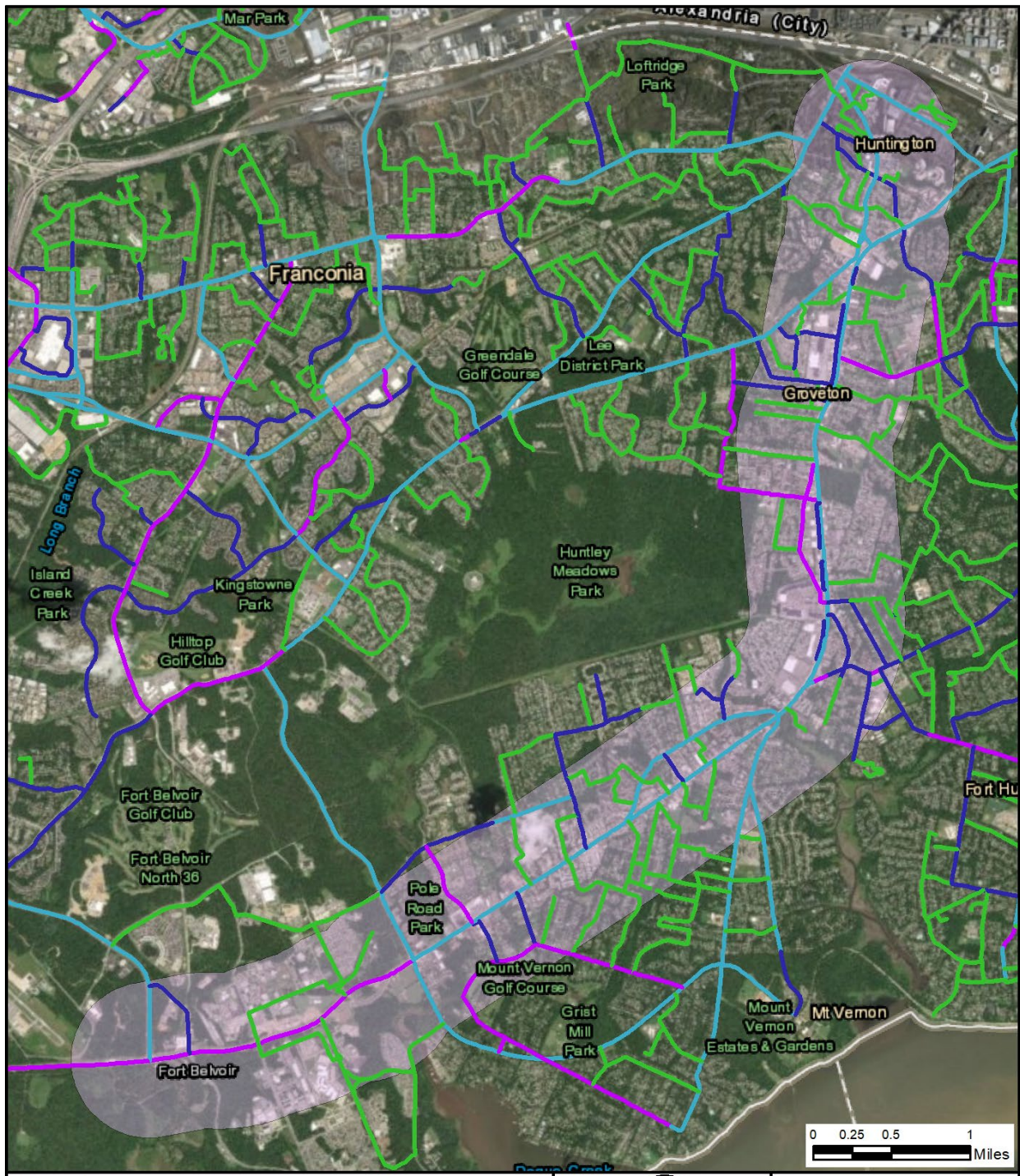
FACILITY NAME	ADDRESS
Buckman Road KinderCare	4287 Buckman Rd, Alexandria, VA 22309
West Potomac High School	6500 Quander Rd, Alexandria, VA 22307
Metro Station	
Huntington Metro Station	2501 Huntington Ave, Alexandria, VA 22303
Place of Worship	
Ship of Zion Baptist Church	8733 Cooper Rd, Alexandria, VA, 22309-3906
Nazarene Church (Iglesia del Nazareno)	3220 Hollyhill Rd, Alexandria, VA 22306
Saint John Baptist Church	7730 Fordson Road, Alexandria, VA 22306
Engleside Church	8428 Highland Ln, Alexandria, VA 22309
Bethlehem Baptist Church	7836 Fordson Rd, Alexandria, VA 22306
Accotink United Methodist Church	9041 Backlick Rd, Fort Belvoir, VA 22060
Primera Iglesia Bautista de Groveton	6511 Richmond Hwy, Alexandria, VA 22306
Wesley Church	8412 Richmond Avenue Alexandria, VA
Bethlehem Baptist Church	7836 Fordson Rd, Alexandria, VA 22306
Groveton Baptist Church	6511 Richmond Hwy, Alexandria, VA 22306
Woodlawn Baptist Church	9001 Richmond Hwy, Alexandria, Virginia 22309
Emmanuel Church	3801 Buckman Road, Alexandria, VA 22309
Cameron United Methodist Church	3130 Franconia Rd, Alexandria, VA 22310
Saint Louis Catholic Church	2907 Popkins Ln, Alexandria, VA 22306
Good News Baptist Church	5940 Telegraph Rd, Alexandria, VA 22310
Cameron Methodist Church	3130 Franconia Rd, Alexandria, VA 22310
Bethany Lutheran Church	2501 Beacon Hill Rd, Alexandria, VA 22306
Calvary Presbyterian Church	6120 N. Kings Hwy, Alexandria, VA 22303
All Saints Chapel	Fort Belvoir, VA 22060
Alexandria Miracle International Church	5632 Mount Vernon Memorial Hwy, Alexandria, VA 22309
Spirit of Faith Ministries	8431 Richmond Hwy, Alexandria, VA 22309
Favor House Ministries	8400 Radford Ave # 100, Alexandria, VA 22309
Harvest Assembly Baptist Church	8008 Fordson Rd, Alexandria, VA 22306
Bethany Lutheran Church and Preschool	2501 Beacon Hill Rd, Alexandria, VA 22306
Mt. Calvary Baptist Church	2221 Emmett Dr, Alexandria VA, 23607
Rising Hope United Methodist Mission Church	8220 Russell Rd, Alexandria, VA 22309
Seventh Day Adventist Church	2812 Franklin St, Alexandria, VA 22306
Bethel World Outreach Church	8305 Richmond Hwy # 2A, Alexandria, VA 22309
Cemeteries	
Accotink United Methodist Church Cemetery	9043 Backlick Rd, Fort Belvoir, VA 22060
Mount Comfort Cemetery	6600 S Kings Hwy, Alexandria, VA 22306
Woodlawn Baptist Church Cemetery	9001 Richmond Hwy, Fort Belvoir, Virginia, 22309
Collard - Darrell Family Cemetery	3212 Arundel Avenue, Fairfax County, Virginia, 22306



FACILITY NAME	ADDRESS
Pullman - Struder Family Cemetery	Telegraph Road near Sharon Chapel Rd plot next to 5918 Telegraph Road

Source: Fairfax County. 2018. Park Authority.

http://www.fcpaweb.org/cgi-bin/db.cgi?db=parksdb&uid=default&keyword=&CITY=* &ZIPCODE=&ma=0&view_records=SEARCH&nh=23

Bike Routes within a Half-Mile of the Study Corridor



<p>Legend</p> <p>Bicycle Routes</p> <ul style="list-style-type: none"> — Somewhat Comfortable — Less Comfortable — Most Comfortable 	<ul style="list-style-type: none"> Use Caution Project Corridor 	 	<p>Richmond Highway Bus Rapid Transit Project</p> <p>Bike Routes within a Half Mile of the Study Corridor</p>
--	---	---	--

Appendix C: Economic Environment

Employment Status (2019)

Geographic Area	Number of Residents in Labor Force	Percent of Population Aged 16 or Older in Labor Force	Percent Unemployed
Virginia	4,477,253	66	3
Fairfax County	649,977	72	3
Study Block Groups Total	56,437	74	3

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, B23025

Employer Type (2019)

Geographic Area	Percent Private For Profit Wage and Salary Workers	Percent Government Workers	Percent Self Employed Not Incorporated Business Workers and Unpaid Family Workers	Percent Private Not for Profit Wage and Salary Workers
Virginia	67	20	5	8
Fairfax County	64	21	6	9
Study Census Tracts Total	61	23	6	10

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, S2408

Percent Workers by Occupations

Geographic Area	Percent of Employed Population 16 yrs+ who Work in Management, Business, Science, and Arts Occupations	Percent of Employed Population 16 yrs+ who Work in Service Occupations	Percent of Employed Population 16 yrs+ who Work in Sales and Office Occupations	Percent of Employed Population 16 yrs+ who Work in Natural Resources, Construction and Maintenance Occupations	Percent of Employed Population 16 yrs+ who Work in Production, Transportation, and Material Moving Occupations
Virginia	44	16	20	8	11
Fairfax County	58	15	17	5	5
Study Census Tracts Total	45	22	18	10	7

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, DP03: Selected Economic Characteristics

Means of Transportation to Work

Geographic Area	Workers 16 yrs and Older	Automobile Drove (Alone or Carpooled)		Taxi		Public Transportation		Walked		Other Means of Transportation Including Bike, Motorcycle		Worked from Home (No Travel Needed)	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
		Virginia	4,197,562	3,614,443	86	10,020	0*	184,534	4	102,121	2	65,352	2
Fairfax County	613,920	491,183	80	2,367	0*	59,130	10	11,502	2	8,907	1	40,831	7
Study Block Groups Total	53,268	39,921	75	307	0*	8,670	16	1,091	2	722	1	2,557	5
4151 BG 1	637	543	85	11	2	10	2	0	0	7	1	66	10
4151 BG 2	700	611	87	0	0	50	7	4	0*	0	0	35	5
4151 BG 3	497	401	81	0	0	66	13	25	5	5	1	0	0
4153 BG 1	562	444	79	0	0	84	15	4	1	14	2	16	3
4153 BG 2	1,003	803	80	25	2	56	6	13	1	35	3	71	7
4153 BG 3	751	569	76	0	0	114	15	12	2	0	0	56	7
4154.01 BG 1	690	521	76	0	0	126	18	0	0	17	2	26	4
4154.01 BG 2	1,297	976	75	0	0	291	22	0	0	29	2	1	0*
4154.01 BG 3	750	369	49	0	0	291	39	57	8	0	0	33	4
4154.02 BG 2	1,078	371	34	0	0	22	5	0	0	0	0	30	7
4154.02 BG 3	1,602	642	40	0	0	76	10	0	0	0	0	8	1
4155 BG 1	1,009	742	74	0	0	71	7	12	1	60	6	124	12
4155 BG 3	940	763	81	0	0	53	6	0	0	47	5	77	8
4155 BG 4	485	283	58	0	0	11	2	127	26	64	13	0	0
4159 BG 1	447	400	89	0	0	39	9	0	0	0	0	8	2
4159 BG 2	1,291	1,063	82	0	0	52	4	12	1	0	0	164	13
4160 BG 1	1,078	937	87	0	0	102	9	0	0	10	1	29	3
4160 BG 2	1,602	1,303	81	0	0	168	10	51	3	32	2	48	3
4160 BG 3	635	485	76	0	0	124	20	19	3	7	1	0	0
4161 BG 1	1,264	1,082	86	0	0	74	6	13	1	6	0*	89	7
4162 BG 1	764	624	82	0	0	62	8	43	6	8	1	27	4
4162 BG 2	1,200	1,024	85	0	0	46	4	56	5	35	3	39	3
4203 BG 4	632	336	53	0	0	152	24	0	0	0	0	144	23
4204 BG 1	1,352	710	53	0	0	537	40	0	0	25	2	80	6
4205.01 BG 1	977	630	64	0	0	270	28	12	1	0	0	65	7
4205.02 BG1	745	481	65	7	1	222	30	11	1	19	3	5	1
4205.02 BG 2	580	364	63	0	0	150	26	38	7	0	0	28	5
4205.03 BG 1	422	186	44	0	0	221	52	0	0	0	0	15	4
4205.03 BG 2	1,286	786	61	0	0	421	33	18	1	0	0	61	5

Geographic Area	Workers 16 yrs and Older	Automobile Drove (Alone or Carpooled)		Taxi		Public Transportation		Walked		Other Means of Transportation Including Bike, Motorcycle		Worked from Home (No Travel Needed)	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
		4205.03 BG 3	466	280	60	0	0	186	40	0	0	0	0
4206 BG 1	1,244	708	57	0	0	443	36	0	0	7	1	86	7
4206 BG 2	1,948	1,212	62	37	2	536	28	40	2	52	3	71	4
4207 BG 2	1,165	898	77	23	2	117	10	0	0	15	1	112	10
4208 BG 3	1,118	887	79	0	0	160	14	0	0	0	0	71	6
4213 BG 2	734	561	76	0	0	122	17	7	1	0	0	44	6
4214 BG 1	2,179	1,680	77	0	0	262	12	126	6	0	0	111	5
4214 BG 2	597	440	74	0	0	60	10	0	0	14	2	83	14
4214 BG 3	1,047	679	65	0	0	299	29	34	3	35	3	0	0
4214 BG 4	789	508	64	0	0	207	26	58	7	16	2	0	0
4215 BG 1	1,305	1,039	80	77	6	119	9	0	0	0	0	70	5
4215 BG 2	1,305	1,207	92	16	1	39	3	43	3	0	0	0	0
4215 BG 3	918	763	83	0	0	143	16	0	0	12	1	0	0
4216 BG 1	1,407	1,238	88	20	1	128	9	0	0	0	0	21	1
4216 BG 2	1,372	748	55	0	0	366	27	44	3	0	0	214	16
4216 BG 3	675	461	68	16	2	198	29	0	0	0	0	0	0
4217.01 BG 1	1,486	1,200	81	37	2	194	13	47	3	0	0	8	1
4217.01 BG 2	849	738	87	19	2	43	5	42	5	0	0	7	1
4217.02 BG 1	1,120	748	67	0	0	346	31	0	0	12	1	14	1
4217.02 BG 2	1,471	992	67	0	0	248	17	15	1	47	3	169	11
4218 BG 1	1,315	1,132	86	0	0	109	8	25	2	0	0	49	4
4218 BG 2	1,724	1,479	86	19	1	226	13	0	0	0	0	0	0
4218 BG 3	890	728	82	0	0	90	10	0	0	34	4	38	4
4219 BG 1	414	315	76	0	0	40	10	9	2	37	9	13	3
4219 BG 2	814	672	83	0	0	28	3	62	8	21	3	31	4
4219 BG 3	171	159	93	0	0	0	0	12	7	0	0	0	0

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, B08301

*= less than 1%

Gold shaded Census block groups have a higher rate of public transportation use than that of the entire study corridor block groups (16 percent)

Number of Cars Per Household

Geography	Total Number of Homes with Vehicle Available	Estimated Number of Homes with No Vehicle Available	Estimated Number of Homes with 1 Vehicle Available	Estimated Number of Homes with 2 Vehicles Available	Estimated Number of Homes with 3 Vehicles Available	Estimated Number of Homes with 4 Vehicles Available	Estimated Number of Homes with 5 or More Vehicles Available
Virginia	2,958,852	192,193	948,564	1,199,987	534,040	192,664	83,597
Fairfax County	379,778	16,723	117,393	172,152	61,447	20,721	8,065
Study Block Groups Total	31,595	2,686	12,401	13,152	4,099	1,320	623
4151 BG 1	474	10	75	85	120	22	22
4151 BG 2	442	0	132	132	121	3	14
4151 BG 3	345	0	107	107	44	0	0
4153 BG 1	269	0	70	70	53	21	35
4153 BG 2	514	146	105	251	117	37	18
4153 BG 3	485	45	204	249	49	9	0
4154.01 BG 1	433	0	267	267	85	15	0
4154.01 BG 2	853	55	491	546	11	27	23
4154.01 BG 3	493	114	323	437	0	0	0
4154.02 BG 2	308	0	64	64	63	18	10
4154.02 BG 3	433	22	112	134	136	0	45
4155 BG 1	747	18	261	279	133	57	16
4155 BG 3	637	78	210	288	178	22	0
4155 BG 4	212	247	71	318	39	0	22
4159 BG 1	301	0	42	42	72	32	0
4159 BG 2	845	26	156	182	149	28	40
4160 BG 1	512	28	150	178	75	47	59
4160 BG 2	964	83	418	501	114	64	5
4160 BG 3	291	12	19	31	86	75	16
4161 BG 1	884	43	168	211	138	92	26
4162 BG 1	448	19	48	67	85	13	0
4162 BG 2	807	16	142	158	75	0	0
4203 BG 4	342	35	92	127	0	9	22
4204 BG 1	953	58	567	625	43	0	0
4205.01 BG 1	1,023	93	507	600	53	27	0
4205.02 BG1	489	26	266	292	40	7	0

Geography	Total Number of Homes with Vehicle Available	Estimated Number of Homes with No Vehicle Available	Estimated Number of Homes with 1 Vehicle Available	Estimated Number of Homes with 2 Vehicles Available	Estimated Number of Homes with 3 Vehicles Available	Estimated Number of Homes with 4 Vehicles Available	Estimated Number of Homes with 5 or More Vehicles Available
4205.02 BG 2	387	26	267	293	5	0	0
4205.03 BG 1	303	33	199	232	22	0	10
4205.03 BG 2	743	20	410	430	72	44	4
4205.03 BG 3	315	42	193	235	8	0	0
4206 BG 1	632	10	313	323	39	13	7
4206 BG 2	1,014	226	443	669	122	15	10
4207 BG 2	686	22	174	196	148	68	0
4208 BG 3	544	10	131	141	139	55	19
4213 BG 2	560	0	251	251	87	45	0
4214 BG 1	1,151	110	566	676	20	50	1
4214 BG 2	476	0	188	188	46	0	0
4214 BG 3	563	33	299	332	71	18	0
4214 BG 4	439	66	374	440	65	0	0
4215 BG 1	848	11	334	345	60	0	39
4215 BG 2	775	76	237	313	159	0	0
4215 BG 3	345	183	183	366	17	45	0
4216 BG 1	791	69	431	500	154	0	0
4216 BG 2	810	162	343	505	126	0	0
4216 BG 3	365	59	225	284	32	12	0
4217.01 BG 1	822	92	432	524	38	45	0
4217.01 BG 2	485	9	158	167	29	33	0
4217.02 BG 1	505	12	119	131	58	124	24
4217.02 BG 2	679	0	188	188	101	80	31
4218 BG 1	736	30	223	253	112	0	0
4218 BG 2	848	152	281	433	85	12	63
4218 BG 3	556	30	202	232	113	36	42
4219 BG 1	309	9	46	55	64	0	0
4219 BG 2	242	15	6	21	28	0	0
4219 BG 3	162	5	118	123	0	0	0

Source: US Census Bureau 2015-2019 American Community Survey 5-Year Estimates, B25044