

1. INTRODUCTION

1.1 Project Description

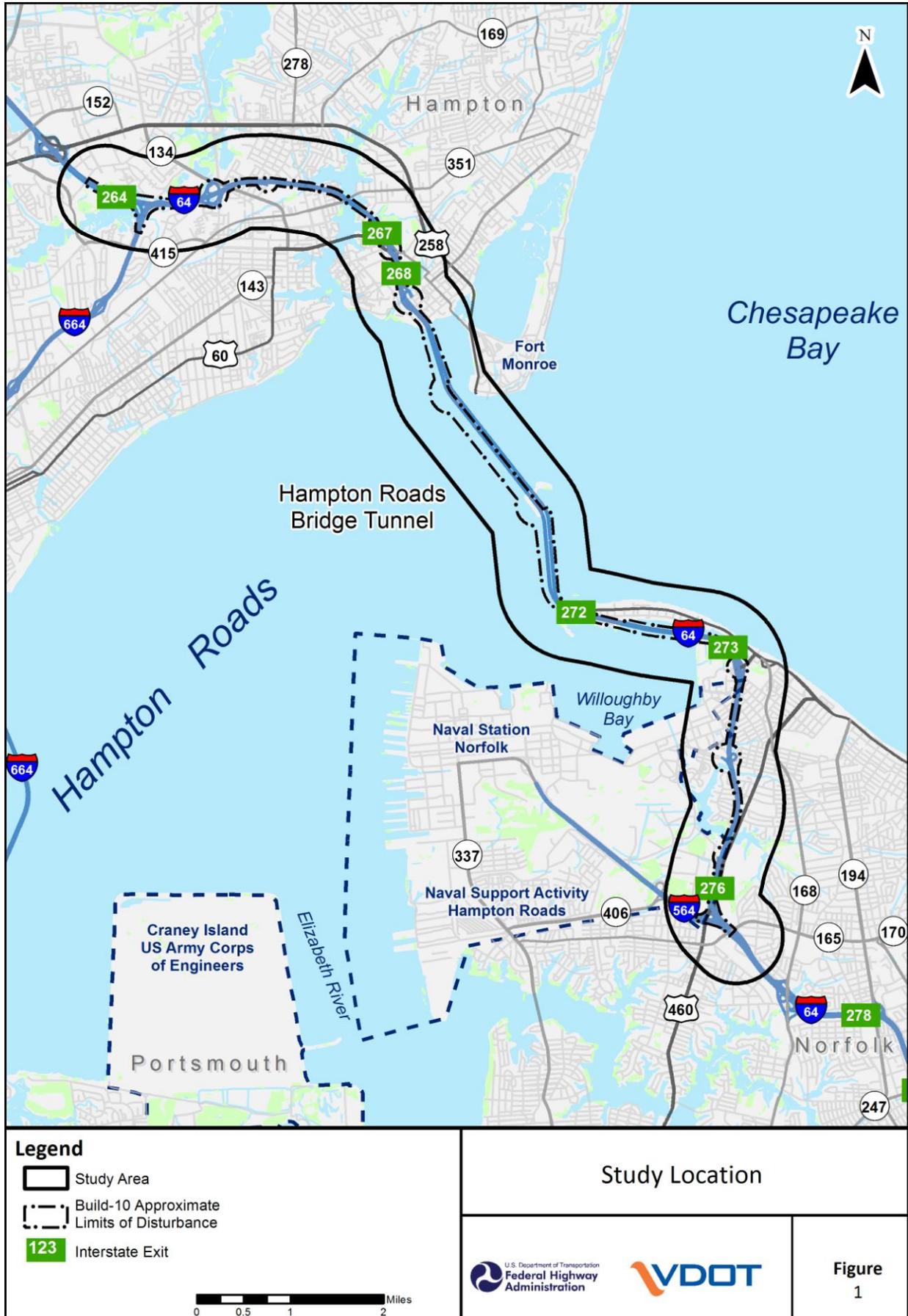
The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is studying the environmental consequences of transportation alternatives along Interstate 64 (I-64) and the Hampton Roads Bridge-Tunnel (HRBT). The study area, as shown in **Figure 1**, is a one-mile-wide corridor along I-64 from the I-664 interchange in the City of Hampton to the I-564 interchange in the City of Norfolk, a distance of approximately 12 miles, including the 3.5-mile-long HRBT.

The purpose of this Technical Memorandum is to inventory existing and future land uses in the study corridor and to identify potential impacts to those uses. Information in this memorandum will support discussions presented in the Environmental Impact Statement (EIS).

- **Section 1** provides an overview of the study and outlines the methods used to quantify impacts to land use.
- **Section 2** provides an overview of existing conditions (affected environment) including description of existing and future land uses, local planning initiatives, and development trends.
- **Section 3** analyzes potential impacts to land use from each of the Retained Build Alternatives including identification of potential land use conversions.

Details regarding all alternatives, including potential limits of disturbance, are included in the *Alternatives Technical Report*. Three Retained Build Alternatives, each representing a set of improvements that form a stand-alone solution to the identified needs within the study area, have been retained for detailed evaluation in the EIS. These three alternatives form the basis for considering potential impacts to land use, as discussed in this Technical Memorandum:

- The **Build-8 Alternative** would provide four continuous mainline lanes in each direction of I-64 throughout the study area. Through the Hampton section of the study area, this alternative would require one lane of widening in each direction of I-64. Through the Norfolk section, this alternative would require the addition of two lanes in each direction of I-64. A concrete traffic barrier would separate the eastbound and westbound directions. The total pavement width of the Build-8 Alternative mainline would be approximately 150 feet. Through the Willoughby Spit, widening would occur on the south side of the existing roadway only. The eastbound approach bridge would be modified to carry two westbound lanes, and a new four-lane bridge would be constructed approximately 200 feet to the west of the existing bridges to carry the eastbound lanes. A new four-lane tunnel would be constructed approximately 200 feet west of the existing tunnel.
- The **Build-8 Managed Alternative** mainline, bridges, and tunnels would be similar to the Build-8 Alternative, providing four continuous mainline lanes in each direction of I-64 with a new bridge structure and tunnel. However, some or all of the travel lanes would be managed using tolls and/or vehicle occupancy restrictions. The typical section also would include an approximate four-foot buffer separation between the general purpose lanes and any managed lanes, resulting in a total mainline pavement width of approximately 160 feet. The managed lanes would tie to the high occupancy vehicle (HOV) lanes on I-64 on both ends of the study area.



- The **Build-10 Alternative** would provide five continuous mainline lanes in each direction of I-64 throughout the study area, with a concrete traffic barrier separating the eastbound and westbound directions. Throughout the Hampton section of the study area, this alternative would require widening both directions of I-64 by two lanes. In the Norfolk section of the study area, this alternative would require widening both directions of I-64 by three lanes. The total width of the mainline pavement would be approximately 170 feet. The approach bridges and tunnel would be similar to the Build-8 Alternative; however, the new bridge-tunnel would include one westbound lane and five eastbound lanes for the bridge and the tunnel.

The No-Build Alternative also has been retained to serve as a baseline for comparison of alternatives and their potential effects. Under the No-Build Alternative, I-64 would remain predominantly three lanes per direction within the Hampton section of the study area. The 3.5-mile HRBT would continue with current operations. Within the Norfolk section of the study, I-64 would remain two lanes per direction, including the I-64 bridges across Willoughby Bay.

As the limits of disturbance for the Retained Build Alternatives are similar, the figures in this memorandum show the limits for the Build-10 Alternative only, which would have the largest disturbance area and therefore the largest potential impact. The text and tables discuss the potential impact of all Retained Build Alternatives in comparison to the No-Build Alternative.

1.2 Methods

Existing and potential future land uses within the I-64 HRBT study area were identified to establish the parameters for analysis of the Retained Build Alternatives. Information and data were compiled from aerial photos, local comprehensive and land use plans, input from local and regional planning officials, geographic information system (GIS) databases, and field reconnaissance. Review of local land use plans, community master plans, and recreation plans was completed to identify the current development trends and local government plans and policies on land use and growth in the study area.

2. AFFECTED ENVIRONMENT

2.1 Existing Land Use

The land use (built environment) and land cover (natural environment) in the study area are typical of a developed urban and suburban setting. The cities of Hampton and Norfolk had their beginnings in the 1600s with European settlement. Both cities are a part of the Hampton Roads region. The body of water known as Hampton Roads (the mouths of the James, Elizabeth, and Nansemond Rivers) separates the two cities. Aerial photography, field inspections, and local planning information confirm that both cities are highly developed and include residential, commercial, industrial, military, open space, and public uses (**Table 1, Figure 2, and Figures 3A-E**). In both cities the highest proportion of land use in the study area is residential.

2.2 Status of Local Planning

The current City of Hampton comprehensive plan, the *Hampton Community Plan* (Community Plan), was adopted in 2006. The 2011 Community Plan Update was endorsed in fall 2011 as the completed five-year review of the 2006 Community Plan. The Hampton Planning Commission also has adopted plans for distinct parts of the city, including the following plans that address land use within the study area:

- Downtown Hampton Master Plan (2004; amended 2006)

- Newmarket Creek Park & Trail System Master Plan (2007)
- Coliseum Central Master Plan (2004)
- North King Street Master Plan (2007)
- Phoebus Master Plan (2007)

The 2006 Community Plan notes that both I-64 and I-664 should continue to be supported as the major routes to the city. The transportation section in the 2006 plan states that as “the main artery of moving traffic in and out of Hampton, the health and efficiency of Interstate 64 is vital” (City of Hampton, 2006a). The 2011 Update includes a re-examination of the vision for the city as well as an update to city data. It notes that regionalism has risen in importance in many aspects of planning. The plan update specifically mentions support for “the development of new transportation options that address regional needs as well as those of Hampton businesses and citizens” (City of Hampton, 2012).

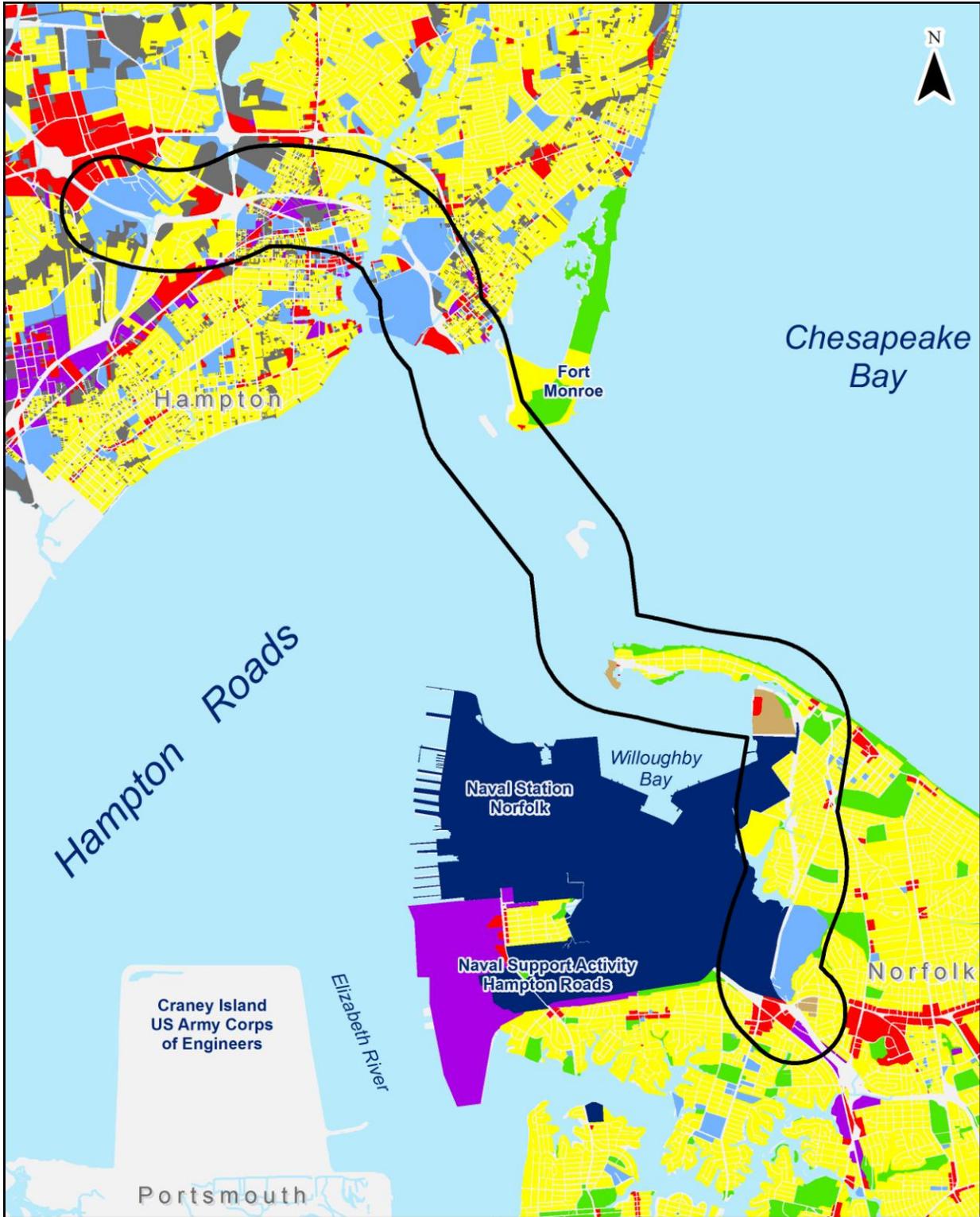
Table 1. Existing Land Use.

Land Use/Land Cover Classification	Total Area in Study Limits (Acres)	Percent of Study Area
Commercial	329	7%
Industrial	82	2%
Institutional	928	21%
Military	539	12%
Mixed-Use	108	3%
Parks, Open Space, and Greenways	203	5%
Residential	1,881	42%
Vacant	415	9%
Study Area TOTAL	4,485	100%

Sources: City of Hampton and City of Norfolk Land Use GIS databases.

The *General Plan of Norfolk* was adopted in 1992. The draft *PlaNorfolk 2030* is the most recent update to the comprehensive plan, revised based on public review and comment. A City Council public hearing regarding the updated plan is expected in the Fall of 2012. The city Department of Planning and Community Development also has promulgated the Greater Wards Corner Comprehensive Plan, a plan for a distinct part of the city that addresses land within the study area. The *General Plan* notes that water and waterways are the primary influence on many aspects of the city: the shape of the city, economic development, the Downtown core, neighborhood identity, the “organizing feature” of parks and recreation, and on the transportation network. The transportation network and “citywide circulation” rely “on a few, rather than many, arterial corridors which provide access across the water barriers” (City of Norfolk, 1992). The existing Hampton Roads Bridge-Tunnel is one of these few corridors that provide access to the city. The *General Plan* also states that increasing capacity at the HRBT is a top priority to improve access into the City and that a main goal for 2020 is to pursue the expansion and development of existing crossings (City of Norfolk, 1992).

The goals and issues identified in the draft *PlaNorfolk 2030* are similar to and natural continuations of the *General Plan* of 1992. A key economic vitality issue identified in the plan is “Improving and expanding regional transportation linkages, including highway, bridge and tunnel infrastructure, as well as multi-modal connections” (City of Norfolk, 2011). The key transportation issue identified is to address “roadway congestion, particularly at water crossing facilities” (City of Norfolk, 2011). Two other water crossings, the Midtown Tunnel and Patriot’s Crossing, are the highest future priorities for the city. The widening of the Midtown Tunnel is currently under construction and the Patriot’s Crossing is undergoing an update to the NEPA process.



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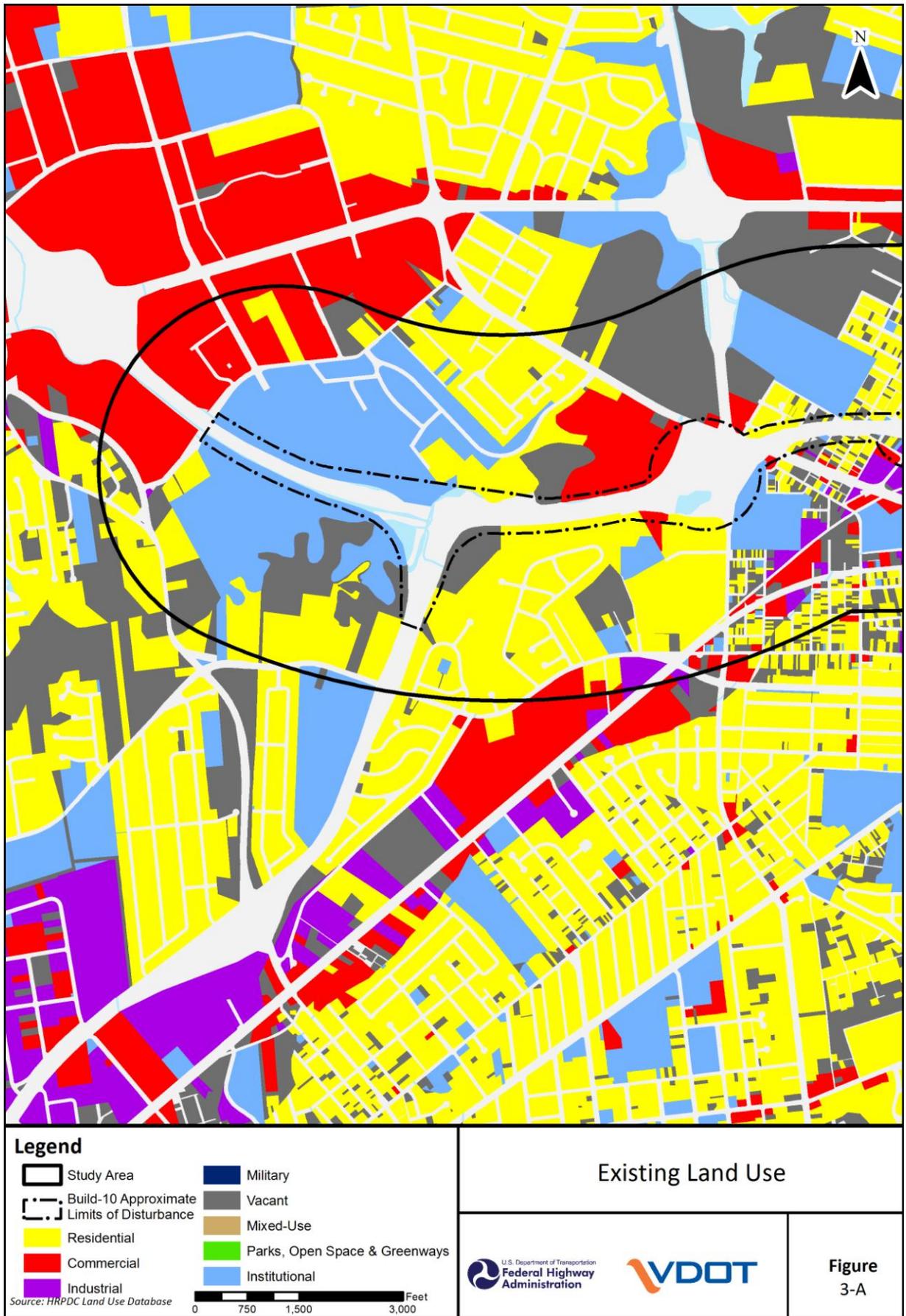
Study Area	Vacant
Residential	Mixed-Use
Commercial	Parks, Open Space & Greenways
Industrial	Institutional
Military	

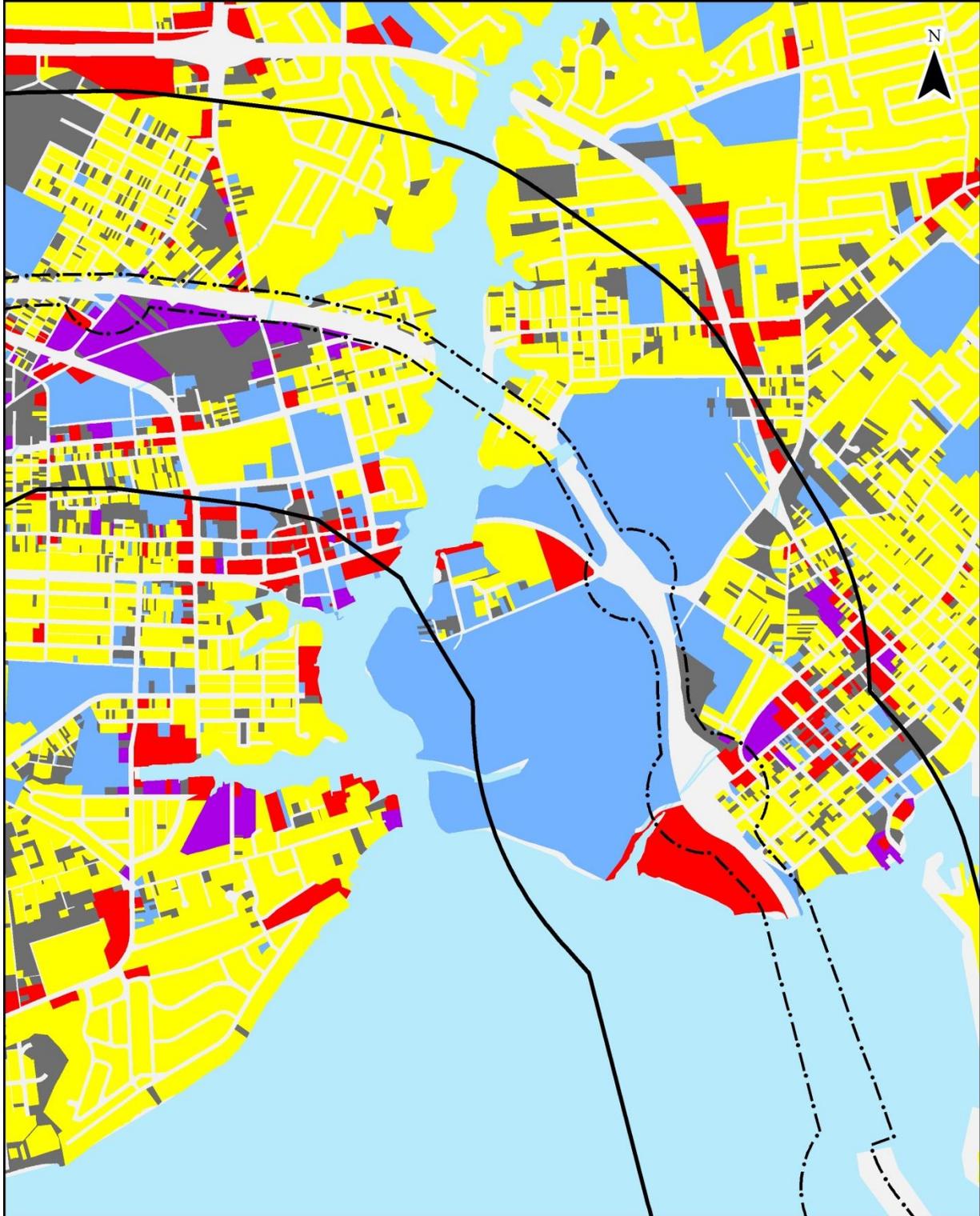
Source: HRPDC Land Use Database

0 0.5 1 2 Miles

Existing Land Use
 Overview

		Figure 2
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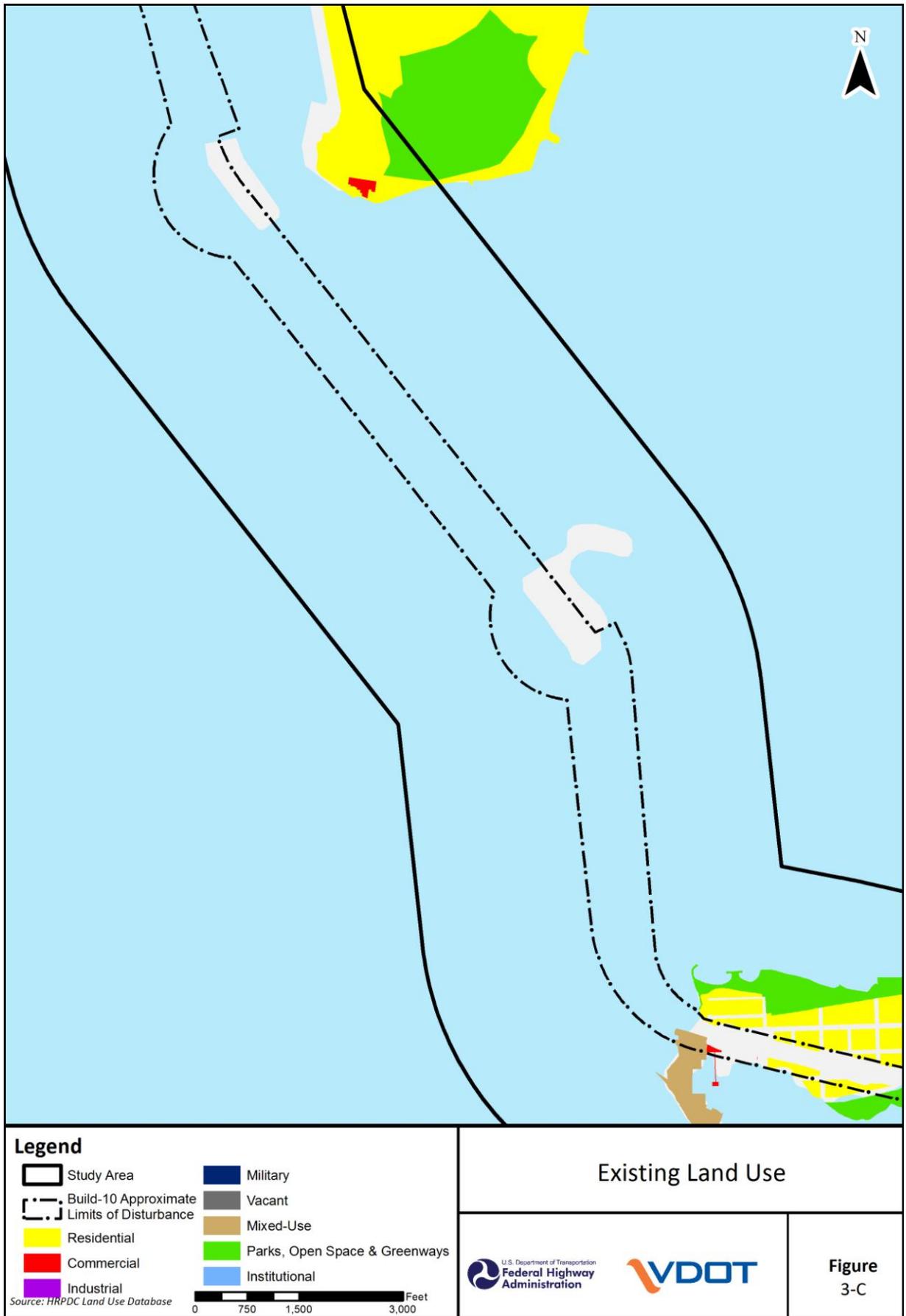
Study Area	Military
Build-10 Approximate Limits of Disturbance	Vacant
Residential	Mixed-Use
Commercial	Parks, Open Space & Greenways
Industrial	Institutional

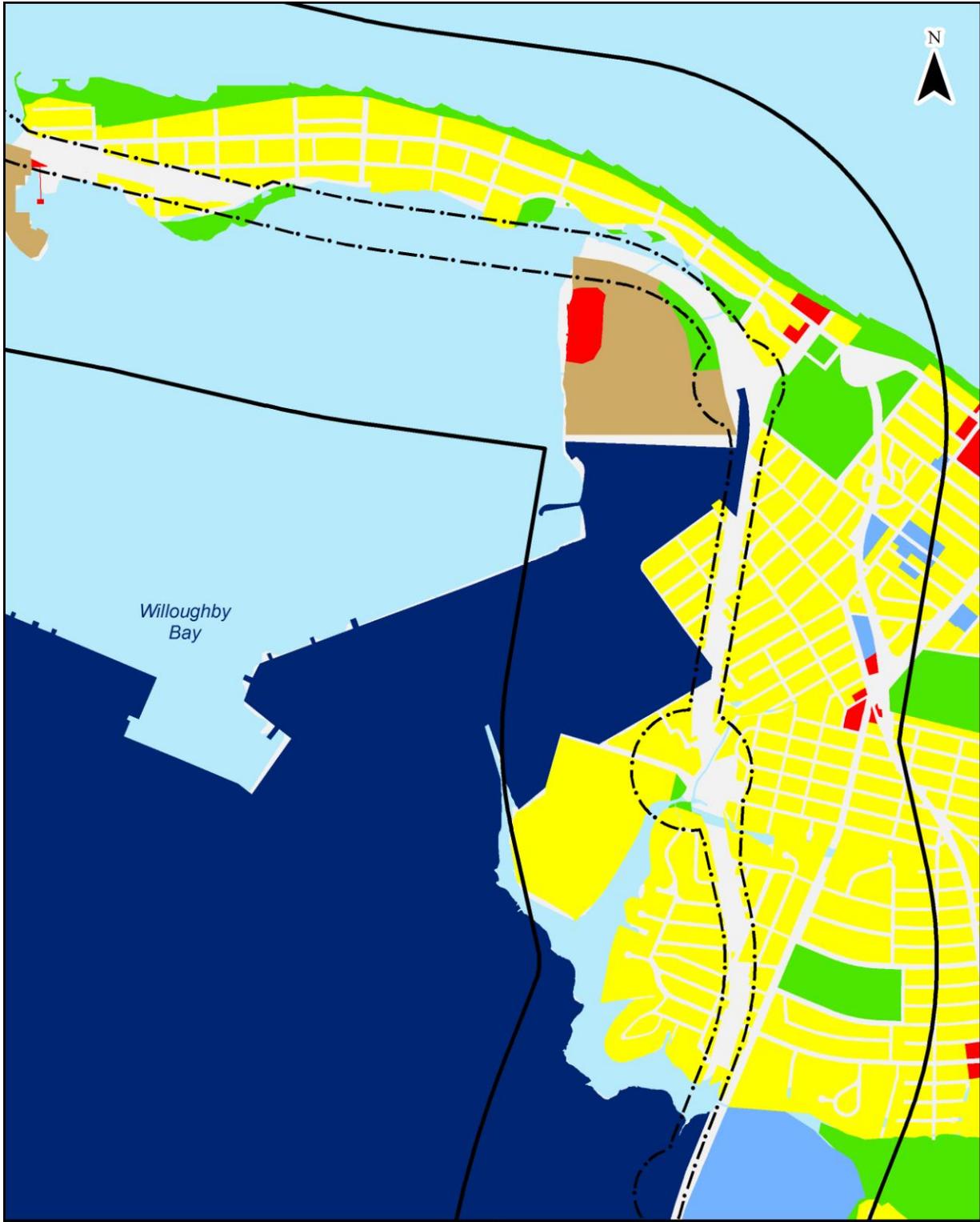
Source: HRPDC Land Use Database

0 750 1,500 3,000 Feet

Existing Land Use

		Figure 3-B
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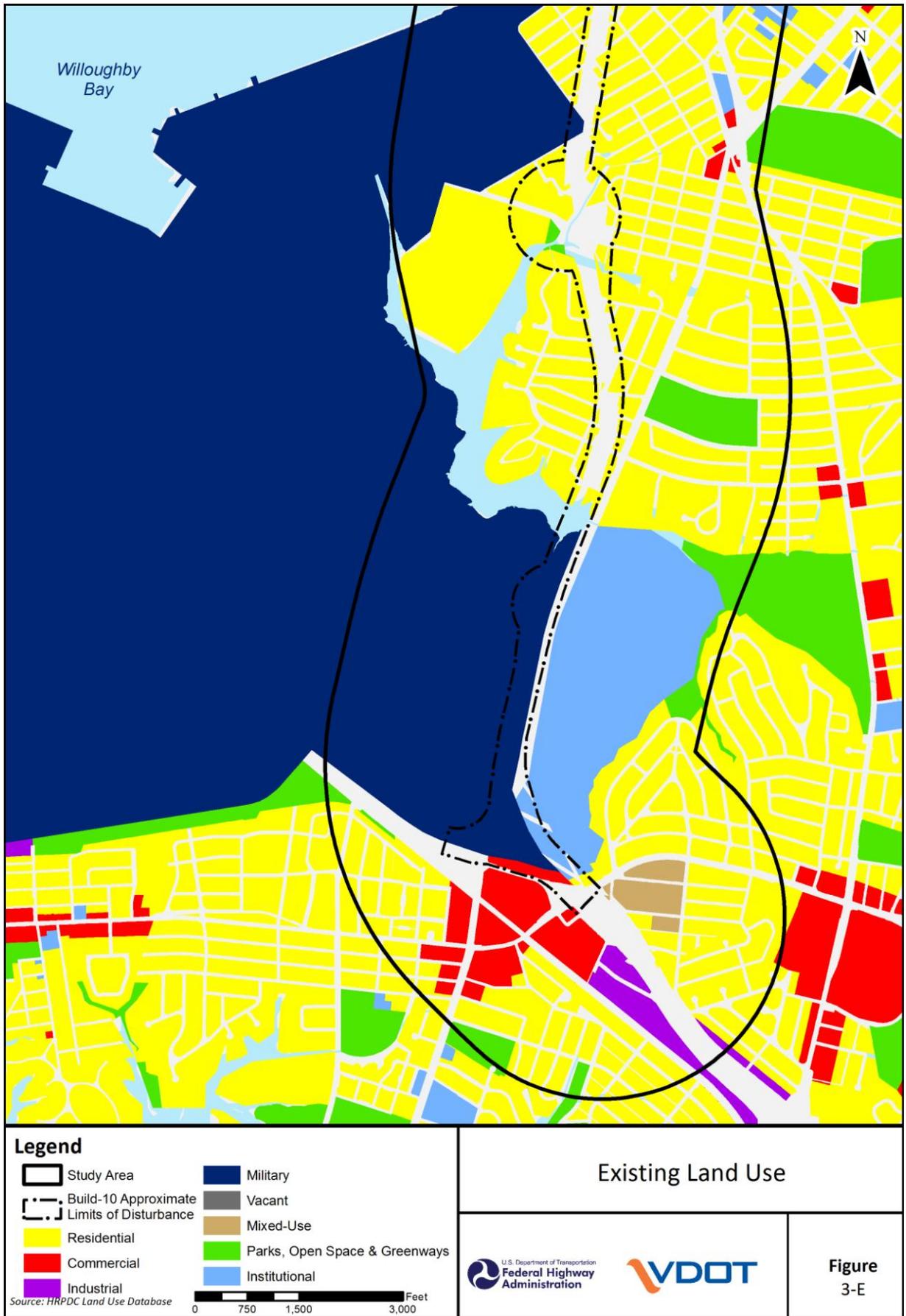
Study Area	Military
Build-10 Approximate Limits of Disturbance	Vacant
Residential	Mixed-Use
Commercial	Parks, Open Space & Greenways
Industrial	Institutional

Source: HRPDC Land Use Database

0 750 1,500 3,000 Feet

Existing Land Use

		<p>Figure 3-D</p>
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2.3 Development Trends / Future Land Use

The Retained Build Alternatives occur in an area where medium and high density development already exist and are projected to continue in both cities. Development demand is regulated and controlled by the individual jurisdictions through their zoning and land use and comprehensive plans. In both cities the existing and future land use varies somewhat throughout the study area. A large portion of the land use in both cities is residential of medium to high density, with commercial uses occurring closer to the interchanges with I-64. There are also large public (military and institutional) and open space/park uses throughout the study area. Due to the limited amount of vacant land in both of these mature cities, future land use is projected to be virtually the same as current land uses, with primarily infill development of similar land uses occurring.

Limited future changes in land uses and development are already planned in the cities and are expected to occur with or without the construction of one of the Retained Build Alternatives. Construction of one of the Retained Build Alternatives would not encourage or accelerate any changes in land use that are not already expected by either city.

The Hampton 2010 Comprehensive Plan links specific land uses with transportation planning in the city-wide transportation recommendations. For example, residential development should ideally have access to the roadway network only via local roads (City of Hampton, 1989). The Community Plan notes that the city “is over 90% built out,” meaning that most land use changes will occur as conversion of one type of land use to another, not primarily vacant land to a new land use. The Community Plan further states that “In-fill development, redevelopment, and revitalization of existing developed areas will be the main source of growth and change within Hampton” (City of Hampton, 2006a). The plan for future land use is to “protect residential neighborhoods, encourage commercial investment in established centers and districts, promote revitalization in strategic areas of the city, and protect environmentally sensitive areas” (City of Hampton, 2006a). Future land use, as defined by the city, is shown in **Figure 4**.

The Norfolk 1992 *General Plan* used the year 2000 as its short-term horizon year; because of the developed nature of the city, the land use pattern proposed in the year 2000 was a refinement of the land use pattern in 1992. In a manner similar to the City of Hampton, the *General Plan* states that due to the highly developed nature of the city (95% built), any new development “will take the form of redevelopment or revitalization” (City of Norfolk, 1992). *PlanNorfolk 2030* echoes this in its land use chapter noting that because Norfolk is a mature, developed city, only 3.1% of the land in the city is vacant. New development in Norfolk is expected to be “either the result of redevelopment or infill (City of Norfolk, 2011). The key issue identified for land use in Norfolk is “complementing the existing built and natural environment or facilitating land use change in specific areas “ (City of Norfolk, 2011).

The cities’ comprehensive plans and other planning documents set forth a variety of development and transportation projects (**Table 2**) that illustrate development trends in and around the study area. In terms of land use, implementation of the Retained Build Alternatives also would be compatible with these planned projects.

Other planned projects that would occur outside but potentially impact land use within the study area include: the completion of Phase I of the Craney Island Marine Terminal by 2020 and complete build out by 2034, and the continued presence of the US Navy at Naval Station Norfolk. Specific future plans by the US Navy are not identified. Based on existing base realignment and/or closure plans, the US Navy will continue to be a key presence in the study area. Transportation projects outside but potentially affecting future land use within the study area include the Patriot’s Crossing project (currently undergoing a NEPA update) which is part of the Third Crossing of Hampton Roads project, and the I-564 Intermodal Connector, which would extend from the existing I-564 to the Norfolk International Terminals and Naval Station Norfolk.

Table 2. Planned Projects in the Study Area.

Project Name	Description	General Location	Timeframe/ Status
Coliseum Central Master Plan	Straighten roads and create pedestrian-friendly districts and recreational facilities	Approximately 0.3 mile north of 64/664 interchange	Project timeframe 10-20 years
Coliseum Drive/ Mercury Boulevard	Flyover removal and intersection improvements	Approx. 0.3 mile northwest of 64/664 interchange	Project timeframe 2005-2025
Coliseum Mall Redevelopment	Road extensions on mall property	Approx. 0.3 mile north of 64/664 interchange	Project timeframe 2005-2025
Newmarket Creek Park and Trail system Master Plan	Construct a trail along Coliseum Lake, Lake Hampton, and Newmarket Creek; create pocket parks, waterfront redevelopment, canoe/kayak launch, fishing pier	Approx. 0.3 mile north of 64/664 interchange	Plan adopted 2004, amended 2006; project timeframe uncertain
Commerce Drive	Extension from Convention Drive to Cunningham Drive	Approx. 0.3 mile northwest of 64/664 interchange	Project timeframe 2005-2025
Power Plant Parkway	Upgrade from Briarfield Road to Pine Chapel Road	0.2 miles south of 64/Pine Chapel Road	Project timeframe 2005-2025
North King Street Master Plan projects	Roadway improvements; provide open space amenities and community access along Newmarket Creek (Y.H. Thomas Park area)	Within 0.2 miles of 64	Plan adopted in 2007; project timeframe uncertain
Downtown Hampton Master Plan projects	Connect to Pasture Point through Eaton street as a park; construct a waterfront park; roadway improvements; redevelop industrial land as residential communities	Approx. 0.2 miles south of N. King Street	Plan adopted 2004, amended 2006; project timeframe uncertain
Fort Monroe Development projects	Renovate structures; construct a pedestrian/bike trail around perimeter; improve roadways	Directly north of HRBT	Master Plan in development; project timeframe uncertain
Phoebus Master Plan projects	Create waterfront park on Mellen Street with a floating fish market and boating; general redevelopment in area	East of 64 before HRBT in Hampton	Plan adopted 2007; project timeframe uncertain
Hampton Biomedical Center	Construct a 20,000 square-foot biomedical research center	427 and 519 E. Queen Street	Land Use Permit approved 2012
General Plan 1992/PlaNorfolk 2030 projects	<ul style="list-style-type: none"> - Wards Corner- Acquire and demolish properties in blighted areas; encourage construction of higher end housing; redevelop commercial properties in critical areas; improve road access to commercial areas; improve pedestrian facilities - West Ocean View- mixed-use zoning; establish a park setting west of Mason Creek Road; improve entrances to parks - Willoughby- renovate traditional cottages; revise regulations to restrict building height; roadway improvements 	Along I-64	Newest plan not yet adopted; project timeframe 20 years
Greater Wards Corner Comprehensive Plan projects	Revitalize and create an "uptown"; eliminate blight through redevelopment; construct higher-quality housing and a mix of local retail, improve local roads	Runs through 64/564 interchange	Project timeframe 11-15 years
Wards Corner Retail Renovation	Demolition of Suburban Park Shopping Center underway, with plans to redevelop; demolition of old K&W cafeteria in Southern Shopping Center and exterior renovations at Midtown Shopping Center	Directly south of 64/564 interchange	Ongoing
The Tide (light rail) Extension	Extend the existing light rail system to Naval Base Norfolk; all three options being considered would enter the study area	Extending into the study area near the I-564/I-64 interchange	Project timeframe uncertain.



<p>Legend</p> <ul style="list-style-type: none"> Study Area Residential Commercial Industrial Military Vacant Mixed-Use Parks, Open Space & Greenways Institutional <p>Source: HRPDC Land Use Database</p> <p style="text-align: right;">0 0.5 1 2 Miles</p>	<p>Future Land Use</p>	
		<p>Figure 4</p>

3. ENVIRONMENTAL CONSEQUENCES

3.1 Land Use Conversions

The No-Build Alternative would require no land use conversion. The alternative would have no direct impacts to land use.

Implementation of the Retained Build Alternatives would convert existing land uses to a new land use, transportation, for the purpose of constructing new transportation infrastructure. Apart from the immediate I-64 corridor, medium and high density residential land uses, with commercial land occurring closer to the existing I-64 interchanges predominate in the study area. Public (military and institutional) and open space/park uses also occur throughout the study area. All current land uses are projected to persist. Development demand is regulated and controlled by the individual jurisdictions through their zoning and land use and comprehensive plans. Due to the limited amount of vacant land in both of these mature cities, future land use is projected to be virtually the same as current land uses, consisting primarily of infill development of similar land uses.

Limited future changes in land uses and development are already planned in the cities and are expected to occur with or without the construction of one of the Retained Build Alternatives. Construction of one of the Retained Build Alternatives would not encourage or accelerate any changes in land use that are not already expected by either city. Any changes in land use attributable to implementation of any of the Retained Build Alternatives would be minor due to the limited amount of vacant land available.

The potential land use impacts of the Retained Build Alternatives differ by alternative (**Table 3**). Conversion of various land uses to transportation use would be caused by construction of a Retained Build Alternative. However, the conversion would be an expansion of the existing adjacent transportation land use and would generally not be out of character with the area. The Build-10 Alternative is wider and therefore would necessitate conversion of more land from its existing use to transportation use.

The land use that would incur the most impact under the Retained Build Alternatives in Hampton is institutional land. The land use that would be most impacted in Norfolk is military land (Naval Station Norfolk). It should be noted that Bluebird Gap Farm, Woodlands Golf Course, Hampton University, and the Hampton National Cemetery in Hampton are classified by the city as public institutional uses due to their ownership. However, Willoughby Elementary in Norfolk is classified as Parks, Open Space because the city has one category for Educational, Recreational, Cultural, Open Space, and Environmentally Sensitive.

3.2 Compatibility with Local Land Use and Transportation Planning

Both the cities of Hampton and Norfolk have directly addressed the importance of I-64 to local and regional mobility in their respective comprehensive planning processes. Both cities also have recognized the importance of I-64 to residents, local businesses, regional connections, and economic vitality. Due to the limited number of crossings of waterways, particularly in Norfolk, the existing crossings are critically important for regional social and economic well-being. The Retained Build Alternatives are compatible with both cities' comprehensive planning documents.

Table 3. Potential Land Use Impacts.

Land Use/Land Cover Classification	Build-8 Acres (% of Total)	Build-8 Managed Acres (% of Total)	Build-10 Acres (% of Total)
<i>City of Hampton Total</i>	<i>133.9 (100%)</i>	<i>136.9 (100%)</i>	<i>145.2 (100%)</i>
Commercial	24.9 (18.6%)	25.3 (18.4%)	26.3 (18.1%)
Industrial	8.1 (6.1%)	8.3 (6.1%)	9.0 (6.2%)
Institutional	60.9 (45.5%)	61.9 (45.2%)	64.2 (44.2%)
Military	0	0	0
Mixed-Use	0	0	0
Parks, Open Space, and Greenways	0	0	0
Residential	24.7 (18.4%)	25.7 (18.7%)	28.7 (19.7%)
Vacant	15.4 (11.5%)	15.8 (11.5%)	17.0 (11.7%)
<i>City of Norfolk Total</i>	<i>147.0 (100%)</i>	<i>149.7 (100%)</i>	<i>158.5 (100%)</i>
Commercial	4.2 (2.8%)	4.2 (2.8%)	4.3 (2.7%)
Industrial	0	0	0
Institutional	5.7 (3.9%)	5.8 (3.9%)	6.3 (4.0%)
Military	66.1 (45.0%)	66.7 (44.6%)	68.5 (43.2%)
Mixed-Use	14.6 (10.0%)	14.8 (9.9%)	15.5 (9.8%)
Parks, Open Space, and Greenways	11.8 (8.0%)	12.0 (8.0%)	12.8 (8.1%)
Residential	44.7 (30.4%)	46.2 (30.8%)	51.1 (32.3%)
Vacant	0	0	0
Study Area Total	<i>281.0 (100%)</i>	<i>286.6 (100%)</i>	<i>303.6 (100%)</i>
Commercial	29.1 (10.45%)	29.5 (10.3%)	30.6 (10.1%)
Industrial	8.1 (2.9%)	8.3 (2.9%)	9.0 (3.0%)
Institutional	66.6 (23.7%)	67.7 (23.6%)	70.4 (23.2%)
Military	66.1 (23.5%)	66.7 (23.3%)	68.5 (22.6%)
Mixed-Use	14.6 (5.2%)	14.8 (5.2%)	15.50 (5.1%)
Parks, Open Space, and Greenways	11.8 (4.2%)	12.0 (4.1\2%)	12.8 (4.2%)
Residential	69.3 (24.7%)	71.8 (25.1%)	79.8 (26.3%)
Vacant	15.4 (5.5%)	15.8 (5.5%)	17.0 (5.6%)

REFERENCES

City of Hampton

- 1989 *City of Hampton 2010 Comprehensive Plan*. Hampton, Virginia.
- 2004 *Coliseum Central Master Plan: Hampton, Virginia*. Hampton, Virginia. September 2004.
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City of Norfolk

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