HRCS SEIS
Hampton Roads Crossing Study SEIS

Socioeconomic and Land Use Technical Report

Prepared in Support of the Supplemental Environmental Impact Statement

VDOT
Virginia Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

July 2016

SOCIOECONOMIC AND LAND USE TECHNICAL REPORT

HRCS SEIS

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Table of Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

ACS	American Community Survey
BRT	Bus Rapid Transit
CEQ	Council on Environmental Quality
Chesapeake	City of Chesapeake
CIDMMA	Craney Island Dredged Material Management Area
DoD	US Department of Defense
EJ	Environmental Justice
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
Hampton	City of Hampton
HHS	Department of Health and Human Services
HRBT	Hampton Roads Bridge-Tunnel
HRCS	Hampton Roads Crossing Study
HRT	Hampton Roads Transit
HRTPO	Hampton Roads Transportation Planning Organization
IC	Intermodal Connector
LEP	Limited English Proficiency
MMMBT	Monitor Merrimac Memorial Bridge-Tunnel
NAVSTA Norfolk	Naval Station Norfolk
NEPA	National Environmental Policy Act
Newport News	City of Newport News
NIT	Norfolk International Terminals
Norfolk	City of Norfolk
NAICS	North American Industry Classification System
NSA	Naval Support Activity
OIS	Operationally Independent Sections
Portsmouth	City of Portsmouth
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
SHRT	South Hampton Roads Regional Trail
STRAHNET	Strategic Highway Network
Suffolk	City of Suffolk
TAZ	Traffic Analysis Zones

USDOT	US Department of Transportation
VDOT	Virginia Department of Transportation
VIG	Virginia International Gateway

1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA) as the lead federal agency, is preparing a Supplemental Environmental Impact Statement (SEIS) for the Hampton Roads Crossing Study (HRCS). The Study is located in the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Suffolk, Virginia. The SEIS re-evaluates the findings of the 2001 HRCS Final Environmental Impact Statement (FEIS) and Record of Decision (ROD). The three alternatives retained for analysis in the 2001 FEIS, as well as input received from the public during initial scoping for the SEIS, were used to establish the Study Area Corridors shown in **Figure 1**. The purpose and need of the SEIS is summarized below.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, FHWA is preparing an SEIS because of the time that has lapsed since the 2001 FEIS and new information indicating significant environmental impacts not previously considered. The SEIS, prepared in accordance with the implementing regulations of NEPA (23 CFR §771.130), is intended to aid in ensuring sound decision-making moving forward by providing a comparative understanding of the potential effects of the various options.

The purpose of this Technical Report is to identify the existing socioeconomic resources and land use characteristics in the Study Area Corridors and assess the potential impacts of the evaluated alternatives to these resources. Information in this report, described below, will support discussions presented in the SEIS. Section 1 of this report describes the preliminary alternatives for which potential impacts will be evaluated and provides an overview of the methodology used. This is followed by describing the existing conditions of socioeconomic resources (including Environmental Justice populations) and land use. Each resource evaluated is described in its own subsection, including the methodology used to identify resources and assess impacts, a description of the resources within the Study Area Corridors, and the potential environmental consequences of the alternatives on the given resource. If applicable, mitigation measures are presented.

1.1.1 Purpose and Need

The purpose of the HRCS SEIS is to relieve congestion at the I-64 Hampton Roads Bridge-Tunnel (HRBT) in a manner that improves accessibility, transit, emergency evacuation, and military and goods movement along the primary transportation corridors in the Hampton Roads region, including the I-64, I-664, I-564, and VA 164 corridors. The HRCS will address the following needs (in the order of presentation in Chapter 1 of the Draft SEIS):

- Accommodate travel demand – capacity is inadequate on the Study Area Corridors, contributing to congestion at the HRBT;
- Improve transit access – the lack of transit access across the Hampton Roads waterway;
- Increase regional accessibility – limited number of water crossings and inadequate highway capacity and severe congestion decrease accessibility;
- Address geometric deficiencies – insufficient vertical and horizontal clearance at the HRBT contribute to congestion;
- Enhance emergency evacuation capability – increase capacity for emergency evacuation, particularly at the HRBT;

Figure 1: HRCS Study Area Corridors

- Improve strategic military connectivity – congestion impedes military movement missions; and,
- Increase access to port facilities – inadequate access to interstate highway travel in the Study Area Corridors impacts regional commerce.

1.1.2 Alternatives

Five alternatives, including the No-Build Alternative, are under consideration for the Draft SEIS and are assessed in this Technical Report. The proposed limits of the four Build Alternatives are shown on **Figure 2**. Each Technical Report and Memorandum prepared in support of the Draft SEIS assesses existing conditions and environmental impacts along the Study Area Corridors (**Figure 1**) for each alternative. Each alternative is comprised of various roadway alignments, used to describe the alternatives and proposed improvements, shown on **Figure 3**.

The No-Build Alternative

This alternative includes continued routine maintenance and repairs of existing transportation infrastructure within the Study Area Corridors, but there would be no major improvements.

Alternative A

Alternative A begins at the I-64/I-664 interchange in Hampton and creates a consistent six-lane facility by widening I-64 to the I-564 interchange in Norfolk. A parallel bridge-tunnel would be constructed west of the existing I-64 HRBT. Based on input received during previous studies, VDOT and FHWA have agreed that improvements proposed in the HRCS SEIS to the I-64 corridor would be largely confined to existing right-of-way. To meet this commitment, Alternative A considers a six-lane facility. Alternative A lane configurations are summarized in **Table 1**.

Table 1: Alternative A Lane Configurations

Roadway Alignments	Existing Lanes	Proposed Lanes
I-64 (Hampton)	4-6	6
I-64 (HRBT and Norfolk)	4	6

Alternative B

Alternative B includes all of the improvements included under Alternative A, and the existing I-564 corridor that extends from its intersection with I-64 west towards the Elizabeth River. I-564 would be extended to connect to a new bridge-tunnel across the Elizabeth River (I-564 Connector). A new roadway (VA 164 Connector) would extend south from the I-564 Connector, along the east side of Craney Island, and connect to existing VA 164. VA 164 would be widened from this intersection west to I-664. Alternative B lane configurations are summarized in **Table 2**.

Figure 2: Build Alternatives

Figure 3: Roadway Alignments

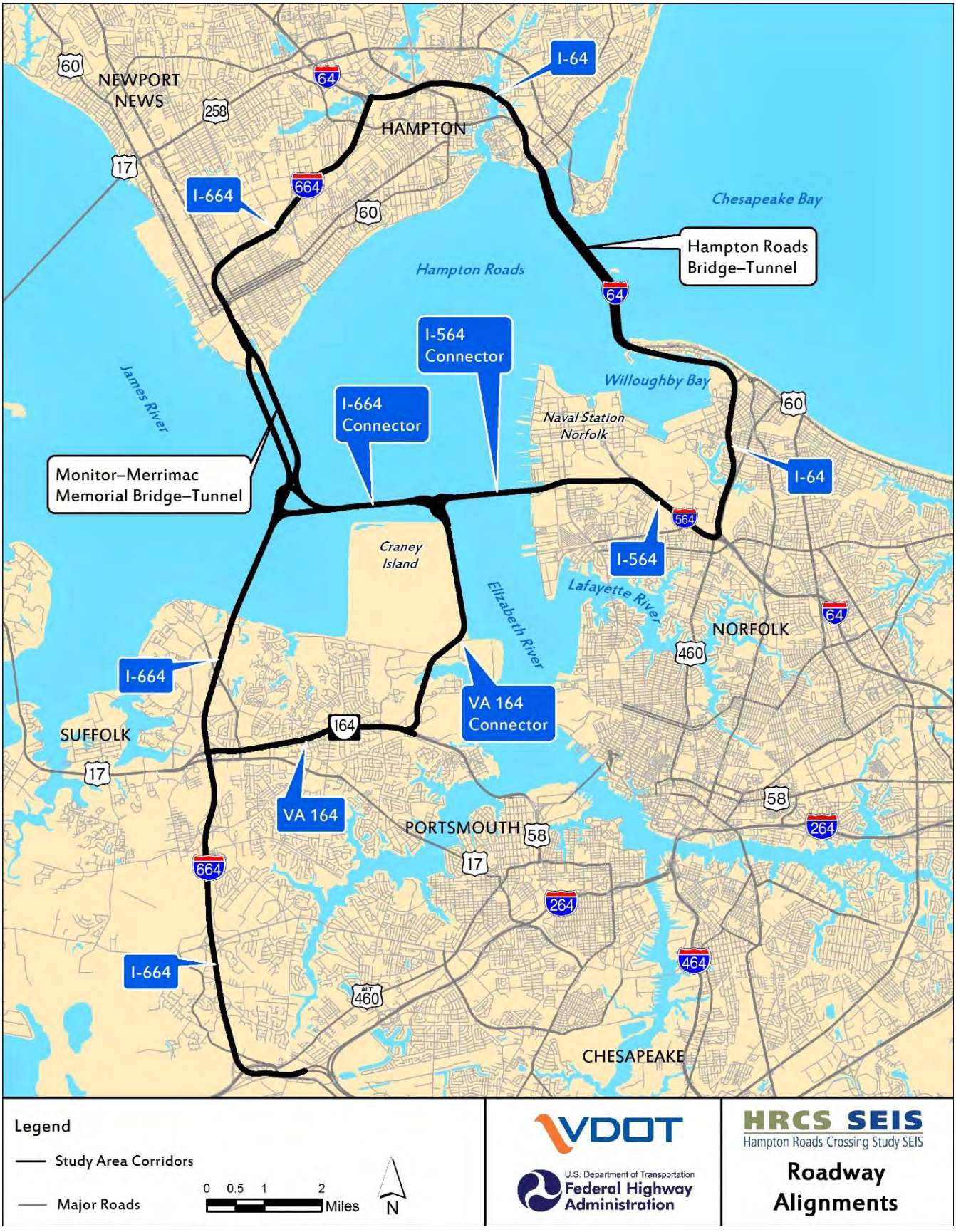


Table 2: Alternative B Lane Configurations

Roadway Alignments	Existing Lanes	Proposed Lanes
I-64 (Hampton)	6	6
I-64 (HRBT and Norfolk)	4	6
I-564	6	6
I-564 Connector	none	4
VA 164 Connector	none	4
VA 164	4	6

Note: The I-564 Intermodal Connector (IC) project is separate from HRCS that lies between the I-564 Connector and I-564. It would be constructed regardless of whether the HRCS improvements are made and therefore is included under the No-Build Alternative and is not listed with other proposed improvements.

Alternative C

Alternative C includes the same improvements along I-564, the I-564 Connector, and the VA 164 Connector that are considered in Alternative B. This alternative would not propose improvements to I-64 or VA 164 beyond the VA 164 Connector. Alternative C includes dedicated transit facilities in specific locations. For the purposes of this Draft SEIS, transit assumes Bus Rapid Transit (BRT). In the Final SEIS, transit could be redefined or these lanes may be used as managed lanes. Alternative C converts two existing lanes on I-564 in Norfolk to transit only. This conversion extends along the I-564 Connector to the intersection with the VA 164 Connector. At that point, a new bridge structure (I-664 Connector) would continue west and tie into I-664. This alternative also includes widening along I-664 beginning at I-664/I-64 in Hampton and continuing south to the I-264 interchange in Chesapeake. Alternative C lane configurations are summarized in **Table 3**.

Table 3: Alternative C Lane Configurations

Roadway Alignments	Existing Lanes	Proposed Lanes
I-664 (from I-64 to the proposed I-664 Connector)	4-6	8 + 2 Transit Only
I-664 (from the proposed I-664 Connector to VA 164)	4	8
I-664 (from VA 164 to I-264)	4	6
I-564	6	4 + 2 Transit Only
I-564 Connector	none	4 + 2 Transit Only
VA 164 Connector	none	4
I-664 Connector	none	4 + 2 Transit Only

Note: The I-564 IC project is a separate project from HRCS that lies between the I-564 Connector and I-564. It would be constructed regardless of whether the HRCS improvements are made and therefore is included under the No-Build Alternative and is not listed with other proposed improvements.

Alternative D

Alternative D is a combination of the sections that comprise Alternatives B and C. Alternative D lane configurations are summarized in **Table 4**.

Table 4: Alternative D Lane Configurations

Roadway Alignments	Existing Lanes	Proposed Lanes
I-64 (Hampton)	4-6	6
I-64 (HRBT and Norfolk)	4	6
I-664 (from I-64 to VA 164)	4-6	8
I-664 (from VA 164 to I-264)	4	6
I-664 Connector	None	4
I-564	6	6
I-564 Connector	none	4
VA 164 Connector	none	4
VA 164	4	6

Note: The I-564 IC project is a separate project from HRCS that lies between the I-564 Connector and I-564. It would be constructed regardless of whether the HRCS improvements are made and therefore is included under the No-Build Alternative and is not listed with other proposed improvements.

1.1.3 Operationally Independent Sections

Given the magnitude and scope of the alternatives, it is expected that a Preferred Alternative would be constructed in stages or operationally independent sections (OIS). An OIS is a portion of an alternative that could be built and function as a viable transportation facility even if other portions of the alternative are not advanced. The OIS are comprised of various roadway alignments and were developed by identifying sections of roadway improvements that if constructed, could function independently. In order to facilitate the identification of a Preferred Alternative, the alternative impacts are quantified, as appropriate, based on roadway alignment sections and are presented in **Appendix A**.

1.2 METHODOLOGY

For the purposes of this *Socioeconomic and Land Use Technical Report*, the Study Area Corridors for detailed evaluation are generally defined as 250 feet on either side of the centerline of I-64, I-564, I-664, VA 164 and proposed new alignments (**Figure 1**). The footprint of the Study Area Corridors varies around the interchanges based on the proposed modifications. The footprint around the interchanges is smaller where proposed modifications consist of tying into existing ramps. The footprint around the interchanges is larger where proposed modifications extensively modify the interchange or a new interchange is proposed.

For certain socioeconomic resources, the Census tracts, Census Block Groups, zip code boundaries, or Traffic Analysis Zones (TAZ) within or immediately adjacent to the Study Area Corridors are included for study. For the Environmental Justice (EJ) evaluation, the Study Area Corridors are expanded to approximately ¼ mile (1,320 feet) either side of centerline of I-64, I-564, I-664, VA 164, and proposed new alignments. This larger area is evaluated to ensure all potential EJ populations are identified.

Socioeconomic resources evaluated include:

- Communities, community facilities, and military facilities
- Population characteristics and EJ
- Land Use
- Economics

Data on communities, community facilities, and military facilities was gathered using multiple sources. GIS data was compiled using: the VDOT Comprehensive Environmental Data and Reporting System (CEDAR) database (which is continually updated); data from Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Suffolk (2015 and 2016); and information from previous studies including the 2001 HRCS FEIS and ROD; the 2012 HRBT Draft EIS; and the 2003, 2011, and 2013 re-evaluations of the 2001 FEIS. Online mapping tools were used, where possible, to verify community facilities such as parks and recreation areas. Published planning documents were used to define neighborhood and community boundaries. Finally, the features and facilities were verified in the field, where possible.

Impacts described in this report are based on the preliminary engineering included in the *HRCS Alternatives Technical Report*.

Indirect and cumulative effects to socioeconomic resources, including impacts that EJ populations may have experienced from past actions, are addressed in the *HRCS Indirect and Cumulative Effects Technical Report*.

2. COMMUNITIES, COMMUNITY FACILITES, AND MILITARY FACILITES

2.1 COMMUNITIES

Methodology

Transportation corridors have the potential to directly impact communities and community cohesion in several ways. Community cohesion, as used in this analysis, is a loosely defined concept of community identity potentially based on shared ethnicity; coherent design features in a community's layout and aesthetics; and spatial cohesion gained by accessibility to neighbors, community facilities, goods and services. The level of cohesion in communities may vary depending on how long residents have stayed or plan to stay in the area and the accessibility to services and community facilities. Transportation impacts to community cohesion "may be beneficial or adverse, and may include splitting neighborhoods, isolating a portion of a neighborhood or an ethnic group… or separating residents from community facilities" (FHWA, 1987). Construction and expansion of existing transportation corridors can disrupt community cohesion by changing connectivity between residential neighborhoods (i.e., physically dividing communities), displacing residents, disrupting access to community facilities either on a temporary or permanent basis, and introducing noise and visual elements incompatible with existing surrounding conditions (FHWA, 1996; FHWA, 1998). Transportation projects also may enhance access within communities by improving connectivity. In this analysis, potential impacts to community cohesion are qualitatively assessed for communities within and immediately adjacent to the 500-foot wide Study Area Corridors. It also considers the number of potentially displaced residents for each alternative.

Affected Environment

The Study Area Corridors are major transportation facilities connecting communities within the Hampton Roads region to the rest of the state. "Hampton Roads" is the name of the water body that is located at the confluence of the James River, the Nansemond River, the Elizabeth River, and the Chesapeake Bay. It also is the locally adopted name for the surrounding metropolitan region. The Hampton Roads Harbor divides the region into two sections: the "Southside", which includes Isle of Wight County and Chesapeake, Norfolk, Portsmouth, Suffolk, and Virginia Beach; and the "Peninsula", including, Newport News, Poquoson, and Williamsburg, as well as James City and York counties.

I-664 and I-564 also provide access to I-64 which is the only interstate into and out of the Hampton Roads region. I-64/HRBT and I-664/Monitor Merrimac Memorial Bridge-Tunnel (MMMBT) are the primary linkage points between the Peninsula and Southside. As limited-access roadways, I-64, I-564, I-664, and VA 164 connect to communities and neighborhoods through designated interchanges.

While the cities of the Hampton Roads region are for the most part older, well-established cities, infill development following the construction of I-64, I-564, I-664, and VA 164 has concentrated along these transportation corridors. The first bridge-tunnel across Hampton Roads, the HRBT, was completed in 1957, and a second tube was added in 1976, while the MMMBT was completed in 1992.

The Study Area Corridors are located within six cities, including the City of Chesapeake (Chesapeake), the City of Hampton (Hampton), the City of Newport News (Newport News), the City of Norfolk (Norfolk), the City of Portsmouth (Portsmouth), and the City of Suffolk (Suffolk) (**Figures 4a-4f**). Each city has a comprehensive overarching plan guiding community development and some cities have selective neighborhood-specific plans which focus on issues particular to that neighborhood.

Chesapeake is in a historically rural and agricultural area that experienced a large population boom at the turn of the century, and continues to be one of the fastest growing cities in the Hampton Roads region. Chesapeake was established in 1962 by the merging of Norfolk County and the community of South Norfolk (City of Chesapeake, 2015a). Chesapeake's dramatic growth since its founding has been spurred by the improvement of major transportation corridors such as I-664, I-64, and VA 164. Chesapeake contains the section of I-664 extending from the Suffolk boundary near the Pughsville interchange, south to the Study Area Corridors terminus at the interchange between I-664, I-264, and I-64 in an area known as Bowers Hill. I-664 runs through Chesapeake's Western Branch and Bowers Hill communities and provides a transportation artery for neighborhoods identified in **Table 5** and shown in **Figures 4d-4e**.

Chesapeake's Comprehensive Plan, *Moving Forward Chesapeake 2035,* establishes a development pattern map for the year 2050 in which the areas that fall within the I-664 Study Area Corridor are designated as "dispersed suburban development areas", where the purpose is to provide a transition area between the urban areas of the City and the outlying rural area (Chesapeake, 2014). These neighborhoods are provided access to I-664 via several interchanges and feeder roads. Movement between communities is currently affected by limited access between neighborhoods on either side of I-664, and major roads such as Route 337 (Portsmouth Boulevard). The CSX/Norfolk Southern/Commonwealth Railway right-of-way, which crosses southwest to northeast through Chesapeake and Suffolk just south of the I-664 Pughsville interchange, affects movement between communities as well.

Hampton is located at the southern tip of the Peninsula and is divided into several planning districts, and further subdivided into smaller communities and neighborhoods (Hampton, 2006). Three large districts (Coliseum Central, Downtown, and Phoebus) and several smaller neighborhoods fall within the limits of the I-64 and I-664 Study Area Corridors, presented in **Table 5** and **Figures 4a and 4c**. Each of these communities and neighborhoods are adjacent to or encompass parts of the Study Area Corridors and are accessed via interchanges on I-64 and I-664 that connect to other primary and secondary streets. Coliseum Central is located in the central part of the city, Hampton's economic hub, and includes the Hampton Coliseum, Peninsula Town Center, and other business, residential, and recreational areas. Downtown Hampton is located just south of I-64 and is the core of the city. It is comprised of government offices, historic neighborhoods, and the historic waterfront (Hampton, 2006). Selective strategic master plans for Coliseum Central, Downtown Hampton, and Phoebus have been prepared by the City and are integrated into the current comprehensive plan, the *City of Hampton*

Figure 4a: Communities and Neighborhoods in Study Area Corridors

Figure 4b: Communities and Neighborhoods in Study Area Corridors

Figure 4c: Communities and Neighborhoods in Study Area Corridors

Figure 4d: Communities and Neighborhoods in Study Area Corridors

Figure 4e: Communities and Neighborhoods in Study Area Corridors

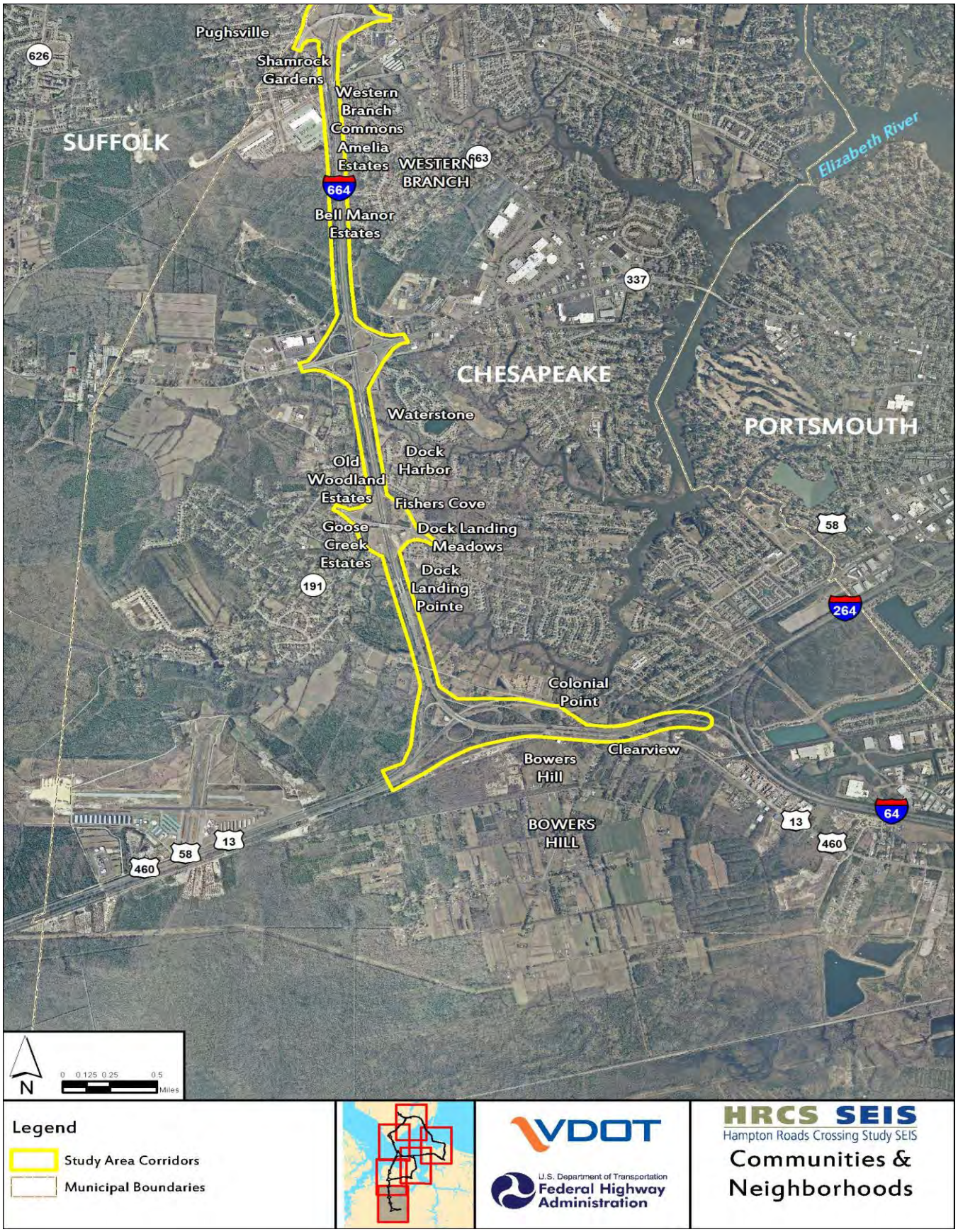


Figure 4f: Communities and Neighborhoods in Study Area Corridors

Table 5: Communities and Neighborhoods in the Study Area Corridors

Communities	Neighborhoods	
Chesapeake		
Bowers Hill	Colonial Point Clearview	Bowers Hill
Western Branch	Dock Landing Point Goose Creek Estates Old Woodland Estates Dock Landing Meadows Fishers Cove Dock Harbour Waterstone Belle Manor Estates	Amelia Estates Western Branch Commons Shamrock Gardens Kendall Crossing Pughsville Merrimac Landing Wellington
Hampton		
Greater Wythe	Park Place	
Aberdeen	Powhatan Park Hampton Terrace	Azalea Gardens
Hampton University	N/A	
Phoebus	Phoebus	East Hampton
Downtown	King's Square	Pasture Point
Coliseum Central	Not applicable	
Newport News		
Downtown	N/A	
Southeast	Seafood Industrial Park Tuckers Creek Marshall Huntington	Small Boat Harbor Jefferson Park Newsome Park Newsome
Norfolk		
NAVSTA Norfolk	Glenwood Park	
Wards Corner	Denby Park Monticello Village	Sussex
Ocean View	Commodore Park Northside Pamlico	West Ocean View Willoughby
Portsmouth		
Churchland	Hosiers Oaks Merrifields North Siesta Gardens Edgewood Park Ebony Heights Pepperwood	Churchland West Laurel Park Churchland Square Stonebridge Apartments Chelsea Point Apartments Westwind Apartments
Suffolk		
Northern Suffolk	Belleville Meadows Pughsville	Huntersville Wynnewood

Source: Chesapeake, 2015b; Hampton, 2015; Newport News, 2015a; Norfolk, 2015a; Portsmouth, 2015; Suffolk, 2015a.

Community Plan (Hampton, 2006), which was last updated in 2011. Phoebus has a distinct identity rooted in its origins as a city separate from Hampton. Phoebus's access to the waterfront and its own historic core are key elements of its identity (Hampton, 2006). The I-64 and I-664 Study Area Corridors are controlled access interstates that divide neighborhoods that were once historically connected. Neighborhoods are now connected only by major streets that pass beneath or over the interstates. However, some have become particularly isolated, such as the Park Place neighborhood in the Greater Wythe section of the city, and the Park Place neighborhood between I-664 and the CSX railroad that parallels I-664 to the west along West Pembroke Avenue. Mercury Boulevard/Coliseum, Route 134 Armistead Avenue, Settler's Landing Road, Route 415 Power Plant Parkway, and Route 351 Pembroke Avenue are all major roads that provide connectivity for travelers but pose barriers to pedestrian access between neighborhoods.

Similar to Hampton, **Newport News** is located at the tip of the Peninsula and is divided into different planning districts. The I-664 Study Area Corridor falls within South District and includes the southern portion of the city, historic Downtown, and the Southeast Community, which are separated by I-664. This area of the city is the oldest developed part of Newport News and is largely urban and industrial, with the exception of portions of the Southeast Community, which is largely residential.

The Southeast Community includes the eight neighborhoods presented in **Table 5** and **Figures 4a and 4c**. These neighborhoods have direct access to I-664 through established interchanges and primary and local road networks. However, the interstate also acts as a barrier to community cohesion by reducing connectivity between neighborhoods and between the Southeast Community and the rest of the city. The stretch of I-664 south of the 35th Street exit to the MMMBT, coupled with the CSX railroad, divides the residential neighborhoods to the north from the industrial area/ports to the south. I-664 has separated the Southeast Community from Downtown. This division has created limited access points to the Southeast Community at Marshall, Roanoke, Chestnut Avenue, and Jefferson avenues, and at 28th, 35th/26th Street, 25th Street, and Terminal Avenue.

Like Hampton, Portsmouth, and Norfolk, Newport News is an older and developed city that relies on revitalization and redevelopment to improve its neighborhoods and community facilities. Current neighborhood plans include the Southeast Community Plan (2011), Jefferson Avenue Corridor Study (Newport News, 2009), and the Southeast Community Urban Waterfront Design Study (2007). These plans focus on eliminating blight in the Southeast Community, promoting mixed-income housing development and job creation, and attracting commercial services that are accessible to the whole community. The plans also include improvements to overall circulation, waterfront access, better pedestrian connections, and enhancements to open spaces.

Norfolk is characterized by its many distinct communities and neighborhoods as there are more than 125 active neighborhood civic leagues (Norfolk, 2013a). Norfolk has a strong military presence and is home to the world's largest naval base, Naval Station Norfolk (NAVSTA Norfolk). The communities of Ocean View, Wards Corner, and NAVSTA Norfolk border the Study Area Corridor (**Table 5** and **Figures 4b and 4f**). Selective neighborhood plans relating to specific neighborhoods within the City are included in *plaNorfolk 2030* (Norfolk, 2013b). One of these selective neighborhood plans is for the community of Wards Corner, located within the Study Area Corridor. The Greater Wards Corner Comprehensive Plan calls for the establishment of a new retail district that would transform the current area to a mid-box retail district with a hotel, new apartments, and townhomes. The plan also calls for the redevelopment of current strip shopping centers as mid-rise apartments with retail on the ground floor (Norfolk, 2013b). I-64 and I-564

give access to the communities of Ocean View, Wards Corner, and NAVSTA Norfolk via multiple interchanges and other primary and secondary roads.

Norfolk also has existing obstacles to community cohesion within the I-64 and I-564 Study Area Corridors. The West Ocean View, Commodore Park, Pamlico, and Northside neighborhoods are east of I-64 and bounded by either open water or naval facilities on the west. Access between these neighborhoods is limited to a few roadways. Glenwood Park is a small neighborhood bounded by naval facilities to the north and east; Hampton Boulevard, the Navy docks and Norfolk International Terminals (NIT) to the west; and Terminal Boulevard to the south. Granby Street is another major road within the Study Area Corridors that crosses roughly north-south through the I-64 and I-564 interchange area, proceeding northeast of and parallel to I-64, with a few residential blocks in between.

Portsmouth is an older, largely built-out city with established neighborhoods and a mature housing stock. The Study Area Corridor within the City's boundaries are limited to properties surrounding VA 164, also known as the "Western Freeway", and the area around Craney Island and the Virginia International Gateway (VIG) Terminals. VA 164 passes through the northern portion of Portsmouth generally known as Churchland. Churchland is a mix of mostly single-family home neighborhoods, commercial centers, military facilities, and industrial complexes. The 12 neighborhoods in the Study Area Corridor are presented in **Table 5** and **Figures 4d and 4f**. VA 164 is a barrier to community cohesion in Churchland because no neighborhood streets extend under or over the freeway. This limits connectivity between residential neighborhoods on both sides of the freeway to the four interchanges in the Study Area Corridor. Specific neighborhood and community information and plans for Portsmouth can be found in *Destination 2025 Setting a Bold New Course* (Portsmouth, 2005). Churchland is described as a community that the plan would maintain and strengthen by enhancing existing infrastructure (roads, utilities, sidewalks, etc.) and by applying neighborhood conservation strategies. These strategies include increased code enforcement, renovation and rehabilitation of older homes over demolition and new construction, and zoning and development standards to ensure compatibility of infill/new construction within the existing neighborhood context (Portsmouth, 2005).

Like Chesapeake, **Suffolk** is a historically rural and agricultural city that has experienced rapid suburban growth over the past fifty years due to a burgeoning population, greater accessibility, and suburban sprawl. Suffolk is still a predominantly rural area with two major centers of development: the historic downtown core located in central Suffolk and the more recently developed northern core radiating out from I-664 (Suffolk, 2015b). These two major centers of development or "growth areas" are being focused on to guide development and protect the community character and rural and agricultural resources in Suffolk. The I-664 and VA 164 Study Area Corridors are located in the City's Northern Growth Area which is focused around these major regional transportation corridors and Route 17. Suffolk planning has designated this area as a focus for development, to reduce sprawl pressures in the rest of the city, and to provide more efficient and effective delivery of city services. The Northern Growth Area makes up the community of Northern Suffolk and its four neighborhoods in the Study Area Corridors (Suffolk, 2015b) (**Table 5 and Figure 4d**). The Northern Growth Area is primarily suburban in nature, with commercial uses located mainly in large-scale developments and shopping centers surrounded by residential subdivisions (Suffolk, 2015b).

Development occurring in this area of Suffolk has been spurred by the greater access provided by construction of I-664 and the MMMBT; however, much of the land adjacent to I-664 is forested wetland

that has not yet been developed. I-664 is not a barrier to communities in Suffolk because it is on the eastern edge of the city. However, it does limit access to nearby Chesapeake neighborhoods east of I-664.

Environmental Consequences

The **No-Build Alternative** would not result in any project-related construction and would therefore not directly impact any communities. Continued congestion within the Hampton Roads region would increasingly hamper community mobility.

Construction of the **Build Alternatives** would result in greater transportation mobility and improved congestion relief for the communities within the Hampton Roads region. **Alternative A** would provide congestion relief and increased mobility along I-64 in Hampton and Norfolk. **Alternative B** would provide congestion relief and increased mobility along I-64 in Hampton and Norfolk, I-564, and VA 164 in Suffolk. **Alternative C** would provide congestion relief and increased mobility along I-664 in Hampton and Suffolk, I-564, and the proposed VA 164 Connector. **Alternative D** would improve congestion and mobility for the largest area, along all the existing and proposed roadways in the Study Area Corridors. Residents would have greater range of choice and access to area communities. All of the Build Alternatives are either located along an existing corridor and would not create new physical barriers to inter-community interaction or are located along new alignment that is not within established residential or business communities, thus minimizing the potential for adverse impacts to community connectivity or cohesion. While there would be some relocations associated with the Build Alternatives, those relocations are located along the edges of communities and would not bisect residential areas or create new impediments to travel. While there would be some relocations associated with the Build Alternatives, those relocations are located along the edges of communities and would not bisect residential areas or create new impediments to travel.

Alternative A traverses Hampton and Norfolk. The improvements to I-64 within Hampton's boundaries are limited to extending the eastbound lanes to maintain lane continuity on the approach to the new bridge-tunnel crossing; therefore, the majority of the right-of-way impacts are minor and consist of sliver takes along existing right-of-way. Four properties could be relocated in Hampton as a result of Alternative A (one residential and three "other"). All of the relocations are located adjacent to the existing I-64 corridor; therefore, there would be no change to communities or community cohesion in Hampton.

Within Norfolk, I-64 would be expanded from four to six lanes. Alternative A could result in nine residential relocations adjacent to existing I-64 in Norfolk. Under Alternative A, all improvements occur along existing interstate; therefore, there would be no long-term change to community cohesion and access. Alternative A would not create new physical barriers to community interaction.

Alternative B would include the same long-term impacts to communities as Alternative A along I-64 in Hampton and Norfolk. Alternative B could result in one relocation along I-564, one along the location of the new VA 164 connector, and 20 residential relocations along existing VA 164 in Suffolk. The portions of Alternative B that are on new alignment (along the east side of Craney Island and the VA 164 Connector), are not located within established residential or business communities, thus minimizing the potential for adverse impacts to community connectivity or cohesion. Since improvements along existing VA 164 would take place along an existing corridor, there would be no change to community cohesion and connectivity.

Alternative C improvements could result in impacts to the parcels adjacent to I-664 right-of-way. Eighteen total relocations (ten of which are residential) could occur along I-664 in Newport News. These impacts are adjacent to existing right-of-way; therefore, there would be no change to community cohesion and

access along this portion of the alternative. Improvements to I-564 under Alternative C would result in a larger footprint than Alternative B due to the additional transit lanes; however, like Alternative B, the improvements along this section consist of sliver impacts adjacent to existing roadway and would not affect community cohesion and connectivity. Alternative C includes new alignment along the east side of Craney Island connecting to VA 164. This section is not located within residential communities, thus minimizing the potential for adverse impacts to community connectivity or cohesion.

Alternative D is a combination of the sections that comprise Alternatives B and C. Therefore, impacts already discussed for Alternative B and Alternative C, are included under Alternative D. Impacts under Alternative D would be a combination of those anticipated under Alternatives B and C, as it represents a combination of those two alternatives. However, along I-664 between I-64 and the I-564 Connector, Alternative D has a narrower footprint than Alternative C which includes two transit-only lanes in addition to the eight proposed general purpose lanes.

Short-term impacts to communities would result in the form of temporary road closures and detours during construction. Short-term impacts would be similar under each Build Alternative.

2.2 COMMUNITY FACILITIES

Methodology

Community facilities within the 500-feet wide Study Area Corridors are identified and the potential impacts of the alternatives assessed. Community facilities considered include cemeteries, fire stations, medical facilities, libraries, police stations, post offices, religious facilities, schools/universities, and park or recreation areas that are open to the public. Recreational trails and bike paths are discussed in **Section 2.3**. Potential effects are quantified in terms of the number of potential community facility displacements and qualitatively assessed based on changes to access or use. Transit access data for community facilities are based on Google Earth. The bus stop locations provided by Google Earth link to the Hampton Roads Transit (HRT) website that uses Google Trip Planner.

Affected Environment

Locations of community facilities discussed in this section are listed below in **Table 6**. These community resources provide services to communities and neighborhoods in and around the Study Area Corridors. A total of 42 community facilities are located in the Study Area Corridors. The majority are either religious facilities or schools/universities. The only types of facilities not found within the Study Area Corridors are libraries, fire stations, or post offices.

Environmental Consequences

The **No-Build Alternative** would have no direct physical impact on community facilities in the Study Area Corridors. However, congestion would continue to worsen along the primary transportation corridors in the Hampton Roads region, resulting in deteriorated accessibility to these community facilities. Impacted community facilities are summarized in **Table 7**.

Table 6: Community Facilities in the Study Area Corridors

Facility	Address	Locality	Access	Transit Access
Cemeteries				
Hampton National Cemetery Phoebus Addition	West County Street	Hampton	A driveway on West County Street near intersection of West County Street and Woodland Road	Bus Routes 117 and 120 provide proximal[1] access at County Street and Frissell Street
Forest Lawn Cemetery	8100 Granby Street	Norfolk	Three driveways on Granby Street	Bus Route 1 provides direct[2] access across Granby Street
Pentecostal Holiness Church Cemetery	6000 Arthur Avenue	Portsmouth	Arthur Avenue or Harvey Street, behind the church	No transit access
New Hope Baptist Church Cemetery	5000 Pughsville Road	Chesapeake	At the end of Station House Road off of Taylor Road, a small unmarked driveway leads to the cemetery	No transit access
Medical Facility				
Hampton Veterans Affairs Medical Center	100 Emancipation Drive	Hampton	There are multiple access points on Emancipation Drive or by South Mallory Street and I-64	Bus Route 117 provides direct access at two stops, Black Avenue and McClellan Avenue
Police Stations				
Chesapeake 4th Precinct – Western Branch	4764 Station House Road	Chesapeake	The driveway is on Station House Road off of Taylor Road near I-664 at the intersection of Pughsville Road and Taylor Road	No transit access
Newport News South Precinct	3303 Jefferson Ave	Newport News	Jefferson Ave is located at the base of I-664 at the 35th Street off-ramp	Bus route 112 provides access at Jefferson Ave and 36th Street
Religious Facilities				
Kingdom Hall Jehovah's Witness	804 41st Street	Newport News	Corner of 41st Street and Marshall Avenue near I-664 with two driveways off of 41st Street.	Bus Route 104 provides direct access at 41st Street and Marshall Avenue
Alpha and Omega Christian Worship Center	1110 39th Street	Newport News	A driveway on 39th Street near the intersection with Roanoke avenue near I-664	Bus Route 104 provides proximal access at Roanoke Avenue and 37th Street, and Roanoke avenue and 41st Street

Facility	Address	Locality	Access	Transit Access
House of Judah Deliverance Center	3806 Roanoke Avenue	Newport News	A driveway on Roanoke Avenue near the intersection with 39th Street by I-664	Bus Route 104 provides proximal access at Roanoke Avenue and 37th Street, and Roanoke avenue and 41st Street
Zion Baptist Church	125 West County Street	Hampton	A driveway on Woodland Road and a driveway off of West County Street, near I-64 Settlers Landing Road exit	Bus Routes 117 and 120 provide proximal access at County Street and Frissell Street
First View Baptist Church	9124 1st View Street	Norfolk	Two driveways on 1St View Street alongside I-64	Bus Routes 3 and 965 provide direct access on 1st View Street
Wesley Memorial United Methodist Church	288 East Little Creek Road	Norfolk	Three driveways on East Little Creek Road alongside I-64 at Wards Corner	Bus Route 21 provides proximal access at Little Creek Road and West Glen Road
Churchland North Baptist Church	6201 Centenary Drive	Portsmouth	A driveway on Centenary Road near intersection of Twin Pines Road and VA 164	Bus Route 47 provides proximal access at Towne Point Road and Pepperwood Court
Pentecostal Holiness Church	6000 Arthur Avenue	Portsmouth	Arthur Avenue and its intersection with Harvey Street	No transit access
The Village Church of Portsmouth	3697 Pepperwood Court	Portsmouth	A driveway on Pepperwood Court near intersection of Twin Pines Road and Towne Point Road	Bus Route 47 provides proximal access at Towne Point Road and Pepperwood Court
Alexander Baptist Church	4316 Pamela Court	Chesapeake	A driveway on Pamela Court near interchange of Dock Landing Road and I-664	No transit access
Living Waters Christian Fellowship Church	2700 Gum Road	Chesapeake	A driveway on Gum Road along I-664	No transit access
Believer's Church	4500 Peek Trail	Chesapeake	Two driveways on Peek Trail by intersection of Peek Trail and Portsmouth Boulevard near interchange of Portsmouth Boulevard and I-664	No transit access

Facility	Address	Locality	Access	Transit Access
Schools/Universities				
Hampton High School	1491 West Queen Street	Hampton	Three driveways on West Queen Street alongside I-664	Bus Routes 102 and 110 provide direct access at W. Queen Street and Inlandview Drive and West Queen Street and Independence Drive
Hampton University	100 East Queen Street	Hampton	Two roads on Settlers Landing Road (Hampton Harbor Avenue and East Tyler Street) and the Settlers Landing Road exits off of I-64	Bus Routes 117 and 403 provide direct access at Emancipation Drive and Marshall Avenue. Bus Route 117 and 961 provide proximal access at Settlers Landing Road and Hampton Harbor Avenue
Willoughby Elementary	9500 4th View Street	Norfolk	One driveway on 4th View Street in between I-64 and Ocean View Avenue and one driveway off of Staten Street	Bus Route 5 provides proximal access at Ocean View Avenue and 4th View Street
Old Dominion University Tri-Cities Higher Education Center	1070 University Boulevard	Portsmouth	One driveway at the end of University Boulevard near interchange of College Drive and VA 164	No transit access
Jolliff Middle School	1021 Jolliff Road	Chesapeake	Two driveways on Jolliff Road near I-664 interchange at Bowers Hill	No transit access
Believer's Day School	4500 Peek Trail	Chesapeake	Two driveways on Peek Trail near interchange of Portsmouth Boulevard and I-664	No transit access
Old Dominion University Virginia Modeling, Analysis, and Simulation Center	1030 University Boulevard	Suffolk	One driveway at the end of University Boulevard near interchange of College Drive and VA 164	No transit access
Booker T. Washington Middle School	3700 Chestnut Avenue	Newport News	Two driveways on Chestnut Avenue near the interchange with I-664, and one driveway off of Aberdeen Avenue	Bus Routes 103 and 104 provide proximal access at 35th Street and Chestnut Avenue

Facility	Address	Locality	Access	Transit Access
Parks				
Riverwalk Street Park	River Street Park	Hampton	Roadside parking at the Intersection of Pembroke Avenue and River Street, underneath I-64	Bus Routes 109 and 120 provide proximal access at Pembroke Avenue and Center Street
Park Place Playground	50th Street	Hampton	Roadside parking along 50th Street and Childs Avenue	Bus Route 103 provides proximal access at Pembroke Avenue and Childs Avenue
Fort Wool	I-64 HRBT	Hampton	Only accessible by boat. But is attached to the HRBT I-64 westbound tunnel portal.	No transit access
Captains Quarters Nature Center and Park	800 Little Bay Avenue	Norfolk	Small parking area at the end of Little Bay Avenue	No transit access
Ebony Heights Park	Tyre Neck Road and Fawkes Street	Portsmouth	Small parking area at the Northern end of Tyre Neck Road and Fawkes Street	No transit access
Recreational Facilities				
Hampton Coliseum	1000 Coliseum Drive	Hampton	Multiple access points along Coliseum Drive	No transit access
Bluebird Gap Farm	60 Pine Chapel Road	Hampton	One driveway on Pine Chapel Road	Bus Route 102 provides proximal access at Power Plant Parkway and Pine Chapel Road
Y.H. Thomas Community Center	1300 Thomas Street	Hampton	Driveway on Thomas Street near interchange of I-64	Bus Route 114 provides proximal access at La Salle Avenue and North Armistead Avenue
The Woodlands Golf Course	9 Woodland Road	Hampton	Two driveways on Woodland Road near Interchange of I-64 and Settlers Landing Road.	Bus Routes 120 and 403 provide direct access at Woodland Road and Old Buckroe Road
Willoughby Boat Ramp	1275 Bayville Street	Norfolk	Two driveways on Bayville Street alongside I-64	No transit access
Naval Station Norfolk Baseball Fields	Patrol Road across from Forest Lawn Cemetery	Norfolk	Driveway entrance from Patrol Road	No transit access
Naval Station Norfolk Baseball Field	Patrol Road just west of I-64/I-564 interchange	Norfolk	Driveway entrance from Patrol Road	No transit access

Facility	Address	Locality	Access	Transit Access
Naval Station Norfolk Sewell's Point Golf Course	660 Ruthven Road	Norfolk	Via Terminal Boulevard accessible only to military and federal government personnel	No transit access
Captain Slade Cutter Athletic Park	100 Elementary Drive	Norfolk	Parking lot on south end of park accessed via Monrovia Street and Parking lot on northern end accessed via Mogadishu Street and Ingersol Avenue	Bus Route 918 provides proximal access at Ingram and Mortan Street

[1] *Proximal is defined as approximately within 750 feet of the property.*

[2] *Direct is defined as in front of or approximately within 50 feet of the property.*

Table 7: Impacts to Community Facilities

Facility	No-Build Alternative	Alternative A	Alternative B	Alternative C	Alternative D
Religious Facilities					
Kingdom Hall Jehovah's Witness				x	
Schools/Universities					
Hampton High School				x	x
Hampton University		x	x		x
Park and Recreational Facilities					
Park Place Playground				x	x
Willoughby Boat Ramp		x	x		x
Fleet Park			x	x	x

Construction of any of the Build Alternatives would result in greater transportation mobility and improved congestion relief within the Hampton Roads region, to varying degrees. Access to community facilities would be improved under each of the Build Alternatives. Alternative A would improve congestion and access to community facilities along the I-64 corridor in Hampton and Norfolk. Alternative B would improve congestion and access to facilities along I-64, I-564, and VA 164 in Hampton, Norfolk, and Suffolk. Alternative C would improve congestion and access to community facilities along I-664 in Hampton, Suffolk, and Chesapeake, on I-564 in Norfolk, and along the proposed VA 164 Connector. Alternative D would improve congestion and access to community facilities throughout.

Alternative A would impact approximately 1.4 acres of Hampton University along the west side of I-64. Roadway improvements in this location would impact portions of an at-grade parking lot. Alternative A would also require approximately 315 square feet of right-of-way along the northern boundary of the Willoughby Boat Ramp, a public recreational facility in Norfolk. The roadway widening in this area would impact the existing out-building/restroom and a portion of the at-grade parking lot. The Willoughby Boat Ramp facility is accessed via Bayville Street, which would not be impacted during or after construction. The use and functionality of these impacted community facilities would not be impacted under Alternative A.

Alternative B would impact a total of 8.9 acres at three facilities (one school and two park and recreational facilities); the use and functionality of the impacted park and recreational resources would not be affected by these impacts. Alternative B would have the same impacts to the Willoughby Boat Ramp as Alternative A. Alternative B bisects Fleet Park, a public recreational facility located on the NAVSTA Norfolk property. However, this park is being impacted by the construction of the I-564 Intermodal Connector (a separate project). Alternative B would occupy the same footprint as the Intermodal Connector but not have additional impacts on the park. Further, improvements under Alternative B at this location would be located within the median of the I-564 Intermodal Connector and would not impact adjacent community facilities.

Alternative C would impact a total of 10.0 acres of property associated with one school/university, one religious institution, and two park and recreational facilities. Alternative C would not affect the use or functionality of any of the community facilities on the impacted property. Impacts to Hampton High School would be minimal and consist of approximately 0.7 acres of property acquisition in the vicinity of

the athletic complex in order to accommodate the widening on I-664. Neither access to nor function of the athletic fields would be impacted under Alternative C. Alternative C would impact the Kingdom Hall Jehovah's Witness Church property located along the southbound lanes of I-664. Improvements at this location would result in 0.1 acres of impact to the property, which is currently unimproved landscaping. Access to the site would not be impacted as result of construction. The site is currently accessed via two driveways along 41st Street. Alternative C bisects Fleet Park similar to Alternative B. Alternative C would also impact less than 1,000 square feet of the Park Place Playground, located along I-664 on the Peninsula. Impacts to the park property would be to unimproved landscaping adjacent to the roadway.

Alternative D is a combination of the sections that comprise Alternatives B and C. Therefore, the majority of the community facility impacts discussed under Alternatives A, B, and C would also apply to Alternative D. This includes impacting 9.8 acres at five facilities. One exception is the impact to the Kingdom Hall Jehovah's Witness property, which would be impacted under Alternative C (due to the larger footprint to accommodate transit lanes), but not under Alternative D.

Short-term impacts to community facilities may result in the form of temporary road closures, travel patterns, and detours during construction. Short-term impacts would be similar under each Build Alternative.

2.3 BIKE PATHS AND RECREATIONAL TRAILS

Methodology

Community recreational facilities like bike paths and recreational trails are potentially impacted by roadway improvements from acquisition of right-of-way, and temporary or permanent impacts to access. Bike paths and recreational trails within the 500-feet wide Study Area Corridors are identified. Impacts to such facilities are quantitatively assessed in terms of the number and linear feet affected, and the number of accesses (if any) closed or relocated.

Affected Environment

No bicycle or recreational trails are present in the Study Area Corridors associated with the use of these restricted access highways. However, bike lanes (designated lanes for bicycles), sharrow lanes (roadways marked with street paint where bikes should preferably cycle when sharing a street), bike routes (recommended routes for the safest cycling from point A to point B), and bike and multi-use recreational trails exist within the Study Area Corridors on local streets, or that pass under or over restricted access highways (**Table 8** and **Figure 5**). Chesapeake has one designated bike trail, Hampton has seven bike routes, Newport News has two bike routes, Norfolk has three bike lanes and a sharrow lane, and Portsmouth has one dedicated bike route in the Study Area Corridors. Suffolk does not currently have an existing bike lane or route in the I-664 and VA 164 Study Area Corridors.

Norfolk plans to provide buffered bike lanes along Granby Street that would cross through the I-64 and I-564 interchange area (Norfolk, 2015c). The existing bike lanes along Ocean View Avenue would also be improved. A bike path from Granby Street west to I-564 and then west along the I-564 Intermodal Connector to Hampton Boulevard is also noted for near-term implementation. A planned regional multi-use trail traverses the Study Area Corridors as well. The South Hampton Roads Regional Trail (SHRT) is a 41-mile proposed multi-use/bicycle route between Suffolk and Virginia Beach that crosses through or parallels the Study Area Corridors in two locations. A planned section located in Chesapeake runs from the border of Suffolk, under I-664 just south of the Pughsville interchange following the Commonwealth

Railway through the Western Branch area to the Portsmouth city line. Another planned section follows the Commonwealth Railway through Portsmouth, entering the Study Area Corridor south of VA 164 in the vicinity of the Cedar Lane interchange and continues east between Norfolk Road and VA 164 beyond the Study Area Corridors boundary (HRPDC, 2014).

Table 8: Recreational Trails, Bike Paths, and Bike Lanes in the Study Area Corridors

Type	Location	Access
Chesapeake		
Bike Trail	Bruce Road and Tyre Neck Road	On Bruce Road from I-664 west to Tyre Neck Road and then north to the Portsmouth city line
Hampton		
Bike Route	Settler's Landing Road	From Woodland Road to Pembroke Avenue west
Bike Route	Pembroke Avenue	From Woodland Road west to the Newport News city line
Bike Route	North King Street	From Settlers Landing Road north to the Back River
Bike Route	Rip Rap Road	From King Street west to Armistead Avenue
Bike Route	LaSalle Avenue	From Chesapeake Avenue north to Langley Air Force Base
Bike Route	Armistead Avenue	From Rip Rap Road north to Pine Chapel Road
Bike Route	Pine Chapel Road	From Armistead Avenue west to Power Plant Parkway
Newport News		
Bike Route	Marshall Avenue	From 39th Street north to 79th Street
Bike Route	Chestnut Avenue	From 16th Street north to 80th Street
Norfolk		
Sharrow Lane	Granby Street	From I-564 north to East Ocean View Avenue
Bike Lane	West Bay Avenue	From Tidewater Drive west to I-64
Bike Lane	East Ocean Avenue	From Tidewater Drive west to I-64
Bike Lane	West Ocean View Avenue	From 4th View Street East to approximately Exit 272 on I-64 W
Portsmouth		
Bike Route	Along West Norfolk Road	From Cedar Lane to intersection of West Norfolk Road and VA 164

Sources: Chesapeake (2013); Hampton (2011); Newport News (2015b); Norfolk (2015b).

Environmental Consequences

The **No-Build Alternative** would not affect existing recreational trails, bike paths, or bike lanes within the Study Area Corridors. Currently, no bicycle or recreational trails are associated with the use of the following restricted access highways: I-64, I-664, I-564 or VA 164.

There would be no long-term impact to any recreational trail, bike paths, or bike lanes under any of the **Build Alternatives**. All of the Build Alternatives cross over existing recreational trails or bike paths located on secondary roads (where no HRCS-related improvements are planned).

Short-term impacts to recreational trail, bike paths, or bike lanes could include temporary closures and detours during construction.

Mitigation

Outreach would be conducted within the community to notify the public of temporary closures and detours along recreational trails, bike paths, and bike lanes during construction. Any trails severed during construction would be reestablished.

Figure 5: Recreational Trails and Bike Paths in Study Area Corridors

2.4 MILITARY FACILITIES

Methodology

Changes to transportation corridors can impact military facilities due to potential right-of-way acquisition, and temporary or permanent access and security issues. Some highways are also strategic for defense purposes. Potential impacts to military facilities within the 500-foot wide Study Area Corridors are qualitatively assessed in this section.

Existing Conditions

I-64, I-564, I-664, and VA 164 provide for the movement of military personnel and equipment within the region (US Army, 2015a). These roadways are part of the Strategic Highway Network (STRAHNET), which is designated by the US Department of Defense (DoD) in coordination with FHWA. STRAHNET is a network of highways which are important to the United States' strategic defense policy which provides defense access, continuity, and emergency capabilities for defense purposes (FHWA, 2015a) (**Figure 6**). STRAHNET includes the national interstate system and the "last mile" of STRAHNET Connectors that link important military installations and ports to major components of the STRAHNET (US Army, 2015b). Military installations accessible by STRAHNET and in the Study Area Corridors include:

- NAVSTA Norfolk: The world's largest Naval Base currently supporting 75 ships and 134 aircraft. Houses the largest concentration of US Navy forces and is the hub for Navy logistics for the European and Central command theaters of operations.
- Naval Support Activity (NSA) Hampton Roads: Provides logistical, maintenance, and administrative support to a collection of Navy and Marine Corps facilities in the Hampton Roads region that lie outside the region's major bases.
- Craney Island Dredged Material Management Area (CIDMMA): Under the operation of the US Army Corps of Engineers, this is an active civil works project for the management and deposition of dredged material from the Hampton Roads navigation channels.
- US Coast Guard Station-Portsmouth: Part of the US Coast Guard's 5th District, ensures the safety and security of the oceans, coastal areas, and marine transportation system within the US Mid-Atlantic region.
- Craney Island US Naval Supply Center: Part of the oldest and largest naval supply center in the world. Handles part of the supply activities and related functions located within the confines of NAVSTA Norfolk, specifically, naval fuel storage operations within the region.
- Joint Staff Suffolk Complex: Contains elements of Navy Cyber Forces, Navy Cyber Defense Operations Command, and Naval Network Warfare Command.

As shown on **Figure 6**, NAVSTA Norfolk and NSA Hampton Roads are presently served by I-564, identified as a STRAHNET Interstate Highway, and by STRAHNET connector roadways (VA 337 and VA 406). Portions of these roadways currently bisect the Navy properties.

Some of the military facilities within and near the Study Area Corridors also are used as port facilities. NAVSTA Norfolk is the home port for naval vessels of the Atlantic Fleet when not deployed on missions. The Craney Island US Naval Supply Center is a port location for naval supply vessels. The port locations are accessible by water and roadway, but access is restricted, as they are government facilities.

Within the Study Area Corridors, access to the naval installations (NAVSTA Norfolk, NSA Hampton Roads) can be achieved from I-64 at the Exit 273 4th View interchange; from Exit 274 Naval Station/Bay Avenue interchange; at Gate 10 from 1st View to Ridgewell Avenue; from Granby Street to Gate 22 via a small road

Figure 6: Military Facility Locations and STRAHNET Roadways in Study Area Corridors

section passing under I-64 in the vicinity of the Forest Lawn Cemetery; from I-564 at Terminal Boulevard; and via the future relocated Gate 6 from the I-564 Intermodal Connector currently under design. NAVSTA Norfolk can also be accessed via water using Norfolk Harbor Reach Channel. The US Coast Guard Station-Portsmouth, Craney Island US Naval Supply Center, and CIDMMA are located in the northern section of Portsmouth and can be accessed via the VA 164 Cedar Lane interchange, Cedar Lane, and Coast Guard Boulevard. Craney Island US Naval Supply Center and the US Coast Guard Station-Portsmouth are located adjacent to each other and are accessible via water using Norfolk Harbor Reach Channel. The DoD Joint Staff Suffolk Complex is located in the northern part of Suffolk and can be accessed via I-664 Exit 8A/College Drive.

Environmental Consequences

The **No-Build Alternative** would not result in any project-related construction and therefore would not directly impact any military facilities.

Overall, the reduction in congestion that would result from construction of the **Build Alternatives** would benefit military operations. Alternative A would improve military connectivity via the I-64 corridor within Hampton and Norfolk. Alternatives B, C, and D would directly improve military connectivity for the region by providing improved local and regional access for military movement missions throughout the Hampton Roads region. Improvements in the I-564 Study Area Corridor and the new capacity along the I-664 Connector, I-564 Connector, and VA 164 Connector would improve connectivity to NAVSTA Norfolk and a number of other military facilities in the area. Improvements to the VA 164 Study Area Corridor and the new capacity along the VA 164 Connector would improve connectivity to the Craney Island US Naval Supply Center, and the US Coast Guard Station – Portsmouth.

Alternative A would impact approximately 22 acres belonging to the NAVSTA Norfolk facility, southwest of I-64, where station housing is located. Military facility impacts are summarized in **Table 9**. **Alternatives B, C, and D** would impact between 37 and 42 acres of NAVSTA Norfolk. This includes impacts to housing adjacent to I-64 and sliver impacts surrounding the I-564 improvements. Alternatives B, C, and D would result in 27 acres of property acquisition from the Craney Island US Naval Supply Center and 87 acres from CIDMMA for construction of the new alignment that runs along the eastern edge of Craney Island and connects to VA 164. The improvements bisect the Craney Island US Naval Supply Center property; however, the majority of the structures associated with this facility are on the eastern edge of the property and therefore would not be impacted. Alternatives B, C, and D are located along the eastern edge of the CIDMMA adjacent to the shoreline.

Alternatives B, C, and D would impact 12 acres of the western edge of the US Coast Guard Station-Portsmouth property. The majority of the structures are located within the center and eastern portions of this property and would not be impacted.

Table 9: Military Facilities Impacts (acres)

Facility	No-Build Alternative	Alternative A	Alternative B	Alternative C	Alternative D
NAVSTA Norfolk*	0	22	37	42	37
Craney Island US Naval Supply Center	0	0	27	27	27
Craney Island Dredged Material Management Area (CIDMMA)	0	0	87	87	87
US Coast Guard Station-Portsmouth	0	0	12	12	12

Note: Parcel data used to calculate property impacts were gathered from the localities. Land use data provided in Section 4 was gathered from the HRTPO.
**Land within existing I-64 right-of-way in the vicinity of NAVSTA Norfolk is currently classified as a military use.*

Mitigation

Continued coordination with the US military would be conducted during the development of the Final SEIS, as well as any future design and construction. Impacts to US Coast Guard Station-Portsmouth and the Craney Island US Naval Supply Center are based on the preliminary LOD. If the identified Preferred Alternative includes impacts to these properties, engineering refinements would be evaluated to reduce impacts where possible and further coordination would occur to address facility security needs. Similar efforts may be made for other facilities during final design.

3. POPULATION CHARACTERISTICS AND ENVIRONMENTAL JUSTICE

3.1 POPULATION AND HOUSING CHARACTERISTICS

Methodology

Demographic and housing characteristics are identified based on American Community Survey (ACS) 5-year (2009-2013) data available online at American Factfinder. Data was gathered for the Census Block Groups and TAZ within or adjacent to the 500-foot wide Study Area Corridors and compared to similar data for the six cities surrounding the Study Area Corridors, and statewide. Existing conditions were reviewed by the local Cooperating Agencies during the development of this *HRCS Socioeconomic and Land Use Technical Report.* The Study Area Corridors contain 66 Census Block Groups, which are referred to as the study Census Block Groups. Direct long-term and short-term impacts to population and housing are assessed by identifying the number of potential relocations for each alternative and assessing the availability of nearby alternative, comparable housing.

Affected Environment

Population

The Hampton Roads Transportation Planning Organization (HRTPO) reported that population in the Hampton Roads region has increased approximately 51 percent from 1,077,049 residents in 1970 to 1,632,100 residents in 2010 (HRTPO, 2013a).

According to ACS 5-year (2009-2013) data, current total resident population in the Study Area Corridors, based on the studied Census Block Groups adjacent to the corridors, is approximately 113,393. **Table 10** presents the resident population within these Census Block Groups and compares the total population to that of the cities crossed by the Study Area Corridors, and statewide as presented in **Table 11**. Three Census Block Groups, 9900-0, 751.01-0, and 751.02-3 are located within the Study Area but are not within residential areas, are not located over water, and do not contain any population; therefore, they are removed from analysis. The most populous Census Block Group (9.01-1) at 13,333 residents, is located along I-564 in the military housing area of Camp Allen in Norfolk. The least populous residential area is in Census Block Group 751.01-2 that has 205 residents in the College Drive area of Suffolk. The study Census Block Group population is approximately 12 percent of that of the six cities' total population (968,412) and one percent of statewide population (8,326,289).

Future population has been forecasted by the HRTPO from 2009 to 2040 based on TAZ (HRTPO, 2013b). **Figure 7** graphs the forecasted population in the study TAZ by city. As shown, population is expected to increase in Chesapeake, Norfolk, and Suffolk portions of these TAZ, but slightly decrease in Hampton, Newport News, and Portsmouth.

Table 10: Population by Census Block Group

Census Block Group	Locality	Population	Census Block Group	Locality	Population
213.01-1	Chesapeake	791	308-2	Newport News	539
214.04-4	Chesapeake	881	3-3	Norfolk	1,120
215.01-1	Chesapeake	2,161	4-1	Norfolk	1,727
215.01-2	Chesapeake	3,106	4-3	Norfolk	1,327
215.01-3	Chesapeake	3,422	5-2	Norfolk	1,384
215.01-4	Chesapeake	2,411	5-3	Norfolk	493
215.02-3	Chesapeake	2,198	5-4	Norfolk	417
215.02-4	Chesapeake	2,972	8-1	Norfolk	1,406
216.01-1	Chesapeake	2,575	8-2	Norfolk	1,021
216.02-3	Chesapeake	3,093	308-3	Newport News	647
103.11-1	Hampton	1,809	9.01-1	Norfolk	4,764
103.13-1	Hampton	416	9.02-1	Norfolk	13,333
105.01-1	Hampton	3,218	11-1	Norfolk	1,607
105.01-2	Hampton	1,733	13-2	Norfolk	1,917
105.02-1	Hampton	2,288	55-1	Norfolk	1,420
105.02-2	Hampton	812	57.01-3	Norfolk	1,578
106.01-1	Hampton	1,026	2130.01-1	Portsmouth	1,305
106.01-2	Hampton	1,432	2130.01-3	Portsmouth	2,658
106.02-2	Hampton	1,384	2130.02-3	Portsmouth	2,413
108-1	Hampton	1,832	2131.01-1	Portsmouth	1,730
108-4	Hampton	768	2131.01-2	Portsmouth	1,591
111-1	Hampton	592	2131.01-3	Portsmouth	2,050
112-3	Hampton	949	2131.03-1	Portsmouth	517
113-2	Hampton	1,238	2131.03-2	Portsmouth	1,098
114-1	Hampton	2,345	2131.03-3	Portsmouth	2,023

Census Block Group	Locality	Population	Census Block Group	Locality	Population
301-1	Newport News	2,397	751.01-1	Suffolk	1,640
301-2	Newport News	334	751.01-2	Suffolk	205
301-3	Newport News	1,915	751.01-3	Suffolk	2,061
304-1	Newport News	742	751.02-4	Suffolk	1,406
306-1	Newport News	512	752.04-1	Suffolk	2,843
306-3	Newport News	1,044	752.04-2	Suffolk	1,986
308-1	Newport News	771			

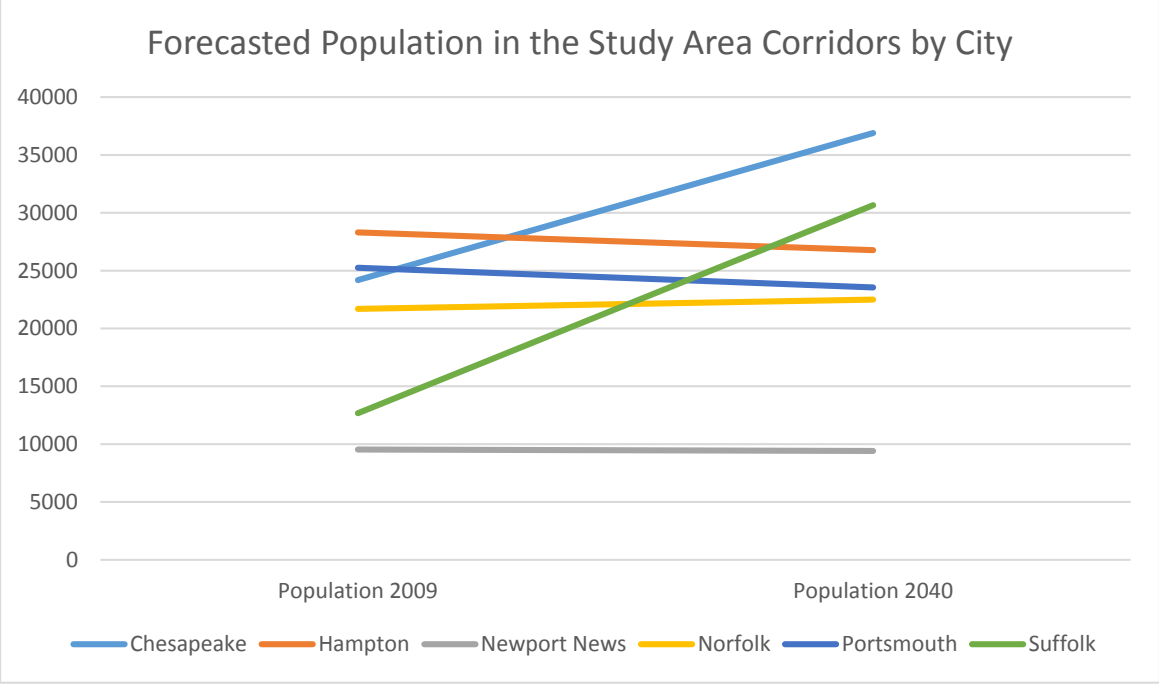
Source: ACS 5-year 2009-2013.

Table 11: Census Block Groups and Localities Population Summary

Location	Population
Census Block Groups Total	113,393
Chesapeake	225,597
Hampton	136,957
Newport News	181,025
Norfolk	244,090
Portsmouth	95,901
Suffolk	84,842
Virginia	8,326,289

Source: ACS 5-year 2009-2013

Figure 7: Population Trends



Source: HRTPO (2013b)

Housing

Table 12 presents housing characteristics in the study Census Block Groups. **Table 13** compares that data to housing characteristics in the six cities surrounding the study boundaries and statewide, based on ACS 5-year (2009-2013) data. Approximately 36,000 occupied housing units are in the study Census Block Groups (**Table 12**), with the majority (1,416) in Census Block Group 105.01-01 in the Power Plant Parkway area of Hampton. Approximately 48 percent of occupied housing units are owner-occupied and 52 percent are renter-occupied, as opposed to most of the cities surrounding the Study Area Corridors, where the rate of home ownership is higher. Only Norfolk has more renters than homeowners. Among the six cities surrounding the Study Area Corridors, there are a total of approximately 390,000 housing units, and 3.4 million housing units statewide.

Table 12: 2013 Housing Characteristics in the Study Census Block Groups

Census Block Group	Locality	Total Housing Units	Total Occupied Housing Units	Owner Occupied	Renter Occupied
213.01-1	Chesapeake	441	383	347	36
214.04-4	Chesapeake	703	315	315	0
215.01-1	Chesapeake	791	779	272	507
215.01-2	Chesapeake	1,010	956	934	22
215.01-3	Chesapeake	1,113	1,080	992	88
215.01-4	Chesapeake	869	732	461	271
215.02-3	Chesapeake	729	712	524	188
215.02-4	Chesapeake	1,014	1,014	766	248
216.01.1	Chesapeake	890	890	603	287
216.02-3	Chesapeake	1,031	993	787	206
103.11-1	Hampton	945	788	305	483
103.13-1	Hampton	192	192	0	192
105.01-1	Hampton	1,416	1,271	711	560
105.01-2	Hampton	903	715	193	522
105.02-1	Hampton	912	835	240	595
105.02-2	Hampton	430	394	155	239
106.01-1	Hampton	408	383	183	200
106.01-2	Hampton	697	523	83	440
106.02-2	Hampton	794	634	354	280
108-1	Hampton	724	710	342	368
108-4	Hampton	431	349	217	132
111-1	Hampton	368	206	0	206
112-3	Hampton	431	399	332	67
113-2	Hampton	426	373	203	170
114-1	Hampton	273	214	4	210
301-1	Newport News	867	789	24	765
301-2	Newport News	261	172	0	172
301-3	Newport News	646	555	9	546
304-1	Newport News	527	405	109	296

Census Block Group	Locality	Total Housing Units	Total Occupied Housing Units	Owner Occupied	Renter Occupied
306-1	Newport News	301	183	90	93
306-3	Newport News	434	363	39	324
308-1	Newport News	452	332	153	179
308-2	Newport News	252	200	0	200
308-3	Newport News	322	230	107	123
3-3	Norfolk	613	545	121	424
4-1	Norfolk	953	834	183	651
4-3	Norfolk	809	343	54	289
5-2	Norfolk	612	521	227	294
5-3	Norfolk	320	253	160	93
5-4	Norfolk	205	205	102	103
8-1	Norfolk	496	490	368	122
8-2	Norfolk	485	465	0	465
9.01-1	Norfolk	1037	979	0	979
9.02-1	Norfolk	478	444	5	439
11-1	Norfolk	1,123	895	93	802
13-2	Norfolk	913	674	229	445
55-1	Norfolk	460	435	283	152
57.01-3	Norfolk	766	599	41	558
2130.01-1	Portsmouth	85	85	0	85
2130.01-3	Portsmouth	1,149	1,087	927	160
2130.02-3	Portsmouth	945	919	692	227
2131.01-1	Portsmouth	556	520	120	400
2131.01-2	Portsmouth	703	640	7	633
2131.01-3	Portsmouth	836	786	370	416
2131.03-1	Portsmouth	200	200	168	32
2131.03-2	Portsmouth	344	344	292	52
2131.03-3	Portsmouth	842	789	368	421
751.01-1	Suffolk	623	530	421	109
751.01-2	Suffolk	90	90	77	13
751.01-3	Suffolk	802	748	678	70
751.02-4	Suffolk	648	591	499	92
752.04-1	Suffolk	1,392	1185	599	586
752.04-2	Suffolk	619	593	259	334

Source: ACS 5-year 2009-2013.

Table 13: 2013 Census Block Groups, Localities, and Statewide Housing Characteristics

Location	Total Housing Units	Total Occupied Housing Units	Owner Occupied	Renter Occupied
Census Block Groups Total	41,107	35,858	17,197	18,661
Chesapeake	84,403	79,421	57,579	21,842

Location	Total Housing Units	Total Occupied Housing Units	Owner Occupied	Renter Occupied
Hampton	59,746	52,511	31,560	20,951
Newport News	76,637	69,211	35,601	33,610
Norfolk	95,271	85,557	38,066	47,491
Portsmouth	40,833	36,690	20,997	15,693
Suffolk	33,372	30,492	22,373	8,119
Virginia	3,381,332	3,022,739	2,033,102	989,637

Source: ACS 5-year (2009-2013).

Environmental Consequences

The **No-Build Alternative** would not involve any property acquisitions or project-related construction and therefore no impacts to population or housing would result.

A summary of the impacts to residential properties for each of the **Build Alternatives** is provided in **Table 14**. Additional information on right-of-way requirements is provided in the *HRCS Right-of-Way and Relocation Technical Memorandum*.

Alternative A would result in the least impacts to residential properties (24 properties), the majority of which are located along I-64 in Norfolk. Of the 24 impacted properties, nine would be relocations. **Alternative B** would result in the second greatest number of impacted residential properties (29 properties), the majority of which are located along I-64 in Norfolk and VA 164 in Suffolk. Of the 29 impacted properties, nine would be relocations. **Alternative C** would impact 58 residential properties, the majority of which are located along I-664 in Hampton. Of the 58 impacted properties, 11 would be relocations. **Alternative D** would impact the greatest number of residential properties (69 properties), 20 of which would be relocations.

Table 14: Residential Impacts by Alternative

Impact	No-Build Alternative	Alternative A	Alternative B	Alternative C	Alternative D
Number of residential properties impacted	0	24	29	58	69
Total residential acres impacted	0.0	0.5	0.6	1.9	2.1
Residential relocations	0	9	9	11	20

Note: These are conservative estimates and the actual calculation of relocations is expected to decrease as the project design is advanced and more detailed roadway right-of-way requirements are determined.

The impacts to population and housing resulting from the Build Alternatives would affect the communities in which the relocations are located. All of the proposed relocations are located along existing right-of-way, at the periphery of any established community and would not bisect residential areas or create new impediments to travel through communities.

Mitigation

Currently, there appears to be adequate available housing in the Study Area Corridors given the difference between total housing units and total occupied housing units identified in **Table 3-13**. It

should be noted that any alternative considered in this HRCS SEIS could be implemented over many years and the availability of adequate housing could fluctuate. A determination on the availability of adequate housing would be made during detailed design for each operationally independent section (OIS). For the purposes of this analysis, the discussion focuses on current conditions. Additional details are provided in the *HRCS Right-of-Way and Relocation Technical Memorandum*.

VDOT has the ability, and if necessary, is willing to provide housing of last resort, including the purchase of land or dwellings; repair to existing dwellings to meet decent, safe, and sanitary conditions; relocation or remodeling of dwellings purchased by VDOT; or construction of new dwellings. Assurance is given that all displaced families and individuals would be relocated to suitable replacement housing; all replacement housing would be fair housing available to all persons without regard to race, color, religion, sex, or national origin; and all replacement housing would be within the financial means of the displacees. Each person would be given sufficient time to negotiate for and obtain possession of replacement housing. No residential occupants would be required to move from property needed for the Retained Build Alternatives until comparable decent, safe, and sanitary replacement dwellings have been made available to them.

All affected property owners would be compensated for the fair market value of the acquired portion of land and any structures acquired for the construction of the Preferred Alternative. Additionally, any individual, family, business, farm or non-profit organization displaced as a result of the acquisition of real property is eligible to receive reimbursement for the fair market value of property acquired, as well as moving costs. This process is known as relocation assistance. In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended, 1987), displaced property owners would be provided relocation assistance advisory services together with the assurance of the availability of decent, safe, and sanitary housing. Relocation resources would be made available to all displacees without discrimination.

3.2 ENVIRONMENTAL JUSTICE

Methodology

Regulatory Context

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

> "general population served and/or affected (city, county, etc.) by the proposed action should be identified by race, color, national origin, and age" and identify if there are foreseeable impacts on "general social groups specially benefitted or harmed by the proposed project" including "effects of a project on the elderly, handicapped, non-drivers, transit-dependent, and minority and ethnic groups".

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

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

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

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

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

Identification of Environmental Justice Populations

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

- Minority Individual – The USDOT and FHWA EJ Orders define a minority individual as belonging to one of the following groups:

  (1) Black: a person having origins in any of the black racial groups of Africa;

(2) Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;

(3) Asian-American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;

(4) American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through Tribal affiliation or community recognition; or

(5) Native Hawaiian and Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

- Low-Income Individual – The FHWA and USDOT EJ Orders define a "low-income" individual as a person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. While more recent HHS poverty guidelines are available, the 2013 guidelines are appropriate to be used for consistent comparison to the ACS 5-year (2009-2013) *Median Household Income in the Past 12 Months (In 2013 Inflation-adjusted dollars)* data available at the Census Block Group level used in this study. The 2013 HHS poverty guidelines for persons living in the contiguous 48 states and District of Columbia as presented in **Table 15** are used for this analysis.

Table 15: Health and Human Services 2013 Poverty Guidelines [1]

Persons in Family/Household	Poverty Guideline
1	$11,490
2	$15,510
3	$19,530
4	$23,550
5	$27,570
6	$31,590
7	$35,610
8	$39,630
For families/households with more than 8 persons, add $4,020 for each additional person	

Source: HHS (2013).

[1]2013 HHS poverty guidelines are used for consistent comparison to the ACS 5-year (2009-2013) Median Household Income in the Past 12 Months (In 2013 Inflation-adjusted dollars) data available at the Census Block Group level used in this analysis.

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

- Minority Populations – Any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT/FHWA program, policy, or activity (USDOT and FHWA EJ Orders). For the purposes of this analysis, a minority population is present when: (a) the minority population of the affected area exceeds 50 percent of total population, or (b) the minority population percentage in the affected area is "meaningfully greater" than the minority population percentage in the general population or other appropriate unit of geographical analysis (CEQ, 1997). For the purposes of this study, the minority population for a study Census Block Group will be found to be "meaningfully greater" than surrounding study Block Groups if its minority population is greater than the value of the Block Group with the lowest percentage of minority population within the study Census Block

Groups, plus an additional ten percent of that value. This methodology has been agreed upon by the Environmental Protection Agency (EPA), FHWA, and VDOT as appropriate for the identification minority populations for discussion in NEPA documents.

- Low-Income Population – Any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT/FHWA program, policy, or activity (USDOT/FHWA EJ Orders). In the HRCS SEIS EJ analysis, low-income populations are identified where the median household income for a study Census Block Group is at or below the HHS poverty threshold.

The study Census Block Groups selected for analysis of direct effects to EJ populations are those within or immediately adjacent to approximately ¼ mile (1,320 feet) of the Study Area Corridors centerlines.

Environmental Justice Impact Evaluation

When impacts to EJ populations are identified, the impacts experienced by the affected population are compared to those experienced by others residing in all of the study Census Block Groups. A disproportionately high and adverse effect on minority and low-income populations is defined by the FHWA EJ Order as an impact that:

- Would be predominately borne by a minority and/or low-income population, or
- Would be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the nonminority population and/or non-low-income population.

Additionally, measures to avoid, minimize or offset adverse effects to minority and low-income populations from the alternatives analyzed are considered, along with the benefits of the alternatives, in making the determination of whether an impact is disproportionately high and adverse to minority and low-income populations.

If disproportionately high and adverse effects to a minority or low-income population would occur from a project (i.e., selected alternative) and practicable mitigation measures or other feasible alternatives would not further reduce the impact, FHWA would consider if there is substantial need for the project based on overall public interest. FHWA may only approve selection of the alternative with the least adverse effects on protected EJ populations unless the alternative has either:

- Adverse social, economic, environmental, or human health impacts that are more severe; or
- Would involve increased costs of an extraordinary magnitude.

As preliminary design and assessment of impacts advances, consideration of an alternative's impacts to individual minority or low-income persons may be necessary. For example, minority or low-income extended families may be located adjacent to each other to assist each other with dependent care. In this type of circumstance, relocation of one household away from another may impose disproportionately high and adverse effects to minority or low-income individuals (FHWA, 2015b).

Affected Environment

Minority Populations

Table 16 presents the race and ethnicity of residents in the EJ study Census Block Groups according to ACS 5-year (2009-2013) data. The table also identifies the Census Block Groups meeting the definition of a

minority population. A total of 76 out of 78 study Census Block Groups meet the definition of a minority population (**Figure 8**). Of these, eight meet the definition of both minority and low-income populations (106.01-2, 106.02-1, 114-1, 301-1, 301-2, 304-1, 14-1, and 57.01-3). Census Block Group 9.02-1, located in Norfolk, has the most minority residents at 7.7 percent of the total minority population of the study Census Block Groups.

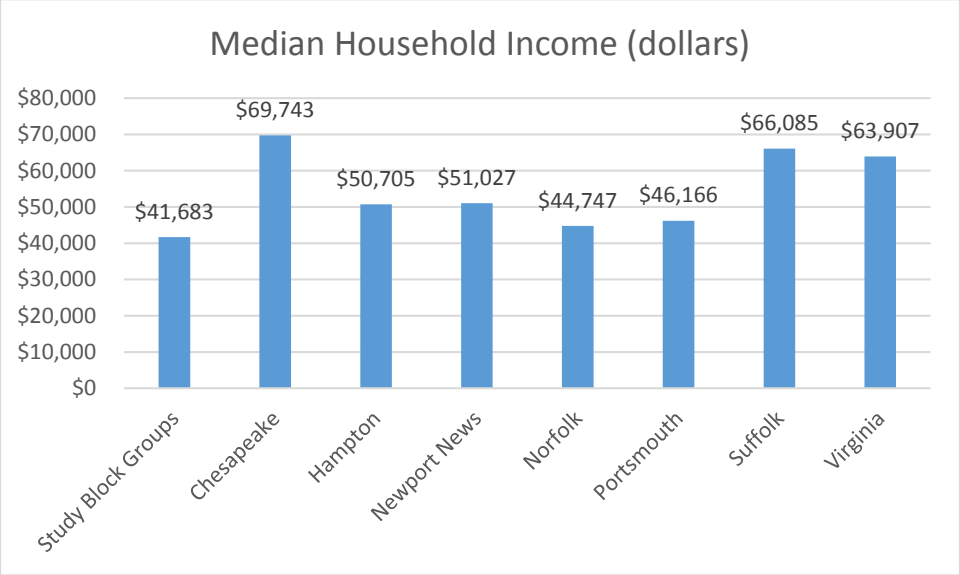
Minority populations are located in Census Block Groups all along I-64 in the cities of Norfolk and Hampton. The only exception is the West Ocean View neighborhood of Norfolk. Minority populations are also located along the I-564 Study Area Corridor in Norfolk, and with a few exceptions, along the length of I-664 through Hampton, Newport News, Suffolk, and Chesapeake. Areas along I-664 that are not classified as having minority populations include the Harbour View area of Suffolk, west of I-664 from Portsmouth Boulevard interchange to Bowers Hill in Chesapeake, and southeast of the Dock Landing interchange in Chesapeake. Along VA 164, minority populations are located adjacent to the freeway except in the south part of Towne Point.

Similar to several Hampton Roads region cities, the most populous race in the study Census Block Groups is black or African American (42.7 percent). This is followed in frequency by white (42.7 percent), Hispanic or Latino (6.4 percent), two or more races (3.0 percent), Asian (3.0 percent), some other race (1.7 percent), American Indian and Alaska Native (0.4 percent), and Native Hawaiian or other Pacific Islander (0.1 percent) races (**Table 17**).

Low-Income Populations

Table 16 presents the median household income and percent of residents living below the HHS poverty level in the study Census Block Groups. The table also presents whether a given Census unit qualifies as a low-income population. Eight of the 78 study Census Block Groups meet the definition of a low-income population. All of the low-income populations identified are located in areas that also were documented above as having minority populations. As shown in **Figure 8**, low-income populations in the study Census Block Groups are found along I-64 in the Cottage Park neighborhood in Norfolk, as well as Hampton University and King's Square areas of Hampton. Along I-664, a low-income population resides in the Jefferson area of Newport News. **Figure 9** indicates median household income in the study Census Block Groups ($41,683) is lower than each of the six cities surrounding the Study Area Corridors, and statewide.

Figure 9: Median Household Income in the Study Census Block Groups and Localities



Source: ACS 5-year 2009-2013.

Environmental Consequences

The **No-Build Alternative** would not involve any project related construction; therefore, it would not impact low-income or minority populations.

The majority of the Census Block Groups proximal to the **Build Alternatives** contain minority and low-income populations that meet the established threshold for EJ populations. As shown in **Table 18**, 67 percent of the Census Block Groups proximal to **Alternative A** are EJ Census Block Groups, 77 percent of those proximal to **Alternative B** are EJ Census Block Groups, 83 percent of those proximal to **Alternative C** are EJ Census Block Groups, and 80 percent of those proximal to **Alternative D** are EJ Census Block Groups. More information on the impacts by alternative segment are provided in **Appendix A**.

Table 16: Block Group Minority and Low-Income Characteristics and EJ Population Status[1]

Census Tract Block Group	Total Block Group Population	White (#/%)	Black or African American (#/%)	American Indian and Alaska Native (#/%)	Asian (#/%)	Native Hawaiian and Other Pacific Islander (#/%)	Other (#/%)	Two or More Races (#/%)	Hispanic or Latino (#/%)	Total Block Group Minority Population (#/%)	"Meaningfully Greater Threshold" %	EJ Minority Population	Median Household Income	Family of 4 Threshold	EJ Low-Income Population	Locality
213.01-1	791	676/85.5	32/4.0	33/4.2	0/0.0	0/0.0	22/2.8	28/3.5	50/6.3	115/14.5	11.0	YES	$36,964	$23,550	NO	Chesapeake
214.04-4	881	184/20.9	619/70.3	0/0.0	78/8.9	0/0.0	0/0.0	0/0.0	101/11.5	697/79.1	11.0	YES	$84,375	$23,550	NO	Chesapeake
215.01-1	2,161	280/13.0	1,629/75.4	3/0.1	91/4.2	0/0.0	117/5.4	41/1.9	160/7.4	1,881/87.0	11.0	YES	$45,197	$23,550	NO	Chesapeake
215.01-2	3,106	2,344/75.5	447/14.4	46/1.5	19/0.6	0/0.0	158/5.1	92/3.0	57/1.8	762/24.5	11.0	YES	$103,424	$23,550	NO	Chesapeake
215.01-3	3,422	1,885/55.1	979/28.6	0/0.0	347/10.1	0/0.0	0/0.0	211/6.2	195/5.7	1,537/44.9	11.0	YES	$91,736	$23,550	NO	Chesapeake
215.01-4	2,411	526/21.8	1,857/77.0	0/0.0	0/0.0	0/0.0	0/0.0	28/1.2	150/6.2	1,885/78.2	11.0	YES	$40,648	$23,550	NO	Chesapeake
215.02-3	2,198	1,824/83.0	185/8.4	37/1.7	59/2.7	0/0.0	0/0.0	93/4.2	0/0.0	374/17.0	11.0	YES	$86,557	$23,550	NO	Chesapeake
215.02-4	2,972	1,944/65.4	730/24.6	7/0.2	149/5.0	0/0.0	0/0.0	142/4.8	0/0.0	1,028/34.6	11.0	YES	$66,088	$23,550	NO	Chesapeake
216.01-1	2,575	1,373/53.3	798/31.0	0/0.0	243/9.4	0/0.0	39/1.5	122/4.7	0/0.0	1,202/46.7	11.0	YES	$83,333	$23,550	NO	Chesapeake
216.02-3	3,093	1,638/53.0	1,340/43.3	0/0.0	31/1.0	0/0.0	0/0.0	84/2.7	28/0.9	1,455/47.0	11.0	YES	$63,882	$23,550	NO	Chesapeake
103.06-1	1,665	738/44.3	710/42.6	0/0.0	33/2.0	0/0.0	108/6.5	76/4.6	122/7.3	927/55.7	11.0	YES	$66,314	$23,550	NO	Hampton
103.11-1	1,809	610/33.7	920/50.9	0/0.0	56/3.1	0/0.0	211/11.7	12/0.7	211/11.7	1,199/66.3	11.0	YES	$44,875	$23,550	NO	Hampton
103.13-1	416	264/63.5	131/31.5	0/0.0	0/0.0	0/0.0	0/0.0	21/5.0	0/0.0	152/36.5	11.0	YES	$35,875	$23,550	NO	Hampton
105.01-1	3,218	1,060/32.9	2,029/63.1	1/0.0	116/3.6	0/0.0	0/0.0	12/0.4	33/1.0	2,158/67.1	11.0	YES	$32,367	$23,550	NO	Hampton
105.01-2	1,733	165/9.5	1,522/87.8	0/0.0	34/2.0	0/0.0	0/0.0	12/0.7	0/0.0	1,568/90.5	11.0	YES	$26,164	$23,550	NO	Hampton
105.02-1	2,288	94/4.1	1,894/82.8	76/3.3	7/0.3	0/0.0	128/5.6	89/3.9	160/7.0	2,194/95.9	11.0	YES	$27,054	$23,550	NO	Hampton
105.02-2	812	185/22.8	593/73.0	0/0.0	34/4.2	0/0.0	0/0.0	0/0.0	0/0.0	627/77.2	11.0	YES	$37,794	$23,550	NO	Hampton
106.01-1	1,026	63/6.1	963/93.9	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	62/6.0	963/93.9	11.0	YES	$28,369	$23,550	NO	Hampton
106.01-2	1,432	359/25.1	1,073/74.9	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	61/4.3	1,073/74.9	11.0	YES	$23,098	$23,550	YES	Hampton
106.02-1	1,500	305/20.3	1,099/73.3	0/0.0	75/54.0	0/0.0	0/0.0	21/1.4	82/5.5	1,195/79.7	11.0	YES	$22,500	$23,550	YES	Hampton
106.02-2	1,384	67/4.8	1,317/95.2	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	126/9.1	1,317/95.2	11.0	YES	$33,000	$23,550	NO	Hampton
108-1	1,832	773/39.3	754/42.2	0/0.0	193/10.5	0/0.0	0/0.0	112/6.1	135/7.4	1,059/57.8	11.0	YES	$34,515	$23,550	NO	Hampton
108-4	768	284/37.0	468/60.9	0/0.0	16/2.1	0/0.0	0/0.0	0/0.0	0/0.0	484/63.0	11.0	YES	$38,750	$23,550	NO	Hampton
109-1	2,160	367/17.0	1,716/79.4	30/1.4	0/0.0	0/0.0	0/0.0	47/2.2	202/9.4	1,793/83.0	11.0	YES	$38,092	$23,550	NO	Hampton
111-1	592	321/54.2	161/27.2	0/0.0	85/14.4	0/0.0	1/0.2	24/4.1	2/0.3	271/45.8	11.0	YES	$90,625	$23,550	NO	Hampton
112-3	949	483/50.9	226/23.8	0/0.0	38/4.0	0/0.0	182/19.2	20/2.1	182/19.2	466/49.1	11.0	YES	$58,219	$23,550	NO	Hampton
113-2	1,238	639/51.6	576/46.5	0/0.0	0/0.0	0/0.0	20/1.6	3/0.2	116/9.4	599/48.4	11.0	YES	$38,125	$23,550	NO	Hampton
114-1	2,345	121/5.2	2,212/94.3	0/0.0	12/0.5	0/0.0	0/0.0	0/0.0	76/3.2	2,224/94.8	11.0	YES	$2,500	$23,550	YES	Hampton

Census Tract Block Group	Total Block Group Population	White (#/%)	Black or African American (#/%)	American Indian and Alaska Native (#/%)	Asian (#/%)	Native Hawaiian and Other Pacific Islander (#/%)	Other (#/%)	Two or More Races (#/%)	Hispanic or Latino (#/%)	Total Block Group Minority Population (#/%)	"Meaningfully Greater Threshold" %	EJ Minority Population	Median Household Income	Family of 4 Threshold	EJ Low-Income Population	Locality
114-2	534	70/13.1	445/83.3	8/1.5	6/1.1	0/0.0	0/0.0	5/0.9	5/0.9	464/86.9	11.0	YES	*****	$23,550	*****	Hampton
119-3	395	10/2.5	374/94.7	0/0.0	0/0.0	0/0.0	0/0.0	11/2.8	0/0.0	385/97.5	11.0	YES	$51,767	$23,550	NO	Hampton
301-1	2,397	71/3.0	2,307/96.2	0/0.0	0/0.0	0/0.0	0/0.0	19/0.8	49/2.0	2,326/97.0	11.0	YES	$13,902	$23,550	YES	Newport News
301-2	334	0/0.0	334/100.0	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	334/100.0	11.0	YES	$15,000	$23,550	YES	Newport News
301-3	1,915	816/42.0	951/49.7	20/1.0	0/0.0	0/0.0	27/1.4	101/5.3	94/4.9	1,099/57.4	11.0	YES	$31,830	$23,550	NO	Newport News
304-1	742	2/0.3	740/99.7	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	4/0.5	740/99.7	11.0	YES	$15,981	$23,550	YES	Newport News
306-1	512	76/14.8	436/85.2	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	436/85.2	11.0	YES	$29,792	$23,550	NO	Newport News
306-3	1,044	0/0.0	1,002/96.0	0/0.0	0/0.0	0/0.0	14/1.3	28/2.7	14/1.3	1,044/100.0	11.0	YES	$32,031	$23,550	NO	Newport News
308-1	771	0/0.0	744/96.5	0/0.0	0/0.0	0/0.0	0/0.0	27/3.5	33/4.3	771/100.0	11.0	YES	$37,917	$23,550	NO	Newport News
308-2	539	0/0.0	539/100.0	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	539/100.0	11.0	YES	$25,625	$23,550	NO	Newport News
308-3	647	0/0.0	632/97.7	0/0.0	0/0.0	0/0.0	0/0.0	15/2.3	0/0.0	647/100.0	11.0	YES	$52,500	$23,550	NO	Newport News
311-2	1,434	897/62.6	471/32.8	0/0.0	0/0.0	0/0.0	0/0.0	66/4.6	15/1.0	537/37.4	11.0	YES	$70,750	$23,550	NO	Newport News
312-1	551	367/66.6	177/32.1	0/0.0	0/0.0	0/0.0	7/1.3	0/0.0	7/1.3	184/33.4	11.0	YES	$39,183	$23,550	NO	Newport News
3-3	1,120	520/46.4	411/36.7	0/0.0	0/0.0	0/0.0	66/5.9	123/11.0	111/9.9	600/53.6	11.0	YES	$43,633	$23,550	NO	Norfolk
4-1	1,727	1,116/64.6	448/25.9	0/0.0	28/1.6	0/0.0	85/4.9	50/2.9	129/7.5	611/35.4	11.0	YES	$44,718	$23,550	NO	Norfolk
4-2	503	327/65.0	148/29.4	14/2.8	0/0.0	0/0.0	8/1.6	6/1.2	66/13.1	176/35.0	11.0	YES	$37,083	$23,550	NO	Norfolk
4-3	1,327	985/74.2	287/21.6	0/0.0	11/0.8	0/0.0	0/0.0	44/3.3	72/5.4	342/25.8	11.0	YES	$40,586	$23,550	NO	Norfolk
5-1	533	478/98.7	26/4.9	10/1.9	0/0.0	0/0.0	8/1.5	11/2.1	96/18.0	55/10.3	11.0	NO	$41,068	$23,550	NO	Norfolk
5-2	1,384	1,139/82.3	143/10.3	16/1.2	72/5.2	0/0.0	0/0.0	14/1.0	93/6.7	245/17.7	11.0	YES	$46,713	$23,550	NO	Norfolk
5-3	493	420/85.2	32/6.5	0/0.0	0/0.0	0/0.0	0/0.0	41/8.3	14/2.8	73/14.8	11.0	YES	$52,703	$23,550	NO	Norfolk
5-4	417	308/73.9	65/15.6	0/0.0	22/5.3	0/0.0	0/0.0	22/5.3	0/0.0	109/26.1	11.0	YES	$61,806	$23,550	NO	Norfolk
6-2	600	485/80.8	54/9.0	0/0.0	37/6.2	0/0.0	0/0.0	24/4.0	23/3.2	115/19.2	11.0	YES	$67,125	$23,550	NO	Norfolk
7-2	1,732	1,203/69.5	296/17.1	0/0.0	178/10.3	0/0.0	0/0.0	55/3.2	101/5.8	529/30.5	11.0	YES	$64,861	$23,550	NO	Norfolk
8-1	1,406	972/69.1	289/20.6	37/2.6	85/6.0	0/0.0	0/0.0	23/1.6	170/12.1	434/30.9	11.0	YES	$63,561	$23,550	NO	Norfolk
8-2	1,021	455/44.6	379/37.1	0/0.0	113/11.1	26/2.5	29/2.8	19/1.9	224/21.9	566/55.4	11.0	YES	$37,377	$23,550	NO	Norfolk
9.01-1	4,764	3,056/64.1	1,065/22.4	47/1.0	49/1.0	36/0.8	211/4.4	300/6.3	837/17.6	1,708/35.9	11.0	YES	$45,318	$23,550	NO	Norfolk
9.02-1	13,333	8,807/66.1	3,370/25.3	77/0.6	569/4.3	23/0.2	205/1.5	282/2.1	1615/12.1	4,526/33.9	11.0	YES	$48,611	$23,550	NO	Norfolk
11-1	1,607	791/49.2	569/35.4	0/0.0	144/9.0	0/0.0	71/4.4	32/2.0	237/14.7	816/50.8	11.0	YES	$36,013	$23,550	NO	Norfolk
11-2	1,004	441/43.9	67/6.7	0/0.0	349/34.8	0/0.0	5/0.5	142/14.1	10/1.0	563/56.1	11.0	YES	$37,875	$23,550	NO	Norfolk
13-1	636	303/47.6	274/43.1	0/0.0	10/1.6	0/0.0	0/0.0	49/7.7	81/12.7	333/52.4	11.0	YES	$31,071	$23,550	NO	Norfolk

Census Tract Block Group	Total Block Group Population	White (#/%)	Black or African American (#/%)	American Indian and Alaska Native (#/%)	Asian (#/%)	Native Hawaiian and Other Pacific Islander (#/%)	Other (#/%)	Two or More Races (#/%)	Hispanic or Latino (#/%)	Total Block Group Minority Population (#/%)	"Meaningfully Greater Threshold" %	EJ Minority Population	Median Household Income	Family of 4 Threshold	EJ Low-Income Population	Locality
13-2	1,917	877/45.7	915/47.7	0/0.0	51/2.7	0/0.0	42/2.2	32/1.7	126/6.6	1,040/54.3	11.0	YES	$32,661	$23,550	NO	Norfolk
14-1	1,104	460/41.7	387/35.1	00.0	88/8.0	97/8.8	25/2.3	47/4.3	150/13.6	644/58.3	11.0	YES	$19,300	$23,550	YES	Norfolk
55-1	1,420	838/59.0	384/27.0	86/6.1	40/2.8	0/0.0	0/0.0	72/5.1	173/12.2	582/41.0	11.0	YES	$53,866	$23,550	NO	Norfolk
55-3	1,215	630/51.9	400/32.9	0/0.0	29/2.4	0/0.0	156/12.8	0/0.0	350/28.8	585/48.1	11.0	YES	$28,011	$23,550	NO	Norfolk
57.01-3	1,578	478/30.0	908/57.5	0/0.0	0/0.0	0/0.0	192/12.2	0/0.0	315/20.0	1,100/69.7	11.0	YES	$22,227	$23,550	YES	Norfolk
2130.01-1	1,305	828/63.4	408/31.3	0/0.0	33/2.5	13/1.0	0/0.0	23/1.8	88/6.7	477/36.6	11.0	YES	$45,757	$23,550	NO	Portsmouth
2130.01-3	2,658	1,650/62.1	739/27.8	21/0.8	39/1.5	0/0.0	68/2.6	141/5.03	184/6.9	1,008/37.9	11.0	YES	$81,816	$23,550	NO	Portsmouth
2130.02-3	2,413	1,785/74.0	554/23.0	0/0.0	5/0.2	0/0.0	69/2.9	0/0.0	18/0.7	628/26.0	11.0	YES	$63,645	$23,550	NO	Portsmouth
2131.01-1	1,730	173/10.0	1,342/77.6	0/0.0	57/3.3	0/0.0	0/0.0	158/9.1	16/0.9	1,557/90.0	11.0	YES	$38,591	$23,550	NO	Portsmouth
2131.01-2	1,591	340/21.4	1,112/69.9	0/0.0	18/1.1	0/0.0	22/1.4	99/6.2	310/19.5	1,251/78.6	11.0	YES	$32,351	$23,550	NO	Portsmouth
2131.01-3	2,050	496/24.2	1,412/68.9	35/1.7	0/0.0	0/0.0	0/0.0	98/4.8	18/0.9	1,545/75.4	11.0	YES	$42,717	$23,550	NO	Portsmouth
2131.03-1	517	465/89.9	52/10.1	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	52/10.1	11.0	NO	$61,250	$23,550	NO	Portsmouth
2131.03-2	1,098	551/50.2	376/34.2	0/0.0	16/1.5	0/0.0	0/0.0	155/14.1	56/5.1	547/49.8	11.0	YES	$65,149	$23,550	NO	Portsmouth
2131.03-3	2,023	1,032/51.0	958/47.4	0/0.0	0/0.0	0/0.0	0/0.0	33/1.6	87/4.3	991/49.0	11.0	YES	$53,456	$23,550	NO	Portsmouth
751.01-1	1,640	294/17.9	1,156/70.5	0/0.0	22/1.3	0/0.0	56/3.4	112/6.8	156/9.5	1,346/82.1	11.0	YES	$56,000	$23,550	NO	Suffolk
751.01-2	205	32/15.6	173/84.4	0/0.0	0/0.0	0/0.0	0/0.0	0/0.0	18/8.8	173/84.4	11.0	YES	$91,210	$23,550	NO	Suffolk
751.01-3	2,061	771/37.4	1,141/55.4	0/0.0	92/4.5	0/0.0	0/0.0	57/2.8	126/6.1	1,290/62.6	11.0	YES	$100,556	$23,550	NO	Suffolk
751.02-4	1,406	831/59.1	387/27.5	0/0.0	137/9.7	0/0.0	9/0.6	42/3.0	35/2.5	575/40.9	11.0	YES	$90,650	$23,550	NO	Suffolk
752.04-1	2,843	1,500/52.8	1,061/37.3	14/0.5	112/3.9	0/0.0	18/0.6	138/4.9	4/0.1	1,343/47.2	11.0	YES	$51,563	$23,550	NO	Suffolk
752.04-2	1,986	515/25.9	1,462/73.6	0/0.0	0/0.0	0/0.0	9/0.5	0/0.0	236/11.9	1,471/74.1	11.0	YES	$39,922	$23,550	NO	Suffolk

Source: American Community Survey 5-year 2009-2013.

Buff = minority population only
Brown = minority and low-income population
Gold = neither minority nor low-income
****** = Data not available*

Figure 8: Minority and Low-Income Populations

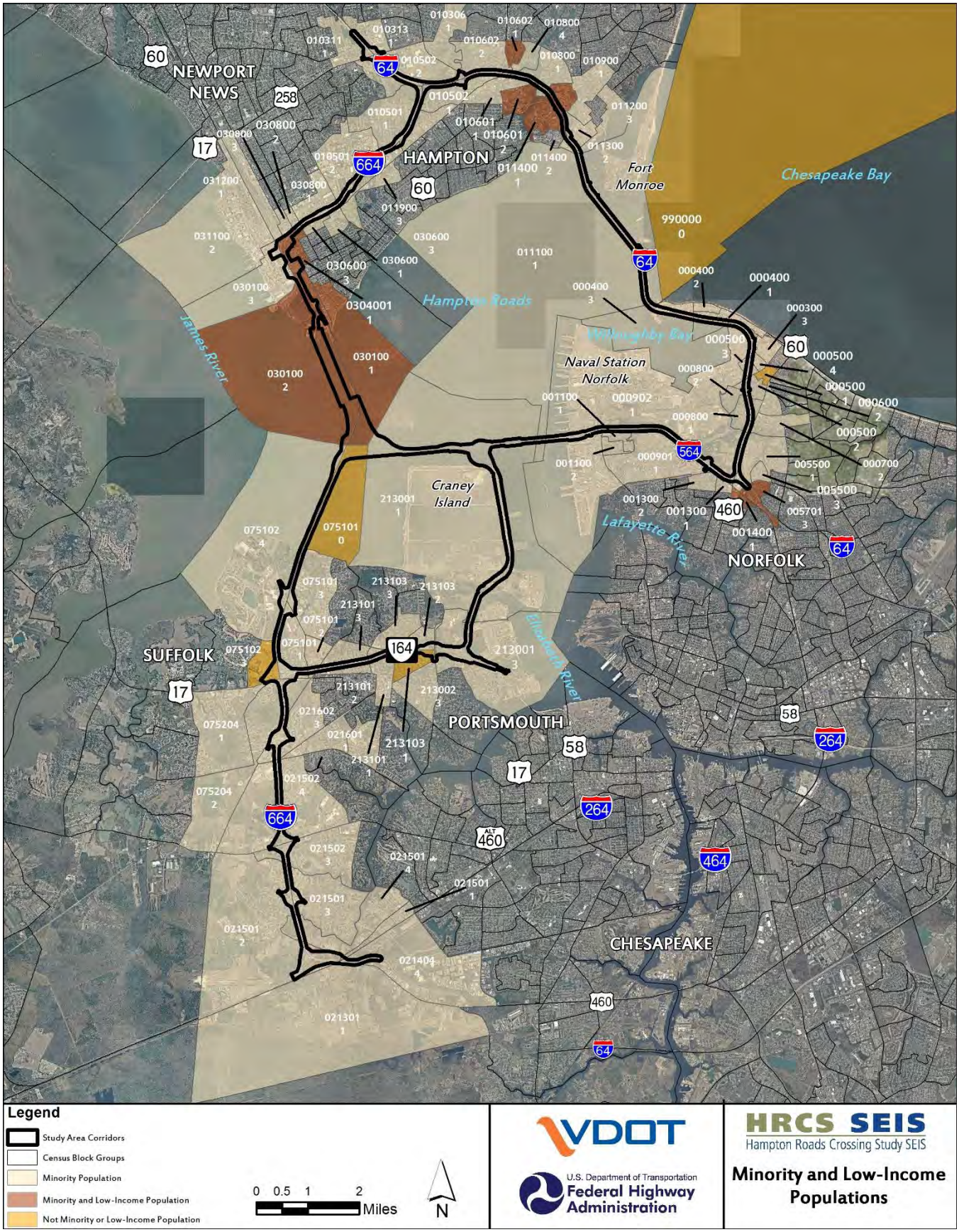


Table 17: Summary of Race in the Study Census Block Groups and Localities (#/%)

Race	Study Census Block Groups	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia
Total Population	128,950	225,597	136,957	181,025	244,090	95,901	84,842	8,100,653
White	58,233/ 45.2	141,488/ 62.7	58,907/ 43.0	92,125/ 50.9	117,566/ 48.2	39,794/ 41.5	44,464 /52.4	5,627,076/ 69.5
Black or African American	59,382/ 46.1	67,606/ 30.0	69,062/ 50.4	72,802/ 40.2	104,066/ 42.6	50,662/ 52.8	35,624/ 42.0	1,568,021/ 19.4
American Indian and Alaska Native	618/ 0.5	710/ 0.3	602/ 0.4	666/ 0.4	1,075/ 0.4	230/ 0.2	91/ 0.1	24,816/ 0.3
Asian	4,128/ 3.2	7,205/ 3.2	3,194/ 2.3	5,067/ 2.8	8,189/ 3.4	1,089/ 1.1	1,153 /1.4	457,792/ 5.7
Native Hawaiian and Other Pacific Islander	195/ 0.2	164/ 0.1	75/ 0.1	373/ 0.2	547/ 0.2	13/ 0.0	29/ 0.0	5,633/ 0.1
Some other race	2,388/ 1.9	2,050/ 0.9	1,456/ 1.1	2,620/ 1.4	4,025/ 1.6	1,115/ 1.2	363/ 0.4	179,449/ 2.2
Two or more races	4,006/ 3.1	6,374/ 2.8	3,661/ 2.7	7,372/ 4.1	8,622/ 3.5	2,998/ 3.1	3,118/ 3.7	237,866/ 2.9
Hispanic or Latino[1]	8,933/ 6.9	10,412/ 4.6	6,597/ 4.8	14,045/ 7.8	16,811/ 6.9	3,130/ 3.3	2,664/ 3.1	659,599/ 8.1

Source: ACS 5-year 2009-2013.

[1]Hispanic or Latino is evaluated separately from race by the US Census.

Table 18: EJ Block Group Impacts by Alternative

Impact	Alternative A	Alternative B	Alternative C	Alternative D
Number of Block Groups Proximal to Build Alternatives	12	22	30	44
Block Groups that meet the EJ Threshold	8 (67%)	17 (77%)	25 (83%)	35 (80%)

Total relocations by Census Block Group are provided in **Table 19**. All of the relocations under all of the Build Alternatives are located in Census Block Groups containing EJ populations (minority and low-income).

Table 19: Total Residential Relocations within EJ Block Groups

Block Group	Community or Neighborhood	Alternative A	Alternative B	Alternative C	Alternative D
400-3	Willoughby	8	8	0	8
800-1	Commodore Park	1	1	0	1
10501-2	Park Place	0	0	1	1
10501-1	Hampton Terrace	0	0	9	9
30800-1	Newsome Park	0	0	1	1
Total	**N/A**	**9**	**9**	**11**	**20**

The majority of the residential relocations are located in Census Block Groups 400-3 and 10501-1. Census Block Group 400-3 is located in the vicinity of I-64 in the Willoughby area. Widening of I-64 in this location would result in relocation of eight residential properties under Alternatives A and B. Census Block Group 10501-1 is located in the vicinity of I-664 in Hampton. Widening of I-664 in this location would result in relocation of nine residential properties under Alternatives C and D within the Hampton Terrace community. When impacts to EJ populations were identified, the impacts experienced by the affected population were compared to those experienced by others residing in the entire alternative alignment boundary. A disproportionately high and adverse effect on minority and low-income population locations is defined by the FHWA EJ Order as an impact that:

- Would be predominately borne by a minority and/or low-income population, or
- Would be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that would be suffered by the nonminority population and/or non-low-income population.

Per the FHWA Memorandum *Guidance on Environmental Justice and NEPA* (December 16, 2011), the impacts to minority and/or low-income populations were compared with respect to the impacts on the overall population within the project area (US Census Block Groups that intersect with the Build Alternatives). All relocations for each of the Build Alternatives would occur in Census Block Groups that meet the definition of Environmental Justice populations. However, this is not considered a disproportionate impact because 84 of the 86 Block Groups in the Study Area Corridors with a population meet the threshold for Environmental Justice. Furthermore, the ethnicity of individual relocatees has not been determined at this time. Therefore, while 100 percent of the Block Groups that would experience relocations meet the definition of an EJ population, the non-minority population within those same Block Groups range from 0 to 74 percent. This increases the probability that not all relocations would be borne by minorities and the impact would not be disproportionate.

As preliminary design and assessment of impacts advances, consideration of an alternative's impacts to individual minority or low-income persons may be necessary. For example, minority or low-income extended families may be located adjacent to each other to assist each other with dependent care. In this type of circumstance, relocation of one household away from another may impose disproportionately high and adverse effects to minority or low-income individuals (see *FHWA's 2015 Environmental Justice Reference Guide* for detailed discussion).

The transportation benefits (e.g., reduced congestion, increased regional accessibility, etc.) would be borne by all users of the facility. The increased capacity of each Build Alternative would reduce

congestion along all improved roadways, including those roads within Census Block Groups containing EJ populations.

Because temporary easements for construction are anticipated to be short-term and would not preclude access to or impact use of properties, potential effects during construction are not considered high or adverse to minority and low-income populations.

Mitigation

Determinations of whether a project would have disproportionately high and adverse effects must take into consideration "mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations…" (USDOT Order, Section 8.b). Under the Build Alternatives, efforts would be made to relocate impacted residents, businesses, and community facilities within the same community. The displaced would receive fair compensation and relocation assistance, minimizing impacts to community cohesion. Mitigation measures for impacts to neighborhoods and community facilities would include advance and frequent notice before changes in travel patterns, plentiful signage for detours, restrictions on work hours to daytime hours, methods to reduce dust, and construction worker parking in surrounding lots to avoid disrupting existing area parking.

Specific noise mitigation measures would be considered for areas of severe and moderate impact, once a Preferred Alternative is selected. At that time, mitigation measures such as noise barriers and buffer zones would be evaluated in greater detail.

Property acquisition activities would be performed in accordance with the Uniform Relocation Assistance and Real Properties Acquisition Act of 1970 (Uniform Act) as amended. Fair market value would be provided to all property owners as compensation for land acquisition.

4. LAND USE AND LOCALITY PLANS

Methodology

Existing and potential future land uses within the 500-feet wide Study Area Corridors were identified to provide a baseline for analysis of the potential impacts of the alternatives. Regional land use data compiled by the HRTPO in 2011 is used in this analysis (HRTPO, 2011). Information on land use was also gathered from local comprehensive and land use plans, aerial photos, input from local and regional planning officials, and field reconnaissance. Area within the existing VDOT right-of-way in the vicinity of NAVSTA Norfolk is currently classified as military use; however, field reconnaissance has determined this land is used for the I-64 right-of-way. The following land use classifications are used in this evaluation:

- Residential
- Commercial
- Mixed use
- Industrial
- Institutional
- Military
- Agricultural
- Open space

Mixed use is defined by HRTPO as commercial/residential or commercial/industrial. Institutional land uses include utilities, government, education, religious, social or healthcare facilities, and transportation facilities. Open space includes parks and recreation, resource conservation, and historic preservation uses. Potential impacts of the alternatives to future land uses are evaluated in detail in the *HRCS Indirect*

and Cumulative Effects Technical Memorandum. This analysis of direct effects focuses on whether the alternatives would result in impacts inconsistent with existing land use plans.

Affected Environment

Land Use

Hampton Roads is, for the most part, comprised of highly developed, well-established communities and commercial and industrial areas. As detailed below, the comprehensive plans of the six cities traversed by the Study Area Corridors indicate that Hampton, Newport News, Norfolk, and Portsmouth are largely built-out, while Chesapeake and Suffolk have more undeveloped land. In an HRTPO study of regional land use, the region included the six cities crossed by the Study Area Corridors, as well as the cities of Virginia Beach, Poquoson, Williamsburg, Franklin, Gloucester, Isle of Wight, James City, Southampton, Surry, and York Counties. While the land uses along the Study Area Corridors are more developed, the dominant land use in the Hampton Roads region is agricultural (**Table 20**) (HRTPO, 2011). **Table 21** presents the acreage per land use class and **Figures 10a-10f** show the geographic distribution of land use in the Study Area Corridors and surrounding areas. An issue with this data set is that the land use classification is inconsistent with known land use. This may occur where no documented property boundary exists to separate potentially different land uses. For example, **Figure 10b** shows an area within the existing I-64 corridor that is categorized as military.

Table 20: Hampton Roads Regional Land Use (2011)

Land Use Class	Acres	Percent Total Regional Land Use
Residential	327,906	14%
Commercial	33,245	1%
Industrial	52,645	2%
Mixed	4,194	Less than 1%
Institutional	331,013	14%
Military	64,233	3%
Agriculture	1,091,919	47%
Open Space	410,168	18%

Source: HRTPO (2011)

As shown in **Table 21**, current land use in the Study Area Corridors is primarily mixed use, followed by open space, institutional, industrial, military, residential, and commercial. There are no agricultural uses in the Study Area Corridors. Transportation facilities are included in the institutional land use category and since this study focuses on highway corridors, a high percentage of institutional land use is expected. In contrast, the Hampton Roads region regional land use is predominately agricultural, followed by open space, residential and institutional, military, industrial, commercial and mixed uses (**Table 20**). Land use in the Study Area Corridors is likely more industrial and commercial due to such developments located near key transportation access nodes (i.e., interstate interchanges) that provide for the efficient movement of goods, and easier access to services by the traveling public.

Figure 10a: Land Use in the Study Area Corridors

Figure 10b: Land Use in the Study Area Corridors

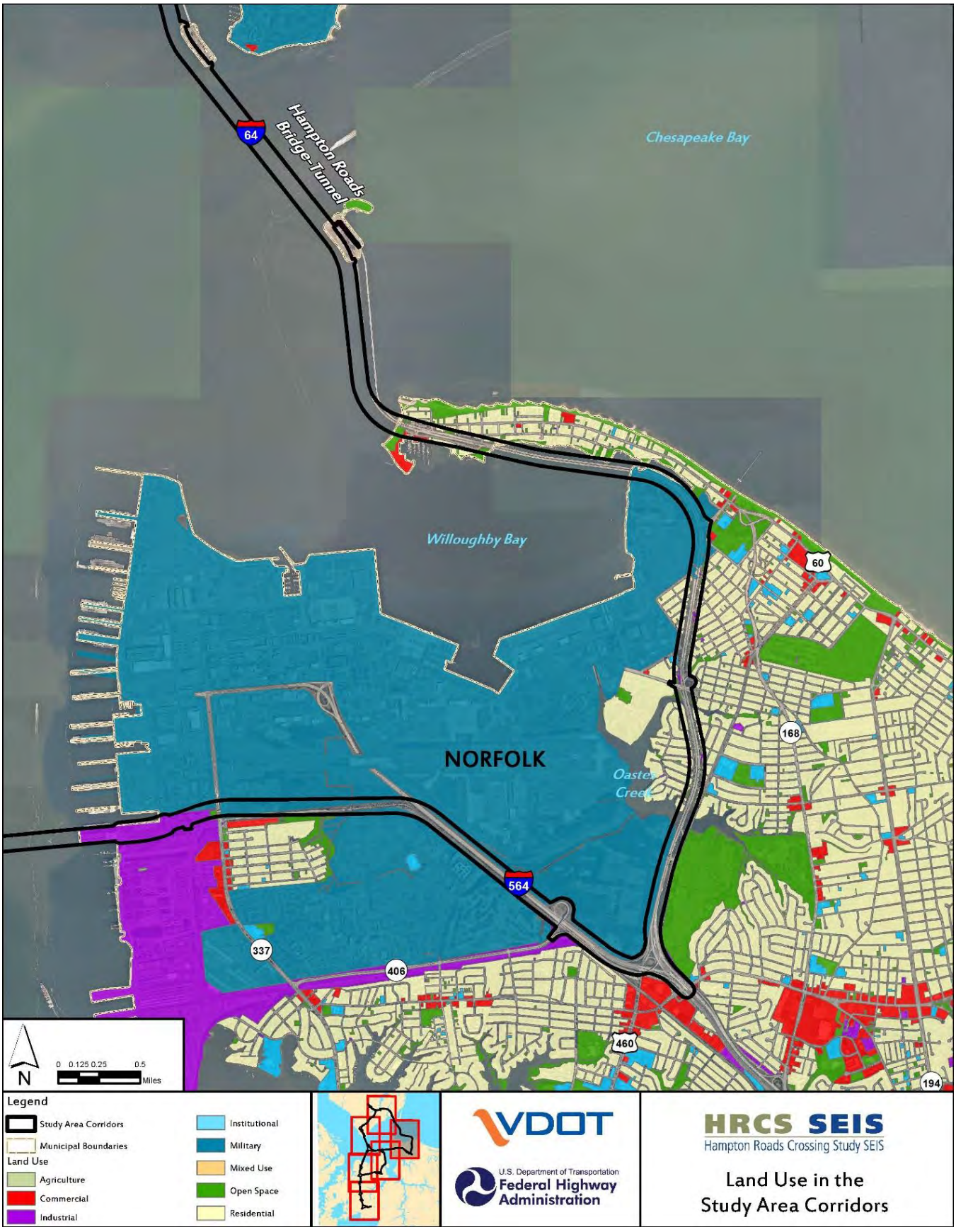


Figure 10c: Land Use in the Study Area Corridors

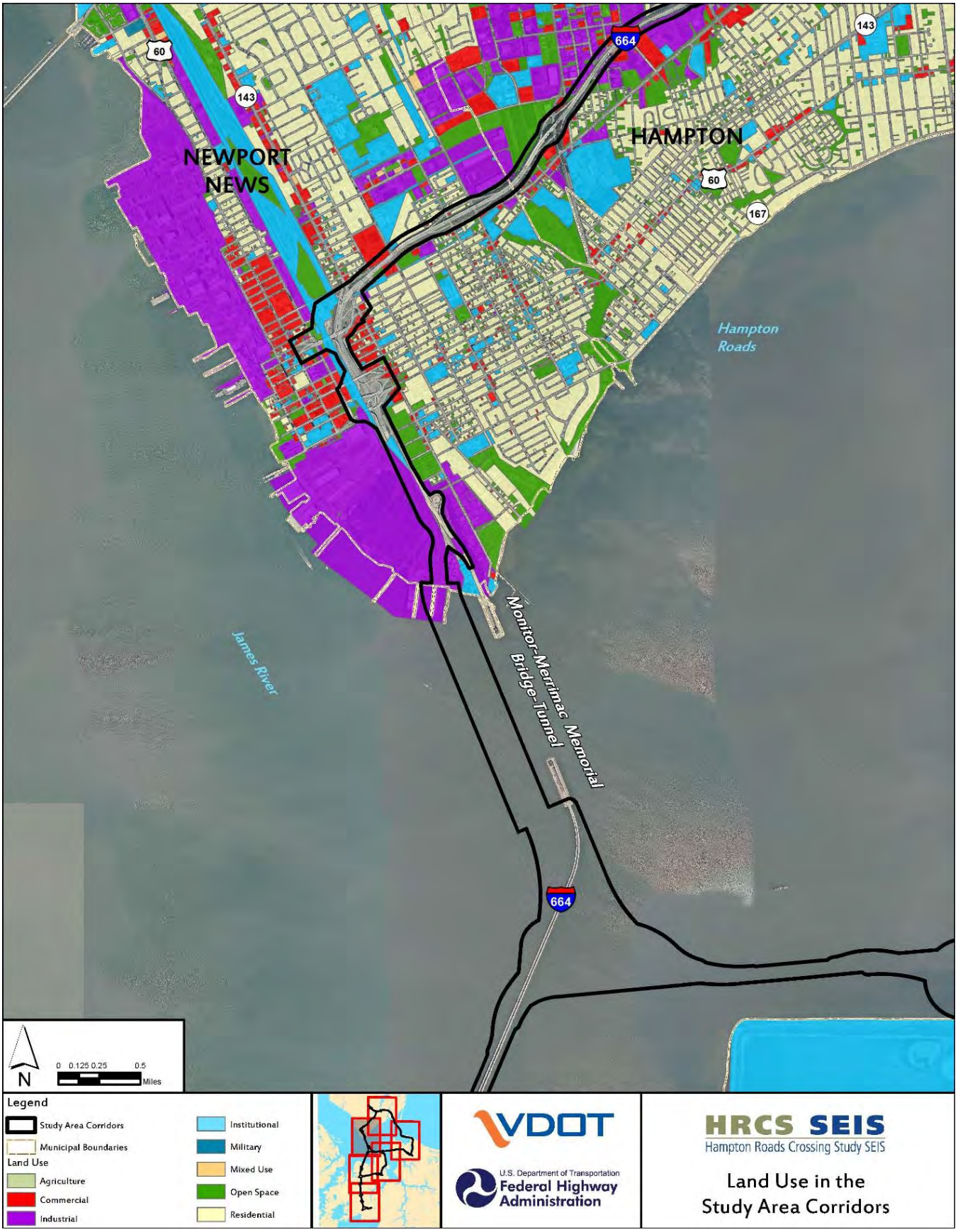


Figure 10d: Land Use in the Study Area Corridors

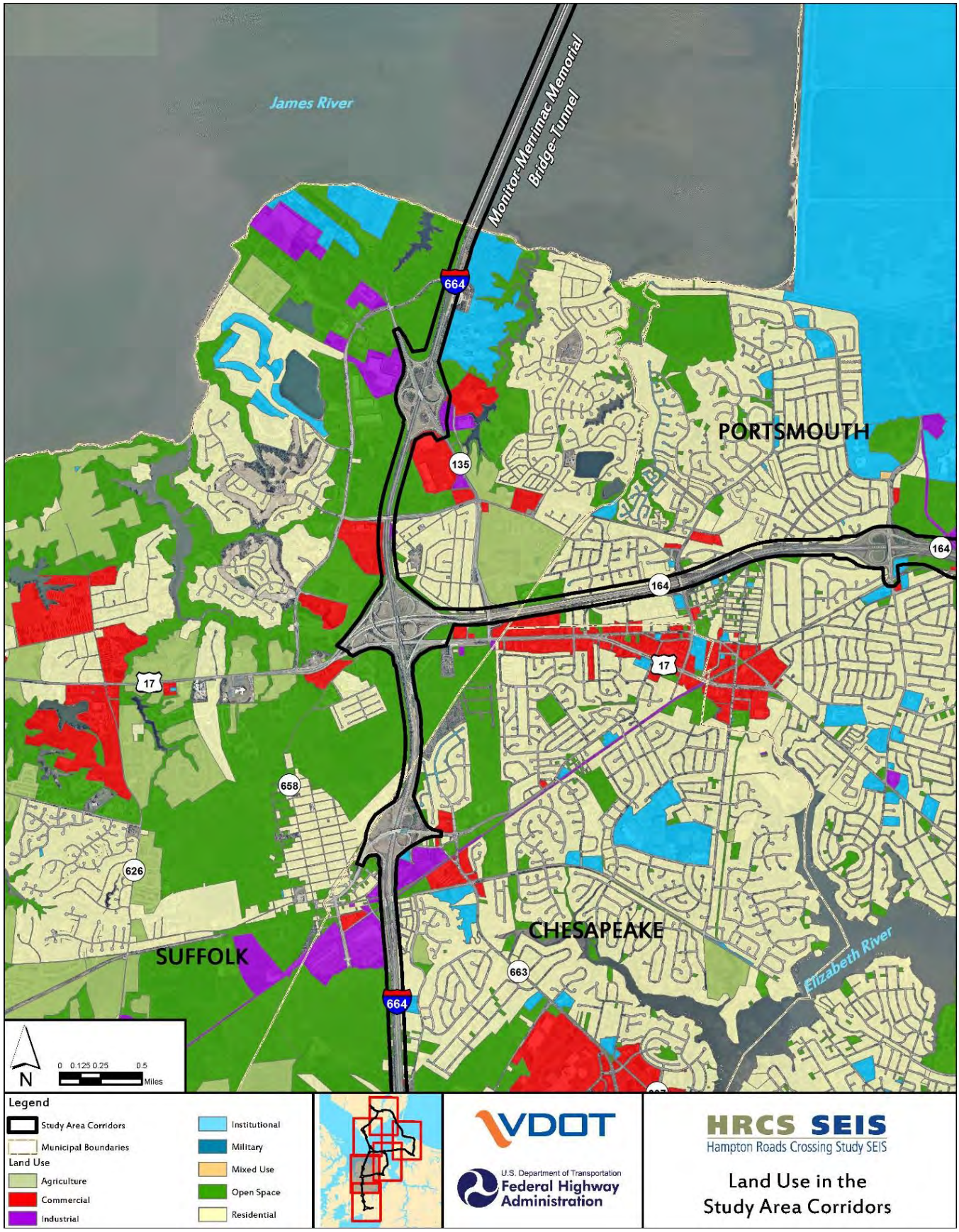


Figure 10e: Land Use in the Study Area Corridors

Figure 10f: Land Use in the Study Area Corridors

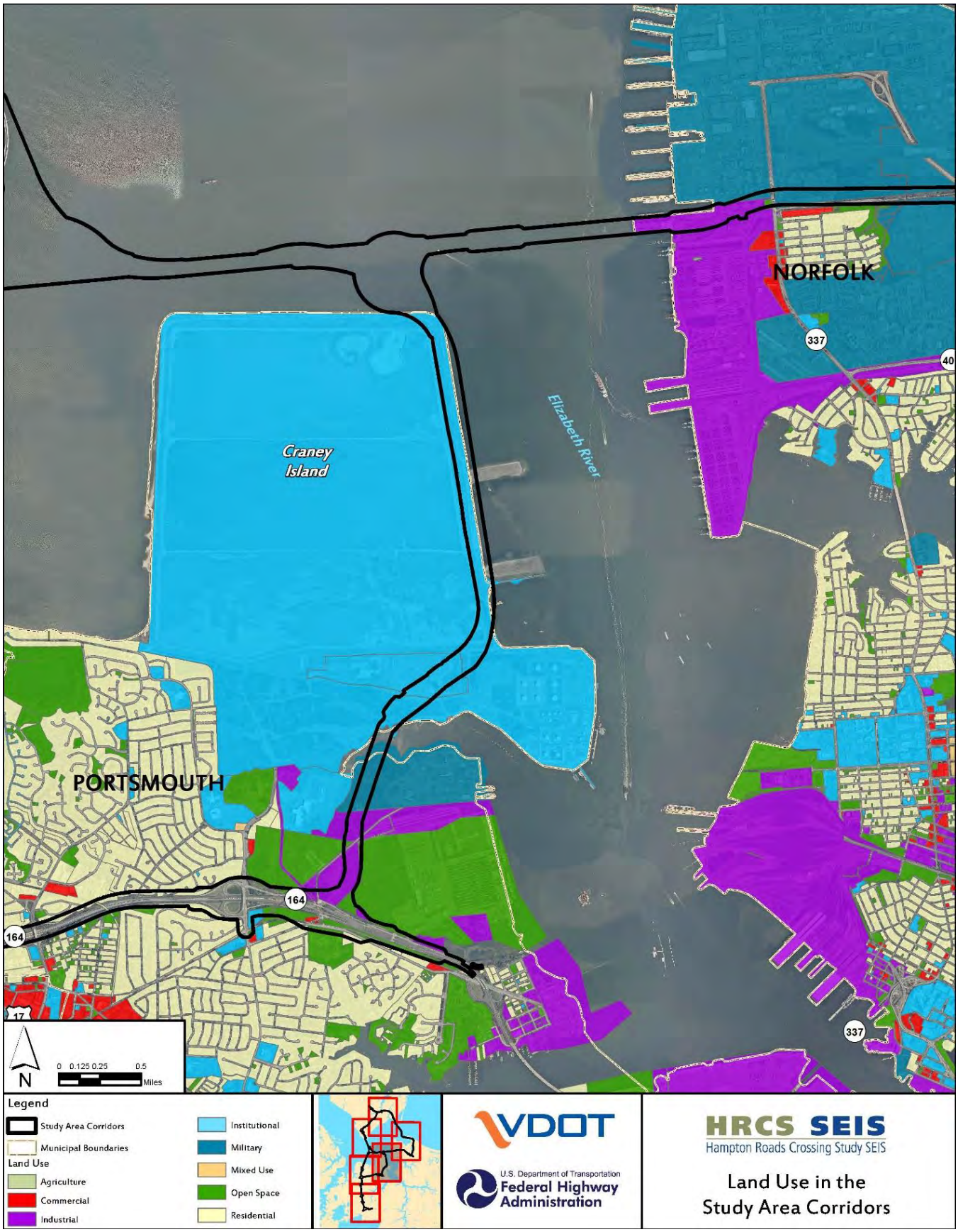


Table 21: Study Area Corridors Land Use (2011)

Land Use Class	Acres	Percent Total Study Area Corridors Land Use
Residential	160.3	7%
Commercial	68.6	3%
Industrial	215.5	9%
Mixed	1,183.6	50%
Institutional	265.7	11%
Military	180.0	8%
Agriculture	0	0%
Open Space	292.0	12%

Source: HRTPO (2011).

Locality Plans

Chesapeake's most recent comprehensive plan, adopted in 2014, is *Moving Forward – Chesapeake 2035*. Factors affecting land use and development in the City include approximately 40 percent of its land area being comprised of wetlands and 30 percent being conservation areas (Chesapeake, 2014). Land in the areas of the City along I-664 and the Bowers Hill US-58/I-664/I-264/I-64 interchanges is in a planned Suburban Overlay district. Commercial land is concentrated at the I-664 Portsmouth Boulevard interchange and north Bowers Hill area, as well as the area along Taylor Road just south of VA 164. The purpose of the Suburban Overlay is to provide a transition between the urban areas of the City and the outer lying rural area. Industrial uses would be concentrated in the South Bowers Hill area. No Rural Overlay districts occur within City boundaries along the I-664 Study Area Corridor or the Bowers Hill interchanges.

Hampton's *Community Plan Update 2011: Strategic Issues* merges the comprehensive community plan with more focused strategic plans. The plan indicates the City is largely built-out and provides guidance to redevelopment – replacing older existing development with new development – that is most consistent with community priorities and shifting markets. A primary goal is to preserve, maintain, and perpetuate the history, culture, and architecture of its neighborhoods. Hampton's zoning ordinances call for more commercial and manufacturing land uses in the Study Area Corridor along I-664 through the City and along the south side of I-64 just west of downtown, with residential areas in between (Hampton, 2012).

Newport News is in the process of updating its comprehensive plan. The *One City, One Future Comprehensive Plan* (Newport News, 2015b) will express its vision for a city that is economically strong, culturally diverse, and environmentally responsible. It will address opportunities to better integrate land use and transportation to provide citizens with affordable, efficient, and safe transportation choices. It will also examine the character of its established neighborhoods to determine how to best preserve and respect the old while inviting new. Under its existing comprehensive plan, *Framework for the Future 2030* (Newport News, 2008), the City acknowledges it is primarily built-out with less than 8 percent vacant lands. The plan focuses on revitalizing existing neighborhoods and creating new mixed use, pedestrian-oriented centers served by transit in activity centers built around future bus rapid transit or light rail stops. Its overall growth policy is to provide a moderate rate of growth so that public services and infrastructure can meet its demands and is financially sustainable. Priorities for the area in the I-64 Study

Area Corridor include improved access to neighborhoods from the interstate, improved access to the waterfront, attracting new services and jobs, and developing housing opportunities to meet a range of needs (Newport News, 2008).

Norfolk adopted its *plaNorfolk 2030* comprehensive plan in 2013 (amended on February 23, 2016). Norfolk is a mature city with only 3.1 percent of its land area vacant as of 2013. Thus, new development would be infill or redevelopment (Norfolk, 2013b). It is also a military town with 15.6 percent of its land devoted to military installations. Overall land use goals of the City are to provide for new development that is compatible with existing neighborhoods and fostering mixed-use neighborhoods and Transit Supportive Areas around selected rail stations. The Study Area Corridors fall within Norfolk's Suburban District: primarily developed after World War II with more curvilinear streets, larger blocks and lot sizes, and greater separation of uses. Recently, the City amended their general plan to include the Coastal Character District that encompasses the City coast along the Chesapeake Bay, including the communities of Willoughby Spit and Ocean View in the I-64 Study Area Corridor. Development in this area would be required to preserve the coastal character of these communities. NAVSTA Norfolk's Chambers Field airstrip is located near the I-564 and I-64 Study Area Corridors. Therefore, land use is strictly regulated in noise and accident potential zones which extend into these corridors. This regulation aims to minimize impacts to operations at the airfield and provides for the safety of those living and working in these zones.

Selective neighborhood plans relating to specific neighborhoods within Norfolk are included among the City's plans. In the Study Area Corridors, the Greater Wards Corner Comprehensive Plan calls for the establishment of a new retail district that would transform the current area to a mid-box retail district with a hotel, new apartments, and townhomes. The plan also proposes redevelopment of current strip shopping centers as mid-rise apartments with retail on the ground floor (Norfolk, 2013b). The City plans to work with the Navy to evaluate potential reuse opportunities of federally-owned land at the I-64 4th View Street interchange area.

Portsmouth's *Destination 2025: Setting a Bold New Course* was adopted in 2005 (Portsmouth, 2005). Portsmouth is the smallest city in the Hampton Roads region at 34 square miles and is almost entirely developed. Because of its small area, limited vacant land, barriers to annexing new land, and a high proportion of tax exempt government and conservation land, the City's plan has measures to achieve the highest and best use of each parcel. Future growth would occur primarily through infill and redevelopment. Portsmouth's goals stated in the plan are to maintain and strengthen viable land uses and use patterns such as neighborhoods and economic activity centers. Incompatible land uses would be minimized and standards modified to ensure that high quality new development would occur. City policies and strategies create activity centers of different scales surrounded by services for residential neighborhoods that connect to a multi-modal transportation system. Land use in the VA 164 Study Area Corridor is planned to be maintained primarily as residential with industrial uses concentrated north and east of the Cedar Lane interchange. Commercial uses would be clustered on both sides of VA 164 at the western City boundary. Within the Study Area Corridors, areas that show some evidence of decline in stability are termed "transitional". These "transitional" areas are located adjacent to the VA 164 Towne Point interchange. The remaining areas along VA 164 in Portsmouth are identified as residential neighborhoods.

Suffolk adopted *Suffolk 2035: A Vision for the Future* plan in 2015. Unlike other communities evaluated in this study, Suffolk land use is primarily agricultural and working forests followed by residential use

(Suffolk, 2015b). The City's goal is to direct growth to existing communities in a Focused Growth Approach that would preserve community character as well as rural and agricultural areas. The framework is composed of the Central and Northern Growth areas and six Use Districts. The portion of Suffolk along the I-664 Study Area Corridor extends from the south end of the MMMBT to approximately the Pughsville Road interchange. This area is in the Northern Growth Area and consists of Mixed Use Core and Core Support districts. Within the Study Area Corridors, the Northern Growth Area is where urban and suburban scale development is occurring. The Mixed Use Core District straddles I-664 and is the primary land use type in this area with only a small portion of Core Support District at the extreme southern end of the city along I-664.

The Mixed Use Core District comprises the highest density of commercial, residential, and civic land use in Suffolk. This District within and surrounding the Study Area Corridors still has substantial greenfield development opportunities to build on existing high technology businesses in the area. Residential uses would be primarily multi-family dwellings interspersed with non-residential uses in an urban setting. The Core Support District provides residential and ancillary retail activity to support the Mixed Use Core. These areas would include walkable mixed neighborhoods of a variety of housing types and commercial businesses at a moderate density. Highest density land uses would cluster around potential transit facilities with walkable access to smaller neighborhood businesses such as grocery stores, restaurants and the like. The plan defines a third planning unit termed "Place Types" that enable pedestrian-oriented or automobile-oriented development and other primary defining characteristics that can evolve as planned growth occurs. Downtown and Town Centers should be compact, mixed-use walkable places envisioned to occur in Mixed-Use cores such as within the I-664 Study Area Corridor. Additionally, Urban Neighborhoods in proximity to Downtown and Town Centers have a range of higher density housing types such as apartments, townhouses, and small single lot family homes. Core Support Areas have a Traditional Neighborhood Center of local-oriented businesses/retail and Traditional Neighborhoods that have a range of less intense housing types and a walkable street network.

Environmental Consequences

The **No-Build Alternative** requires no right-of-way acquisition; therefore, requires no land use conversion and would have no direct impact on land use. It is assumed that any locality-approved projects and land uses would continue to develop, as planned.

The **Build Alternatives** would each impact many different types of land use (**Table 22**). The conversion of land from its present use to transportation use would be a direct impact of construction of the Build Alternatives. Under **Alternative A**, the conversion of land use would be an expansion of adjacent transportation land use as the improvements primarily expand existing roadways. Alternative A would require the conversion of 27.8 acres of land, the majority of which is designated as military land; however, much of this area is already in a transportation use (**Figure 10b**). Most of the land use conversions under **Alternatives B, C, and D** would occur where new roadway would be constructed (along the eastern side of Craney Island connecting to VA 164). The remainder of the land use conversion consists of sliver takes along existing roadways and interchanges. **Alternative B** would require the conversion of 260.4 acres of land, the majority of which is institutional. **Alternative C** would require the conversion of 333.0 acres of land, the majority of which is industrial. **Alternative D** would require the conversation of 335.9 acres of land, the majority of which is institutional.

Table 22: Land Use Conversion by Build Alternative (acres)

Land Use Class	Alternative A	Alternative B	Alternative C	Alternative D
Residential	0.5	0.6	2.6	2.7
Commercial	1.8	3.1	6.3	7.5
Mixed Use	0	0	0	0
Industrial	0.7	72.1	119.9	112.1
Institutional	2.8	113.3	117.4	119.8
Military*	20.8	47.4	40.4	47.4
Open Space	1.2	23.9	46.4	46.4
TOTAL	**27.8**	**260.4**	**333.0**	**335.9**

Source: HRTPO, 2011.
Note: Land use coverage does not include water.
** Land within existing I-64 right-of-way in the vicinity of NAVSTA Norfolk is currently classified as a military use (see **Figure 10b**). Therefore, military land use conversion calculations are higher than anticipated.*

Mitigation

No adverse impacts to land use are anticipated; therefore, no mitigation is suggested.

5. ECONOMICS

Methodology

This economic analysis focuses on potential impacts of the alternatives to income, employment, and business in the Study Area Corridors. Specifically, economic data is collected by either Census tracts, Census Block Groups, zip code boundaries, or TAZs that are within or immediately adjacent to the 500-foot wide Study Area Corridors. Sources of data are the ACS 5-year 2009-2013 dataset and the decennial Censuses available online at American FactFinder, or from TAZ data provided by the HRTPO (2013b). Impacts are assessed qualitatively based on the relative number of potential business and residential relocations and the extent of the alternatives' area of effects.

Affected Environment

Income

Table 23 summarizes the ACS 5-year (2009-2013) data median household income (in 2013 inflation adjusted dollars) of persons residing in all the study Census Block Groups. **Table 24** shows the same data but for the six cities in which the Study Area Corridors cross, and statewide. The median household income of the study Block Groups ranges from $0 to $103,424, but the units with no income data are in Block Groups that are over water, at Hampton University, or in industrial areas. The median household income of persons residing in the study Block Groups is $41,683 — less than the six cities crossed by the corridors, and $22,224 (35 percent) less than the statewide median household income.

Table 23: Median Household Income by Study Census Block Group

Census Block Group	Median Household Income[1]	Locality	Census Block Group	Median Household Income[1]	Locality
215.01-3	$91,376	Chesapeake	308-3	$52,500	Newport News
215.01-1	$45,197	Chesapeake	9.02-1	$48,611	Norfolk
213.01-1	$36,964	Chesapeake	4-1	$44,718	Norfolk
214.04-4	$84,375	Chesapeake	3-3	$43,633	Norfolk
215.02-3	$86,557	Chesapeake	13-2	$32,661	Norfolk
215.02-4	$66,088	Chesapeake	9900-0	$0[2]	Norfolk
216.01-1	$83,333	Chesapeake	4-3	$40,586	Norfolk
216.02-3	$63,882	Chesapeake	8-1	$63,561	Norfolk
215.01-2	$103,424	Chesapeake	8-2	$37,377	Norfolk
215.01-4	$40,648	Chesapeake	55-1	$53,866	Norfolk
108-4	$38,750	Hampton	57.01-3	$22,227	Norfolk
103.11-1	$44,875	Hampton	11-1	$36,013	Norfolk
105.01-2	$26,164	Hampton	5-2	$46,713	Norfolk
108-1	$34,515	Hampton	5-3	$52,703	Norfolk
114-1	$2,500	Hampton	5-4	$61,806	Norfolk
105.02-1	$27,054	Hampton	9.01-1	$45,318	Norfolk
106.01-1	$28,369	Hampton	2131.01-3	$42,717	Portsmouth
106.01-2	$23,098	Hampton	2130.02-3	$63,645	Portsmouth
106.02-2	$33,000	Hampton	2131.03-1	$61,250	Portsmouth
105.01-1	$32,367	Hampton	2131.03-2	$65,149	Portsmouth
111-1	$90,625	Hampton	2131.03-3	$53,456	Portsmouth
103.13-1	$35,875	Hampton	2130.01-1	$45,757	Portsmouth
113-2	$38,125	Hampton	2130.01-3	$81,816	Portsmouth
105.02-2	$37,794	Hampton	2131.01-1	$38,591	Portsmouth
112-3	$58,219	Hampton	2131.01-2	$32,351	Portsmouth
301-2	$15,000	Newport News	751.01-0	$0[2]	Suffolk
301-3	$31,830	Newport News	751.01-1	$56,000	Suffolk
306-1	$29,792	Newport News	751.01-2	$91,210	Suffolk
301-1	$13,902	Newport News	751.01-3	$100,566	Suffolk
306-3	$32,031	Newport News	751.02-3	$0[2]	Suffolk
304-1	$15,981	Newport News	751.02-4	$90,650	Suffolk
308-1	$37,917	Newport News	752.04-1	$51,563	Suffolk
308-2	$25,625	Newport News	752.04-2	$39,922	Suffolk

Source: ACS 5-year 2009-2013.
[1]In 2013 dollars.
[2]Zero values are in Census units with no residential areas or over water.

Table 24: 2009-2013 Median Household Income

Location	Median Household Income[1]	Location	Median Household Income[1]
Study Block Groups	$41,683	Newport News	$51,027
Virginia	$63,907	Norfolk	$44,747
Chesapeake	$69,743	Portsmouth	$46,166
Hampton	$50,705	Suffolk	$66,085

Source: ACS 5-year 2009-2013.
[1]In 2013 dollars.

The Environmental Justice section presents detailed information on the geographic distribution of low-income persons residing along the Study Area Corridors.

Employment

Major employers in the study Census Block Groups include NAVSTA Norfolk (approximately 45,000 military and 12,000 civilian employees), the Port of Virginia that directly and indirectly supports 40,000 jobs in the region, and Hampton University (1,000 employees) (Hampton Roads Economic Development Alliance, 2015). The cities encompassing the Study Area Corridors are also major area employers. Regionally, other large employers include several additional military installations with approximately 136,000 personnel, Newport News Shipbuilding (24,000 employees), Sentara Healthcare (20,000 employees), Riverside Health System (7,050 employees), NASA Langley Research Center (4,000 employees), Bank of America (3,600 employees), and Old Dominion University (4,000 employees) (US Bureau of Economic Analysis, 2014; Hampton Roads Economic Development Alliance, 2015; Newport News Shipbuilding, 2015).

Labor force and employment data (ACS 5-year [2009-2013]) for all study Census Block Groups is presented in **Table 25. Table 26** shows labor force and employment data for the six cities encompassing the Study Area Corridors, and statewide. As defined by the ACS, the labor force includes the civilian and US Armed Forces population over 16 years of age working as paid employees, the self-employed (including farmers), or those who worked 15 hours or more as unpaid workers for a family farm/business. Excluded from the labor force are those over 16 years of age who are students, homemakers, and unpaid volunteers, retirees, those institutionalized, or those who worked less than 15 hours a week as unpaid workers for a family farm/business. The unemployed are over 16 years of age and not currently working but actively looking for work, and generally available to work. According to the ACS 5-year (2009-2013) data, approximately 91 percent of the labor force of the study Census Block Groups is employed, corresponding to about one percent higher than the statewide rate.

Table 25: 2013 Labor Force and Employment in Study Census Block Groups

Census Block Group	Population		Locality	Census Block Group	Population		Locality
	Residents in Labor Force[1]	Residents Employed[2]			Residents in Labor Force[1]	Residents Employed[2]	
213.01-1	313	266	Chesapeake	301-1	899	644	Newport News
214.04-4	395	381	Chesapeake	301-2	128	86	Newport News
215.02-3	1,148	1,080	Chesapeake	301-3	1,041	950	Newport News
215.02-4	1,438	1,323	Chesapeake	306-1	283	180	Newport News
216.01-1	1,549	1,431	Chesapeake	306-3	544	379	Newport News
216.02-3	1,678	1,644	Chesapeake	304-1	344	262	Newport News
215.01-1	1,052	895	Chesapeake	308-1	447	324	Newport News
215.01-2	1,743	1,606	Chesapeake	308-2	208	177	Newport News
215.01-3	1,640	1,576	Chesapeake	308-3	219	189	Newport News
215.01-4	943	693	Chesapeake	9.02-1	12,491	12,450	Norfolk
108-4	404	325	Hampton	4-1	1,274	1,059	Norfolk
103.11-1	1,142	1,019	Hampton	3-3	717	709	Norfolk
105.01-2	796	724	Hampton	13-2	1,009	863	Norfolk
108-1	832	770	Hampton	9900-0	0	0	Norfolk
114-1	403	314	Hampton	4-3	933	801	Norfolk
105.02-1	1,201	1,017	Hampton	8-1	798	725	Norfolk
105.02-2	390	382	Hampton	8-2	709	673	Norfolk
106.01-1	480	342	Hampton	55-1	698	633	Norfolk
106.01-2	597	541	Hampton	57.01-3	992	906	Norfolk
106.02-2	651	572	Hampton	11-1	991	875	Norfolk
105.01-1	1,318	1,230	Hampton	5-2	811	734	Norfolk
111-1	382	376	Hampton	5-3	355	325	Norfolk
103.13-1	309	299	Hampton	5-4	225	211	Norfolk
113-2	515	500	Hampton	9.01-1	2,268	2,166	Norfolk
112-3	563	456	Hampton	752.04-1	1720	1,501	Suffolk
2131.03-1	205	181	Portsmouth	752.04-2	890	812	Suffolk
2131.03-3	1,115	1,000	Portsmouth	751.02-3	0	0	Suffolk

Census Block Group	Population		Locality	Census Block Group	Population		Locality
	Residents in Labor Force[1]	Residents Employed[2]			Residents in Labor Force[1]	Residents Employed[2]	
2130.01-1	1,427	1,372	Portsmouth	751.02-4	886	867	Suffolk
2130.01-3	1,305	1,268	Portsmouth	751.01-0	0	0	Suffolk
2131.01-1	893	749	Portsmouth	751.01-1	973	799	Suffolk
2131.01-2	763	702	Portsmouth	751.01-2	166	166	Suffolk
2131.01-3	1,122	1,015	Portsmouth	751.01-3	1,310	1,190	Suffolk
2131.03-2	492	421	Portsmouth				

Source: ACS 5-year 2009-2013.
[1]Residents in labor force are persons 16 years of age or older.
[2]Residents employed are persons 16 years of age or older.

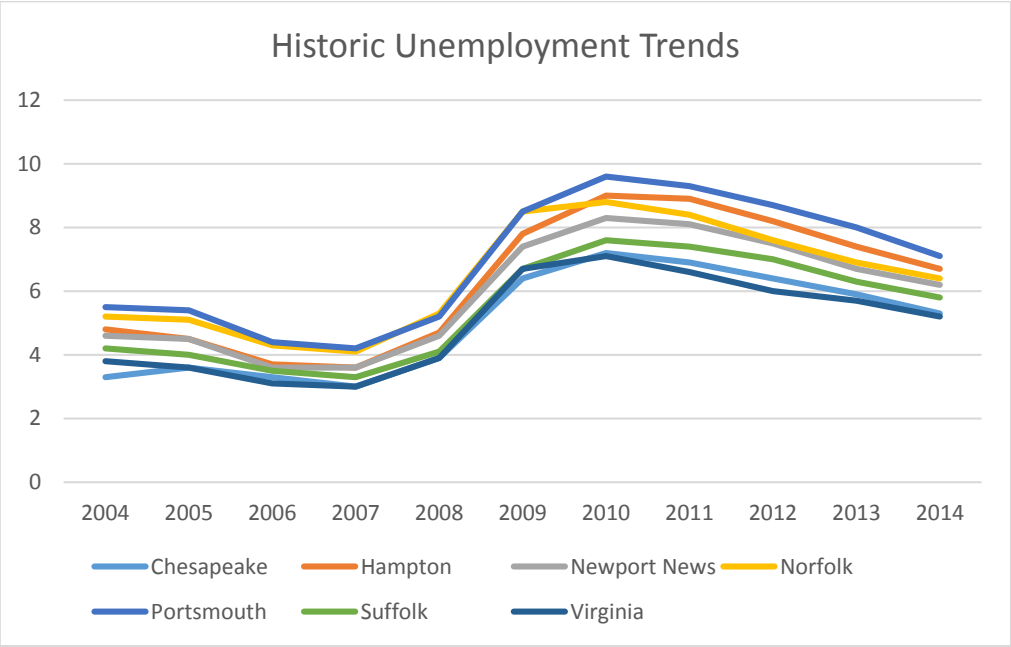
Table 26: Labor Force and Employment in Study Census Block Groups and Localities

Location	Residents in Labor Force[1]	Residents Employed[2]
Study Census Block Groups Total	63,533	58,126
Virginia	4,304,562	3,885,077
Chesapeake	119,988	105,099
Hampton	71,736	59,981
Newport News	99,688	82,481
Norfolk	138,948	102,424
Portsmouth	48,822	40,950
Suffolk	43,637	38,150

Source: ACS 5-year 2009-2013.
[1]Residents in labor force are persons 16 years of age or older.
[2]Residents employed are persons 16 years of age or older.

Between 2004 and 2014, unemployment in the six cities along the Study Area Corridors and statewide was initially relatively low at less than 6.0 percent, but rose to a height of 9.6 percent during the recent recession in 2010 (**Figure 11**) (Virginia Employment Commission, 2015).

Figure 11: 2004-2014 Unemployment Trends in Study Localities and Statewide



Source: Virginia Employment Commission (2015)

Table 27 presents the number of resident civilian employees in each occupation category of the ACS 5-year (2009-2013) data by Census Tract. **Table 28** presents the same information but for the six cities along the Study Area Corridors, and statewide. This detailed data is not available at the Census Block Group level. Most civilian workers residing in the study Census tracts (about 22 percent) work in educational services, health care, and social assistance. In comparison, most civilian workers in the six cities and statewide are in the public administration sector. In the study Census tracts, approximately 12 percent of the employed civilians work in public administration, and another 11 percent work in retail trade. The remaining workers are in arts, entertainment, recreation, accommodation and food services (ten percent), manufacturing (ten percent), professional, scientific, management, administrative and waste management services (ten percent), construction (seven percent), transportation, warehousing, and utilities (five percent), finance, insurance, real estate, rental and leasing (five percent), other services (five percent), information (two percent), wholesale trade (two percent), and agriculture, forestry, fishing, hunting and mining (0.3 percent). These totals are rounded and thus do not add to 100 percent. Among the top five occupations in the study Census tracts, the majority of workers in the educational services, health care, and social assistance and public administration occupations reside in the Downtown Hampton neighborhood (Census tracts 106.01 and 106.02, respectively). The greatest number of residents in the study Census tracts working in retail trade live in the Peninsula Town Center area of Hampton (Census tract 105.02). Most residents working in the arts, entertainment, recreation, and accommodation and food services capacity reside in the Downtown Hampton area (Census tract 106.01). In the study Census tracts, residents working in construction live primarily in the West Ocean View area of Norfolk (Census tract 3).

Table 27: 2013 Employee Occupation by Study Census Tract[1]

Census Tract	Locality	Agriculture, Forestry, Fishing, Hunting, and Mining	Arts, Entertainment, Recreation, Accommodation and Food Services	Construction	Educational Services, Health Care and Social Assistance	Finance, Insurance, Real Estate, Rental and Leasing	Information	Manufacturing	Professional, Scientific, Management, Administrative and Waste Management Services	Public Admin-istration	Other Services (Except Public Admin-istration)	Retail Trade	Transportation, Warehousing, and Utilities	Wholesale Trade
213.01	Chesapeake	8	98	172	205	17	21	68	154	43	15	95	41	13
214.04	Chesapeake	0	204	57	248	22	37	136	53	33	48	202	102	0
215.01	Chesapeake	0	143	32	393	123	0	205	78	88	77	186	20	0
215.02	Chesapeake	6	161	119	318	54	10	167	154	90	82	129	48	41
216.02	Chesapeake	0	106	50	35	66	15	90	102	331	57	109	28	4
103.11	Hampton	0	277	166	803	75	75	364	249	281	90	364	128	90
103.13	Hampton	27	178	97	434	72	86	329	244	372	98	241	70	32
105.01	Hampton	0	278	161	697	129	53	380	321	120	163	467	240	147
105.02	Hampton	0	159	211	1051	98	25	410	288	497	115	493	198	83
106.01	Hampton	25	457	203	1,249	203	43	456	524	664	81	403	102	119
106.02	Hampton	0	325	191	592	104	69	169	197	231	213	170	87	7
108	Hampton	20	361	70	609	96	51	63	319	327	200	223	168	0
111	Hampton	29	84	13	129	0	6	13	0	7	11	49	0	0
112	Hampton	0	119	69	364	86	0	145	130	128	38	150	36	74
113	Hampton	0	151	30	283	51	0	31	67	71	42	109	4	0
114	Hampton	0	177	271	434	74	57	202	299	305	138	355	94	70
301	Newport News	0	201	70	139	171	0	37	42	100	76	175	119	9
304	Newport News	0	11	33	67	0	0	0	31	208	15	12	3	0
306	Newport News	0	289	134	225	86	23	124	156	330	69	291	106	22
308	Newport News	0	49	55	100	0	15	0	69	286	19	64	6	0
11	Norfolk	14	115	67	251	88	3	239	47	15	101	84	127	11
13	Norfolk	0	20	26	71	1	23	0	60	61	54	1	0	0
3	Norfolk	0	238	590	290	83	63	114	132	148	28	220	15	92
4	Norfolk	0	345	380	429	108	17	192	96	514	120	282	166	13
5	Norfolk	0	140	103	191	42	19	193	190	88	17	229	55	12
55	Norfolk	0	178	241	208	108	17	92	233	263	115	102	121	0
57.01	Norfolk	0	397	85	565	54	37	250	221	225	79	257	106	23
8	Norfolk	5	174	109	431	103	94	208	234	211	160	230	83	82

Census Tract	Locality	Agriculture, Forestry, Fishing, Hunting, and Mining	Arts, Entertainment, Recreation, Accommodation and Food Services	Construction	Educational Services, Health Care and Social Assistance	Finance, Insurance, Real Estate, Rental and Leasing	Information	Manufacturing	Professional, Scientific, Management, Administrative and Waste Management Services	Public Admin-istration	Other Services (Except Public Admin-istration)	Retail Trade	Transportation, Warehousing, and Utilities	Wholesale Trade
9.01	Norfolk	0	47	105	450	120	93	191	334	258	103	145	103	37
9.02	Norfolk	24	145	192	1,059	155	71	329	304	299	148	314	303	94
2130.01	Portsmouth	0	82	71	257	31	78	171	71	111	114	224	29	14
2130.02	Portsmouth	18	214	61	524	96	29	377	314	233	112	265	102	82
2131.01	Portsmouth	8	159	27	154	0	8	111	92	63	48	80	55	24
2131.03	Portsmouth	0	48	46	204	15	38	91	77	15	9	94	53	0
751.01	Suffolk	0	244	101	784	214	196	289	203	331	112	294	63	48
751.02	Suffolk	0	235	164	543	228	27	283	275	396	82	388	104	30
752.04	Suffolk	0	193	138	458	126	47	238	254	138	68	160	98	42

Source: ACS 5-Year 2009-2013 [1]Employees are civilian residents 16 years of age or older.

Table 28: Summary of 2013 Employee Occupation in Study Census Tracts and Localities

Location	Agriculture, Forestry, Fishing, Hunting, and Mining	Arts, Entertainment, Recreation, Accommodation and Food Services	Construction	Educational Services, Health Care and Social Assistance	Finance, Insurance, Real Estate, Rental and Leasing	Information	Manufacturing	Professional, Scientific, Management, Administrative and Waste Management Services	Public Admin-istration	Other Services (Except Public Admin-istration)	Retail Trade	Transportation, Warehousing, and Utilities	Wholesale Trade
Study Census Tracts Total	184	6,802	4,710	15,244	3,099	1,446	6,757	6,614	7,881	3,117	7,656	3,183	1,315
Virginia	41,410	335,610	253,886	836,643	249,769	84,643	289,956	571,257	362,160	204,870	420,888	158,065	76,194
Chesapeake	450	7,130	9,506	2,839	13,043	5,033	2,405	5,852	12,371	23,758	7,953	5,179	9,591
Hampton	210	3,664	6,961	1,250	7,117	2,538	1,322	3,159	6,096	13,125	52,76	3,243	5,986
Newport News	125	4,750	9,560	1,778	10,532	2,931	1,437	3,552	9,019	17,637	9,273	3,983	7,926
Norfolk	210	7,231	6,650	1,836	12,857	4,942	1,763	5,108	10,777	23,709	11,505	5,487	10,272
Portsmouth	88	2,588	4,366	859	4,707	19,58	719	1,876	4,238	9,578	4,350	1,815	3,819
Suffolk	233	2,420	4,899	787	4,206	2,149	633	1,805	3,713	9,595	2,353	1,930	3,437

Source: ACS 5-Year 2009-2013 [1]Employees are civilian residents 16 years of age or older.

Business

The US Census Bureau's 2013 Business Patterns data provides certain business characteristics by North American Industry Classification System (NAICS) code and zip code. **Figure 12** displays the 13 zip code boundaries encompassed in whole or part in the defined Study Area Corridors. As shown in **Table 29**, a total of 4,775 business establishments are located in the study zip codes. Of these, the majority are in the northwestern portion of the Study Area Corridors (Hampton) in zip code 23666 (23 percent). The top five establishment sectors in the study zip codes are: retail trade (17 percent), health care and social assistance (12 percent), accommodation and food services (12 percent), other services (except public administration) (12 percent), and professional, scientific, and technical services (11 percent). Among the six cities encompassing the Study Area Corridors, there are approximately 20,000 establishments with the majority in retail trade (3,200 or 16 percent). Statewide, the most establishments (29,831 or 15 percent) are in the professional, scientific, and technical fields. The majority of businesses in the study zip codes have one to four employees (344 establishments or 46 percent), and the largest include two establishments having 250 to 499 employees (0.3 percent).

In the six cities encompassing the Study Area Corridors, 9,330 establishments (47 percent) have from one to four employees and the largest 17 establishments have 1,000 or more employees (less than one percent), with the majority of those located in Norfolk. In comparison, statewide in 2013 there are 193,107 businesses of which 101,994 (53 percent) have from one to four employees and 197 establishments had 1,000 or more employees (0.1 percent).

According to US Census Bureau 2013 data, annual business payroll is distributed in the study zip codes as shown in **Figure 13**, while **Table 30** compares the total payroll for all study zip codes, the six cities along the Study Area Corridors, and statewide. Total annual payroll for all sectors from 2013 is not provided by the US Census Bureau for zip code 23607 (Newport News) in order to protect business confidentiality. The estimated total annual business payroll in the study zip codes (not including 23607) is approximately $6.3 billion in 2013. This equates to approximately 41 percent of 2013 business annual payroll in all of the six cities, and would be an even greater proportion if data for zip code 23607 (Newport News) were included. The study zip codes' annual payroll is approximately four percent of the statewide total of $154.4 billion.

Figure 12: Zip Code Boundaries in the Study Area Corridors

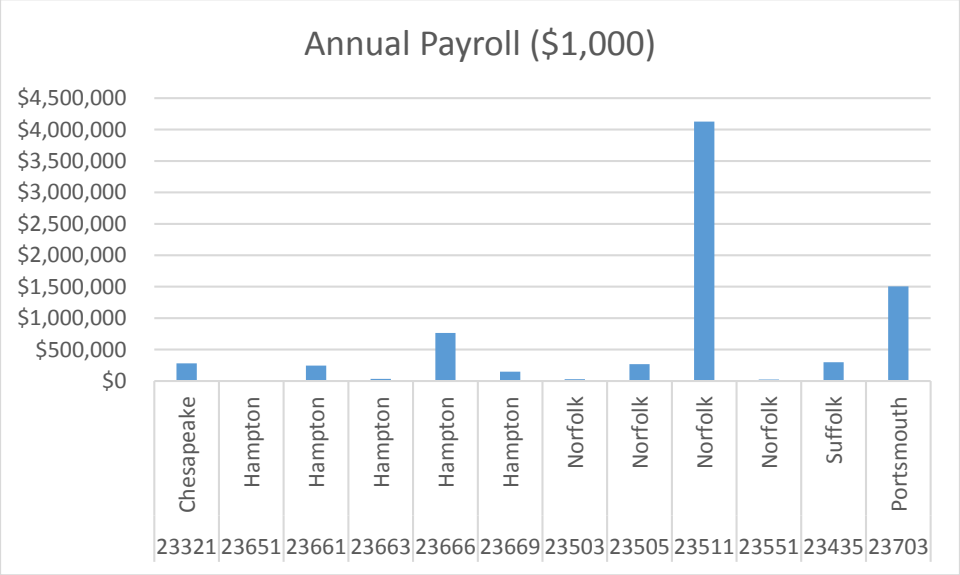
Table 29: Number of Establishments per NAICS[1] Code by Study Zip Code

NAICS[1] Business Sector and Code	23321	23435	23503	23505	23511	23551	23607	23651	23661	23663	23666	23669	23703	Total Number of Establishments
Accommodation and Food Services	97	45	39	57	23	2	29	2	14	29	148	53	24	**562**
Administrative, Support, Waste Management and Remediation Services	33	25	8	18	8	1	14	0	19	8	53	31	20	**238**
Agriculture, Forestry, Fishing	0	1	1	0	0	0	3	0	1	1	0	0	0	**7**
Arts, Entertainment, and Recreation	10	6	7	5	0	0	5	0	3	3	12	13	4	**68**
Construction	73	45	28	11	0	0	17	0	56	12	64	42	33	**381**
Educational Services	10	5	2	12	5	0	7	0	3	1	10	9	5	**69**
Finance and Insurance	38	17	14	29	8	1	8	1	4	10	60	33	17	**240**
Health Care and Social Assistance	92	61	14	82	3	0	30	2	21	9	186	36	44	**580**
Industries Not Classified	2	1	0	1	0	0	1	0	2	0	0	0	0	**7**
Information	12	6	2	1	0	1	6	0	2	1	26	10	2	**69**

NAICS[1] Business Sector and Code	23321	23435	23503	23505	23511	23551	23607	23651	23661	23663	23666	23669	23703	Total Number of Establishments
Management of Companies and Enterprises	3	2	0	0	0	0	3	0	2	1	6	1	2	**20**
Manufacturing	4	4	2	1	1	0	11	0	32	5	17	13	5	**95**
Other Services (Except Public Administration)	68	39	13	60	4	1	71	3	44	20	116	73	45	**557**
Professional, Scientific, and Technical Services	47	53	13	43	88	33	17	5	23	8	112	77	22	**541**
Real Estate and Rental and Leasing	36	15	18	33	4	0	14	0	14	5	59	29	19	**246**
Retail Trade	177	44	33	68	5	0	50	0	39	40	222	98	40	**816**
Transportation and Warehousing	27	16	8	12	4	0	22	1	16	2	7	10	6	**131**
Utilities	0	2	0	0	0	0	0	0	1	0	0	0	1	**4**
Wholesale Trade	17	20	3	7	0	1	21	0	49	2	11	7	6	**144**
Total	**746**	**407**	**205**	**440**	**153**	**40**	**329**	**14**	**345**	**157**	**1,109**	**535**	**295**	**4,775**

Source: US Census Bureau (2015a).
[1]*North American Industrial Classification System.*

Figure 13: 2013 Annual Business Payroll by Study Zip Code[1]



Source: US Census Bureau (2015b)
[1]Data not provided for zip code 23607 in Newport News by US Census Bureau to protect confidentiality

Table 30: Total Study Zip Code, Locality, and State 2013 Annual Business Payroll[1]

Location	Annual Business Payroll
Zip Codes Total	$6,382,318
Virginia	$154,472,464
Chesapeake	$3,366,227
Hampton	$1,549,473
Newport News	$4,072,177
Norfolk	$4,586,180
Portsmouth	$998,752
Suffolk	$808,205

Source: US Census Bureau (2015c).
[1]Not including zip code 23607 in Hampton.

Environmental Consequences

The **No-Build Alternative** would not affect income, employment, or business. No loss of tax revenues would occur as a result of the No-Build Alternative.

The proposed **Build Alternatives** would not have a major impact on income or the distribution of business establishments and industries located within the Study Area Corridors. Potential business relocations are provided in **Table 31**. There are no business relocations under **Alternatives A** or **B**. **Alternative C** could require five commercial relocations and **Alternative D** would require four commercial relocations. The majority of the relocations would occur along I-664 in Hampton. Alternative C would result in greater relocations due to the wider footprint of the roadway to accommodate the transit only lanes.

Table 31: Commercial Impacts by Alternative

Impact	No-Build Alternative	Alternative A	Alternative B	Alternative C	Alternative D
Number of commercial properties impacted	0	6	10	23	23
Total commercial acres impacted	0	1.3	2.7	4.7	5.5
Commercial relocations	0	0	0	5	4

Note: Parcel data derived from localities was used to calculate property impacts. The data used to calculate land use was gathered from HRTPO.
These are conservative estimates and the actual calculation of relocations is expected to decrease as the project design is advanced and more detailed roadway right-of-way requirements are determined.

Alternative A would improve access to commercial businesses within the Study Area Corridors for the alternative (along I-64 in Hampton and Norfolk). **Alternatives B, C, and D** would increase access to port facilities on the Peninsula, in Norfolk, and in Portsmouth. They would also improve access to commercial businesses and interstate highway travel throughout the region. The proposed Build Alternatives would not have a major impact on the distribution of industries and businesses located within the Study Area Corridors.

Throughout the region, the potential for temporary jobs during construction would increase under the Build Alternatives for several years. The extent and duration of temporary job increases would vary by alternative but would mostly be proportional to the construction cost of the respective alternative.

Mitigation

As with residential relocations, the acquisition of right-of-way and the relocation of commercial properties would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Assurance is given that relocation resources would be available to all displacees without discrimination. Impacts to business in the Study Area Corridors would be minimized through careful planning during future phases of the study. Ongoing coordination with area businesses, particularly those located adjacent to proposed improvements or detour routes, would occur to prevent or minimize both short and long-term disruptions.

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APPENDIX A:

ALIGNMENT SEGMENTS &

OPERATIONALLY INDEPENDENT SECTIONS

ALIGNMENT SEGMENTS & OPERATIONALLY INDEPENDENT SECTIONS

Given the magnitude and scope of the alternatives, it is expected that a Preferred Alternative would be constructed in stages or operationally independent sections (OIS). An OIS is a portion of an alternative that could be built and function as a viable transportation facility even if other portions of the alternative are not advanced (FHWA, 2007). The OISs are comprised of various roadway alignments and were developed by identifying sections of roadway improvements that if constructed, could function independently. Additionally, different sections within an OIS also could be replaced with another.

Following the release of the Draft SEIS and an opportunity for public review and comment, the independent sections could ultimately be combined to form "hybrid" alternatives. The OIS strategy allows for the identification of a "hybrid" alternative in addition to the alternatives described in this Draft SEIS that could reduce impacts and costs while achieving purpose and need. Depending on the nature of a hybrid alternative, if selected, public involvement opportunities may be offered to solicit additional public comment.

If a hybrid is identified as the Preferred Alternative, it would be fully documented in the Final SEIS; however, this OIS strategy allows impacts and costs to be summarized in this Draft SEIS.

The alignment segments that make up each Build Alternative are shown on **Figure A-1** and summarized in **Table A-1. Figures A-2 through A-5** show each Build Alternative broken down by alignment segment. For the alignment segments that are included under two or more alternatives, **Figure A-1** lists the letter of the corresponding alternatives with the numbered segment. The OISs are shown on **Figure A-6**. Environmental impacts have been quantified by roadway alignment segment and are presented in detail in **Table A-2**.

Table A-1: Alternative Alignment Segments

Segment	Roadway Segment Description
Alternative A	
8	I-64 north of HRBT
9	I-64 from HRBT to I-564
Alternative B	
8	I-64 north of HRBT
9	I-64 from HRBT to I-564
10	I-564 and I-564 Connector
12	I-564 Connector and VA 164 Connector Interchange
13	VA 164 Connector
14	VA 164
3	I-664 and VA 164 Interchange
Alternative C	
7	I-664 from I-64 to and including Terminal Avenue Interchange. Proposed design includes 8 lanes plus 2 transit only lanes
6	Terminal Avenue Interchange. Proposed interchange to connect with I-664 design that includes 8 lanes plus 2 transit only lanes
5	I-664 from Terminal Avenue Interchange to I-664 Connector. Proposed design includes 8 lanes plus 2 transit only lanes

Segment	Roadway Segment Description
11	I-664 Connector including I-664 interchange. Proposed interchange to connect with I-664 design that includes 8 lanes plus 2 transit only lanes
4	I-664 from I-664 Connector to VA 164
3	I-664 and VA 164 Interchange
2	I-664 from VA 164 to US 58 (Bowers Hill)
1	I-664 from US 58 (Bowers Hill) to I-264
13	VA 164 Connector
12	I-564 Connector, I-664 Connector, and VA 164 Connector Interchange. Proposed interchange to connect with I-564 design that includes 4 lanes plus 2 transit only lanes
10	I-564 and I-564 Connector. Proposed design includes 8 lanes plus 2 transit only lanes
Alternative D	
8	I-64 north of HRBT
9	I-64 from HRBT to I-564
7	I-664 from I-64 to and including Terminal Avenue Interchange. Proposed design includes 8 lanes
6	Terminal Avenue Interchange. Proposed interchange to connect with I-664 design that includes 8 lanes
5	I-664 from Terminal Avenue Interchange to I-664 Connector. Proposed design includes 8 lanes
11	I-664 Connector including I-664 interchange. Proposed interchange to connect with I-664 design that includes 8 lanes
4	I-664 from I-664 Connector to VA 164
3	I-664 and VA 164 Interchange
2	I-664 from VA 164 to US 58 (Bowers Hill)
1	I-664 from US 58 (Bowers Hill) to I-264
14	VA 164
13	VA 164 Connector
12	I-564 Connector, I-664 Connector, and VA 164 Connector Interchange. Proposed interchange to connect with I-564 design that includes 4 lanes
10	I-564 and I-564 Connector. Proposed design includes 8 lanes

Figure A-1: Alignment Segments

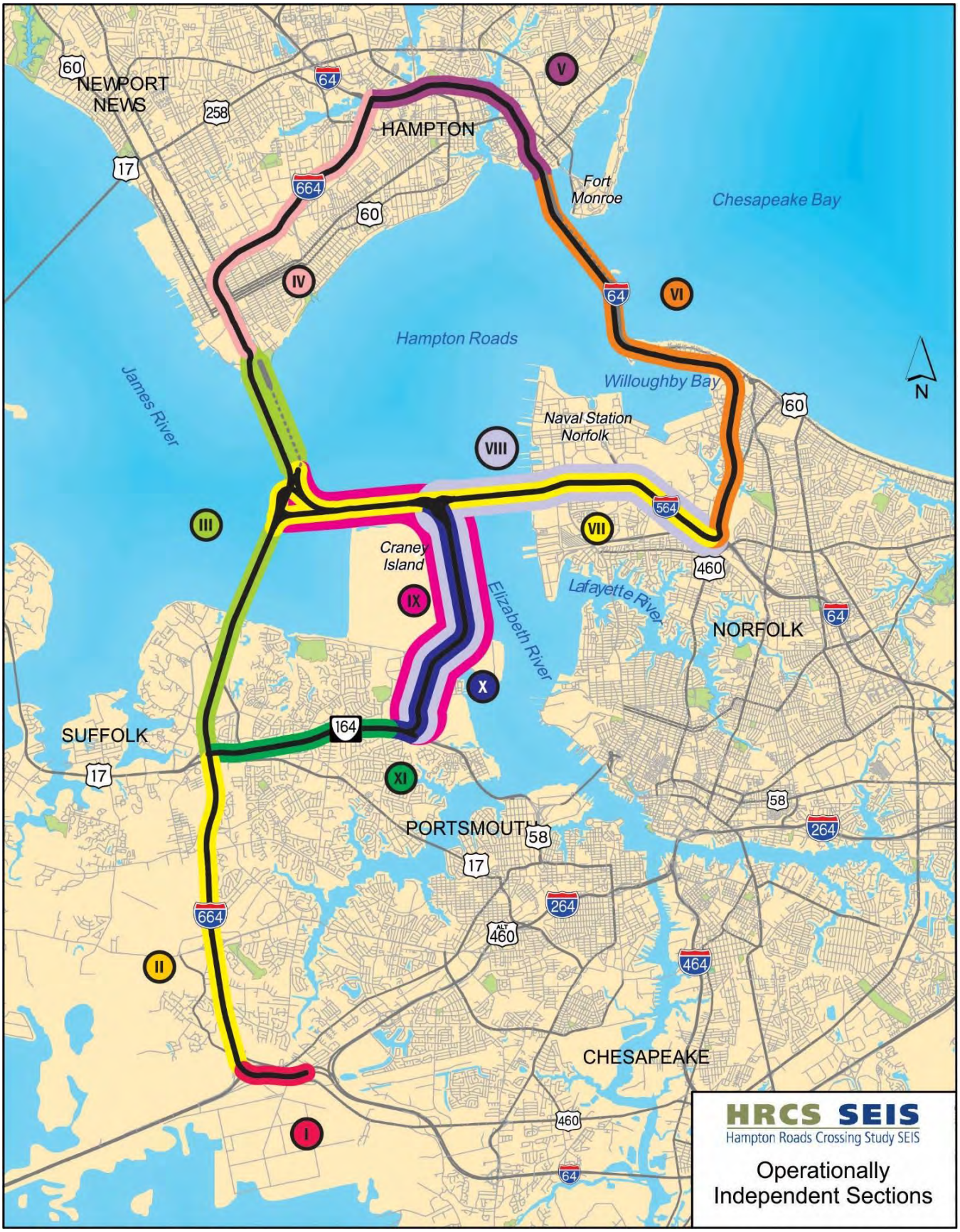
Figure A-2: Alternative A Segments

Figure A-3: Alternative B Segments

Figure A-4: Alternative C Segments

Figure A-5: Alternative D Segments

Figure A-6: Operationally Independent Sections



Resource	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5C	Segment 5D	Segment 6C	Segment 6D	Segment 7C	Segment 7D	Segment 8	Segment 9	Segment 10BD	Segment 10C	Segment 11C	Segment 11D	Segment 12B	Segment 12C	Segment 12D	Segment 13	Segment 14
Right-of-Way (# / acres)	**8 (0.9)**	**20 (2.7)**	**1 (0.4)**	**8 (13.2)**	**3 (21.1)**	**2 (21.0)**	**5 (16.0)**	**4 (12.7)**	**111 (22.3)**	**75 (18.9)**	**20 (2.8)**	**66 (7.5)**	**7 (65.0)**	**8 (89.4)**	**0**	**0**	**1 (6.7)**	**1 (7.5)**	**1 (7.5)**	**36 (167.0)**	**0**
Residential	2 (<0.1)	9 (0.2)	0	0	0	0	0	0	42 (1.7)	29 (1.3)	1 (0.1)	23 (0.5)	0	0	0	0	0	0	0	5 (0.1)	0
Commercial	1 (<0.1)	0	0	1 (<0.1)	0	0	0	0	17 (3.3)	11 (2.8)	2 (0.1)	4 (1.2)	0	0	0	0	0	0	0	4 (1.4)	0
Industrial	0	3 (0.3)	0	0	3 (21.1)	2 (21.0)	4 (15.8)	4 (12.7)	16 (6.7)	10 (5.4)	0	6 (0.9)	1 (28.5)	2 (34.9)	0	0	0	0	0	7 (25.4)	0
Institutional	0	1 (<0.1)	0	1 (0.3)	0	0	1 (0.2)	0	7 (6.0)	4 (5.7)	8 (1.9)	1 (0.9)	0	0	0	0	1 (6.7)	1 (7.5)	1 (7.5)	4 (103.8)	0
Military	0	0	0	0	0	0	0	0	0	0	0	4 (0.6)	2 (10.2)	2 (11.4)	0	0	0	0	0	1 (11.7)	0
Open Space	5 (0.9)	7 (2.2)	1 (0.4)	6 (12.9)	0	0	0	0	27 (4.8)	20 (3.7)	3 (0.1)	11 (0.9)	2 (0.3)	2 (0.3)	0	0	0	0	0	11 (22.5)	0
Other	0	0	0	0	0	0	0	0	2 (<0.1)	1 (<0.1)	6 (0.7)	17 (2.4)	2 (26.0)	2 (42.7)	0	0	0	0	0	4 (2.1)	0
Potential Residential Displacements	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**11**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Potential Commercial Displacements	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Potential Other* Displacements	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**3**	**2**	**2**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Military Facilities (#/acres)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1 (22.4)**	**1 (14.7)**	**1 (41.5)**	**0**	**0**	**1 (6.7)**	**1 (7.5)**	**1 (7.5)**	**3 (119.1)**	**0**
Community Facilities	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Park & Recreation	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
Place of Worship	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Cemetery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School / University	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
Land Use*	**0.9**	**3.1**	**0.7**	**16.4**	**21.8**	**21.6**	**16.1**	**12.8**	**22.6**	**19.0**	**2.6**	**25.2**	**61.1**	**79.1**	**0**	**0**	**6.7**	**7.5**	**7.5**	**164.8**	**0**
Residential	0	0.6	0	0	0	0	0	0	2.0	1.5	0.1	0.5	0	0	0	0	0	0	0	0.1	0
Commercial	0	0	0	1.3	0	0	0	0	3.6	3.0	0.5	1.2	0	0	0	0	0	0	0	1.4	0
Industrial	0	0.2	0	0.2	21.8	21.6	15.9	12.8	6.2	5.0	0	0.7	46.0	50.2	0	0	0	0	0	25.3	0
Institutional	0	0	0	0	0	0	0.2	0	5.9	5.7	1.9	0.9	0	0	0	0	6.7	7.5	7.5	103.8	0
Military	0	0	0	0	0	0	0	0	0	0	0	20.8	14.8	28.6	0	0	0	0	0	11.7	0
Open Space	0.9	2.3	0.7	14.9	0	0	0	0	4.9	3.7	0.1	1.1	0.3	0.3	0	0	0	0	0	22.5	0
Section 4(f) Properties (# / acres)	**0**	**0**	**0**	**1 (27.0)**	**1 (254.2)**	**1 (233.8)**	**1 (0.3)**	**1 (0.4)**	**3 (1.6)**	**3 (1.5)**	**2 (1.8)**	**4 (304.6)**	**2 (48.7)**	**2 (98.3)**	**1 (151.7)**	**1 (123.5)**	**1 (25.6)**	**1 (69.8)**	**1 (64.0)**	**1 (6.7)**	**0**
Farmland	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

*Notes: Right-of-Way data was gathered from each of the localities. Land use data was gathered from HRTPO. *Other includes Military, Institutional, and Industrial zoning classifications.*