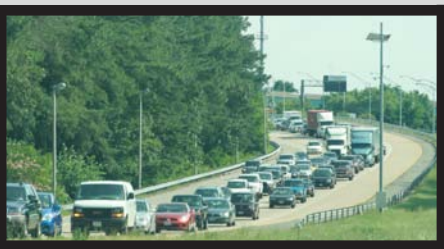
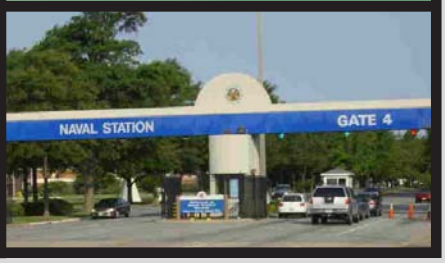
Hampton Roads Military Transportation Needs Study

Highway Network Analysis





Prepared by:
Hampton Roads
Transportation Planning Organization

HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

September 2011

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MILITARY LIAISONS
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Mark S. Ogle, Captain, U.S. Coast Guard

PROJECT STAFF

Camelia Ravanbakht, Ph.D.	Deputy Executive Director, HRTPO
Samuel S. Belfield	Senior Transportation Engineer
Robert B. Case, P.E.	Principal Transportation Engineer
Keith Nichols, P.E.	Senior Transportation Engineer
Stephanie L. Shealey	Transportation Engineer
James A. Clary	Economist
Michael Long	Assistant General Service Manager
Kathlene Grauberger	Administrative Assistant II
Christopher Vaigneur	Reprographics Coordinator

HAMPTON ROADS
MILITARY TRANSPORTATION NEEDS STUDY

HIGHWAY NETWORK ANALYSIS

PREPARED BY:

HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

SEPTEMBER 2011

TITLE:
Hampton Roads
Military Transportation Needs Study:
Highway Network Analysis

AUTHOR:
Samuel S. Belfield

PROJECT MANAGER:
Robert B. Case, P.E., P.T.O.E.

ABSTRACT

The overall purpose of this study is to determine military transportation needs and to provide an efficient and safe transportation network for the military in Hampton Roads. After initial discussions with regional stakeholders, HRTPO staff agreed to examine the adequacy of the Strategic Highway Network (STRAHNET) routes in Hampton Roads and to include them in local planning efforts. STRAHNET is designated by the Federal Highway Administration (FHWA) in coordination with the U.S. Department of Defense (DoD) as the minimum network of highways that are important to the United States' strategic defense policy, providing access, continuity and emergency capabilities to over 200 important military installations and ports.

Hampton Roads is also home to many military sites not identified within STRAHNET. As a result, regional stakeholders expressed a desire to identify a roadway network beyond STRAHNET to include roadways serving these additional military sites and intermodal facilities supporting the local military. This study identifies a regional roadway network that includes STRAHNET routes as well as non-STRAHNET roadways to and from these additional locations. Within this study, the roadway network labeled "Roadways Serving the Military in Hampton Roads" is identified and then reviewed to determine deficient locations, such as congested segments, deficient bridges, and inadequate geometrics. This study also identifies existing programmed, planned, or candidate transportation projects in Hampton Roads that are important to the military. The HRTPO staff plans to incorporate this work into future iterations of the Congestion Management Process (CMP) and the regional Long-Range Transportation Plan (LRTP) Project Prioritization Tool to assist decision makers as they select future transportation projects.

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ORGANIZATION NAME, ADDRESS, & TELEPHONE
Hampton Roads Transportation Planning Organization
723 Woodlake Drive
Chesapeake, Virginia 23320
757.420.8300
http://www.hrtpo.org

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Chapter 1: Introduction

BACKGROUND

The Hampton Roads region contains one of the largest natural harbors in the world, making the region an attractive location for military facilities. The region's military presence is comprised of the Norfolk Naval Base, the largest in the world, and dozens of other military facilities, all together having more than 110,000[1] active duty military personnel. As a result of the area's large military presence, much of the local economy is driven by the U.S. Department of Defense (DoD). The total direct economic impact of the Navy alone on Hampton Roads was $14.8 Billion[2] in 2009. The total military population—including active duty, reserve, retirees and family members— totals approximately 300,000[3] or almost 20% of the area's total population of 1.6 million[4]. Efficient military operations require a sufficient transportation network so that cargo and personnel can be moved as quickly and as safely as possible. Not only does the condition of the Hampton Roads transportation network impact the future viability of the region as a military hub, but it impacts national security as well.

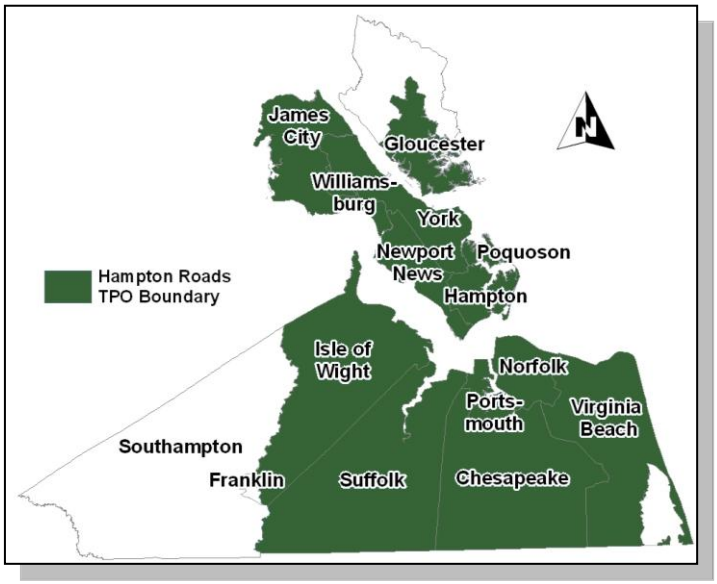
According to the Transportation Research Board (TRB) Military Transportation Committee[5], most U.S. metropolitan planning areas with military installations currently have a disconnect between DoD military bases, Metropolitan Planning Organizations (MPOs), Department of Transportations (DOTs), and local communities. The Hampton Roads Transportation Planning Organization (HRTPO), however, has a long-standing relationship with the military community and has taken steps to increase related efforts in recent years. For many years, the military community has worked with the HRTPO to help steer HRTPO transportation studies and to participate, as non-voting members, in the HRTPO Technical Transportation Advisory Committee (TTAC). In June 2007, the HRTPO staff worked with various stakeholders and completed a traffic management study[6] requested by the U.S. Navy and the City of Norfolk that recommended solutions to maximize efficiency and decrease delays leading into and out of Naval Station Norfolk. In May 2009, invitations were extended to all military branches in the region requesting their participation in the planning process and at monthly HRTPO Board meetings. Two military liaisons (U.S. Navy and U.S. Coast Guard) are currently participating as non-voting HRTPO Board members. The invitation remains open to all interested military parties. Through participation in these monthly meetings, local military representatives are engaged with VDOT, HRTPO, local communities, and various other stakeholders on a regular basis and are able to communicate their transportation concerns and provide valuable input.

Late in 2009, several local military representatives suggested to the HRTPO Board that transportation congestion affects military travel and operations. In response, the HRTPO Board placed greater emphasis on military transportation planning in the region and endorsed annual military briefings by military representatives to the HRTPO Board and to the Commonwealth Transportation Board. These conversations also led to the creation of this study to identify and more effectively address the transportation needs for the military in Hampton Roads. The results of this study will be incorporated into the federally required metropolitan planning and programming processes for the HRTPO (i.e. project development and selection for future Transportation Improvement Programs and Long-Range Transportation Plans).

[1] United States Joint Forces Command (USJFCOM), www.jfcom.mil, January 2011.
[2] Navy Region Mid-Atlantic Public Affairs Office News Release, January 5, 2011.
[3] Ibid (USJFCOM).
[4] Hampton Roads 2009 Socioeconomic Data.
[5] Transportation Research Board (TRB) Annual Meeting, January 2011.
[6] Naval Station Norfolk Area Traffic Management Study, HRTPO, June 2007.

STUDY AREA

The Hampton Roads Transportation Planning Organization (HRTPO) serves as the intergovernmental transportation planning body or Metropolitan Planning Organization (MPO) within the Hampton Roads Metropolitan Planning Area (MPA). Hampton Roads is the nation's 35th largest metropolitan area[7] and is comprised of approximately 1.6 million people in 2009[8]. The Hampton Roads MPA (**Map 1**) encompasses nearly 1,900 square miles in nine cities and four counties and hosts five predominant economic engines that stimulate the regional economy, including that of the military, tourism, maritime industries, research and technology, and higher education. This study focuses on military transportation needs and provides an analysis of the existing highway network for the military within the Hampton Roads MPA.



Map 1 – Hampton Roads Metropolitan Planning Area

MILITARY PERSONNEL AND ECONOMIC IMPACT IN HAMPTON ROADS

Hampton Roads hosts one of the largest military populations in the United States, with the largest representation from the U.S. Navy and Marine Corps. It is estimated that the U.S. Navy alone owns more than 36,000 acres and more than 6,750 buildings in the area. In 2009, the Navy and Marines had approximately 86,377 active duty personnel and 35,987 civilian employees and a total estimated Navy "Family" of 266,874, including retired Navy, survivors, and family members[9]. The Navy and Marines active duty and civilian personnel represented about 11% of the total employment in Hampton Roads in 2009[10]. The total direct economic impact of the Navy alone on Hampton Roads was $14.8 Billion in 2009[11].

The military plays a large economic role in Hampton Roads with representation from each branch of the U.S. armed forces. In addition to the U.S. Navy and Marines, the Hampton Roads region hosts numerous bases and installations for the U.S. Army, Coast Guard, and Air Force. The total DoD population in Hampton Roads—including active duty, reserve, retirees and family members—totals approximately 300,000[12] or almost 20% of the area's total population of 1.6 million[13]. **Table 1** on page 3 provides the 2010 military and civilian employment for some of the major military sites in Hampton Roads.

LOCAL MILITARY CONCERNS

With the strong military presence in our Hampton Roads region, it is important to engage the various stakeholders to determine military concerns related to transportation. Several local military representatives (active and retired) recently provided oral[14] and written[15] statements to the HRTPO Board to give their perspective and to express their concerns regarding transportation in Hampton Roads. A copy of the military statements presented to the HRTPO Board is included in **Appendix A**.

[7] Hampton Roads Regional Benchmarking Study.
[8] Hampton Roads 2009 Socioeconomic Data.
[9] Navy Region Mid-Atlantic Public Affairs Office News Release, January 5, 2011.
[10] Navy Economic Impact Brief, HRPDC Special Report, No. 7, January 6, 2011.
[11] Navy Region Mid-Atlantic Public Affairs Office News Release, January 5, 2011.
[12] United States Joint Forces Command (USJFCOM), www.jfcom.mil, January 2011.
[13] Hampton Roads 2009 Socioeconomic Data.
[14] HRTPO Board Meeting, December 16, 2009.
[15] HRTPO Board Meeting - Retreat, February 10, 2010.

These military representatives suggested that transportation congestion and problems may hinder the ability to maintain or bring additional military personnel to our region. They stated that local traffic congestion affects every day commuting for their military personnel as well as travel times between installations during business hours. Delays at bridges/tunnels significantly detract from mission performance effectiveness and efficiency. Specific locations that were mentioned were the Midtown Tunnel, Downtown Tunnel, and the Hampton Roads Bridge-Tunnel.

Table 1 – Hampton Roads Military and Civilian Employment by Military Site, 2010

Branch	Military Site	Active-Duty Personnel	Civilian Personnel	Total Personnel
Navy/Marines	Naval Station Norfolk	54,151	14,570	68,721
Navy/Marines	Naval Air Station Oceana[1]	7,803	2,206	10,009
Navy/Marines	Norfolk Naval Shipyard	1,311	7,904	9,215
Navy/Marines	Naval Air Station Oceana Dam Neck Annex[1]	4,088	1,490	5,578
Navy/Marines	Naval Weapons Station Yorktown[1]	1,311	839	2,150
Navy/Marines/ Army	Naval Amphibious Base Little Creek-Fort Story	12,468	5,623	18,091
Army	Fort Eustis[1]	7,700	5,700	13,400
Army	Fort Monroe	1,118	1,702	2,820
Air Force	Langley Air Force Base	7,400	2,500	9,900
Coast Guard	U.S. Coast Guard - Base Portsmouth	1,300	200	1,500
Coast Guard	U.S. Coast Guard Training Center Yorktown	536	105	641
	TOTAL	99,186	42,839	142,025

[1] 2009 Employment

Source: Virginia Business 2010 Hampton Roads Statistical Digest

According to these military representatives, mobility, which is one of their primary keys to success, is currently impeded by insufficient local transportation infrastructure. Specific projects noted to be of importance to the military were the I-564 Intermodal Connector, Air Terminal Interchange, Jordan Bridge, Midtown Tunnel, improved Harbor crossing (i.e. Third Crossing), I-64 corridor expansion, and a light rail extension to Naval Station Norfolk. Related to transportation mobility, these military representatives requested that the region consider their ability to respond to military crisis as well as their ability to evacuate in times of national defense emergencies or natural disaster.

They also requested consideration of time savings associated with high-speed and intercity passenger rail service connecting Hampton Roads to Richmond, Washington, DC and beyond. For example, a high-speed rail connection would allow military servicemen and officials to conduct a full day's business in Washington, DC without remaining overnight.

Traffic safety is also very important to the military as they value all servicemen and servicewomen, considering them to be skilled, educated, dependable, and reliable. According to the Navy, Privately Owned Vehicle (POV) accidents and incidents are briefed to the Fleet Commander on a weekly basis.

These military representatives also expressed concern related to traffic congestion's impact on overall quality of life for service members and their dependents. They stated that local service members and their families who are routinely impacted by traffic challenges are therefore less likely to spend additional tours of duty in this location or consider this area for retirement. For this reason, it is important for the HRTPO to plan and implement transportation improvement projects that provide a safe and efficient transportation network for the military.

Transportation Project Recommendations by the Local Military

In January 2011, commanding officers from the U.S. Navy, U.S. Coast Guard and U.S. Army in Hampton Roads sent letters in response to the Virginia Department of Transportation's (VDOT) request to identify and comment on transportation projects that would enhance access to local military facilities. A copy of these letters is contained in **Appendix B**.

Provided below is a summary of the recommended transportation projects by military branch.

U.S. Navy Recommendations

- I-564 Intermodal Connector, with Air Terminal Interchange
- Light Rail Transit, including the extension to Naval Station Norfolk
- Improved Harbor crossing — Hampton Roads Bridge Tunnel (HRBT) expansion or Third Crossing
- Maintenance of Interstates, primary arterials and bridges that comprise the Strategic Highway Network (STRAHNET)

U.S. Coast Guard Recommendations

- Patriots Crossing to alleviate port commerce and naval base traffic
- Midtown and Downtown Tunnel expansion and modernization
- I-64 expansion to Richmond
- Consider moving to HOV-3 (3 or more people) from HOV-2 (2 or more people) in High Occupancy Vehicle (HOV) lanes
- Create E-ZPass system as tolls are implemented
- Consider military decals for HOV lanes for certain time windows
- Expand Norfolk Light Rail system to other locations on the Hampton Roads Peninsula and Southside
- Consider a freight/passenger rail connection paralleling the Third Crossing

U.S. Army Recommendations

- I-64 Widening in the Fort Eustis area
- Hampton Roads Bridge Tunnel (HRBT) expansion
- Metro transit system
- Passenger rail service connecting Southside Hampton Roads to the National Capitol Region

FEDERAL REQUIREMENTS AND CONSIDERATION

The most recent federal transportation legislation, known as SAFETEA-LU (*Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users*), requires MPOs to conduct planning that addresses these eight factors:

1. Support the economic vitality of the metropolitan area, especially be enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation; and
8. Emphasize the preservation of the existing transportation system.

This study is part of an overall regional effort to promote each of the eight planning factors with a special focus on military transportation needs. Addressing the military transportation needs in Hampton Roads will enhance regional and national security and defense readiness. This initiative aimed at supporting economic vitality (Factor 1), increasing safety (Factor 2), increasing accessibility and mobility of military personnel and freight (Factor 4), enhancing integration and connectivity (Factor 6), and emphasizing the preservation of the existing transportation system for the military (Factor 8). Many of the transportation improvement projects promoted in this study support more than one of the federal planning factors. For example, projects that reduce roadway congestion and promote a more efficient system will help us maintain our current military assets and attract future military growth, thereby improving the economy of this region.

PURPOSE AND STUDY OBJECTIVES

The overall purpose of this study is to determine military transportation needs and to provide an efficient and safe transportation network for the military in Hampton Roads. The first step was to engage stakeholders—including local military representatives, federal agencies, Virginia Department of Transportation (VDOT), Virginia Port Authority (VPA) and local jurisdictions—to gather their input. After initial discussions, HRTPO staff agreed to examine the adequacy of the Strategic Highway Network (STRAHNET) routes in Hampton Roads and to include them in local planning efforts.

Hampton Roads is also home to many military sites not identified within STRAHNET. As a result, regional stakeholders at the initial scoping meeting for this study expressed a desire to identify a roadway network beyond STRAHNET to include roadways serving these additional military sites and intermodal facilities supporting the local military. This regional roadway network would include STRAHNET routes as well as non-STRAHNET roadways to and from these additional locations. Within this study, the roadway network labeled "Roadways Serving the Military in Hampton Roads" is identified and reviewed to determine deficient locations, such as congested segments, deficient bridges, and inadequate geometrics. This study also identifies existing programmed, planned, or candidate transportation projects in Hampton Roads that are important to the military. The HRTPO staff plans to incorporate this work into future iterations of the Congestion Management Process (CMP)[16] and the regional Long-Range Transportation Plan (LRTP) Project Prioritization Tool[17] to assist decision makers as they select future transportation projects. Listed below are the major objectives of this study:

1. Engage local stakeholders to determine transportation concerns and needs of the local military.
2. Define and describe U.S. Department of Defense (DoD) transportation programs and infrastructure that are significant to the military, including transportation components here in Hampton Roads.
3. Identify military installations and port facilities served by the Strategic Highway Network (STRAHNET).
4. Identify STRAHNET roadways and evaluate the adequacy of the existing STRAHNET designation.
5. Identify additional Hampton Roads military sites and intermodal facilities not included in STRAHNET, which are used in daily operations or may provide support to the military in the event of a defense emergency.
6. Identify roadways that serve the additional military sites and intermodal facilities in Hampton Roads.
7. Create a regional network of "Roadways Serving the Military in Hampton Roads" that includes STRAHNET routes as well as other roadways to and from these additional locations.
8. Determine deficient transportation locations and make recommendations to ensure that the transportation system is capable of supporting defense deployments in the event of a national or regional emergency.
9. Identify existing local transportation projects important to the military.
10. Incorporate study findings into the Hampton Roads Congestion Management Process (CMP) and the Long-Range Transportation Planning Process (LRTP): Incorporate military sites and intermodal facilities as well as the roadways serving those locations into future iterations of the CMP congested corridor evaluations and the regional Project Prioritization Tool to assist decision makers as they select future transportation projects.

[16] Hampton Roads Congestion Management Process: 2010 Update, HRTPO, September 2010.
[17] Hampton Roads Prioritization of Transportation Projects, HRTPO, December 2010.

STUDY PARTICIPATION

The HRTPO would like to acknowledge and thank members from the following organizations for their input, guidance, and participation in this initiative:

- US Department of Transportation Federal Highway Administration (FHWA)
- Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA)
- US Navy
- US Army
- US Air Force
- US Coast Guard
- Virginia Department of Transportation (VDOT)
- Virginia Port Authority (VPA)
- Hampton Roads jurisdictions

Chapter 2:
National Transportation Programs and Infrastructure for Military Defense

Before identifying "Roadways Serving the Military in Hampton Roads", it is important to provide a clear definition and understanding of national defense programs and networks, such as the Strategic Highway Network (STRAHNET). The information in this chapter defines and describes the national transportation programs and infrastructure that are significant to the military, including transportation components here in Hampton Roads. A general discussion of the Railroads, Ports, and Highways for National Defense Programs is intended to provide a better understanding of the U.S. Department of Defense (DoD) initiatives that were established to ensure defense readiness and national security. Furthermore, several agreements between DoD and various transportation agencies have been established to ensure appropriate command and control of transportation infrastructure in the event of an emergency or crisis and are described in this section.

U.S. DEPARTMENT OF DEFENSE (DOD) PROGRAMS FOR NATIONAL DEFENSE

The U.S. Department of Defense (DoD) currently has three major programs[18] to ensure defense readiness capability of U.S. transportation infrastructure:

1. **Railroads for National Defense (RND)** – ensures the readiness capability of the national railroad network to support defense deployment and peacetime military needs. The Strategic Rail Corridor Network (STRACNET) was created under this initiative.
2. **Ports for National Defense (PND)** – ensures the identification, adequacy, and responsiveness of defense-important Continental United States (CONUS) port infrastructure in both peacetime and wartime. Strategic Seaports and Port Planning Orders (PPOs) were created under this initiative.
3. **Highways for National Defense (HND)** – identifies the minimum public highway infrastructure that DoD needs to fulfill its mission, ensures the defense readiness capability of the public highway infrastructure, and establishes policy on how DoD uses the highway system. The Strategic Highway Network (STRAHNET), which is part of the National Highway System (NHS), was created under this initiative.

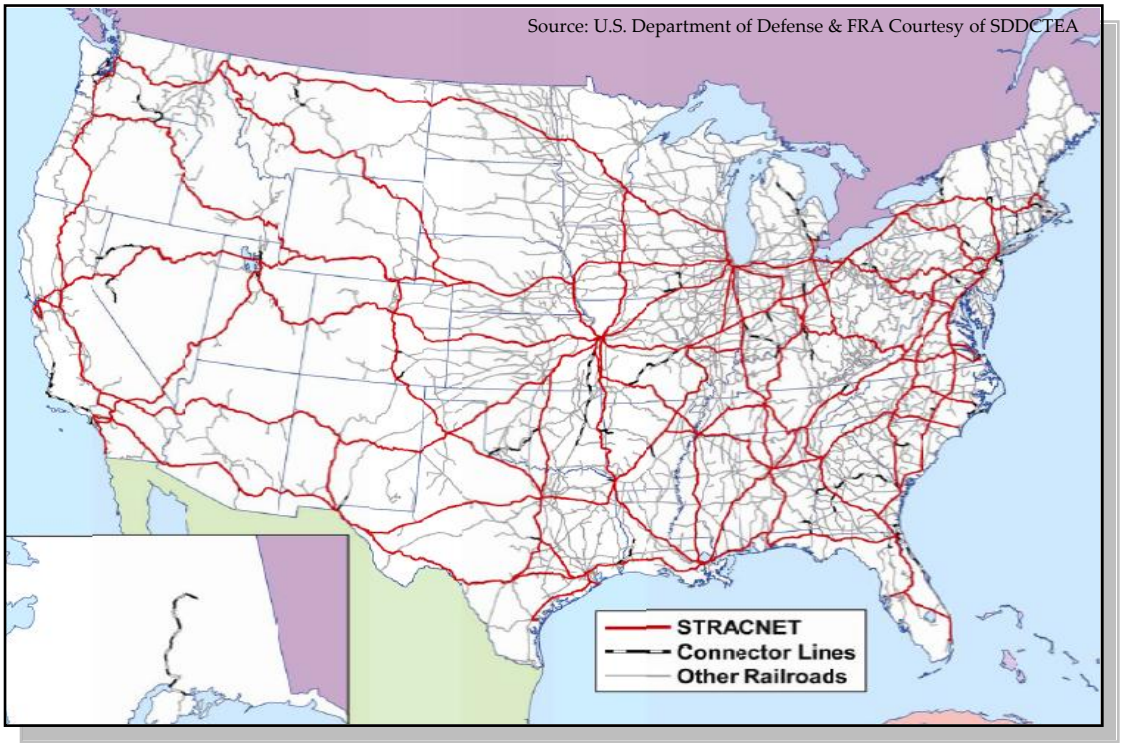
The Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA, formerly Military Traffic Management Command Transportation Engineering Agency - MTMCTEA) is the DoD-designated agent for conducting many of these DoD programs, in coordination with the Office of the Secretary of Defense (OSD) and U.S. Transportation Command (USTRANSCOM), as well as many other transportation agencies. The SDDCTEA's mission is to "improve the global deployability and sustainment of the U.S. Armed Forces by providing the Department of Defense (DoD) with transportation engineering, policy guidance, research, and analytical expertise to support the National Military Strategy" [19].

Railroads for National Defense (RND)

DoD's Railroads for National Defense (RND) program, in conjunction with the U.S. Federal Railroad Administration (FRA), established the Strategic Rail Corridor Network (STRACNET) to identify DoD's minimum rail needs and to coordinate with appropriate transportation authorities. STRACNET is an interconnected and continuous rail network consisting of approximately 32,500 miles of track critical for movement of essential military equipment to ports located around the country as well as another

[18] Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), www2.tea.army.mil/.

[19] Ibid (SDDCTEA).



Map 2 – U.S. Strategic Rail Corridor Network (STRACNET) and other Rail Connectors

5,000 miles of track essential to connect 193 defense installations (**Map 2**).

Railroads in Hampton Roads

The Hampton Roads region contains Norfolk Southern and CSX rail lines within STRACNET. Since these rail lines serve commercial freight transport as well as military freight transport between the Port of Virginia and local military installations, the U.S. government places a high priority on them.

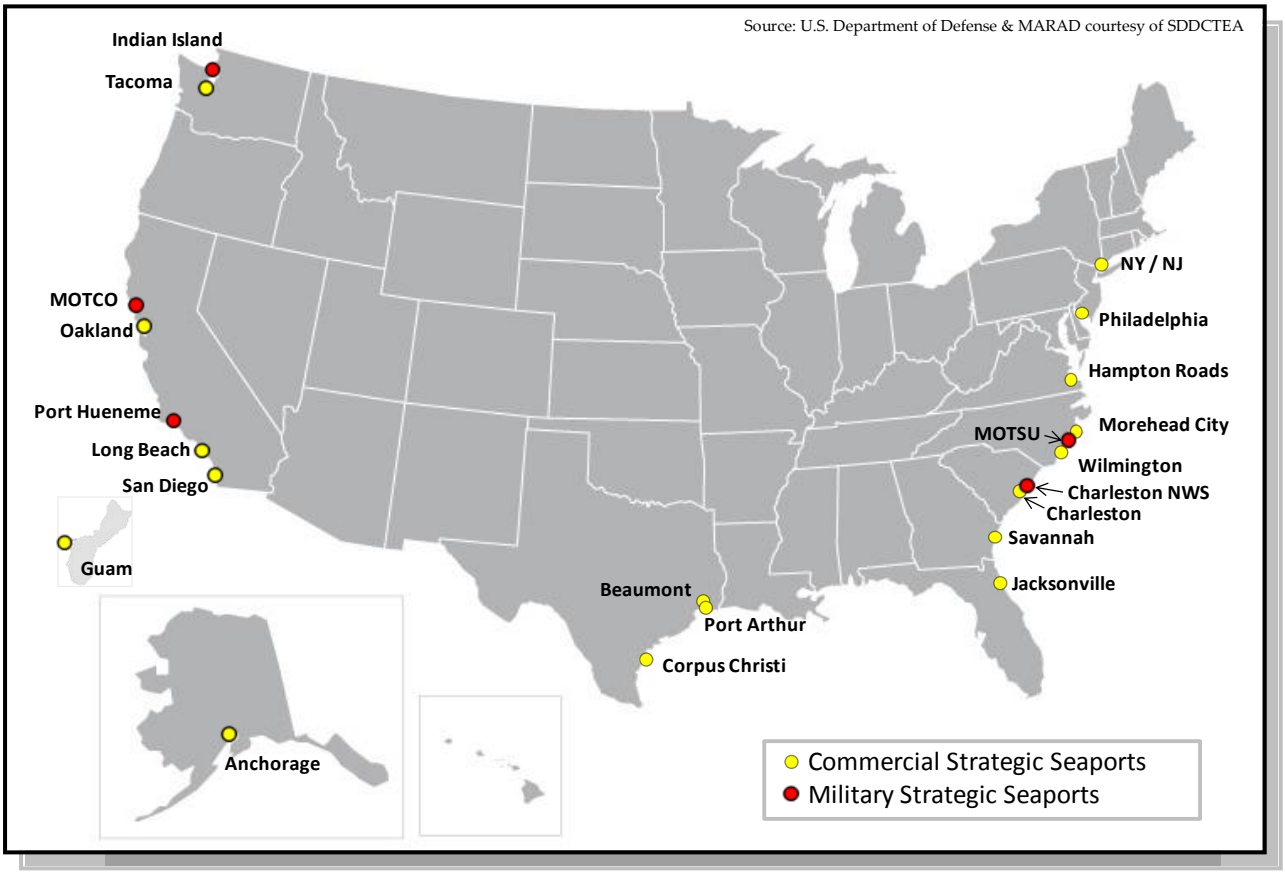
Ports for National Defense (PND)

The U.S. Department of Defense's (DoD) Ports for National Defense (PND) program identifies, maintains, and activates the necessary port infrastructure in peacetime, wartime, and in the event of other military emergencies. DoD in conjunction with the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) and the Maritime Administration (MARAD) has designated 22 U.S. Strategic Seaports (17 commercial Strategic Seaports and 5 military Strategic Seaports) to support the mobilization, deployment, and resupply of U.S. forces during major conflicts (**Map 3** on page 9). More recently, U.S. Strategic Seaports have been used to support relief missions and natural disasters in the U.S. and overseas, such as Operations Enduring Freedom, Iraqi Freedom, and the tsunami relief effort.

According to SDDCTEA, a military Strategic Seaport is owned and operated by any branch of DoD and designated strategic by SDDCTEA. Military Strategic Seaports can be used for the loading and unloading of military cargo. The "Strategic Seaport" designation is based upon DoD mission needs and is established through planning, modeling and analysis of future national defense deployment requirements.

Port Planning Orders (PPO)

The ability of the nation to adequately respond to military contingencies requires the availability of U.S. commercial port facilities. DoD, in conjunction with MARAD, negotiates a Port Planning Order (PPO) with each designated commercial Strategic Seaport and specifies which facilities will be needed to conduct a military mobilization or deployment. While commercial ports primarily move cargo that affects our daily activities, they also routinely ship military cargo



Map 3 – U.S. Strategic Seaports

in support of the U.S. military. According to SDDCTEA, the PPO is not needed for normal use of a port by the military. In emergencies the PPO would be activated and those facilities identified by the PPO would be made immediately available to DoD.

Port of Virginia

In Hampton Roads, the Port of Virginia is one of the 17 commercial Strategic Seaports in the nation. The Port of Virginia has played a strategic role in supporting the U.S. military since our nation's infancy. According to the Virginia Port Authority (VPA), Norfolk International Terminals (NIT) served as an Army Quartermaster Depot in World War I prior to its role as a gateway for domestic and international commerce.

VPA has strategic planning standards in place and works in cooperation with MARAD to ensure its readiness for DoD use in times of emergency. All commercial Strategic Seaports are required to have local Port Readiness Committees (PRCs) to assist with these efforts. As a commercial Strategic Seaport, the Port of Virginia is required through the Port Planning Order (PPO) to make its facilities available to the U.S. military within 48 hours of notification.

According to the SDDCTEA, the identification of port terminals for the PPO is performed by the VPA Port Manager. Based on DoD's deployment requirements, SDDCTEA provides MARAD a recommendation on the amount, type and location of facilities and terminals needed in the PPO. MARAD then negotiates the final PPO with the VPA Port Manager, which is signed and issued. According to VPA, Norfolk International Terminals (NIT) and Newport News Marine Terminal (NNMT) are the only Port of Virginia terminals covered under the current PPO, and it is envisioned that these will be the only terminals covered in the foreseeable future[20].

During a surge deployment, VPA must report the availability of PPO facilities. If none are available, then alternate facilities at the Port of Virginia will be

[20] Virginia Port Authority (VPA) email correspondence, January 10, 2011.

utilized. If those facilities are unavailable, then facilities at surrounding seaports will be utilized. In the event that surrounding seaports are unavailable, the federal government has the authority to issue a National Shipping Priority Order (NSPO), which requires that PPO facilities or other facilities that meet DoD requirements be made available. The Port of Virginia and other commercial Strategic Seaports are required to report monthly to MARAD on the availability of their PPO facilities.

Highways for National Defense (HND)

The U.S. Department of Defense's (DoD) Highways for National Defense (HND) program identifies the minimum public highway infrastructure (Strategic Highway Network or STRAHNET) needed to fulfill its mission and to ensure defense readiness capability. This program also establishes policy on how DoD uses the highway system. STRAHNET, which is a part of the National Highway System (NHS) and designated under this program, was designed to move military equipment and personnel efficiently.

National Highway System (NHS)

The National Highway System (NHS) is comprised of approximately 160,000 miles of highway that are important to the nation's mobility and economy, but also to defense. According to the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA), the NHS includes the following subsystems of roadways (note that a specific highway route may be on more than one subsystem) [21]:

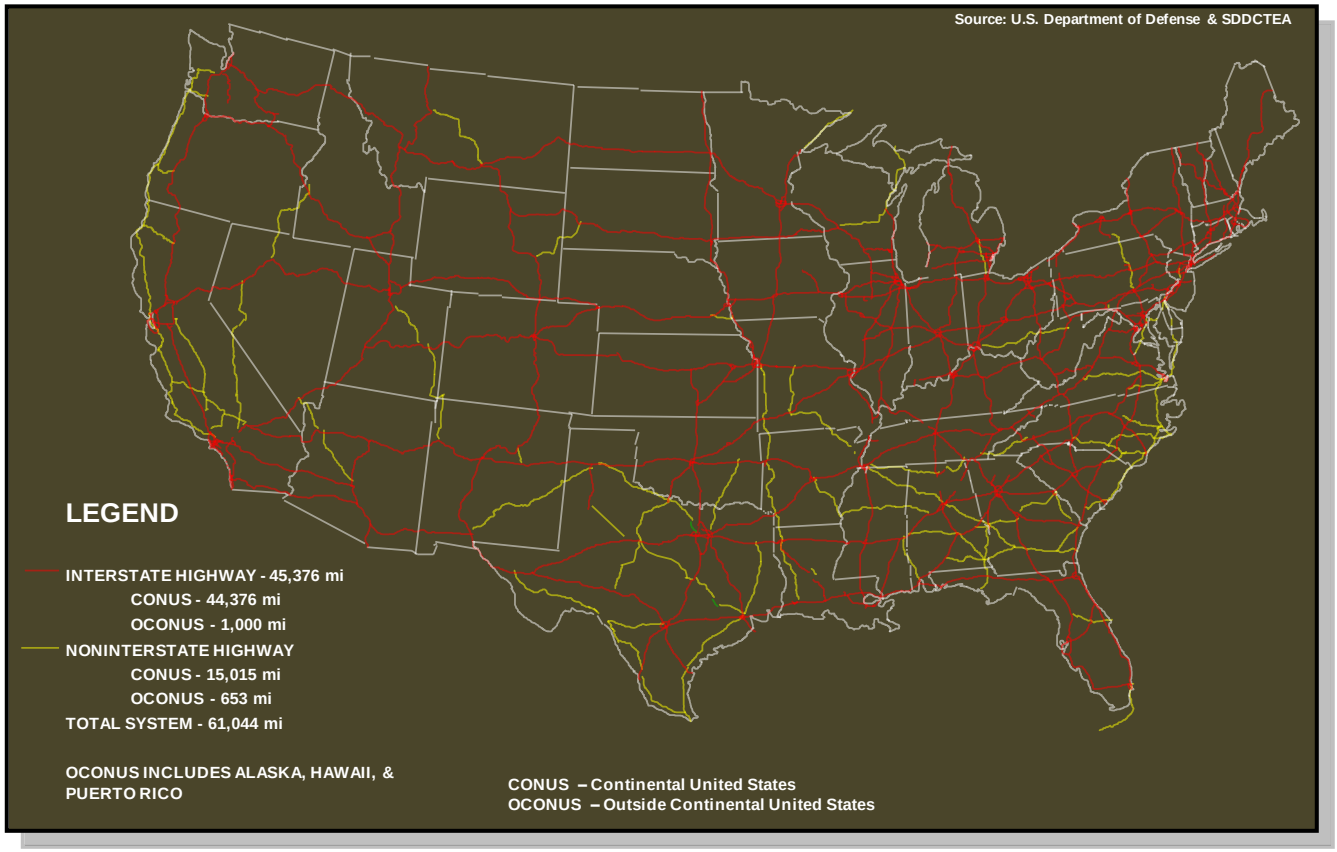
- *Interstate:* The Eisenhower Interstate System of highways retains its separate identity within the NHS. Nationwide, the Interstate System forms the backbone for the STRAHNET; in Hampton Roads, all Interstate highways are designated as STRAHNET.
- *Other Principal Arterials:* These are roadways in rural and urban areas which provide access between an arterial and a major port, airport, public transportation facility, or other intermodal transportation facility. These roadways are also known as "Other NHS Routes".
- *Strategic Highway Network (STRAHNET):* This is a network of highways that are important to the United States' strategic defense policy and which provide access, continuity and emergency capabilities for defense purposes. STRAHNET includes both Interstate highways as well as other non-Interstate primary routes leading into and out of strategic locations. STRAHNET and STRAHNET Connectors are the total minimum defense highway network to support defense emergency. More detail is provided below.
- *Major Strategic Highway Network Connectors:* These are highways which provide access between major military installations and other highways which are part of the Strategic Highway Network.
- *NHS Intermodal Connectors:* These roadways provide access between major intermodal facilities and other NHS highways. These connectors provide access to include rail facilities, public transit facilities, airports, and port terminals. NHS Intermodal Connectors provide an intermodal option to shippers and the defense industry in the event of a national or local emergency.

U.S. Strategic Highway Network (STRAHNET) and STRAHNET Connectors

The Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) is the DoD-designated agent for public highway matters, including STRAHNET and STRAHNET Connectors. As a part of DoD's Highways for National Defense (HND) program, the SDDCTEA identified STRAHNET and the Connector routes in coordination with the Federal Highway Administration (FHWA), the State transportation departments, the military Services and installations, and the ports.

The STRAHNET is a 61,000-mile system of roads (45,000 miles of Interstate and nearly 16,000 miles of

[21] US Department of Transportation & Federal Highway Administration, National Highway System.

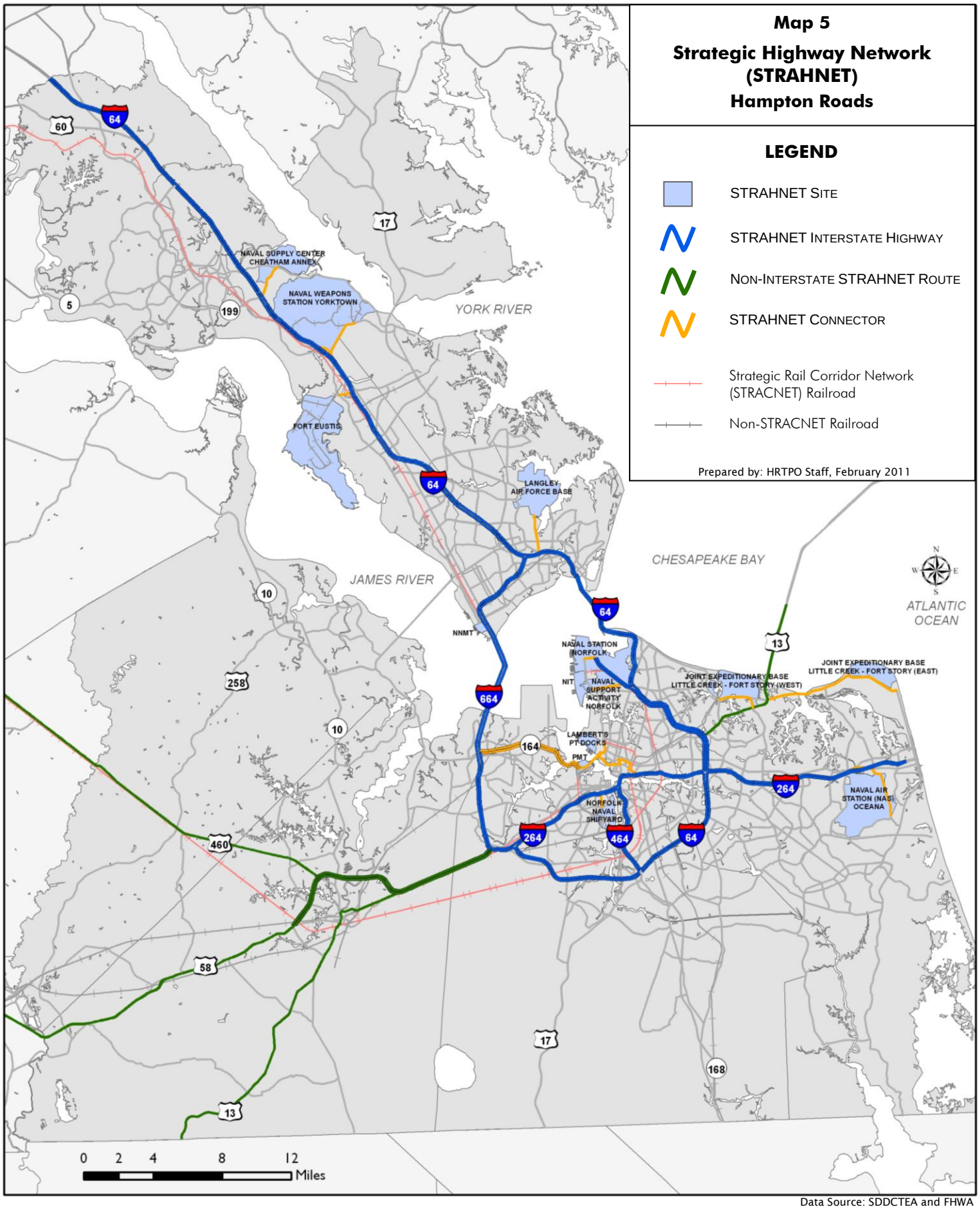


Map 4 – U.S. Strategic Highway Network (STRAHNET)

other important public roadways) deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support U.S. military operations (**Map 4**). STRAHNET Connectors (approximately 1,700 miles) are additional roadways that link over 200 important military installations and ports to the network. Together, STRAHNET and the Connectors define the total minimum defense public highway network needed to support a defense emergency. The SDDCTEA continues to work with these organizations to update and confirm the designation of STRAHNET and STRAHNET Connector routes in the National Highway System.

STRAHNET in Hampton Roads

The Hampton Roads region contains fourteen STRAHNET sites, consisting of major military installations and port facilities. The STRAHNET system that serves those locations consists of all Interstate highways (I-64, I-264, I-464, I-564, I-664), several non-Interstate STRAHNET routes (13, 58, 460), and STRAHNET Connectors (See **Map 5** on page 12). Since these roadways serve as the minimum defense public highway network needed to support a defense emergency and are used for day-to-day military cargo movement, it is important to give priority to these facilities.



Data Source: SDDCTEA and FHWA

DEFENSE ACCESS ROAD (DAR) PROGRAM

The Department of Defense (DoD) policy generally calls for state and local communities to fund road improvements not on military property. Exceptions are made under the Defense Access Road (DAR) Program, under which federal funds are made available for special military circumstances. According to the SDDCTEA, the Defense Access Road (DAR) Program provides a legal means for DoD to pay a share of the cost of public highway improvements made necessary by sudden or unusual defense-generated impacts. The DoD does not expect state and local authorities to plan for suddenly needed improvements in their normal highway improvement programs. The FHWA jointly administers the DAR Program with the SDDCTEA and provides the connection to state and local authorities which execute the projects.

DAR Program eligibility includes:

- Significant increase in personnel at a military installation or a change that significantly increases existing off-installation traffic
- Defense installations requiring a new access control point (gate)
- New public highways replacing those closed for military necessity
- Upgrade of low-type roads to handle unique defense vehicles

According to the SDDCTEA, the following projects in Hampton Roads have received financial assistance through the DAR Program since 1986[22]:

- Norfolk Naval Shipyard in Portsmouth – Access road beginning at the intersection of George Washington Highway and the proposed main entrance to the Scott Center Annex (Certified on July 21, 1995).
- Naval Support Activity Norfolk – Access road beginning at the intersection of International Terminal Boulevard and Meredith Street (Certified on June 24, 1991).
- Fort Eustis in Newport News – Project implemented in the 2000s to provide second access (Certified on October 31, 1986).

According to FHWA's website[23]:

> "To initiate a DAR project, the local military installation identifies the access or mobility needs and brings these deficiencies to the attention of the Military Surface Deployment and Distribution Command (SDDC). The SDDC reviews the requirement and makes a preliminary eligibility determination. If it appears eligible, the SDDC requests the FHWA to prepare an engineering evaluation to identify the cost and scope of the needs. The FHWA forwards the evaluation and recommendations to the SDDC. The SDDC then submits its determination of eligibility and its recommended fair share of the improvements to the Commander, SDDC, with the recommendation that the route be certified as important for the national defense. Once certified by the Commander, SDDC, the roads become eligible for DAR funding."

There is no regular appropriation of funds available for the DAR Program. Upon the request of the local military base, the SDDCTEA determines if the proposed work/project/improvements are eligible for DAR funds and certifies that the road is important to the national defense. Next, Military Construction (MILCON) funds are specifically budgeted, authorized, and appropriated for the justified DAR projects. Once the funds are provided by Congress they are transferred to FHWA and allocated to the agency administering the project. Since 1957, the DAR Program has averaged about $20 million per year. Following the Defense Base Closure and Realignment Commission (BRAC) in 2005, several U.S. military installations were eligible for and received DAR funds.

[22] Email correspondence with Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), July 2011.

[23] US Department of Transportation & Federal Highway Administration website, Defense Access Roads (DAR), http://flh.fhwa.dot.gov/programs/dar/.

Chapter 3: Identification of Roadways Serving the Military

This chapter identifies the major roadways in Hampton Roads that serve the military, including STRAHNET routes and other roadways not identified within STRAHNET. It is important for the Hampton Roads region to manage travel conditions and give priority to these critical routes when making transportation improvements.

After meeting with various stakeholders, including local military representatives, federal agencies, Virginia Department of Transportation (VDOT), Virginia Port Authority (VPA) and local jurisdictions, HRTPO staff agreed to 1) examine the adequacy of the STRAHNET routes in Hampton Roads and 2) to include these routes in local planning efforts. Several stakeholders were concerned that many military-related sites in Hampton Roads are not included as STRAHNET sites. As a result, a task within this study was created to identify additional Hampton Roads military sites and intermodal facilities not included in STRAHNET and a list of roadways that serve those locations.

The STRAHNET roadways and additional roadways serving locations not in the STRAHNET were combined to form the "Roadways Serving the Military in Hampton Roads", which will serve as the framework for further analysis within this study as well as future roadway planning initiatives by the HRTPO.

IDENTIFICATION OF MILITARY AND SUPPORTING SITES IN HAMPTON ROADS

For this study, HRTPO staff worked with local military and regional stakeholders to identify the major military and supporting sites in the region. Since the STRAHNET serves as the minimum public highway network necessary to support defense emergencies, all sites already identified within the national STRAHNET system in Hampton Roads were included. STRAHNET sites include military installation sites and intermodal port facilities deemed critical by the DoD. In addition, the region contains several intermodal facilities that may be needed to support the military in the event of a national or local emergency. For regional planning purposes, it is important to account for all of the major military-related sites in Hampton Roads, i.e. those being accessed on a regular basis by military personnel. A federal facilities map developed by the Hampton Roads Planning District Commission (HRPDC) in partnership with the Hampton Roads Military and Federal Facilities Alliance (HRMFFA) showing DoD and other federal facilities in Hampton Roads is included in **Appendix C**.

STRAHNET Sites

STRAHNET routes and STRAHNET Connectors link over 200 important military installations and ports in the United States. Currently, there are fourteen STRAHNET sites located within Hampton Roads (See **Maps 6 and 7** on pages 17-18). Note that STRAHNET sites and roadways are subject to change upon DoD periodic reviews.

STRAHNET Site	Hampton Roads Jurisdiction
1. Fort Eustis	Newport News
2. Joint Expeditionary Base Little Creek - Fort Story (East)	Virginia Beach
3. Joint Expeditionary Base Little Creek - Fort Story (West)	Norfolk/ Virginia Beach
4. Langley Air Force Base	Hampton
5. Naval Air Station Oceana	Virginia Beach
6. Naval Supply Center Cheatham Annex	York County
7. Naval Weapons Station Yorktown	York County/ Newport News
8. Naval Station Norfolk	Norfolk
9. Naval Support Activity Norfolk	Norfolk
10. Norfolk Naval Shipyard	Portsmouth
11. Port of Virginia – Norfolk International Terminals	Norfolk
12. Port of Virginia – Newport News Marine Terminal	Newport News
13. Port of Virginia – Portsmouth Marine Terminal	Portsmouth
14. Lambert's Point Docks	Norfolk

Other Intermodal Facilities

The Federal Highway Administration (FHWA) maintains a list of National Highway System (NHS) intermodal facilities and connectors to those locations. Following the events of September 11, 2001, FHWA requested States and MPOs to give priority to roadway connections for many National Highway System (NHS) Intermodal Facilities for national security issues. These intermodal facilities are able to provide military support by moving military personnel and goods in the event of a national or local emergency.

There are currently 45 NHS intermodal facilities identified within Virginia with 9 of the 45 located in Hampton Roads. In Hampton Roads, this list formed the basis for identifying additional intermodal facilities that support or have the potential to support the military.

The following five locations are additional intermodal facilities considered important to the military (shown on **Maps 6 and 7**).

Other Intermodal Facility	Hampton Roads Jurisdiction
1. Amtrak – Newport News	Newport News
2. Chesapeake Intermodal – Norfolk Southern	Chesapeake
3. Newport News/Williamsburg International Airport	Newport News
4. Norfolk International Airport	Norfolk
5. Williamsburg Transportation Center	Williamsburg

Other Military Sites

HRTPO staff worked with local military representatives and other stakeholders to develop a list of nineteen other DoD related military sites within Hampton Roads (See **Maps 6 and 7**). All of the following locations are owned and operated by the DoD except for the USJFCOM Suffolk Campus and Newport News Shipbuilding, a division of Huntington Ingalls Industries. USJFCOM is currently leasing all occupied space from private ownership and Huntington Ingalls Industries is a private company that designs, builds and maintains nuclear and non-nuclear ships for the U.S. Navy and Coast Guard and provides after-market services for military ships around the globe. For this study, Fort Monroe in the City of Hampton was excluded as it is scheduled to be closed as a military facility in September 2011 pursuant to the recommendation of the 2005 Base Realignment Alignment Closure Commission (BRAC).

Other Military Site	Hampton Roads Jurisdiction
1. Camp Peary	York County
2. Camp Pendleton – Military Reservation	Virginia Beach
3. Craney Island Fuel Terminal	Portsmouth
4. Lafayette River Annex – Naval Support Activity Norfolk	Norfolk
5. NASA Langley Research Center	Hampton
6. NAS Oceana Dam Neck Annex	Virginia Beach
7. Naval Auxiliary Landing Field Fentress	Chesapeake
8. Naval Medical Center Portsmouth	Portsmouth
9. Naval Support Activity Northwest Annex	Chesapeake
10. Newport News Shipbuilding – Huntington Ingalls Industries	Newport News
11. Saint Helena Annex – Norfolk Naval Shipyard	Norfolk
12. Saint Julien's Creek Annex – Norfolk Naval Shipyard	Chesapeake
13. U.S. Army Corps of Engineers – Norfolk District	Norfolk
14. U.S. Coast Guard – Atlantic Area and Fifth District (Portsmouth Federal Building)	Portsmouth
15. U.S. Coast Guard – Base Portsmouth	Portsmouth
16. U.S. Coast Guard Training Center Yorktown	York County
17. U.S. Joint Forces Command – Suffolk Campus	Suffolk
18. U.S. Marine Corps Reserve Center	Newport News
19. Yorktown Fuel Depot – Naval Weapons Station Yorktown	York County

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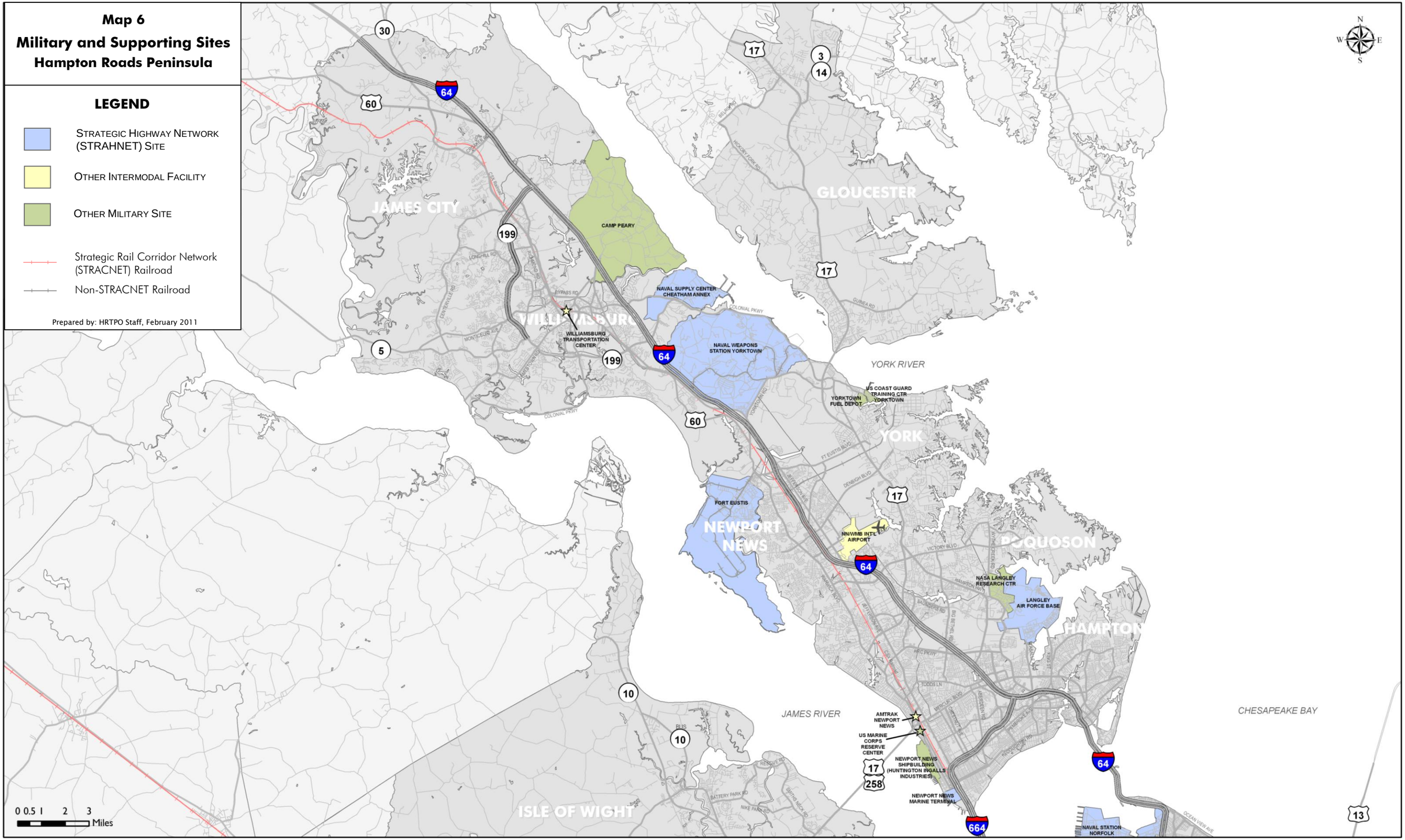
Map 6
Military and Supporting Sites
Hampton Roads Peninsula

LEGEND

- Strategic Highway Network (STRAHNET) Site
- Other Intermodal Facility
- Other Military Site
- Strategic Rail Corridor Network (STRACNET) Railroad
- Non-STRACNET Railroad

Prepared by: HRTPO Staff, February 2011

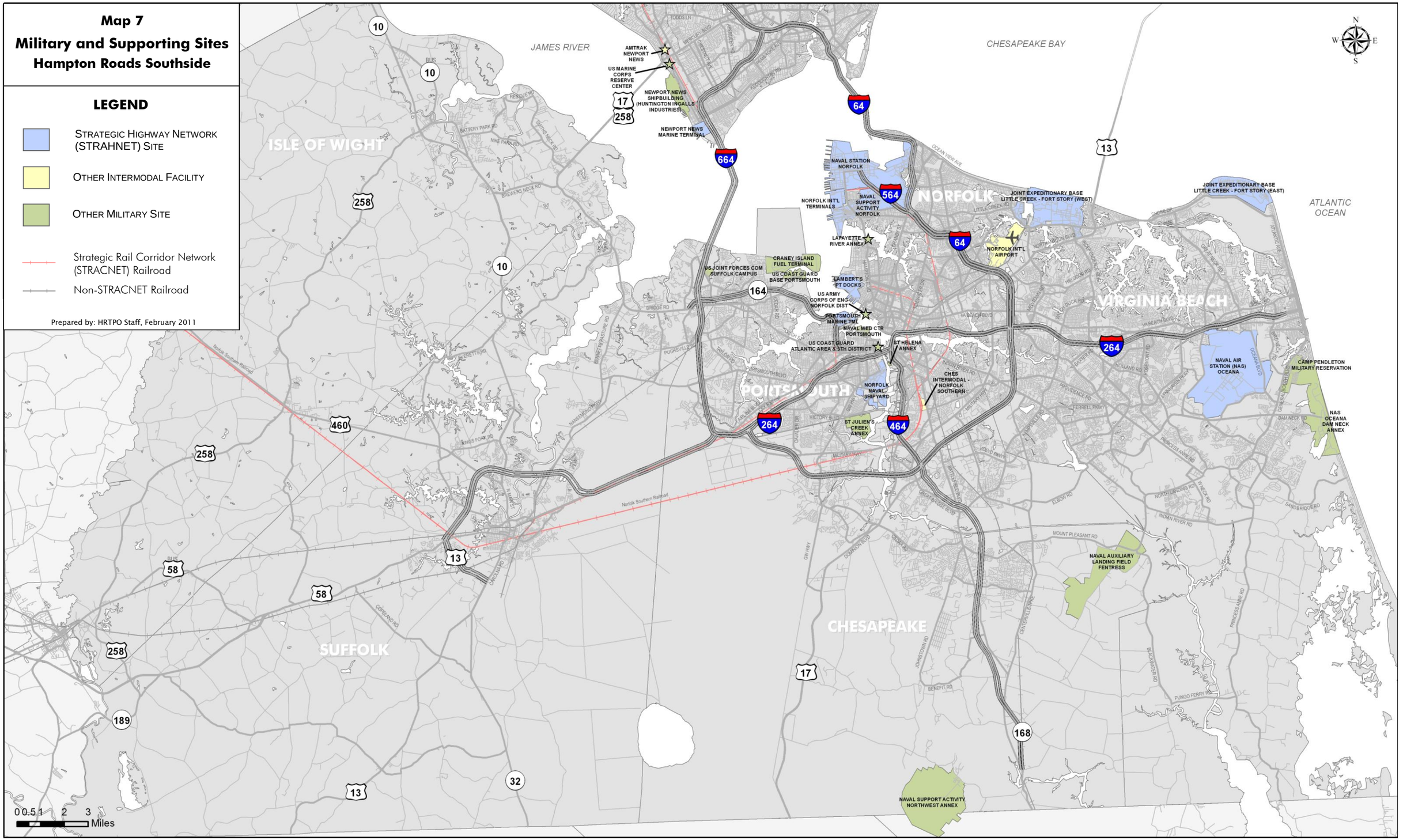


Map 7
Military and Supporting Sites
Hampton Roads Southside

LEGEND

- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE
- Strategic Rail Corridor Network (STRACNET) Railroad
- Non-STRACNET Railroad

Prepared by: HRTPO Staff, February 2011



IDENTIFICATION OF ROADWAYS SERVING THE MILITARY IN HAMPTON ROADS

It is important for the region to ensure that roadways used by the military are capable of supporting day-to-day operations to and from military-related sites as well as a national defense deployment. In order to achieve this objective, a comprehensive list of "Roadways Serving the Military in Hampton Roads" must first be identified. The previous section identified all of the major military and supporting sites in Hampton Roads. This section identifies existing Strategic Highway Network (STRAHNET) roadways as well as non-STRAHNET roadways that serve military sites or intermodal facilities. A list of the "Roadways Serving the Military in Hampton Roads" developed in this section is included in **Appendices D and E**.

STRAHNET Roadways

The Strategic Highway Network (STRAHNET) is the minimum public highway network, designated by FHWA in coordination with DoD, necessary to support national defense emergencies. In Hampton Roads, all Interstate highways (I-64, I-264, I-464, I-564, I-664), several US Routes (13, 58, 460), and several STRAHNET Connectors, which provide access to 14 military installations and port facilities currently comprise the STRAHNET.

Within STRAHNET, the STRAHNET Connectors provide access to the STRAHNET sites via a single primary route. According to the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), STRAHNET Connectors generally end at the port boundary or the installation gate used for mobilization or deployment. However, if the installation gate that is used for mobilization or deployment is usually closed, then the STRAHNET Connector is designated as the route between the primary peacetime gate and STRAHNET. While military installations may have multiple access and egress routes, the STRAHNET Connector is generally the most direct and highest functional class roadway.

For this study, all existing STRAHNET roadways were included by default as part of the "Roadways Serving the Military in Hampton Roads" (See roadways colored in blue on **Maps 8 and 9** on pages 21-22). If STRAHNET route designations change in the future, this list of "Roadways Serving the Military in Hampton Roads" will be adjusted accordingly.

Non-STRAHNET Roadways Serving Military Sites or Intermodal Facilities

This section identifies the non-STRAHNET roadways that serve STRAHNET sites, other military sites, and other intermodal facilities. Criteria used in selecting the Non-STRAHNET Roadways that serve Military Sites or Intermodal Facilities were:

- Routes that are commonly used for access/egress (for commuting & daily activities), generally the most direct and highest functional class roadway
- Routes that provide access/egress to main entry gate
- Routes that provide access/egress to other entry gates (STRAHNET currently provides one connector roadway usually to the main gate)
- Routes that are currently identified as National Highway System (NHS) Intermodal Connectors
- Routes that provide connectivity to/from STRAHNET or between Military Sites
- Routes that provide access/egress to and from locations outside of Hampton Roads for military-related travel

Non-STRAHNET roadways serving military sites or intermodal facilities are shown in red on **Maps 8 and 9**.

Recommendation

Conduct maintenance on all Interstates, arterials, collectors and bridges/tunnels that comprise the "Roadways Serving the Military in Hampton Roads" in order to preserve existing infrastructure and support military travel.

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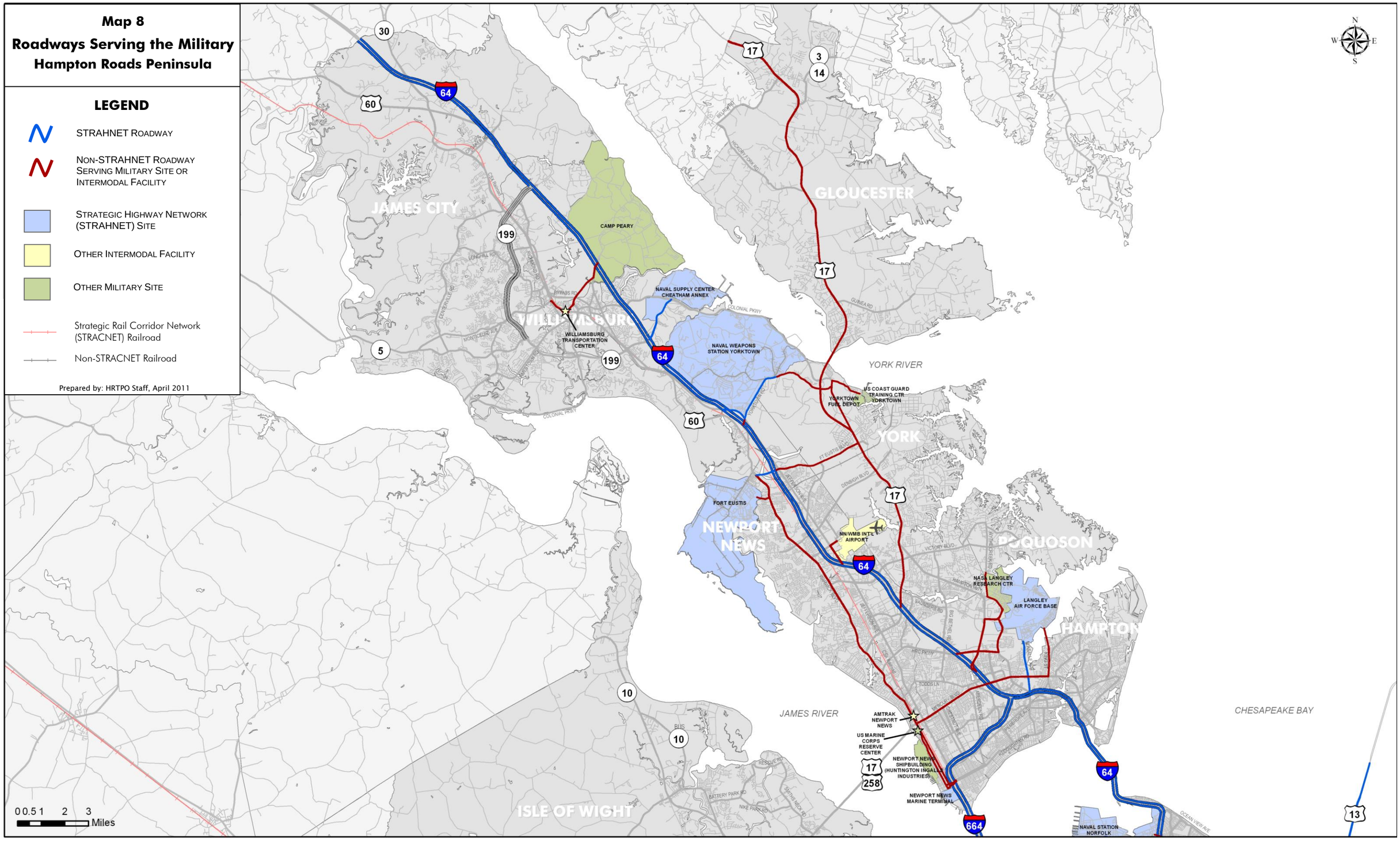
Map 8
Roadways Serving the Military
Hampton Roads Peninsula

LEGEND

- STRAHNET ROADWAY
- NON-STRAHNET ROADWAY SERVING MILITARY SITE OR INTERMODAL FACILITY
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE
- Strategic Rail Corridor Network (STRACNET) Railroad
- Non-STRACNET Railroad

Prepared by: HRTPO Staff, April 2011

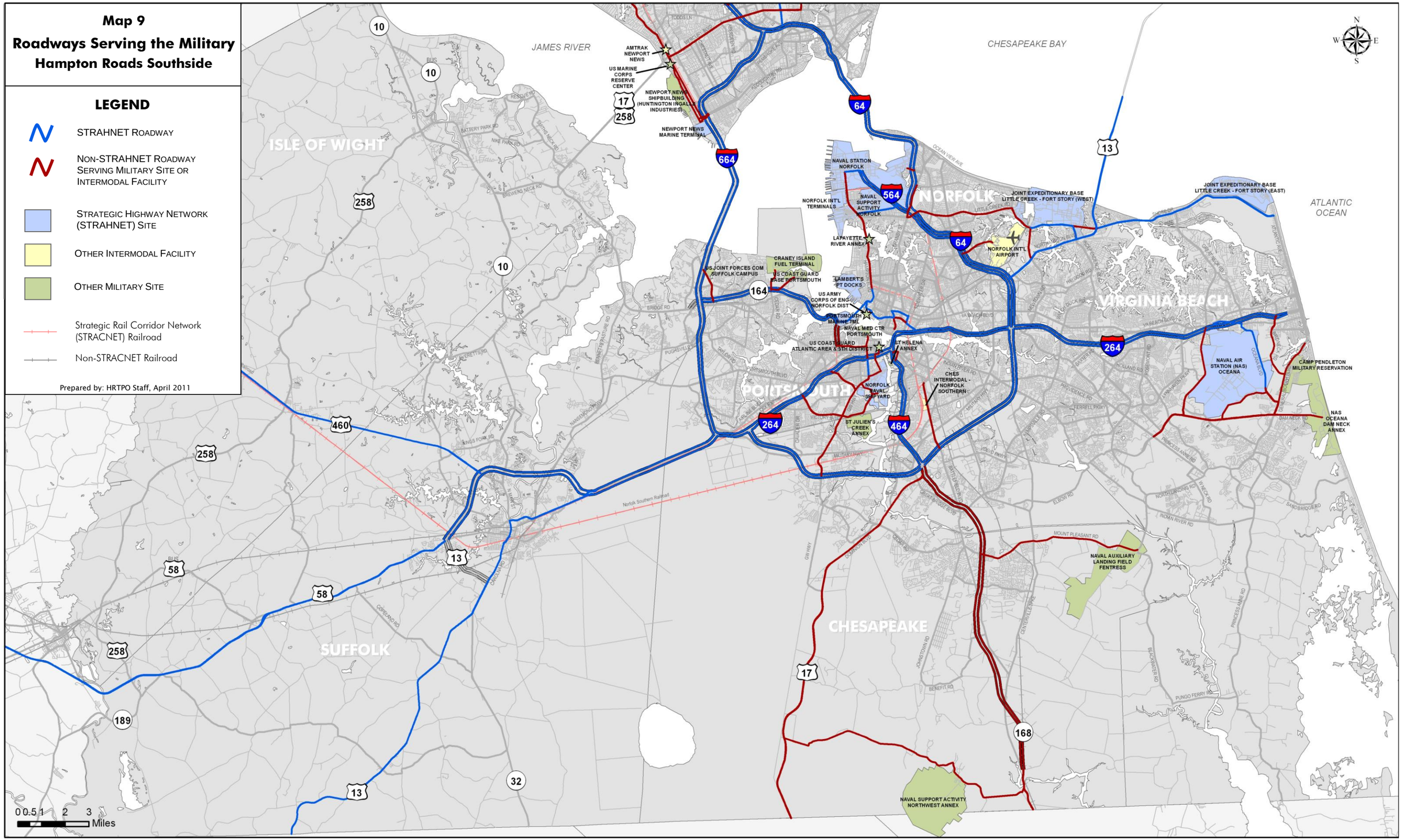


Map 9
Roadways Serving the Military
Hampton Roads Southside

LEGEND

- STRAHNET ROADWAY
- NON-STRAHNET ROADWAY SERVING MILITARY SITE OR INTERMODAL FACILITY
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE
- Strategic Rail Corridor Network (STRACNET) Railroad
- Non-STRACNET Railroad

Prepared by: HRTPO Staff, April 2011



Examination of the Adequacy of STRAHNET in Hampton Roads

Federal Highway Administration (FHWA) currently maintains official update procedures for STRAHNET changes[24]. All requests must be put in writing to the FHWA Division office or FHWA Headquarters and must be initiated by the State DOT or the Department of Defense's Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA). The entire process time for each submittal is approximately six to eight weeks.

The SDDCTEA conducts its own STRAHNET review approximately every five to seven years[25]. SDDCTEA would prefer to not make frequent changes to STRAHNET as that would hamper state transportation planning and programming efforts. The latest major review (conducted in 2009) was a nationwide effort in response to Base Realignment and Closure (BRAC) 2005 and other DoD initiatives. The 2009 STRAHNET review included military installations, but not seaports and proposed no changes to for the Hampton Roads area. According to SDDCTEA, they receive requests for minor changes and occasionally participate in state/FHWA led STRAHNET reviews in between STRAHNET updates. Concerning this current initiative, Georgia is the only other state in recent years to conduct a STRAHNET review[26].

In 2010, the SDDCTEA completed its STRAHNET review for seaports, which is performed approximately every three years. For Hampton Roads, SDDCTEA proposed the removal of the STRAHNET Connectors for Lamberts Point as it is not a U.S. Strategic Seaport and for Portsmouth Marine Terminal as it is not identified within the Port Planning Order (PPO) for the Port of Virginia. Since these removals have not been approved by FHWA or VDOT, these roadways are included as part of STRAHNET for this study.

The HRTPO staff, in coordination with local military representatives, SDDCTEA, Virginia Department of Transportation (VDOT), Virginia Port Authority (VPA) and local jurisdictions, conducted a review of the current STRAHNET route designations in Hampton Roads to determine if they were adequate. The findings and recommendations are discussed below.

Findings and Recommendations

Upon examination of the current STRAHNET route designations, three observations were made:

1. **Naval Weapons Station Yorktown** – Yorktown Road (Route 238) between I-64 and Jefferson Avenue (Route 143) was not included as a STRAHNET Connector for Naval Weapons Station Yorktown. (See red line on **Map 10** on page 24)

2. **Lambert's Point Docks** – the STRAHNET Connector path (Brambleton Avenue to Tidewater Drive to Virginia Beach Boulevard to Saint Pauls Boulevard to Brambleton Avenue to Hampton Boulevard) does not appear to provide the most direct access (See **Map 11** on page 24).

3. **NAS Oceana Dam Neck Annex** – no STRAHNET Connector is provided to this location, which is part of NAS Oceana (See **Map 12** on page 25).

[24] Federal Highway Administration (FHWA) website: www.fhwa.dot.gov/planning/nhs/review/strahnetproc.html.
[25] Email correspondence with Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), January 2011.
[26] Georgia STRAHNET Initiative: Fort Stewart to the Port of Savannah, FHWA Georgia Division, Georgia DOT, SDDCTEA, December 2008.

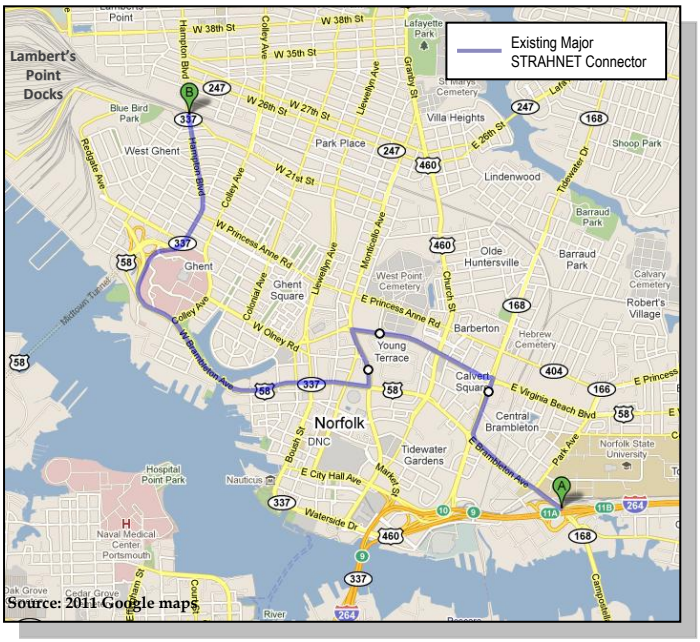
Naval Weapons Station Yorktown

For Naval Weapons Station Yorktown (**Map 10**), it is recommended that the 0.15 mile segment of Yorktown Road between I-64 and Jefferson Avenue be added as a STRAHNET Connector. This recommendation will be forwarded to VDOT for submittal to FHWA through the official update procedures for STRAHNET changes at the conclusion of this study. The SDDCTEA recommends obtaining approval from the affected installation (Naval Weapons Station Yorktown) prior to submission in order to accelerate the process. This roadway segment will remain as a non-STRAHNET "Roadway Serving the Military in Hampton Roads" for this study, and be revised to a STRAHNET Connector if approved at the completion of this study.

Map 10 – Existing and Recommended STRAHNET Connector for Naval Weapons Station Yorktown

Lambert's Point Docks

For Lambert's Point Docks (**Map 11**), which has been recommended to be removed from STRAHNET as part of the last Seaports review by SDDCTEA (as discussed previously), no STRAHNET recommendations are being made in this study. Due to the circuitous nature of the existing STRAHNET Connector path, HRTPO staff added part of Brambleton Avenue (between Tidewater Drive and Saint Pauls Boulevard) and Saint Pauls Boulevard (between City Hall Avenue to Brambleton Avenue) as non-STRAHNET "Roadways Serving the Military in Hampton Roads". If the existing STRAHNET Connector for Lambert's Point Docks is removed by FHWA, then the northern path, including Tidewater Drive, Virginia Beach Boulevard, and Monticello Avenue/Saint Pauls Boulevard (between Virginia Beach Boulevard and Brambleton Avenue) will be removed from the list of "Roadways Serving the Military in Hampton Roads."



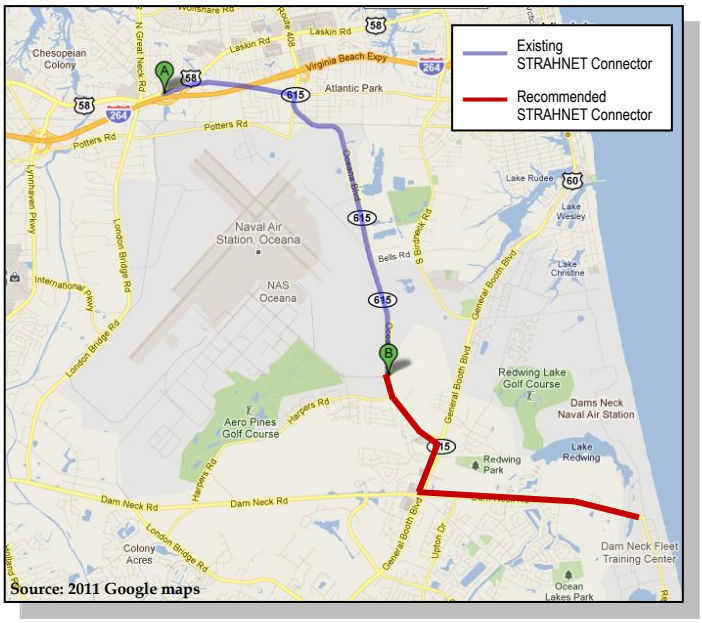
Map 11 – Existing STRAHNET Connector for Lambert's Point Docks

Portsmouth Marine Terminal

If the STRAHNET Connector designations for the Portsmouth Marine Terminal are removed by FHWA, then all of the roadways for the connector will be changed from STRAHNET roadways to non-STRAHNET "Roadways Serving the Military in Hampton Roads."

NAS Oceana Dam Neck Annex

It is recommended that the current STRAHNET Connector for Naval Air Station (NAS) Oceana be extended 3.5 miles to NAS Oceana Dam Neck Annex, including Oceana Boulevard from Tomcat Boulevard (NAS Oceana main entrance) to General Booth Boulevard, General Booth Boulevard from Oceana Boulevard to Dam Neck Road, and Dam Neck Road from General Booth Boulevard to NAS Oceana Dam Neck Fleet Combat Training Center entrance (**Map 12**). NAS Oceana Dam Neck Annex is part of NAS Oceana and is home to the Fleet Combat Training Center Atlantic and several major tenant commands, including Navy SEAL teams. This recommendation, which was suggested by the City of Virginia Beach, will be forwarded to VDOT for submittal to FHWA through the official update procedures for STRAHNET changes at the conclusion of this study. The SDDCTEA recommends obtaining approval from the affected installation (NAS Oceana Dam Neck Annex) prior to submission in order to accelerate the process. These roadway segments will remain as non-STRAHNET "Roadways Serving the Military in Hampton Roads" for this study, and will be revised to STRAHNET Connectors if approved at the completion of this study.



Map 12 – Existing and Recommended STRAHNET Connector for NAS Oceana Dam Neck Annex

Chapter 4: Determination of Deficiencies in Roadways Serving the Military

Maintenance of the entire "Roadways Serving the Military" network developed in Chapter 3 is important for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food and other commodities to support U.S. military operations. These roadways are also important to military commuters and the daily operations of military facilities.

The purpose of this section is to determine current deficiencies in the "Roadways Serving the Military in Hampton Roads" so that countermeasures can be developed for them to maximize mission performance and efficiency for the local military. This section identifies severely congested roadway segments, deficient bridges, vertical clearances and lane widths below military preferences, as well as other issues that may hinder the military function of this region.

CONGESTED ROADWAYS

Congestion levels for the "Roadways Serving the Military in Hampton Roads" were primarily obtained from HRTPO's latest Congestion Management Process[27] (CMP) analysis. Roadway segment congestion levels were determined in the CMP using a widely accepted engineering standard from the *Highway Capacity Manual*[28] (HCM) called Level of Service (LOS). The HCM describes LOS as a measure of operating conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver traffic interruptions, and comfort and convenience. For those subject roadways not analyzed in the latest CMP update, Levels of Service were newly calculated.

Level of Service is measured on a scale of "A" through "F," with LOS A representing the best operating conditions and LOS F representing the worst (see **Figure 1** on page 29). LOS A through D are considered acceptable operating conditions, while LOS E and F (indicated in red in upcoming maps) are considered unacceptable operating conditions (i.e. severe congestion). LOS D is the "warning" level condition where favorable conditions are on the verge of becoming unfavorable.

Congestion levels for "Roadways Serving the Military in Hampton Roads" are provided on **Maps 13 and 14** and in tabular form in **Appendices D and E**. Congestion results represent the 2009 operating conditions for the PM peak hour during a typical weekday. Severely congested roadways (LOS E and F) are shown in red and uncongested roadways (LOS A – D) are shown in dark grey.

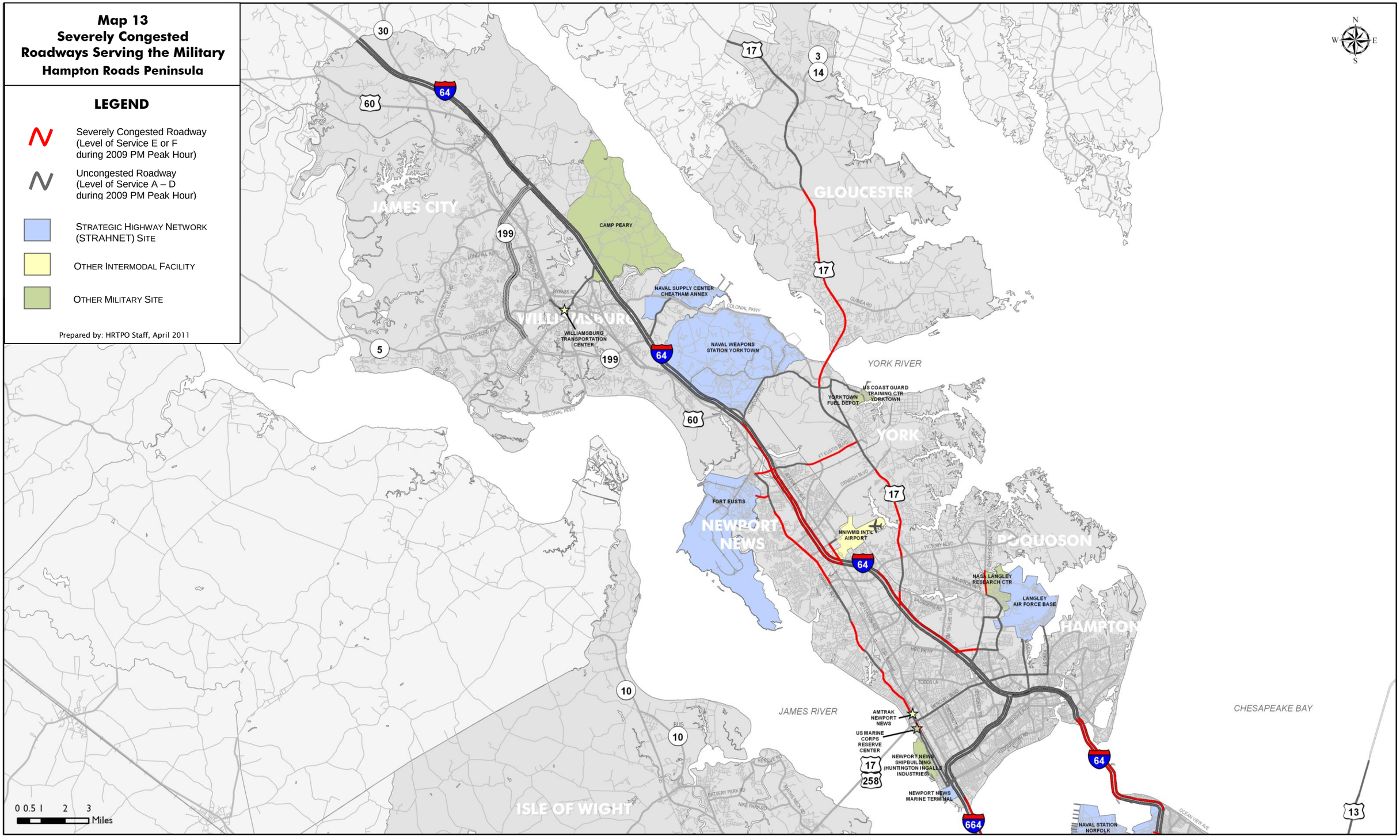
[27] Hampton Roads Congestion Management Process: 2010 Update, HRTPO, September 2010.
[28] *Highway Capacity Manual*, Transportation Research Board, 2000.

Map 13
Severely Congested Roadways Serving the Military
Hampton Roads Peninsula

LEGEND

- Severely Congested Roadway (Level of Service E or F during 2009 PM Peak Hour)
- Uncongested Roadway (Level of Service A – D during 2009 PM Peak Hour)
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Prepared by: HRTPO Staff, April 2011

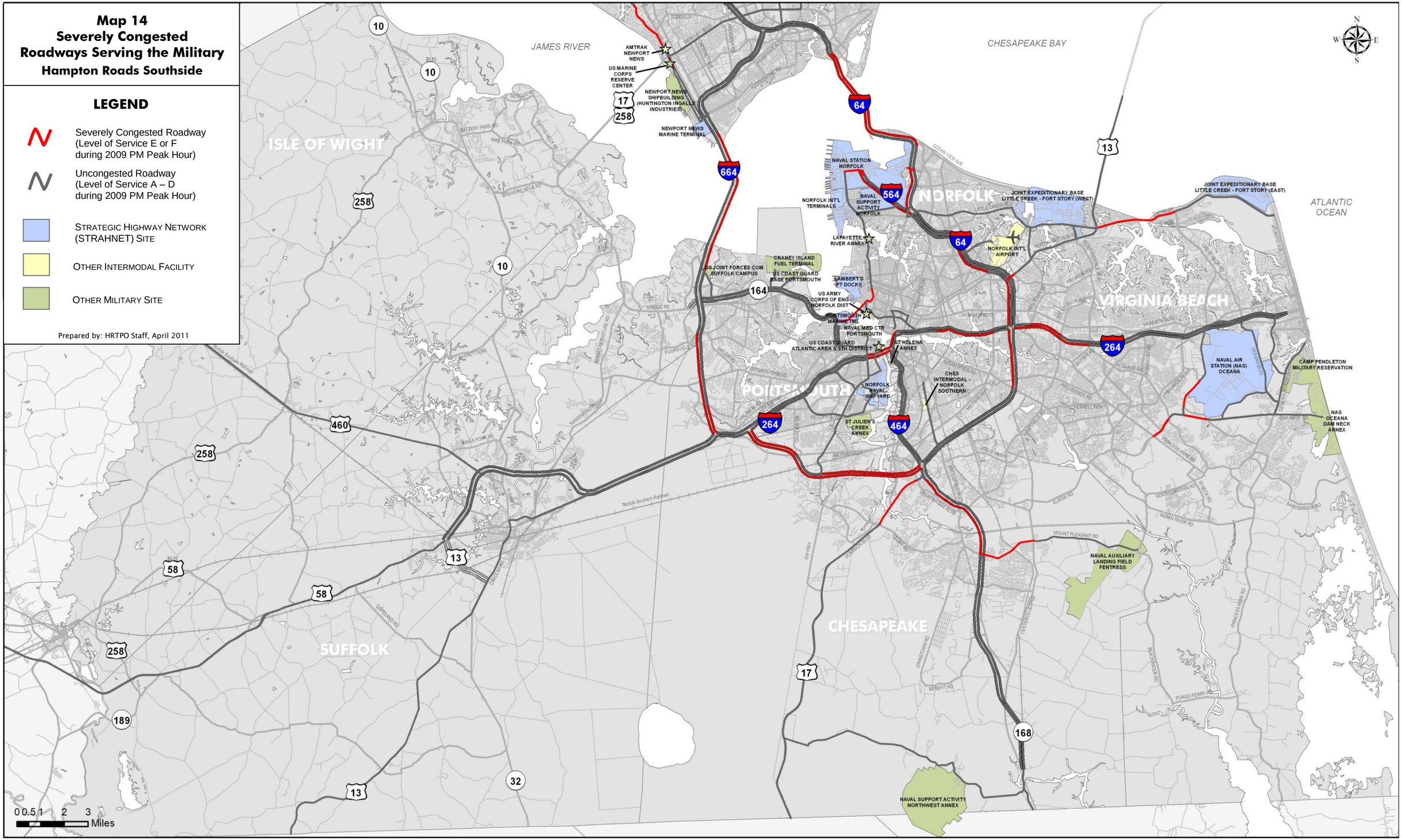


Map 14
Severely Congested Roadways Serving the Military
Hampton Roads Southside

LEGEND

- Severely Congested Roadway (Level of Service E or F during 2009 PM Peak Hour)
- Uncongested Roadway (Level of Service A – D during 2009 PM Peak Hour)
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Prepared by: HRTPO Staff, April 2011



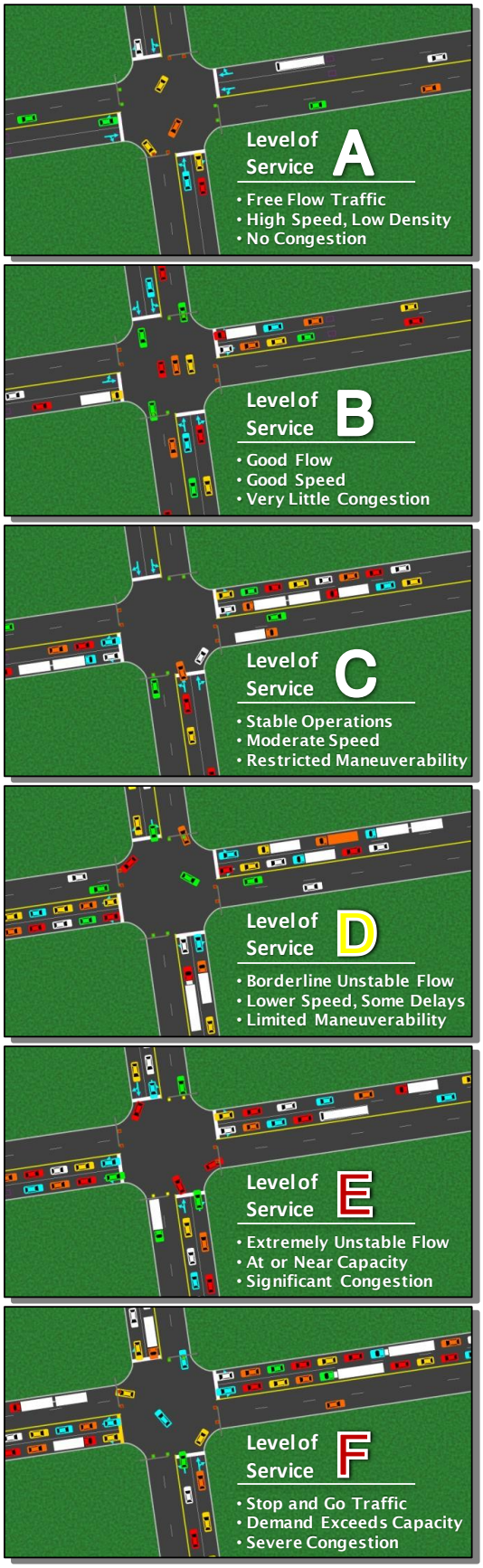
Roadway congestion can be reduced by either increasing capacity or lowering travel demand. The addition of roadway capacity is primarily out of the military's control; however, the military can influence and reduce the demand side. Working off-peak hours, telecommuting, ridesharing, and using public transit are several strategies which lower congestion. Recent experience in these areas has been mixed in Hampton Roads. Over 100 local military commands (with over 2,000 participants) are actively participating in travel management programs offered by TRAFFIX (a cooperative public service designed to promote transportation alternatives) to eliminate or shift automobile trips to other alternatives. However, the overall percentage of Hampton Roads commuters that drive alone to work has increased from 73% in 1990 to 82% in 2009[29].

Due to the prevalence of the military in Hampton Roads, in order to reduce regional congestion, the role of military leadership in increasing participation in demand reduction programs is paramount. Therefore, it is important for local military leaders and commands to modify policies concerning work times and work location and to solidify partnerships with Hampton Roads Transit (HRT), Williamsburg Area Transport (WAT), TRAFFIX, and other regional stakeholders to increase travel options for military personnel and reduce congestion near bases and across Hampton Roads.

Recommendations

- Evaluate, develop, and apply congestion mitigation strategies to all severely congested (Level of Service E or F) "Roadways Serving the Military in Hampton Roads" in the next the Hampton Road Congestion Management Process (CMP) update.
- When selecting projects for the Hampton Roads Transportation Improvement Program (TIP) and the Hampton Roads Long-Range Transportation Plan (LRTP), it is recommended that the HRTPO give priority to transportation projects that improve severe congestion on the "Roadways Serving the Military" network.

Figure 1 – Level of Service Definitions



Simulation Source: Synchro/SimTraffic 7

[29] U.S. Census Bureau.

- Likewise, when selecting projects for VDOT's Six-Year Improvement Program (SYIP), it is recommended that the Commonwealth Transportation Board give priority to transportation projects that improve severe congestion on the "Roadways Serving the Military" network.
- It is recommended that local military leaders and commands modify policies concerning work times and work location and solidify partnerships with Hampton Roads Transit (HRT), Williamsburg Area Transport (WAT), and other regional stakeholders to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing, and using public transit.

DEFICIENT BRIDGES

Bridge data for Hampton Roads was obtained from the Virginia Department of Transportation's (VDOT) Structure and Bridge Division and, for federally-maintained bridges, the Federal Highway Administration's (FHWA) National Bridge Inventory (NBI) database. All bridges are inspected on a 24-month cycle, unless conditions warrant more frequent inspections. All bridge data was downloaded from these sources in February 2011.

Definitions for structurally deficient bridges, functionally obsolete bridges, and sufficiency rating are provided below.

Structurally Deficient Bridges[30] – A structurally deficient bridge is a structure with elements that need to be monitored and/or repaired. These bridges typically require more frequent inspections, maintenance and repair and eventually need to be rehabilitated or replaced to address deficiencies. In spite of these deficiencies, a structurally deficient bridge is not necessarily unsafe. Bridge inspectors will close or impose limits on bridges they feel are unsafe.

For a bridge to be classified as structurally deficient, at least one of the following conditions must be true:

- Deck Condition Rating ≤ 4
- Superstructure Condition Rating ≤ 4
- Substructure Condition Rating ≤ 4
- Culvert Condition Rating ≤ 4
- Structural Condition Rating ≤ 2
- Waterway Adequacy Rating ≤ 2

By rule, any structure that is classified as structurally deficient cannot also be classified as functionally obsolete. Structures that have ratings that would qualify the bridge to be classified as both structurally deficient and functionally obsolete are classified as structurally deficient. Furthermore, any bridge that was built or constructed within the last ten years cannot be classified as structurally deficient or functionally obsolete.

Functionally Obsolete Bridges[31] – A functionally obsolete bridge is a structure that was built to geometric standards that are no longer used today. Functionally obsolete bridges may not have adequate lane widths, shoulder widths, or vertical clearances for the current traffic demand on the bridge. Functionally obsolete bridges may also occasionally be flooded, or have approaches that are difficult to navigate. In spite of these geometric deficiencies, functionally obsolete bridges are not inherently unsafe. Inspectors will close or impose limits on bridges that they feel are unsafe.

For a structure to be classified as functionally obsolete, at least one of the following conditions must be true:

- Structural Condition Rating = 3
- Waterway Adequacy Rating = 3
- Deck Geometry Rating ≤ 3
- Underclearances Rating ≤ 3
- Approach Roadway Alignment Rating ≤ 3

Sufficiency Rating[32] - A sufficiency rating is a numerical rating for each bridge based on its structural adequacy and safety, essentiality for public use, and its serviceability and functional obsolescence. These factors are used to obtain a numeric value between 0% and 100%, with a sufficiency rating of 100% representing an entirely sufficient bridge. It is

[30] Hampton Roads Regional Bridge Study, HRTPO, September 2008.

[31] Ibid.

[32] Ibid.

important to note that a bridge's sufficiency rating does not reflect the ability of the bridge to handle traffic loads. Those bridges with low sufficiency ratings are not necessarily unsafe. A sufficiency rating helps determine which bridges may need repair or replacement, not which bridges are in danger of collapsing.

Sufficiency ratings were developed and are used by FHWA as a method of prioritizing federal bridge funds (High Bridge Program) for allocation. A bridge that is classified as either structurally deficient or functionally obsolete and has a sufficiency rating of less than 50.0 is eligible for replacement funds, while a bridge that is classified as either structurally deficient or functionally obsolete and has a sufficiency rating of between 50.0 and 80.0 is eligible for rehabilitation funds. Bridges that have been constructed or had a major rehabilitation within the last ten years cannot be classified as structurally deficient or functionally obsolete and as such are not eligible for Highway Bridge Program funds.

For this study, a total of 582 bridges located on "Roadways Serving the Military in Hampton Roads" (including those which span the network) were analyzed. Deficient bridges are those bridges that are classified as "Structurally Deficient" or "Functionally Obsolete". Of the 582 bridges, 148 or 25.4% are currently deficient, as shown below.

	Number	Percent
Total Bridges (on Roadways Serving the Military)	**582**	
Structurally Deficient Bridges	**15**	**2.6%**
Functionally Obsolete Bridges	**133**	**22.9%**
Deficient Bridges	**148**	**25.4%**

The 15 Structurally Deficient Bridges are shown in **Maps 15 and 16** on pages 33-34 and in **Table 2** on page 35. The 133 Functionally Obsolete Bridges are shown in **Maps 15 and 16** and in **Table 3** on pages 36-38.

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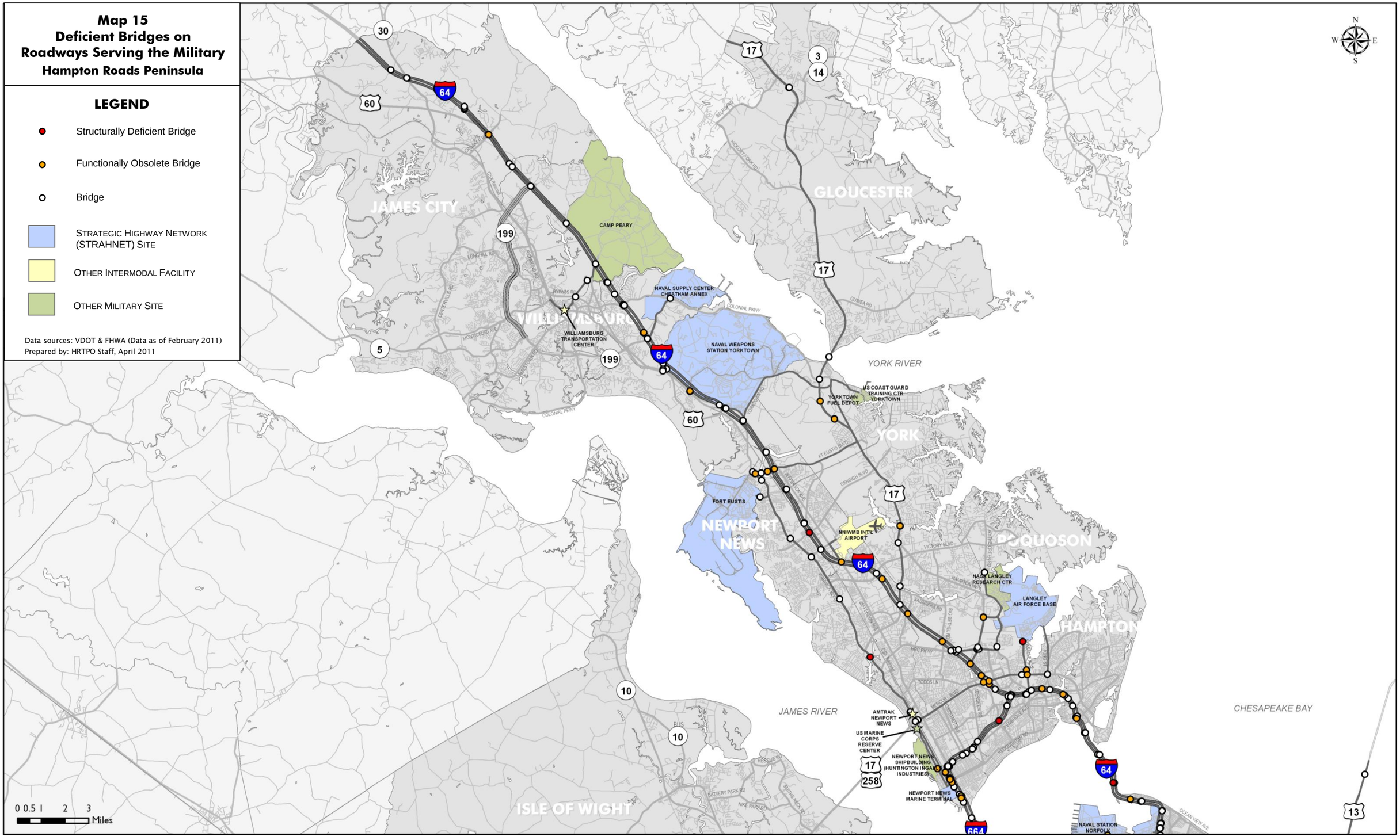
Map 15
Deficient Bridges on Roadways Serving the Military
Hampton Roads Peninsula

LEGEND

- Structurally Deficient Bridge
- Functionally Obsolete Bridge
- Bridge
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Data sources: VDOT & FHWA (Data as of February 2011)
Prepared by: HRTPO Staff, April 2011



Map 16
Deficient Bridges on Roadways Serving the Military
Hampton Roads Southside

LEGEND

- Structurally Deficient Bridge
- Functionally Obsolete Bridge
- Bridge
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Data sources: VDOT & FHWA (Data as of February 2011)
Prepared by: HRTPO Staff, April 2011

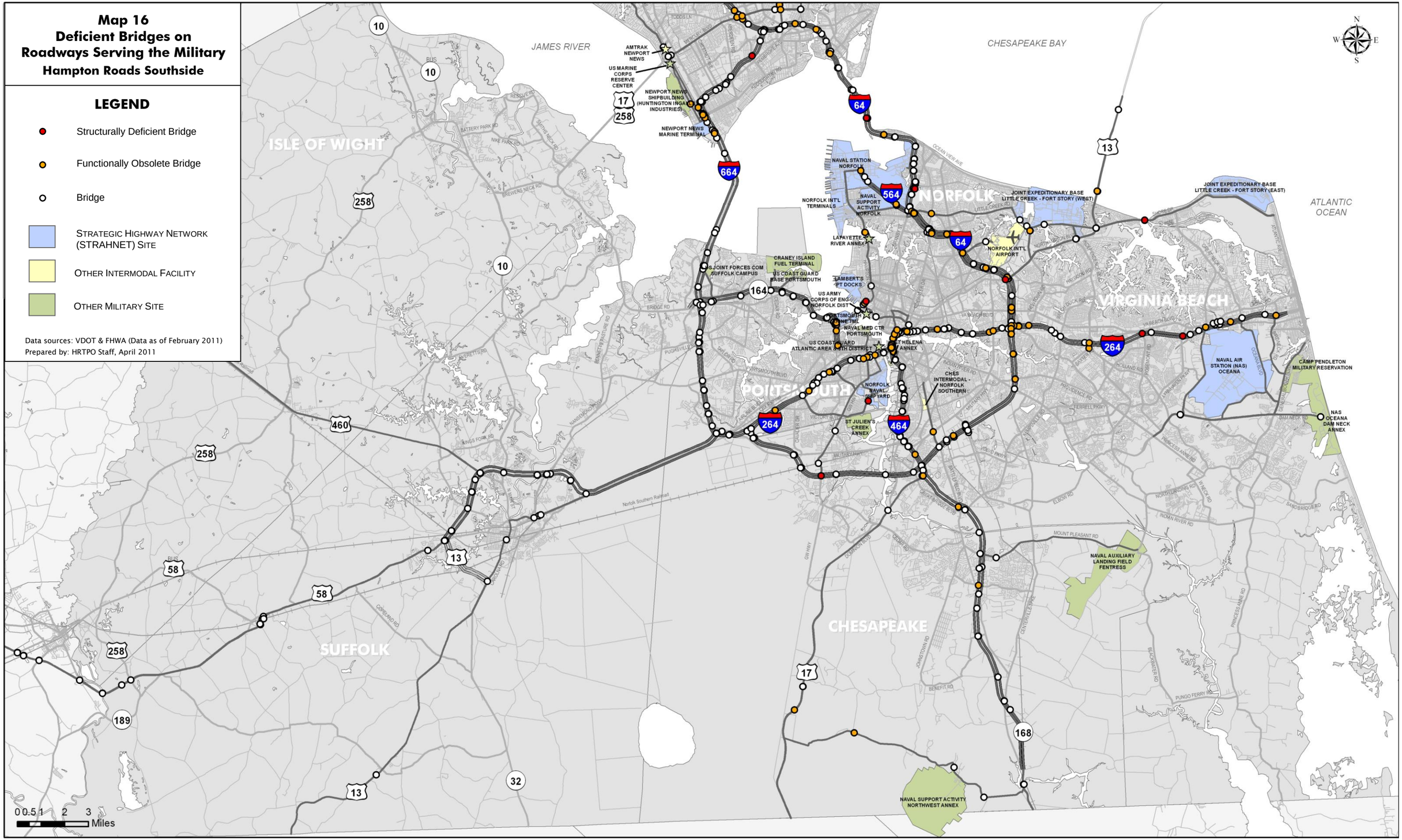


Table 2 – Structurally Deficient Bridges on Roadways Serving the Military

Jurisdiction	Federal Structure ID	Route	FACILITY	CROSSING	Year Built	Year Reconstructed	Deficiency	Sufficiency Rating
Portsmouth	21217	239	VICTORY BLVD	PARADISE CREEK	1944		Substructure Cond. = 4, Structural Cond. = 4	18.3
Newport News	20727	173	DENBIGH BLVD	I-64 & CSX R/R	1965	1977	Substructure Cond. = 4	18.5
Newport News	20679	60	WARWICK BLVD	LAKE MAURY	1931	1960	Superstructure Cond. = 4	32.8
Virginia Beach	22264	60	SHORE DRIVE WB	LYNNHAVEN INLET	1967		Superstructure Cond. = 4	34.9
Hampton	20366	167	LASALLE AVENUE	TIDE MILL CREEK	1965		Substructure Cond. = 4	36.9
Virginia Beach	22260	60	SHORE DRIVE EB	LYNNHAVEN INLET	1958		Superstructure Cond. = 4	39
Norfolk	21039	460	GRANBY STREET	MASONS CREEK	1936	1975	Culvert Cond. = 4	46.4
Virginia Beach	22228	264	I-264	LYNNHAVEN PARKWAY	1967	1986	Superstructure Cond. = 4	49
Norfolk	20856	64	I-64 EB RAMP	NORTHAMPTON BLVD	1967		Superstructure Cond. = 4	54
Norfolk	20805	58	BRAMBLETON AVENUE WB	HAMPTON BLVD	1962		Not available	59.2
Hampton	20352	64	HAMPTON ROADS BRIDGE-TUNNEL EB	HAMPTON ROADS	1974		Superstructure Cond. = 4	63.9
Southampton County	17729	58	ROUTE 58 EB	NOTTOWAY SWAMP	1930	1978	Substructure Cond. = 4	64.5
Hampton	20296	0	POWHATAN PKWY	I-664	1983		Not available	67
Virginia Beach	22224	264	I-264	ROSEMONT ROAD	1967	1977	Not available	67
Chesapeake	21836	17	GEORGE WASHINGTON HWY	I-64	1969		Not available	77.1

Bridges that are classified as either structurally deficient or functionally obsolete and have sufficiency ratings:

- Less than 50.0 qualify for federal bridge replacement funds (shown in orange).
- Between 50.0 and 80.0 qualify for federal bridge rehabilitation funds (shown in purple).

Source: VDOT, FHWA. Data as of February 2011.

Table 3 – Functionally Obsolete Bridges on Roadways Serving the Military

Jurisdiction	Federal Structure ID	Route	FACILITY	CROSSING	Year Built	Year Reconstructed	Deficiency	Sufficiency Rating
Norfolk	20947	264	I-264 WB	E BR ELIZABETH RIVER	1952	1991	Not available	51.2
Norfolk	21026	406	INT TERMINAL BLVD WB	I-564 & NS R/R	1986		Deck Geometry = 2, Underclearances = 2	54.2
James City County	10472	30	CROAKER ROAD NB	I-64	1988		Structural Cond. = 3	57.3
York	90003	0	YORKTOWN BATTLEFIELD TOUR ROAD	ROUTE 17	1986		Not available	58.4
Hampton	20287	0	BIG BETHEL ROAD	I-64	1988		Deck Geometry = 2, Underclearances = 2	58.8
Hampton	20376	172	COMMANDER SHEPARD BLVD EB	MAGRUDER BLVD	1988		Deck Geometry = 3, Underclearances = 2	61.2
Norfolk	26334	13	MILITARY HIGHWAY	I-264	1990		Underclearances = 3	62
York County	19818	17	GEORGE WASHINGTON HWY SB	POQUOSON RIVER	1990		Deck Geometry = 3	62.3
Hampton	20374	172	COMMANDER SHEPARD BLVD WB	MAGRUDER BLVD	1990		Deck Geometry = 3, Underclearances = 2	62.3
Norfolk	21024	337	HAMPTON BLVD NB	LAFAYETTE RIVER	1990		Deck Geometry = 3	63.1
Newport News	20721	105	FORT EUSTIS BLVD	CSX R/R	1990		Underclearances = 2	63.8
Hampton	20320	64	I-64	RIP RAP ROAD	1990		Underclearances = 3	64
Portsmouth	21242	264	I-264	WB RAMP FROM EFFINGHAM STREET	1972	1990	Not available	64
Virginia Beach	22237	264	I-264	VA BEACH BLVD	1972	1990	Underclearances = 2	64
Norfolk	20764	F-135	FRONTAGE ROAD	I-264	1991		Not available	64.4
Virginia Beach	22232	264	I-264	LONDON BRIDGE ROAD	1991		Underclearances = 3	65
Virginia Beach	29371	166	DIAMOND SPRINGS ROAD NB	WATERWORKS CANAL	1967		Not available	66
Norfolk	21019	337	HAMPTON BLVD SB RAMP	HAMPTON BLVD NB	1967	2000	Underclearances = 2	67.1
Hampton	20316	64	I-64 EB	PEMBROKE AVENUE & HAMPTON RIVER	1967		Underclearances = 2	69
Virginia Beach	22222	264	I-264	INDEPENDENCE BLVD	1967		Underclearances = 2	70
Norfolk	20837	64	I-64 WB	MILITARY HWY	1972	1990	Not available	71.4
Newport News	20710	64	I-64 EB	FORT EUSTIS BLVD	1968		Underclearances = 3	72.4
Newport News	20641	0	HARPERSVILLE ROAD	I-64	1968		Underclearances = 2	73.2
Newport News	20712	64	I-64 WB	FORT EUSTIS BLVD	1968		Underclearances = 2	73.2
Norfolk	20862	64	I-64 EB	KEMPSVILLE RD	1972	1991	Underclearances = 3	73.2
Norfolk	20875	64	I-64 EB	VA BEACH BLVD	1968		Underclearances = 3	73.2
Norfolk	20858	64	I-64 EB	NORTHAMPTON BLVD	1968		Underclearances = 2	73.4
Virginia Beach	22285	0	PROVIDENCE ROAD WB	I-64	1968		Deck Geometry = 3, Underclearances = 3	73.5
James City County	10491	64	I-64 WB	NAVAL WEAPONS STATION ACCESS	1968		Not available	73.6
Norfolk	20860	64	I-64 WB	NORTHAMPTON BLVD	1968		Underclearances = 2	73.6
Norfolk	20881	64	I-64 WB	I-264 WB	1968		Underclearances = 2	73.6
Norfolk	21021	337	ADMIRAL TAUSSIG BLVD	I-564 RAMPS	1972		Underclearances = 3	73.6
Norfolk	20864	64	I-64 WB	KEMPSVILLE RD	1972	1989	Underclearances = 3	73.7
Norfolk	20877	64	I-64 WB	VA BEACH BLVD	1962		Underclearances = 3	73.7
Norfolk	20900	64	I-64 EB	I-564 NB	1977		Underclearances = 2	74
Norfolk	20815	64	I-64 EB	SEWELLS POINT ROAD	1994		Underclearances = 2	74.3
Hampton	25293	167	LASALLE AVENUE NB	MERCURY BLVD	1970		Deck Geometry = 2	74.4
Norfolk	20879	64	I-64 EB	I-264 WB	1975		Underclearances = 2	75
Norfolk	21053	464	I-464 NB	BERKLEY AVENUE	1975		Deck Geometry = 3	75
Virginia Beach	22243	264	I-264	BIRDNECK ROAD	1990		Underclearances = 2	75.3
Hampton	25292	167	LASALLE AVENUE SB	MERCURY BLVD	1990		Deck Geometry = 2	75.3
Hampton	20364	152	CUNNINGHAM DRIVE WB	I-64	1990		Deck Geometry = 3	75.4
Virginia Beach	22287	0	PROVIDENCE ROAD EB	I-64	1936	1975	Deck Geometry = 3	75.5
Hampton	20362	152	CUNNINGHAM DRIVE EB	I-64	1988		Deck Geometry = 3	75.6
Norfolk	20817	64	I-64 WB	SEWELLS POINT ROAD	1988		Underclearances = 3	75.8
Portsmouth	21193	0	COURT STREET	I-264 WB	1988		Deck Geometry = 2, Underclearances = 3	75.8
Hampton	20368	167	LASALLE AVENUE SB	NEWMARKET CREEK	1988		Deck Geometry = 3	75.9
Norfolk	20797	264	I-264	NEWTOWN ROAD	1989		Underclearances = 2	76
Chesapeake	21791	0	CAMPOSTELLA ROAD	I-464	1988		Underclearances = 2	76.2
Virginia Beach	12747	13	CBBT NB	CHESAPEAKE BAY & LOOKOUT RD	1988		Deck Geometry = 2	76.5
Newport News	20649	0	34TH STREET WB	I-664/WARWICK BLVD/CSX R/R	1988		Deck Geometry = 2	76.6
Hampton	20367	167	LASALLE AVENUE NB	NEWMARKET CREEK	1987		Deck Geometry = 3	76.8
Hampton	26143	134	MAGRUDER BLVD	I-64	1987		Underclearances = 3, Approach Rdwy. Alignment = 3	77
Norfolk	20911	64	I-64 WB	13TH VIEW STREET	1989		Underclearances = 2	77.2
Norfolk	20909	64	I-64 EB	13TH VIEW STREET	1988		Underclearances = 2	77.3
Virginia Beach	29367	166	DIAMOND SPRINGS ROAD SB	WATERWORKS CANAL	1988		Not available	78.3
Newport News	20661	0	HUNTINGTON AVENUE	FORMER SHIPYARD R/R SPUR	1977		Underclearances = 2	78.4

Bridges that are classified as either structurally deficient or functionally obsolete and have sufficiency ratings:

- Less than 50.0 qualify for federal bridge replacement funds **(shown in orange)**.
- Between 50.0 and 80.0 qualify for federal bridge rehabilitation funds **(shown in purple)**.

Source: VDOT, FHWA. Data as of February 2011.

Table 3 – Functionally Obsolete Bridges on Roadways Serving the Military (continued)

Jurisdiction	Federal Structure ID	Route	FACILITY	CROSSING	Year Built	Year Reconstructed	Deficiency	Sufficiency Rating
Norfolk	20795	264	I-264 EB	KEMPSVILLE ROAD	1990		Underclearances = 2	78.6
Chesapeake	27402	17	ROUTE 17	STREAM	1984		Deck Geometry = 2	79
Portsmouth	21240	264	I-264	EFFINGHAM STREET	1971		Underclearances = 2	79.3
York County	19828	64	I-64 EB	PENNIMAN ROAD	1972	1991	Underclearances = 2	79.7
Portsmouth	21220	264	I-264	MCLEAN AVENUE	1972		Underclearances = 2	79.7
Newport News	20653	0	23RD-25TH STREET	I-664/WARWICK BLVD/CSX R/R	1976		Deck Geometry = 2	79.9
York County	19830	64	I-64 WB	PENNIMAN ROAD	1951	1990	Underclearances = 2	80.2
Norfolk	21059	464	I-464 NB	I-464 SB RAMP	1989		Underclearances = 3	80.3
Chesapeake	21813	0	BALLAHACK ROAD	NEWLAND SWAMP	1984		Deck Geometry = 3	80.3
Virginia Beach	22217	264	I-264 EB RAMP	BAXTER ROAD	1989		Underclearances = 3	81
Newport News	20651	0	26TH STREET	I-664 & CSX R/R	1971		Underclearances = 3	81.3
Norfolk	20934	165	LITTLE CREEK ROAD	TIDEWATER DRIVE	1991		Underclearances = 2	82.9
Norfolk	20953	264	I-264 EB & I-464 NB	I-264 & I-464 RAMPS	1991		Underclearances = 3	83
Norfolk	21000	264	I-264 WB	HOLT ST & NS R/R	1991		Not available	83
Newport News	20643	0	OLD OYSTER POINT ROAD	I-64	1991		Underclearances = 3	83.7
Norfolk	20992	264	I-264 EB	HOLT STREET & NS R/R	1978		Not available	84
Norfolk	23313	247	NORVIEW AVENUE	I-64	1944		Not available	84
Norfolk	20793	264	I-264 WB	KEMPSVILLE ROAD	1964		Underclearances = 3	84.2
Norfolk	20819	64	I-64 EB	CHESAPEAKE BLVD	1964	1979	Underclearances = 3	84.4
Norfolk	20821	64	I-64 WB	CHESAPEAKE BLVD	1964		Underclearances = 3	84.4
Norfolk	20883	64	I-64 EB	I-264 EB	1964	1980	Underclearances = 3	84.9
Portsmouth	21190	0	GREENWOOD DRIVE	I-264	1964	1978	Underclearances = 3	85.2
Norfolk	23216	564	I-564 HOV LANES	LITTLE CREEK ROAD	1964		Deck Geometry = 2	85.2
Norfolk	20885	64	I-64 WB	I-264 EB	1964	1979	Underclearances = 3	85.8
Norfolk	20852	64	I-64 EB	RAMP FROM NORTHAMPTON BLVD	1964	1979	Underclearances = 2	86.6
Virginia Beach	22265	64	I-64 WB	E BR ELIZABETH RIVER	1964	1979	Underclearances = 3	87.1
Virginia Beach	22267	64	I-64 EB	E BR ELIZABETH RIVER	1964	1979	Underclearances = 3	87.2
Virginia Beach	26056	13	CBBT SB	CHESAPEAKE BAY & LOOKOUT RD	1963	1979	Deck Geometry = 3, Underclearances = 3	87.5
Portsmouth	21202	58	LONDON BOULEVARD	MLK FREEWAY	1966	1985	Not available	88.3
Norfolk	23046	460	I-264 WB RAMP	CITY HALL AVENUE	1966	1985	Deck Geometry = 2	88.9
Norfolk	20961	264	IBERKLEY AVENUE RAMP	EMERGENCY VEHICLE RAMP	1966	1985	Underclearances = 3	89
Portsmouth	21235	264	I-264	RAMP FROM FREDERICK BLVD	1985		Not available	89
Chesapeake	21885	168	BATTLEFIELD BLVD	MILITARY HIGHWAY	1985		Underclearances = 3	89
Chesapeake	26355	64	64 EB Collector Rd	OVER B652	1966		Not available	89
Norfolk	23304	64	I-64 HOV LANES	I-264 WB	1978		Deck Geometry = 3, Underclearances = 3	90
Norfolk	23306	64	I-64 HOV LANES	I-264 EB	1983		Deck Geometry = 3, Underclearances = 3	90
Newport News	25809	143	JEFFERSON AVENUE	I-64	1983		Underclearances = 3	90.1
Norfolk	23342	64	I-64 HOV LANES	CNW R/R & CURLEW DR	1989		Deck Geometry = 3	90.3
Portsmouth	28350	164	ROUTE 164 WB RAMP FROM CLEVELAND ST	MLK FREEWAY & PMT	1985		Underclearances = 3	90.8
Norfolk	20971	264	I-264 EB	I-264 EB RAMP	1969		Underclearances = 3	90.9
Norfolk	23272	64	I-64 HOV LANES	VA BEACH BLVD	1992	1992	Underclearances = 3	91
Norfolk	23284	64	I-64 HOV LANES	KEMPSVILLE ROAD	1967		Underclearances = 3	91
Portsmouth	26653	58	MLK FREEWAY	CLEVELAND STREET & CSX R/R	1969		Not available	91.6
Norfolk	20996	264	I-64 WB RAMP	I-264 WB	1969		Not available	91.7
York County	19820	17	GEORGE WASHINGTON HWY NB	YORKTOWN BATTLEFIELD TOUR ROAD	1969		Underclearances = 2	91.9
York County	19822	17	GEORGE WASHINGTON HWY SB	YORKTOWN BATTLEFIELD TOUR ROAD	1969		Underclearances = 2	91.9
Norfolk	23214	64	I-64 HOV LANES	I-564 & LITTLE CREEK ROAD	1969		Underclearances = 3	92
Newport News	20681	60	WARWICK BLVD WB	FORT EUSTIS BLVD	1969		Underclearances = 2	92.5
Norfolk	21063	464	I-464 SB	I-264 WB RAMP	1969	1991	Underclearances = 3	92.7
Chesapeake	25566	168	GREAT BRIDGE BYPASS NB	BATTLEFIELD BLVD	1978		Not available	92.7
Norfolk	21037	460	I-264 RAMP	WATERSIDE DRIVE	1978		Underclearances = 3	92.9
Norfolk	21057	464	I-464 SB	I-264 EB	1978		Underclearances = 3	93
Norfolk	23074	64	I-64 HOV LANES	NORTHAMPTON BLVD	1978		Underclearances = 3	93.4
Norfolk	23132	64	I-64 HOV LANES	NORTHAMPTON BLVD SB RAMP	1985		Underclearances = 3	93.4
Norfolk	21049	464	I-464 RAMP	I-464 SB RAMP	1990		Underclearances = 3	93.5
Hampton	26148	64	MERCURY BLVD RAMP	I-64	1987		Underclearances = 3	93.9
Hampton	26149	64	MERCURY BLVD RAMP	MERCURY BLVD	1981		Not available	93.9

Bridges that are classified as either structurally deficient or functionally obsolete and have sufficiency ratings:

- Less than 50.0 qualify for federal bridge replacement funds **(shown in orange)**.
- Between 50.0 and 80.0 qualify for federal bridge rehabilitation funds **(shown in purple)**.

Source: VDOT, FHWA. Data as of February 2011.

Table 3 – Functionally Obsolete Bridges on Roadways Serving the Military (continued)

Jurisdiction	Federal Structure ID	Route	FACILITY	CROSSING	Year Built	Year Reconstructed	Deficiency	Sufficiency Rating
Norfolk	20955	264	I-264 WB	I-264 & I-464 RAMPS	1981		Underclearances = 3	94
Norfolk	20957	264	I-264 & I-464 RAMPS	I-264 EB	1981		Underclearances = 3	94
Norfolk	20959	264	I-264 WB RAMP	I-264 WB	1981		Underclearances = 3	94
Norfolk	21002	264	I-264 EB	BALLENTINE AVENUE	1981		Underclearances = 3	94
Norfolk	21004	264	I-264 WB	BALLENTINE AVENUE	1981		Underclearances = 3	94
Norfolk	21051	464	I-464 SB	I-264 & I-464 RAMPS	2008		Underclearances = 3	94
Norfolk	21061	464	I-464 SB	I-264 WB	1967		Underclearances = 3	94
Norfolk	21065	464	I-464 SB	EMERGENCY VEHICLE RAMP	1991		Underclearances = 3	94
Norfolk	23059	64	I-64 HOV LANES	SEWELLS POINT ROAD	1983		Underclearances = 3	94
Newport News	29305	664	I-664 SB Off-Ramp	I-664 Ramp P & CSX RR	1983		Deck Geometry = 3, Underclearances = 3	94.2
Norfolk	20898	64	I-64 EB RAMP	I-64 WB RAMP AT TIDEWATER DR	1983		Underclearances = 3	95
Portsmouth	28396	164	ROUTE 164 EB RAMP TO EB MIDTOWN TUN	MLK FREEWAY WB & PMT	1969		Not available	95.3
Newport News	20759	664	I-664 RAMP	RAMP A	1969	1993	Not available	95.5
Newport News	20761	664	I-664 RAMP	TERMINAL AVENUE	1969	1993	Underclearances = 3	95.6
Chesapeake	25567	168	ROUTE 168 NB	RAMP TO I-64 WB	1963	1993	Not available	95.7
Hampton	26146	64	I-64 RAMP	MERCURY BLVD	1963	1993	Not available	95.8
Portsmouth	28376	164	ROUTE 164 WB	MLK & WESTERN FREEWAY & PMT	1980		Underclearances = 3	95.8
Chesapeake	25696	0	HANBURY ROAD	CHESAPEAKE EXPRESSWAY	1967		Underclearances = 3	95.9
Hampton	20279	0	MALLORY STREET	I-64	1967		Not available	96

Bridges that are classified as either structurally deficient or functionally obsolete and have sufficiency ratings: Source: VDOT, FHWA. Data as of February 2011.

- Less than 50.0 qualify for federal bridge replacement funds **(shown in orange)**.
- Between 50.0 and 80.0 qualify for federal bridge rehabilitation funds **(shown in purple)**.

Recommendations

- Rehabilitate or replace the following Structurally Deficient bridges that are located on "Roadways Serving the Military in Hampton Roads", have sufficiency ratings below 50, and do not currently have identified funding:
  - Victory Boulevard over Paradise Creek in Portsmouth (Federal ID: 21217)
  - Lasalle Avenue over Tide Mill Creek in Hampton (Federal ID: 20366)
  - I-264 over Lynnhaven Parkway in Virginia Beach (Federal ID: 22228)
- Closely monitor the remaining 7 Structurally Deficient bridges as well as the 133 Functionally Obsolete bridges. It is recommended that priority be given to these facilities for rehabilitation or replacement, if necessary.

VERTICAL CLEARANCE

According to the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), there are no separate standard bridge geometric requirements for military purposes[33]. The military expects the Strategic Highway Network (STRAHNET) to meet the design standards for the National Highway System (NHS) established by the Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO).

According to SDDCTEA, the military-preferred vertical clearance for all rural and urban Interstate highway bridges is 16 feet. The preferred minimum vertical clearance for all other STRAHNET routes is 14 feet. According to the SDDCTEA Information Paper[34], the following vertical clearance guidelines are provided for Interstate highways and new structures on urban and rural arterials:

"…all rural Interstate highway bridges will be built to the 16-foot vertical clearance standard. In addition, a 16-foot vertical clearance route shall also be maintained throughout and or around

[33] Information Paper: Military Design Standards for the National Highway System, Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), August 31, 2000.

[34] Ibid.

each urban area. Interstate bridges in urban areas not on the 16-foot vertical clearance route must have a minimum of 14 feet of vertical clearance. Any exceptions to this policy must be approved by FHWA."

For this study analysis, the vertical clearance preferences outlined above were applied to all of the bridge and tunnel facilities located on the "Roadways Serving the Military in Hampton Roads", including those which span the network. Bridges and tunnels with vertical clearances below 14 feet are shown in red on **Maps 17 and 18** on pages 41-42 and are listed in **Table 4** on page 43. Bridges and tunnels located on Interstate highways with vertical clearances between 14 feet and 16 feet are shown in orange on **Maps 17 and 18** and are listed in **Table 5** on page 43.

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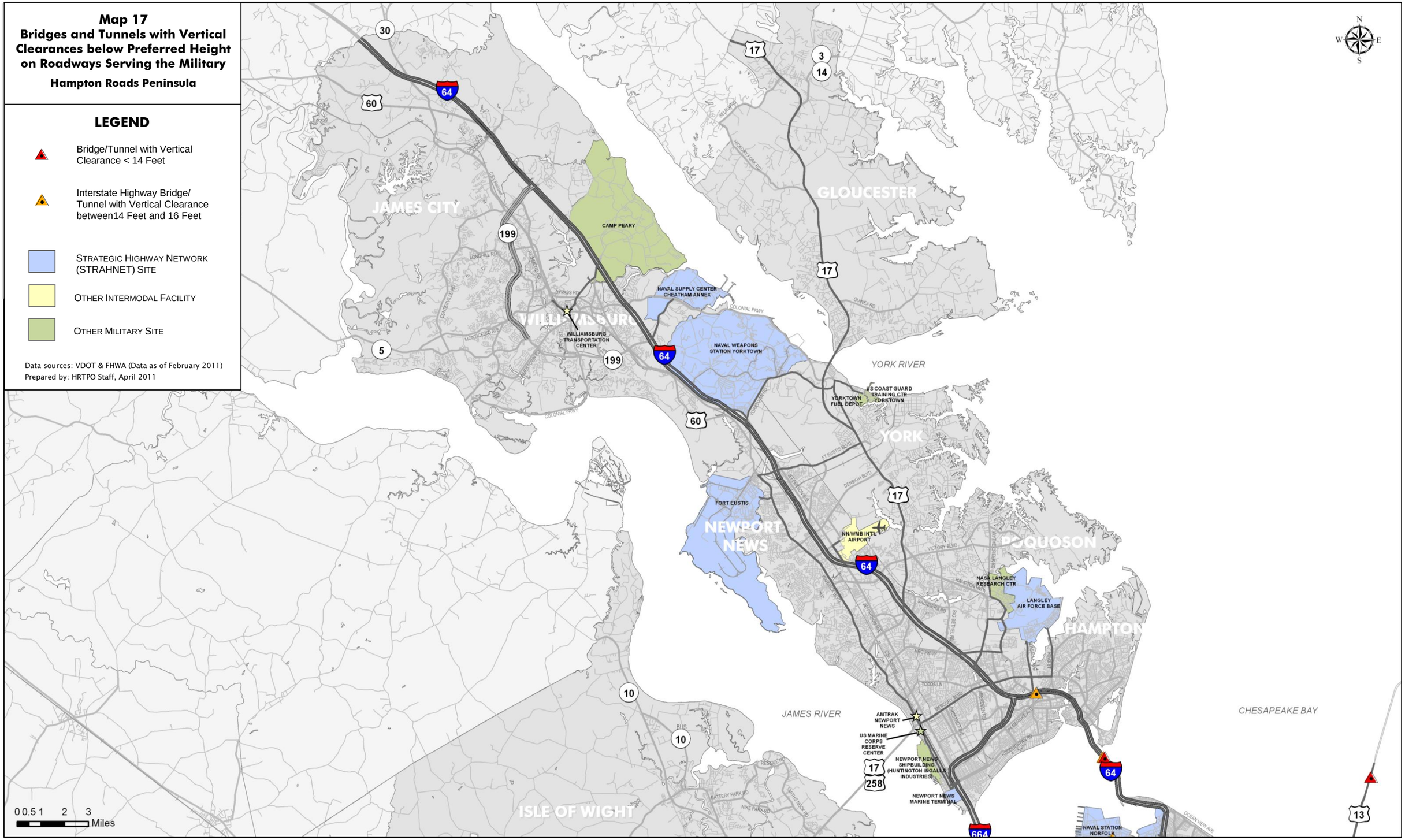
Map 17
Bridges and Tunnels with Vertical Clearances below Preferred Height on Roadways Serving the Military
Hampton Roads Peninsula

LEGEND

- Bridge/Tunnel with Vertical Clearance < 14 Feet
- Interstate Highway Bridge/ Tunnel with Vertical Clearance between14 Feet and 16 Feet
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Data sources: VDOT & FHWA (Data as of February 2011)
Prepared by: HRTPO Staff, April 2011



Map 18
Bridges and Tunnels with Vertical Clearances below Preferred Height on Roadways Serving the Military
Hampton Roads Southside

LEGEND

- Bridge/Tunnel with Vertical Clearance < 14 Feet
- Interstate Highway Bridge/ Tunnel with Vertical Clearance between14 Feet and 16 Feet
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Data sources: VDOT & FHWA (Data as of February 2011)
Prepared by: HRTPO Staff, April 2011

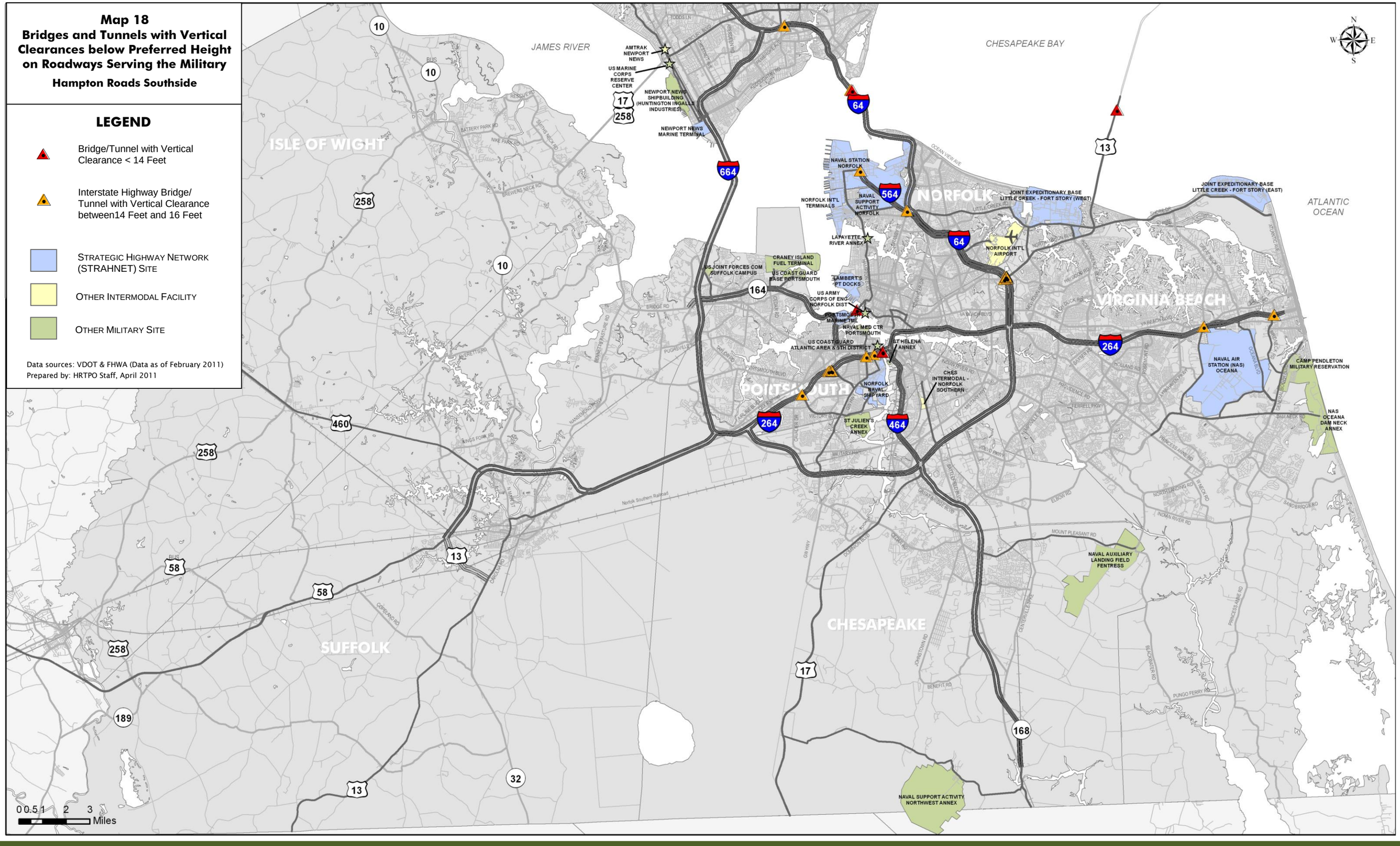


Table 4 – Bridges and Tunnels with Vertical Clearances below 14 Feet on Roadways Serving the Military

Jurisdiction	Federal Structure ID	Route	FACILITY	CROSSING	Vertical Under Clearance*	STRAHNET Route
Virginia Beach	12749	13	CBBT*	THIMBLE SHOALS CHANNEL	13' 06"	Yes
Norfolk	20952	264	DOWNTOWN TUNNEL EB*	S BR ELIZABETH RIVER	13' 06"	Yes
Norfolk	20951	264	DOWNTOWN TUNNEL WB*	S BR ELIZABETH RIVER	13' 06"	Yes
Hampton	20354	64	HAMPTON ROADS BRIDGE-TUNNEL WB*	HAMPTON ROADS	13' 06"	Yes
Norfolk	20808	58	MIDTOWN TUNNEL*	ELIZABETH RIVER	13' 06"	Yes

*For tunnel facilities, vertical clearance (maximum vehicle height) is provided.

Source: VDOT, FHWA. Data as of February 2011.

Table 5 – Bridges and Tunnels with Vertical Clearances between 14 Feet and 16 Feet on Roadways Serving the Military

Jurisdiction	Federal Structure ID	Route	FACILITY	CROSSING	Vertical Under Clearance*	STRAHNET Route
Hampton	20326	64	I-64	LASALLE AVENUE	14' 03"	Yes
Hampton	20340	64	HAMPTON ROADS BRIDGE-TUNNEL EB*	HAMPTON ROADS	14' 06"	Yes
Norfolk	20852	64	I-64 EB	RAMP FROM NORTHAMPTON BLVD	14' 09"	Yes
Norfolk	20854	64	I-64 WB	RAMP FROM NORTHAMPTON BLVD	14' 09"	Yes
Norfolk	20856	64	I-64 EB RAMP	NORTHAMPTON BLVD	14' 01"	Yes
Norfolk	20858	64	I-64 EB	NORTHAMPTON BLVD	14' 04"	Yes
Norfolk	20860	64	I-64 WB	NORTHAMPTON BLVD	14' 04"	Yes
Norfolk	21021	337	ADMIRAL TAUSSIG BLVD	I-564 RAMPS	14' 09"	Yes
Norfolk	21072	564	I-564 SB	GRANBY STREET	15' 09"	Yes
Portsmouth	21193		COURT STREET	I-264 WB	14' 03"	Yes
Portsmouth	21222	264	I-264 EB RAMP	FREDERICK BLVD	14' 07"	Yes
Portsmouth	21229	264	I-264	FREDERICK BLVD	14' 09"	Yes
Portsmouth	21235	264	I-264	RAMP FROM FREDERICK BLVD	14' 07"	Yes
Portsmouth	21237	264	I-264	VICTORY BLVD	14' 06"	Yes
Portsmouth	21240	264	I-264	EFFINGHAM STREET	14' 09"	Yes
Virginia Beach	22232	264	I-264	LONDON BRIDGE ROAD	14' 01"	Yes
Virginia Beach	22243	264	I-264	BIRDNECK ROAD	14' 04"	Yes

*For tunnel facilities, vertical clearance (maximum vehicle height) is provided.

Source: VDOT, FHWA. Data as of February 2011.

Recommendations

- Use a minimum vertical clearance of 14 feet as tunnels are constructed or replaced at the following locations:
    - Chesapeake Bay Bridge-Tunnel (Federal ID: 12749)
    - Downtown Tunnel Eastbound under Southern Branch Elizabeth River in Norfolk (Federal ID: 20952)
    - Downtown Tunnel Westbound under Southern Branch Elizabeth River in Norfolk (Federal ID: 20951)
    - Hampton Roads Bridge-Tunnel Westbound tunnel under Hampton Roads in Hampton (Federal ID: 20354)
    - Midtown Tunnel under Elizabeth River in Norfolk (Federal ID: 20808)
- Use a minimum vertical clearance of 16 feet as Interstate bridge structures are constructed or replaced at the following locations:
    - I-64 over Lasalle Avenue in Hampton (Federal ID: 20326)
    - I-64 Eastbound over Ramp from Northampton Boulevard in Norfolk (Federal ID: 20852)
    - I-64 Westbound over Ramp from Northampton Boulevard in Norfolk (Federal ID: 20854)
    - I-64 Eastbound Ramp over Northampton Boulevard in Norfolk (Federal ID: 20856)
    - I-64 Eastbound over Northampton Boulevard in Norfolk (Federal ID: 20858)
    - I-64 Westbound over Northampton Boulevard in Norfolk (Federal ID: 20860)
    - Admiral Taussig Boulevard over I-564 Ramps in Norfolk (Federal ID: 21021)
    - I-564 Southbound over Granby Street in Norfolk (Federal ID: 21072)
    - Court Street over I-264 Westbound in Portsmouth (Federal ID: 21193)
    - I-264 Eastbound Ramp over Frederick Boulevard in Portsmouth (Federal ID: 21222)
    - I-264 over Frederick Boulevard in Portsmouth (Federal ID: 21229)
    - I-264 over Ramp from Frederick Boulevard in Portsmouth (Federal ID: 21235)
    - I-264 over Victory Boulevard in Portsmouth (Federal ID: 21237)
    - I-264 over Effingham Street in Portsmouth (Federal ID: 21240)
    - I-264 over London Bridge Road in Virginia Beach (Federal ID: 22232)
    - I-264 over Birdneck Road in Virginia Beach (Federal ID: 22243)

LANE WIDTH

Average lane widths for all "Roadways Serving the Military in Hampton Roads" were obtained from the Virginia Department of Transportation[35]. According to the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) 12-foot lane widths for roadways are preferred if the expected military traffic includes vehicles in the Heavy Equipment Transporter System (HETS) and the Palletized Load System (PLS)[36]. Schematic diagrams of the dimensions and weights of these vehicles are included in **Appendix F**. Therefore, roadway segments with average lane widths below 12 feet located on the "Roadways Serving the Military in Hampton Roads" were identified and shown in **Maps 19 and 20** on pages 45-46 and in **Table 6** on pages 47-48.

[35] Virginia Department of Transportation (VDOT), Statewide Planning System (SPS) Lite Database, 2009.

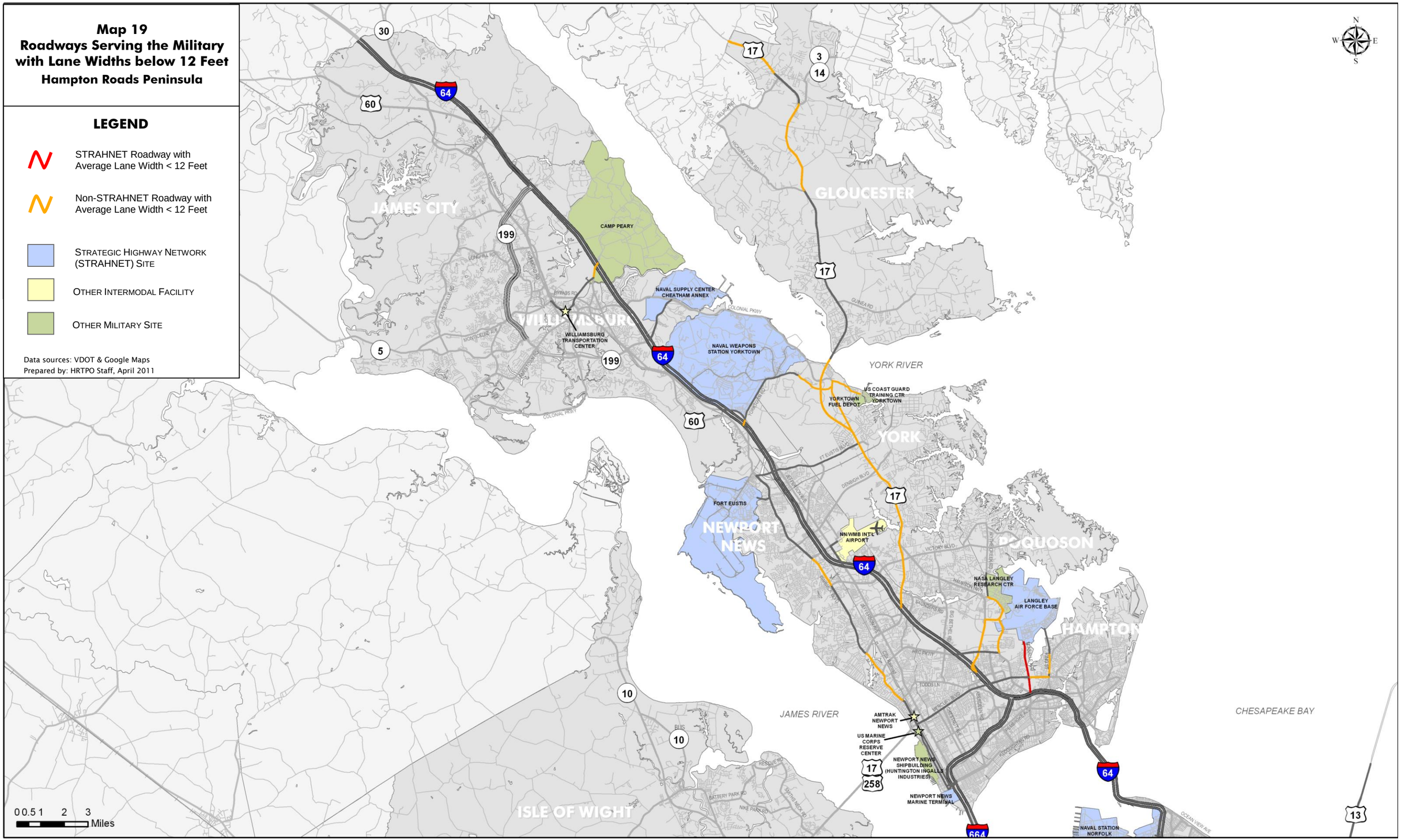
[36] Information Paper: Military Design Standards for the National Highway System, Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), August 31, 2000.

Map 19
Roadways Serving the Military with Lane Widths below 12 Feet
Hampton Roads Peninsula

LEGEND

- STRAHNET Roadway with Average Lane Width < 12 Feet
- Non-STRAHNET Roadway with Average Lane Width < 12 Feet
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Data sources: VDOT & Google Maps
Prepared by: HRTPO Staff, April 2011



Map 20
Roadways Serving the Military with Lane Widths below 12 Feet
Hampton Roads Southside

LEGEND

- STRAHNET Roadway with Average Lane Width < 12 Feet
- Non-STRAHNET Roadway with Average Lane Width < 12 Feet
- STRATEGIC HIGHWAY NETWORK (STRAHNET) SITE
- OTHER INTERMODAL FACILITY
- OTHER MILITARY SITE

Data sources: VDOT & Google Maps
Prepared by: HRTPO Staff, April 2011

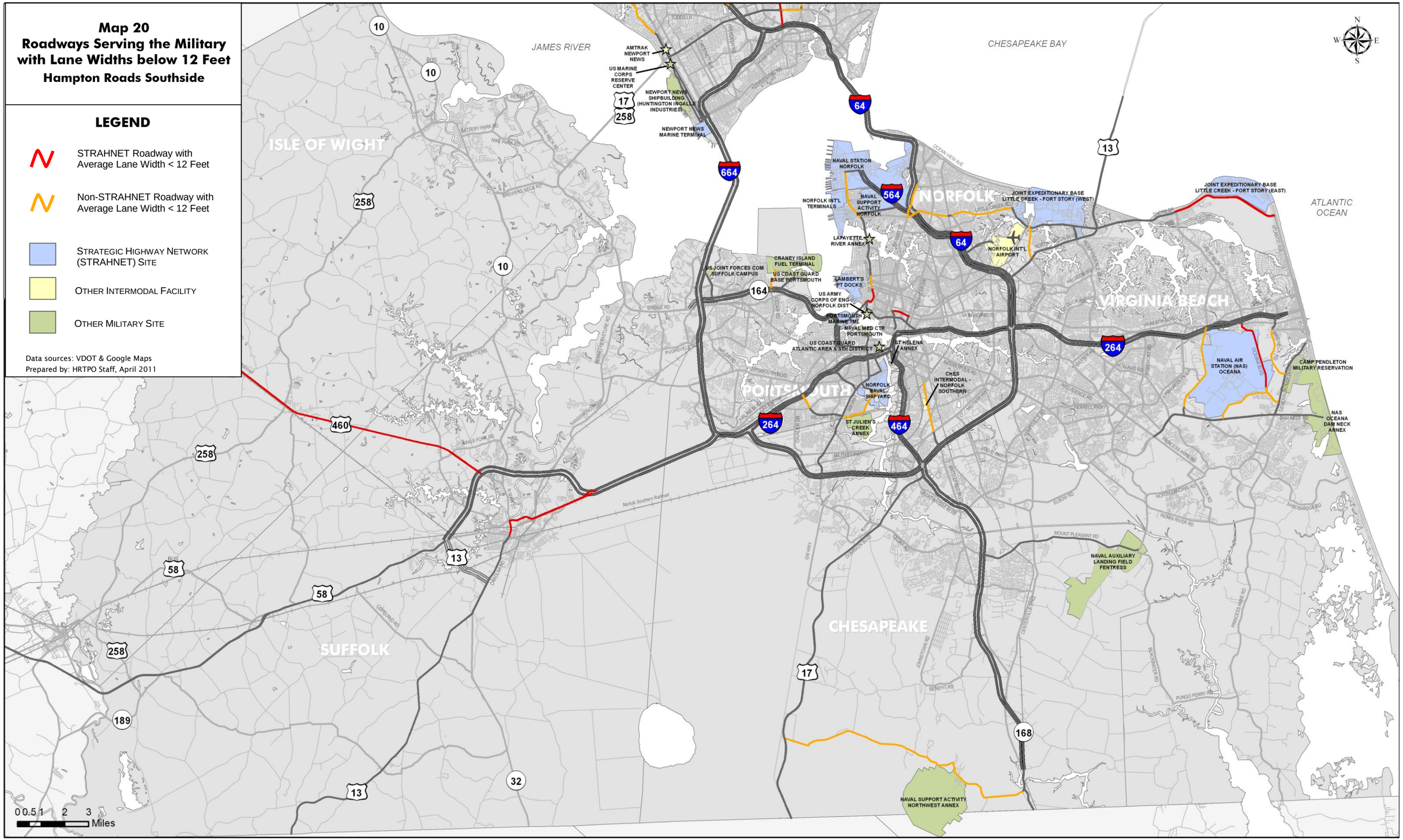


Table 6 – Roadways Serving the Military with Lane Widths below 12 Feet

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	2009 LANES	AVG LANE WIDTH	STRAHNET ROUTE?
CHES	ATLANTIC AVE	CAMPOSTELLA RD	PROVIDENCE RD	0.38	4	11	NO
CHES	ATLANTIC AVE	PROVIDENCE RD	OLD ATLANTIC AVE	1.07	4	11	NO
CHES	BALLAHACK RD	GEORGE WASHINGTON HWY	OLD BATTLEFIELD BLVD	11.72	2	10	NO
CHES	BATTLEFIELD BLVD	MILITARY HWY	CAMPOSTELLA RD	0.56	4	11	NO
GLO	RTE 17	RTE 614 (HICKORY FORK RD)	RTE 17 BUS S (MAIN ST)	4.76	4	11	NO
GLO	RTE 17	RTE 17 BUS N (MAIN ST)	RTE 606 (ARK RD)	2.38	4	11	NO
GLO	RTE 17	RTE 606 (ARK RD)	ROUTE 14	5.44	4	11	NO
GLO	RTE 17	ROUTES 33/198	MIDDLESEX CL	1.55	4	11	NO
HAM	ARMISTEAD AVE	COMMANDER SHEPPARD BLVD	HRC PARKWAY	1.52	4	11	NO
HAM	COMMANDER SHEPPARD BLVD	MAGRUDER BLVD	ARMISTEAD AVE	0.73	4	11	NO
HAM	COMMANDER SHEPPARD BLVD	ARMISTEAD AVE	NASA MAIN GATE	0.32	4	11	NO
HAM	COMMANDER SHEPPARD BLVD	NASA MAIN GATE	WYTHE CREEK RD	0.96	4	11	NO
HAM	KING ST	OLD FOX HILL RD	LITTLE BACK RIVER RD	0.54	4	10	NO
HAM	KING ST	LITTLE BACK RIVER RD	LAMINGTON RD	0.3	4	11	NO
HAM	LA SALLE AVE	ARMISTEAD AVE	MERCURY BLVD	0.63	4	11	YES
HAM	LA SALLE AVE	MERCURY BLVD	LANGLEY GATE	1.46	4	11	YES
HAM	MAGRUDER BLVD	COMM SHEPPARD BLVD (SOUTH)	HRC PARKWAY	1.38	4	11	NO
HAM	MAGRUDER BLVD	HRC PARKWAY	I-64	0.67	4	11	NO
HAM	MERCURY BLVD	LA SALLE AVE	KING ST	0.82	8	11	NO
IW	ROUTE 460	SOUTHAMPTON CL	FIRETOWER RD (RTE 644)	0.54	4	10	YES
IW	ROUTE 460	FIRETOWER RD (RTE 644)	WCL WINDSOR	5.56	4	10	YES
IW/WIND	ROUTE 460	WCL WINDSOR	ROUTE 258	0.08	4	10	YES
IW/WIND	ROUTE 460	ROUTE 258	COURT ST (RTE 610)	0.46	4	10	YES
IW	ROUTE 460	COURT ST (RTE 610)	ECL WINDSOR	0.75	4	10	YES
IW	ROUTE 460	ECL WINDSOR	SUFFOLK CL	2.35	4	10	YES
NN	J CLYDE MORRIS BLVD	I-64	HARPERSVILLE RD	0.6	4	11	NO
NN	J CLYDE MORRIS BLVD	HARPERSVILLE RD	YORK CL	0.19	4	11	NO
NN	WARWICK BLVD	BLAND BLVD	OYSTER POINT RD	1.39	4	11	NO
NN	WARWICK BLVD	J CLYDE MORRIS BLVD	HARPERSVILLE RD	1.07	5	11	NO
NN	WARWICK BLVD	HARPERSVILLE RD	MAIN ST	1.49	4	10	NO
NN	YORKTOWN RD	I-64	JEFFERSON AVE	0.15	2	10	NO
NOR	COLLEY AVE	FRONT ST	BRAMBLETON AVE	0.21	2	10	NO
NOR	GRANBY ST	LITTLE CREEK RD	I-564	0.26	6	11	NO
NOR	GRANBY ST	I-564	I-64	0.18	4	10	NO
NOR	GRANBY ST	I-64	BAYVIEW BLVD	0.99	4	10	NO
NOR	HAMPTON BLVD	BRAMBLETON AVE	PRINCESS ANNE RD	0.4	4	11	YES
NOR	HAMPTON BLVD	PRINCESS ANNE RD	21ST ST	0.48	4	11	YES
NOR	HAMPTON BLVD	21ST ST	26TH ST	0.21	4	11	NO
NOR	HAMPTON BLVD	26TH ST	27TH ST	0.05	4	11	NO
NOR	HAMPTON BLVD	27TH ST	38TH ST	0.18	4	11	NO
NOR	HAMPTON BLVD	LITTLE CREEK RD	INTERNATIONAL TERMINAL BLVD	0.18	6	11	NO
NOR	HAMPTON BLVD	INTERNATIONAL TERMINAL BLVD	INTERMODAL CONNECTOR	1	6	11	NO
NOR	HAMPTON BLVD	INTERMODAL CONNECTOR	ADM TAUSSIG BLVD	0.92	6	11	NO
NOR	LITTLE CREEK RD	GRANBY ST	I-64	0.35	4	11	NO
NOR	LITTLE CREEK RD	I-64	TIDEWATER DR	0.77	6	11	NO
NOR	LITTLE CREEK RD	TIDEWATER DR	SEWELLS POINT RD	0.18	4	11	NO
NOR	LITTLE CREEK RD	SEWELLS POINT RD	CHESAPEAKE BLVD	0.53	4	11	NO
NOR	LITTLE CREEK RD	MILITARY HWY	AZALEA GARDEN RD	1.54	4	11	NO
NOR	LITTLE CREEK RD	AZALEA GARDEN RD	SHORE DR	1.1	4	10	NO
NOR	VA BEACH BLVD	MONTICELLO AVE	CHURCH ST	0.45	4	10	YES
NOR	VA BEACH BLVD	CHURCH ST	TIDEWATER DR	0.3	4	10	YES
PORT	CEDAR LN	WESTERN FREEWAY	S PERIMETER RD	0.93	2	11	NO
PORT	ELM AVE	VICTORY BLVD	BURTONS POINT RD	0.3	4	10	NO
PORT	VICTORY BLVD	I-264	GREENWOOD DR	0.55	4	10	NO
PORT	VICTORY BLVD	GEORGE WASHINGTON HWY	AFTON PKWY	1.24	4	11	NO
PORT	VICTORY BLVD	AFTON PKWY	ELM AVE	0.57	4	11	NO
SH	ROUTE 58	BUS RTE 58 W	CAMP PKWY (BUS RTE 58 E)	2.5	4	11	YES
SH	ROUTE 460	SUSSEX CL	WCL IVOR	3.72	4	10	YES
SH	ROUTE 460	WCL IVOR	ROUTE 616 (IVOR RD)	0.56	4	10	YES
SH	ROUTE 460	ROUTE 616 (IVOR RD)	ECL IVOR	0.73	4	10	YES
SH	ROUTE 460	ECL IVOR	ISLE OF WIGHT CL	3.59	4	10	YES

Source: VDOT and Google Maps.

Table 6 – Roadways Serving the Military with Lane Widths below 12 Feet (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	2009 LANES	AVG LANE WIDTH	STRAHNET ROUTE?
SUF	CONSTANCE RD	MAIN ST	WILROY RD	0.88	4	11	YES
SUF	MAIN ST	WASHINGTON ST	CONSTANCE RD	0.67	4	10	YES
SUF	PORTSMOUTH BLVD	WILROY RD	WASHINGTON ST	1.59	4	11	YES
SUF	PORTSMOUTH BLVD	WASHINGTON ST	SUFFOLK BYPASS	1.04	4	11	YES
SUF	PRUDEN BLVD	ISLE OF WIGHT CL	LAKE PRINCE DR	3.08	4	10	YES
SUF	PRUDEN BLVD	LAKE PRINCE DR	KINGS FORK RD	0.58	4	10	YES
SUF	PRUDEN BLVD	KINGS FORK RD	SUFFOLK BYPASS	1.47	4	10	YES
VB	BIRDNECK RD	GENERAL BOOTH BLVD	NORFOLK AVE	2.29	2	11	NO
VB	DIAMOND SPRINGS RD	NORTHAMPTON BLVD	SHORE DR	1.32	4	10	NO
VB	HARPERS RD	DAM NECK RD	OCEANA BLVD	2.44	2	10	NO
VB	LONDON BRIDGE RD	SHIPPS CORNER RD/DRAKESMILE RD	INTERNATIONAL PKWY	1.34	4	11	NO
VB	LONDON BRIDGE RD	INTERNATIONAL PKWY	POTTERS RD	2.08	4	11	NO
VB	LONDON BRIDGE RD	POTTERS RD	I-264	0.31	6	11	NO
VB	OCEANA BLVD	GENERAL BOOTH BLVD	HARPERS RD/S.E. PARKWAY	0.63	4	11	NO
VB	OCEANA BLVD	HARPERS RD/S.E. PARKWAY	TOMCAT BLVD (NAS MAIN ENT)	0.39	4	11	NO
VB	OCEANA BLVD/FIRST COLONIAL RD	TOMCAT BLVD (NAS MAIN ENT)	VA BEACH BLVD	3.11	4	11	YES
VB	SHORE DRIVE	NORFOLK CL	DIAMOND SPRINGS RD	0.21	4	11	NO
VB	SHORE DRIVE	GREAT NECK RD	ATLANTIC AVE	4.61	4	11	YES
YC	BALLARD ST	COOK RD	COAST GUARD TRAINING CENTER	1.32	2	10	NO
YC	COOK RD	GEORGE WASHINGTON HWY	GOOSLEY RD	2.09	2	11	NO
YC	COOK RD	GOOSLEY RD	BALLARD ST	0.25	2	11	NO
YC	GEORGE WASHINGTON HWY	NEWPORT NEWS CL	VICTORY BLVD (RTE 171)	1.2	4	11	NO
YC	GEORGE WASHINGTON HWY	VICTORY BLVD (RTE 171)	HAMPTON HWY (RTE 134)	0.64	4	11	NO
YC	GEORGE WASHINGTON HWY	HAMPTON HWY (RTE 134)	DARE RD	2.37	4	11	NO
YC	GEORGE WASHINGTON HWY	DARE RD	DENBIGH BLVD (RTE 173)	1.08	4	11	NO
YC	GEORGE WASHINGTON HWY	DENBIGH BLVD (RTE 173)	FORT EUSTIS BLVD (RTE 105)	1.38	4	11	NO
YC	GEORGE WASHINGTON HWY	FORT EUSTIS BLVD (RTE 105)	COOK RD	0.59	4	11	NO
YC	GEORGE WASHINGTON HWY	COOK RD	GOOSLEY RD (RTE 238)	2.52	4	11	NO
YC	GEORGE WASHINGTON HWY	GOOSLEY RD (RTE 238)	GLOUCESTER CL (COLEMAN BRIDGE)	1.06	4	11	NO
YC	GOOSLEY RD	OLD WILLIAMSBURG RD	CRAWFORD RD	0.89	2	11	NO
YC	GOOSLEY RD	CRAWFORD RD	ROUTE 17	0.3	2	11	NO
YC	GOOSLEY RD	ROUTE 17	COOK RD	0.52	2	11	NO
YC	ROUTE 143	ROUTE 132	I-64	0.6	4	11	NO

Source: VDOT and Google Maps.

Recommendations

- Widen all roadways with average lane widths below 12 feet to a minimum of 12 feet on all "Roadways Serving the Military in Hampton Roads" in order to accommodate military vehicles (See **Table 6**). Give priority for widening lanes to deficient STRAHNET roadways:
    - Lasalle Avenue from Armistead Avenue to Mercury Boulevard in Hampton
    - Route 460/Pruden Boulevard from Sussex County line to Suffolk Bypass in Suffolk
    - Hampton Boulevard from Brambleton Avenue to 21st Street in Norfolk
    - Virginia Beach Boulevard from Monticello Avenue to Tidewater Drive in Norfolk
    - Route 58 from Business Route 58 West to Camp Parkway (Business Route 58 East) in Southampton County
    - Constance Road from Main Street to Wilroy Road in Suffolk
    - Main Street from Washington Street to Constance Road in Suffolk
    - Portsmouth Boulevard from Wilroy Road to Suffolk Bypass in Suffolk
    - Oceana Boulevard/First Colonial Road from Tomcat Boulevard (NAS Main Entrance) to Virginia Beach Boulevard in Virginia Beach
    - Shore Drive from Great Neck Road to Atlantic Avenue in Virginia Beach

OTHER DEFICIENCIES

It is important to not only address deficiencies, but to also take a proactive approach before problems arise. Some additional deficiencies that could impede military travel are high vehicle crash locations, poor pavement condition, or improper drainage. At the initial scoping meeting for this study, local U.S. Navy representatives identified some locations within the City of Norfolk that have recently been prone to flooding:

- Naval Station Norfolk (NSN) Gate 5
- Granby Street culvert
- Norfolk Southern underpasses near NSN

It is recommended that the Virginia Department of Transportation (VDOT) and local jurisdictions identify and address such deficiencies in the "Roadways Serving the Military in Hampton Roads."

Chapter 5: Identification of Transportation Projects that Benefit the Military

As discussed in Chapter 1, several military representatives in Hampton Roads have suggested that transportation congestion hinders mission performance and efficiency. Timely implementation of transportation improvements therefore will not only benefit the general public, but will also strengthen the military's ability to move personnel and goods throughout the region.

HRTPO staff reviewed the FY 2012-2015 Hampton Roads Transportation Improvement Program (TIP)[37], the 2034 Long-Range Transportation Plan (LRTP), and the list of 155 candidate regional transportation projects prioritized as part of the development of the 2034 LRTP, and identified all projects and studies that are beneficial to the military. This chapter identifies programmed and planned transportation projects that currently have identified funds as well as candidate projects without identified funding. The primary criteria used to identify transportation projects beneficial to the military was to include any project, such as a roadway widening, interchange improvement, or bridge replacement, located on the "Roadways Serving the Military in Hampton Roads" from Chapter 3 of this report. Other non-highway transportation projects, such as Intelligent Transportation System (ITS) and operational upgrades, public transit, and Transportation Demand Management (TDM) programs that may yield benefits to military travel have also been included.

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) PROJECTS

The TIP is a multi-year program for the implementation of surface transportation projects within the Hampton Roads Metropolitan Planning Area (MPA). The TIP is developed by the HRTPO in cooperation with state transportation agencies and local public transportation operators and contains all federally-funded and/or regionally-significant projects that require an action by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA). The TIP must be financially-constrained, i.e. the amount of funding programmed does not exceed the amount of funding reasonably expected to be available. Before any federally-funded or regionally-significant surface transportation project can be built in the MPA, it must be included in the current TIP approved by the HRTPO Board.

Table 7 on pages 51-52 shows the individual projects from the current TIP (FY 12-15) that may benefit travel to and from military and supporting sites in Hampton Roads. The current Federal transportation act, the *Safe, Accountable, Flexible, and Efficient Transportation Equity Act: a Legacy for Users* (SAFETEA-LU) allows for certain projects that are not considered to be of appropriate scale for individual identification to be grouped by function, work type, and/or geographic area for accounting purposes. **Table 8** on pages 53-55 shows the beneficial projects from these groups.

[37] Hampton Roads Transportation Improvement Program (TIP FY 2012-2015), HRTPO, June 2011.

Table 7 – FY 12-15 Transportation Improvement Program (TIP) Individual Projects that Benefit the Military*

UPC	Project	Description	Locality	System	Scope	Cost Estimate
99037	Hampton Roads Bridge-Tunnel Corridor Study	Environmental Impact Statement for I-64 from I-664 in Hampton to I-564 in Norfolk	Hampton Roads	Interstate	Studies Only	$5,000,000
98814	Hampton Roads Bridge-Tunnel PPTA	PPTA project development and management	Hampton Roads	Interstate	Studies Only	$10,000
97175	I-264 Downtown Tunnel PPTA	PPTA project development and management	Hampton Roads	Interstate	R/W or Eng	$25,400,000
97724	I-64 Safety Improvements	Purchase of Fatal Crash Total Team Station	Hampton Roads	Interstate	Safety/Traffic Opers/TSM	$30,000
99587	Patriots Crossing Corridor Study	Study of the Patriots Crossing portion of the Third Crossing from I-664 at the MMMBT to I-564	Hampton Roads	Interstate	Studies Only	$500,000
93077	I-64 Bridge Replacement - Denbigh Boulevard	Replacement of Denbigh Blvd bridge over I-64 and CSX railroad	Newport News	Interstate	Bridge Replacement	$30,333,981
57313	I-64 Widening	Widen I-64 from 4 to 8 lanes from the east Route 143 interchange (Exit #255) to the west Route 143 interchange	Newport News	Interstate	Major Widening	$419,665,387
18968	I-564 Construction - Intermodal Connector	Construct Intermodal Connector from I-564 to the Norfolk Naval Base/Norfolk International Terminal	Norfolk	Interstate	New Construction	$170,335,747
17824	I-64 Interchange Improvements - Norview Avenue	Improve Norview Ave interchange from 0.3 mi west of Norview Ave to 0.2 mi east of Norview Ave	Norfolk	Interstate	Minor Widening	$7,902,687
17630	I-264 Interchange Improvements - I-64 & Witchduck Road	Improve I-64 and Witchduck Rd interchanges from 0.4 mi east of westbound I-64 to 0.5 mi east of Witchduck Rd	Virginia Beach	Interstate	Major Widening	$172,548,500
95554	I-264/London Bridge Road Interchange Improvements	Interchange improvements and new ramps to London Bridge Rd from 0.3 mi east of Lynnhaven Pkwy to 0.2 mi south of I-	Virginia Beach	Interstate	New Construction	$12,815,287
19005	I-264/Lynnhaven Parkway Interchange Improvements - Phase II	Surface treatment of Lynnhaven Pkwy interchange	Virginia Beach	Interstate	Resurfacing	$119,175,685
97537	I-64 Maintenance	Resurfacing of westbound I-64 in York County	York County	Interstate	Resurfacing	$1,620,000
92212	I-64 Corridor Study - Environmental	I-64 Corridor Environmental Study from Richmond to Hampton Roads	Statewide	Miscellaneous	Studies Only	$3,000,000
89231	I-64 Corridor Study - Revenues	I-64 Revenue Study	Statewide	Miscellaneous	Studies Only	$4,683,634
56187	Dominion Boulevard Bridge Replacement - Steel Bridge	Replace the bridge over the southern branch of the Elizabeth River and widen to 4 lanes from Cedar Rd (Route 165) to Great Bridge Blvd	Chesapeake	Primary	Bridge Replacement	$392,855,034
98806	Route 17 Signal System Improvements	Signal coordination along Route 17 from the Coleman Bridge to the Gloucester Court House area	Gloucester County	Primary	Safety/Traffic Opers/TSM	$2,200,000
13497/ 92992	Fort Eustis Boulevard Widening	Construct parallel lanes westbound from 0.4 mi east of Route 143 to Route 17	Hampton Roads	Primary	Major Widening	$22,881,518
70621	Hampton Roads Signal System Improvements	Primary districtwide signals	Hampton Roads	Primary	Safety/Traffic Opers/TSM	$588,272
50651	HOV Marketing & Analysis	TDM Marketing, Expressbus Service, Carpooling, etc.	Hampton Roads	Primary	Environmentally Related	$5,035,000
76642	Midtown Tunnel	PPTA project development and management	Hampton Roads	Primary	R/W or Eng	$227,993,965
95149	Midtown Tunnel - PPTA	PPTA for the Midtown Tunnel, MLK Extension, and Downtown Tunnel	Hampton Roads	Primary	New Construction	$451,550,000
95050	US 58 Lane Reversal Plan		Hampton Roads	Primary	Safety/Traffic Opers/TSM	$600,000
56638	Route 460 Corridor Study	Location and environmental study for Route 460 from the Suffolk Bypass to I-295	Statewide	Primary	Studies Only	$7,094,390
84272	Route 460 PPTA	PPTA project development and management from Route 58 to I-295	Statewide	Primary	New Construction	$1,735,012,000
97737	Shore Drive Bridge Replacement - Lesner Bridge	Replacement of the Lesner Bridge	Virginia Beach	Primary	Bridge Replacement	$96,622,926
60843	Route 17 Widening	Widen Route 17 from 4 to 6 lanes from 1.3 mi south to 1.5 mi north of Lakeside Dr (Route 620)	York County	Primary	Major Widening	$56,348,970
HRT0073	Conventional Passenger Rail Service (Richmond to Norfolk)	Daily roundtrip rail service along existing Norfolk Southern and CSX tracks.	DRPT	Public Transportation	Transit	$100,200,000
T1824	Facility Upgrades - Southside Bus Facility	Replacement of the Hampton Roads Transit Southside Bus Facility	HRT - DRPT	Public Transportation	Transit	$1,800,000
T9092	HRT Facility Upgrades		HRT - DRPT	Public Transportation	Transit	$3,500,000
T4184	Miscellaneous Transit - Feeder Buses	Norfolk Light Rail Transit - Operating Assistance	HRT - DRPT	Public Transportation	Transit	$10,500,000
T9091	Signing and Pavement Marking Improvements	Systemwide bus stop sign program	HRT - DRPT	Public Transportation	Transit	$1,900,000
T9090	Transit Improvements	Ferry fare collection equipment	HRT - DRPT	Public Transportation	Transit	$1,500,000
T9110	Chesapeake Transit Improvements	Installation of Hampton Roads Transit bus shelters	HRT - DRPT	Public Transportation	Transit	$150,000
T9093	Light Rail Transit Study	Study of extending light rail to Norfolk Naval Station and Virginia Beach Oceanfront	HRT - DRPT	Public Transportation	Transit	$5,000,000

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Source: HRTPO TIP FY 2012-2015.

Table 7 – FY 12-15 Transportation Improvement Program (TIP) Individual Projects that Benefit the Military* (continued)

UPC	Project	Description	Locality	System	Scope	Cost Estimate
T9125	Miscellaneous Transit - Light Rail Transit	Environmental Management Systems	HRT - DRPT	Public Transportation	Environmentally Related	$600,000
T9131	Newport News Transit Construction - Phases II - IV	Citywide bus shelter program - Phases II - IV	HRT - DRPT	Public Transportation	Transit	$632,400
T1822	Norfolk Light Rail Transit Construction	Construction of the 8 mi, 11 station Norfolk Light Rail	HRT - DRPT	Public Transportation	Transit	$4,906,807
T1823	TRAFFIX Program	Regional TDM Program	HRT - DRPT	Public Transportation	Transit	$5,989,806
T9123	Transit Improvements	Feeder bus service for the Norfolk Light Rail	HRT - DRPT	Public Transportation	Transit	$3,600,000
T9126	Transit Vehicles - Replacement Buses	Purchase 38 (40') replacement buses	HRT - DRPT	Public Transportation	Transit	$14,600,000
T9145	Virginia Beach Transit Improvements - Bus Shelter Program	Virginia Beach Bus Shelter Program	HRT - DRPT	Public Transportation	Transit	$100,000
T9108	Virginia Beach Transit Study	Study of extending light rail to Virginia Beach	HRT - DRPT	Public Transportation	Transit	$6,240,959
T9097	Newport News AMTRAK Facility Upgrades	Relocation of Newport News AMTRAK station	Newport News	Public Transportation	Transit	$2,000,000
T4211	Downtown Portsmouth Transit Service Increases - Phase II	Downtown Portsmouth shuttle service	Portsmouth	Public Transportation	Transit	$395,500
98815	Godwin Boulevard Transit Improvements	Construction of a park and ride lot near the interchange of Route 58 and Godwin Blvd	Suffolk	Public Transportation	Transit	$400,000
T9148	Transit Vehicles - Bus	Replacement of 12 buses	WATA - DRPT	Public Transportation	Transit	$6,103,000
T9149	Transit Vehicles - Trolley	Trolley Replacement	WATA - DRPT	Public Transportation	Transit	$315,000
76682	I-64 Interchange Improvements - LaSalle Avenue	Ramp modification at the I-64/LaSalle Ave Interchange	Hampton	Urban	New Construction	$400,000
97715	Wythe Creek Road Widening	Widen to 4 lanes from Commander Shepard Blvd to the Poquoson city line	Hampton	Urban	Minor Widening	$4,800,000
52350	Newport News Signal System Improvements	Upgrade signal systems at 225 intersections in Newport News	Newport News	Urban	Safety/Traffic Opers/TSM	$14,486,271
98830	Newport News Signal System Improvements	Citywide signal system retiming	Newport News	Urban	Safety/Traffic Opers/TSM	$500,000
14672	Hampton Boulevard Reconstruction	Reconstruct Hampton Blvd from Rogers Ave to B Ave	Norfolk	Urban	Reconstruction	$88,717,571
84243	Military Highway Interchange Improvements - Phase I	Improvements to the interchange of I-64 with Robin Hood Rd and Military Hwy from 0.3 mi north of Northampton Blvd to	Norfolk	Urban	Major Widening	$21,164,241
90101	Norfolk Light Rail Transit Construction	Debt reimbursement for Norfolk Light Rail Transit	Norfolk	Urban	R/W or Eng	$40,000,000
97721	Norfolk Signal System Improvements	Citywide signal system retiming at 287 signalized intersections	Norfolk	Urban	Safety/Traffic Opers/TSM	$500,000
97722	Norfolk Signal System Improvements	Citywide traffic signal cabinet upgrade at 65 signalized intersections	Norfolk	Urban	Safety/Traffic Opers/TSM	$300,000
99107	Norfolk Signal System Improvements	Modify existing Norfolk ATMS at 304 locations	Norfolk	Urban	Safety/Traffic Opers/TSM	$120,000
99108	Norfolk Signal System Improvements	Modify and expand City of Norfolk ATMS at 28 locations	Norfolk	Urban	New Construction	$300,000
98828	Norfolk Signal System Improvements - Phase IV	Phase IV of ATMS improvements	Norfolk	Urban	Safety/Traffic Opers/TSM	$4,500,000
97725	Frederick Boulevard Environmental Improvements	Construct 2 stormwater management facilities at I-264	Portsmouth	Urban	Maintenance	$500,000
98827	Portsmouth Signal System Improvements - Phase I	Citywide signal timing	Portsmouth	Urban	Safety/Traffic Opers/TSM	$120,000
98826	Portsmouth Signal System Improvements - Phase II	Citywide signal timing	Portsmouth	Urban	Safety/Traffic Opers/TSM	$112,000
98825	Portsmouth Signal System Improvements - Phase III	Citywide signal timing	Portsmouth	Urban	Safety/Traffic Opers/TSM	$120,000
98824	Portsmouth Signal System Improvements - Phase IV	Citywide signal timing	Portsmouth	Urban	Safety/Traffic Opers/TSM	$132,000
81559	Western Freeway Environmental Improvements	Construct sound walls on Route 164 at Maersk interchange	Portsmouth	Urban	New Construction	$1,700,000
95983	Virginia Beach Intelligent Transportation System Improvements	Dynamic message sign & system detectors	Virginia Beach	Urban	Safety/Traffic Opers/TSM	$2,649,999
77277	Virginia Beach Signal System Improvements - Phase II	Citywide signal system upgrade	Virginia Beach	Urban	Safety/Traffic Opers/TSM	$8,980,504

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Source: HRTPO TIP FY 2012-2015.

Table 8 – FY 12-15 Transportation Improvement Program (TIP) Projects in Project Groups that Benefit the Military*

UPC	Project	Description	Locality	System	Cost Estimate
Construction: Bridge Rehabilitation/Replacement/Reconstruction					
97591	I-64 Norfolk VA	I-64 EBL - Norfolk Bridge Project at 13th View St	Norfolk	Interstate	$5,536,449
80480	Cathodic Bridge Protections	Veterans Memorial Bridge and Berkley Bridge	Norfolk	Miscellaneous	$588,203
55039	Route 17 Bridge Replacement	Replace bridge over Fox Mill Run	Gloucester County	Primary	$3,955,100
94433	ARRA - Norview Avenue Bridge Rehabilitation	Norview Avenue between Azalea Garden Road and the Norfolk International Airport Entrance	Norfolk	Urban	$913,629
Construction: Rail					
96880	Route 17 Railroad Crossing Improvements	Install concrete railroad crossing surface and approve approaches at the CSX crossing south of Ft. Eustis Blvd (#224-157B)	York County	Primary	$295,000
58428	George Washington Highway Railroad Crossing Improvements	Install rubber rail seal and asphalt at the Norfolk Southern crossing south of Victory Blvd (#467-706P)	Chesapeake	Urban	$50,090
14952	Warwick Boulevard Railroad Crossing Improvements	Install cantilever flashing lights at the CSX crossing north of Ft. Eustis Blvd (#224-170P)	Newport News	Urban	$107,222
93027	Main Street Railroad Crossing Improvements	Interconnect traffic signals with railroad preemption at the CSX crossing south of Prentis St (#623-790E)	Suffolk	Urban	$140,000
Construction: Recreational Trails					
92201	Elizabeth River Trail - Phase IV	Construct the trail from the Larchmont Library/Greenway to Community Gardens	Norfolk	Enhancement	$180,000
Construction: Safety/ITS/Operational Improvements					
52305	I-264 Roadway Maintenance	Surface repair and rehabilitation of roadway from .2 miles west of Witchduck Rd to Parks Ave	Virginia Beach	Interstate	$16,587,617
62854	I-64 Variable Message Signs	Installation of variable message signs from I-464 to Route 17	Chesapeake	Interstate	$1,631,525
92557	ARRA - I-64 Roadway Maintenance	Patching, overlay, and guardrail upgrades	Chesapeake	Interstate	$15,627,101
71598	I-64 Tunnel Maintenance	Lighting and electrical upgrades to the Hampton Roads Bridge-Tunnel	Hampton Roads	Interstate	$10,456,417
98454	I-664 Guardrail Upgrades	Install and upgrade median cable guardrail	Chesapeake	Interstate	$1,240,568
90963	High Speed Video Access	Provide high speed video access for Eastern Region 1st responders	Virginia Beach	Interstate	$200,000
18190	Smart Travel Center Upgrades	Software/hardware development & integration at the Smart Travel Center	Hampton Roads	Miscellaneous	$15,000,000
81392	Districtwide Roadway Safety Assessment		Hampton Roads	Miscellaneous	$753,713
92553	ARRA - Roadway Resurfacing in James City County	Resurface Route 60, I-64, Route 143, and Route 321	James City County	Miscellaneous	$5,891,228
98580	ARRA-C - Roadway Resurfacing in James City County	Resurface Route 60, I-64, Route 143, and Route 321	James City County	Miscellaneous	$1,108,909
56934	Route 17 Widening	Widen Route 17 and install raised concrete median from .666 miles to 1.330 miles north of the York County Line	Gloucester County	Primary	$15,961,223
84478	Route 17 Crossover Improvements	Improve access management from Gloucester Point to Gloucester Courthouse area	Gloucester County	Primary	$193,450
80382	Coleman Bridge Tolling Improvements	Install electronic toll collection & violations enforcement system on the Route 17 Coleman Bridge	York County	Primary	$486,000
94127	Route 143 Signal Improvements	Rebuild existing traffic signal at the intersection of Route 143 and Route 132	York County	Primary	$150,000
86614	City of Chesapeake Safety Improvements	HSIP Proactive Safety Projects	Chesapeake	Urban	$0
52151	Mount Pleasant Road Intersection Improvements	Install left turn lane on Mt. Pleasant Rd at the intersection with Fentress Airfield Rd	Chesapeake	Urban	$2,539,040
84359	Mount Pleasant Road Widening	Widen Mt. Pleasant Rd to 4 lanes from the Chesapeake Expressway to Etheridge Rd	Chesapeake	Urban	$1,537,745
72798	Chesapeake Expressway Interchange Improvements	Intersection and ramp improvements at the intersection of the Chesapeake Expressway and Hanbury Rd	Chesapeake	Urban	$1,700,000
86613	City of Hampton Safety Improvements	HSIP Proactive Safety Projects	Hampton	Urban	$0

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Source: HRTPO TIP FY 2012-2015.

Table 8 – FY 12-15 Transportation Improvement Program (TIP) Projects in Project Groups that Benefit the Military* (continued)

UPC	Project	Description	Locality	System	Cost Estimate
Construction: Safety/ITS/Operational Improvements (continued)					
97716	HRBT Traffic Signal Diversion Timings	Create traffic signal timing plan on City of Hampton streets for when traffic is diverted from the Hampton Roads Bridge-Tunnel	Hampton	Urban	$160,000
93611	Armistead Avenue Signal Optimization	Optimize signal timings at the intersection of Armistead Ave and LaSalle Ave	Hampton	Urban	$31,500
84364	City of Hampton CCTV Installation - Phase II	Add CCTV Cameras at 10 locations	Hampton	Urban	$500,000
97718	City of Hampton Traffic Signal Upgrade		Hampton	Urban	$1,500,000
93609	King's Street Signal Upgrade	Upgrade existing signal at the intersection of King's St and Thomrose/Old Fox Hill	Hampton	Urban	$170,265
93614	LaSalle Avenue Signal Upgrade	Upgrade existing signal at the intersection of LaSalle Ave and Tide Mill Ln	Hampton	Urban	$250,000
86678	Magruder Boulevard Intersection Improvements	Construct right-turn acceleration lane at the intersection of Magruder Blvd and Butler Farm Rd	Hampton	Urban	$118,325
97717	City of Hampton Traffic Signal System Retiming	Retime 10 arterial streets in the City of Hampton	Hampton	Urban	$392,000
73001	Newport News Dynamic Message Signs	ITS Portable Dynamic Message Displays	Newport News	Urban	$346,000
83436	Newport News Signal System Retiming	Citywide signal system retiming	Newport News	Urban	$450,000
86615	City of Newport News Safety Improvements	HSIP Proactive Safety Projects	Newport News	Urban	$0
94432	ARRA - Newport News Signal Retiming	Citywide signal system retiming	Newport News	Urban	$350,000
52346	Newport News ITS Improvements	Install a fiber link between the Traffic Operations Center and I-64 at Jefferson Ave	Newport News	Urban	$127,697
52353	Norfolk STC Operations Network		Norfolk	Urban	$746,280
79114	Norfolk Signal System Improvements - Phase III	Expansion of computerized signal system	Norfolk	Urban	$2,580,000
83395	Norfolk Signal System Retiming	Collection of data to complete retiming plan	Norfolk	Urban	$421,395
86616	City of Norfolk Safety Improvements	HSIP Proactive Safety Projects	Norfolk	Urban	$1,253,594
81442	Kempsville Road Signal Improvements	Replace signal lamps with LEDs and add pedestrian signal head at the intersection of Kempsville Rd and Chesapeake Blvd	Norfolk	Urban	$242,000
97720	Portsmouth Signal System Upgrade - Phases II, III, and IV		Portsmouth	Urban	$6,600,000
92750	Hampton Blvd Traffic Signal Improvements	Upgrade signals on Hampton Blvd from 43rd St to 49th St	Norfolk	Urban	$200,000
86491	Norview Avenue Traffic Signal Improvement	Upgrade existing traffic signal at the intersection of Norview Ave and Military Hwy	Norfolk	Urban	$876,283
86612	City of Portsmouth Safety Improvements	HSIP Proactive Safety Projects	Portsmouth	Urban	$0
94540	ARRA - Portsmouth Signal System Improvements		Portsmouth	Urban	$2,175,615
96038	Effingham Street Signal Improvements	Upgrade traffic signal at the intersection of Effingham St and High St	Portsmouth	Urban	$389,377
70564	Western Freeway Toll Reimbursement	Reimbursement of toll facilities revolving funds for projects UPC 11750	Portsmouth	Urban	$7,018,440
86610	City of Suffolk Safety Improvements	HSIP Proactive Safety Projects	Suffolk	Urban	$202,393
52373	Route 460 Signal System Retiming	Retime signals on Route 460 from Suffolk Plaza to Kings Fork Rd	Suffolk	Urban	$608,780
52370	Route 58 Business Signal System Retiming	Retime signals on Route 58 Business from Wilroy Rd to Suburban Dr	Suffolk	Urban	$281,820
52371	Route 58 Signal System Retiming	Retime signals on Route 58 from the Route 58 Bypass to Kenyon Rd	Suffolk	Urban	$363,560

These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.

Source: HRTPO TIP FY 2012-2015.

Table 8 – FY 12-15 Transportation Improvement Program (TIP) Projects in Project Groups that Benefit the Military* (continued)

UPC	Project	Description	Locality	System	Cost Estimate
Construction: Safety/ITS/Operational Improvements (continued)					
86617	City of Virginia Beach Safety Improvements	HSIP Proactive Safety Projects	Virginia Beach	Urban	$1,962,630
52355	Citywide Signal System Upgrade - Phase I	New addition for traffic management center to house equipment for 300+ signalized intersections	Virginia Beach	Urban	$6,825,000
82112	Virginia Beach ITS Improvements	ITS Citywide Signal System Upgrade	Virginia Beach	Urban	$603,107
87091	Virginia Beach Signal Retiming Project - Phase II		Virginia Beach	Urban	$599,800
97768	Virginia Beach Signal Retiming Project - Phase III		Virginia Beach	Urban	$1,276,000
90150	Dam Neck Road Signal Improvements	Install traffic signal with pedestrian phasing on Dam Neck Rd between Galvani Dr and Atlantic Shores Blvd	Virginia Beach	Urban	$348,563
84120	Virginia Beach Signal Retiming Project - Phase I		Virginia Beach	Urban	$600,500
Construction: Transportation Enhancement/Byway/Non-Traditional					
50041	Bus Shelter Installation	Construct and install bus shelters	Hampton Roads	Miscellaneous	$120,000
83437	Warwick Boulevard Sidewalk Widening	Widen the sidewalk on Warwick Blvd between J Clyde Morris Blvd to Lucas Creek	Newport News	Urban	$1,300,000
56430	Norfolk Multi-Use Path	Construct a pedestrian/bicycle path along the unused railroad right-of-way in the Atlantic City section of Southwest Norfolk	Norfolk	Urban	$1,356,250
68118	Elizabeth River Trail - Phase II		Norfolk	Urban	$230,000
73434	Elizabeth River Trail - Phase C503	Construct a 10-foot wide trail from Orapax St to Euclid Ave, improving sidewalks and ADA facilities	Norfolk	Urban	$110,000
Maintenance: Preventive Maintenance and System Preservation					
94428	ARRA - Chesapeake Resurfacing	Pavement resurfacing in Chesapeake	Chesapeake	Urban	$3,953,246
94430	ARRA - Route 143/60 Resurfacing	Pavement milling and resurfacing on Jefferson Ave and Warwick Blvd	Newport News	Urban	$3,161,216
94434	ARRA - Norfolk Repaving	Citywide repaving project	Norfolk	Urban	$4,938,594
94438	ARRA - Suffolk Repaving	Citywide repaving project	Suffolk	Urban	$2,267,304
Transit: Amenities					
T4196	Newport News Bus Shelters	Citywide bus shelter program	Newport News	Public Transportation	$235,237
Transit: Engineering					
T7547	Fixed Guideway Study	Study a fixed guideway system between Virginia Beach and Naval Station Norfolk	HRT - DRPT	Public Transportation	$1,500,000
Transit: Vehicles					
70282	HRT Bike Racks	Bike racks from HRT buses	HRT - DRPT	Miscellaneous	$400,000
70284	HRT Van Replacement		HRT - DRPT	Miscellaneous	$750,000
T4313	HRT Transit Buses	Purchase of 20 transit buses	Hampton Roads	Public Transportation	$5,016,000
T1825	HRT Replacement Buses	Purchase replacement buses	HRT - DRPT	Public Transportation	$1,920,000
93061	HRT Transit Buses	Purchas 13 40' coach style passenger buses	HRT - DRPT	Public Transportation	$4,590,000
T4189	TRAFFIX Vans	Purchase 15 vans for the TRAFFIX vanpool program	HRT - DRPT	Public Transportation	$600,000
T10047	ARRA-C GPS/AVL Tracking System	GPS/AVL tracking system for WAT	WAT - DRPT	Public Transportation	$350,000
T8480	GPS/AVL Tracking System	GPS/AVL tracking system for WAT	WAT - DRPT	Public Transportation	$130,140

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Source: HRTPO TIP FY 2012-2015.

Recommendations

- It is recommended that all projects that benefit the military as included in the FY12-15 TIP (from **Tables 7 and 8** on pages 51-55) be completed as scheduled.

2034 LONG-RANGE TRANSPORTATION PLAN (LRTP) PROJECTS

The 2034 LRTP serves as the blueprint for the region's transportation development, identifying needed programs and improvements to the transportation network and providing a long-term transportation investment strategy. The LRTP has at least a twenty year planning horizon, and is updated every four years to reflect changing socioeconomic conditions, shifting planning priorities, and evolving travel demand. The set of projects and studies within the LRTP must also be financially-constrained, i.e. the projects/studies must be able to be funded by the amount of funds that are reasonably expected to be available over the twenty-year timeframe of the LRTP. Before any regionally-significant surface transportation projects can be built in the MPA, it must first be included in the LRTP approved by the HRTPO Board.

In order to advance regional transportation priorities with scarce anticipated funding, the HRTPO developed a Project Prioritization Tool[38] to assist with prioritizing regional transportation investments. Utilizing the prioritization tool, the HRTPO analyzed 155 candidate regional transportation projects on their technical merits and regional benefits for inclusion in the 2034 LRTP. Using the scores produced by the Project Prioritization Tool, recommendations from the HRTPO Transportation Technical Advisory Committee, Governor McDonnell's omnibus transportation funding proposal (HB 2527/SB 1446), and stakeholder input (local, State, Federal, private sector, and public), the HRTPO Board approved a financially-constrained list of regional transportation projects and studies for the 2034 LRTP[39] on June 16, 2011.

Table 9 on page 57 shows the transportation projects from the 2034 LRTP that may benefit travel to and from military and supporting sites in Hampton Roads. **Table 10** on page 58 shows the funded (and underway) transportation studies for projects that may benefit the military from the 2034 LRTP.

[38] Hampton Roads Prioritization of Transportation Projects, HRTPO, December 2010.

[39] Hampton Roads 2034 Long-Range Transportation Plan: List of projects for air quality conformity analysis, HRTPO, As approved on June 16, 2011.

Table 9 – 2034 LRTP Projects that Benefit the Military*

Project	Description of Work	Locality	System	Cost Estimate (Millions)	Prioritization Score
I-64 between Jefferson Ave (exit 255) and Ft Eustis Blvd (exit 250)	Add capacity by widening from 2 lanes in each direction to 3 general purpose lanes and 1 HOV lane in each direction.	Newport News	Interstate	$260.0	178
Multimodal High-Speed and Intercity Passenger Rail Station Development	Closure of existing Amtrak station and construction of new Amtrak stations at Bland Boulevard and 3000s block of Warwick Boulevard (Downtown Newport News).	Newport News	Passenger Rail	$20.0	N/A
Harbor Park Multimodal High-Speed and Intercity Passenger Rail Station Development	Construction of new Amtrak station as part of Norfolk Harbor Park multimodal transportation hub.	Norfolk	Passenger Rail	$6.0	N/A
Route 17 (George Washington Hwy) (Dare Rd to Denbigh Blvd)	Widen from 4-lane divided arterial to a 6-lane divided arterial.	York County	Primary	$8.1	146
Route 17 (George Washington Hwy) (Hampton Hwy to Dare Rd)	*Widen from 4-lane divided arterial to a 6-lane divided arterial.*	York County	Primary	$56.7	202
Dominion Blvd (0.05 miles N. of Great Bridge Blvd to 0.75 miles S. of Cedar Rd)	*Widen from 2-lane undivided arterial to a 4-lane limited access highway, add urban interchanges at Great Bridge Blvd, Bainbridge Blvd, and Cedar Rd, replacing the Steel drawbridge into a fixed span bridge.*	Chesapeake	Primary (Bridges and Tunnels)	$337.1	221
Midtown Tunnel/MLK Extension/Downtown Tunnel	*Build new 2-lane tunnel, upgrade existing 2-lane tunnel, extend MLK Expressway from existing termini to I-264, and safety improvements at the Downtown Tunnel.*	Norfolk/ Portsmouth	Primary (Bridges and Tunnels)	$1,300.0	242
WATA Administrative Operations Center	Construction of a Transit Administrative Operations Center to replace leased facilities WATA currently using.	James City County	Public Transportation	$9.0	N/A
Craney Island Connector	Construction of two lane undivided arterial from VA-164 (Western Freeway) to Craney Island Marine Terminal (Future). Construction of an interchange at VA-164 for the new arterial.	Portsmouth	Urban	$460.0	189
Route 58 (Suffolk Bypass to 0.7 miles West of Manning Bridge Rd)	Widen from 4-lane divided arterial to a 6-lane divided arterial.	Suffolk	Urban	$75.0	180
Birdneck Rd (I-264 to Virginia Beach Blvd)	Widen from 4-lane divided arterial to a 6-lane divided arterial.	Virginia Beach	Urban	$21.1	59
Dam Neck Rd (Holland Rd to Drakesmile Rd)	Widen from 4-lane divided arterial to a 6-lane divided arterial.	Virginia Beach	Urban	$34.8	114
Dam Neck Rd (London Bridge Rd to Drakesmile Rd)	Widen from 4-lane divided arterial to a 6-lane divided arterial.	Virginia Beach	Urban	$48.9	109
General Booth Blvd (Oceana Blvd to Dam Neck Rd)	Widen from 6-lane divided arterial to a 8-lane divided arterial.	Virginia Beach	Urban	$37.4	86
Lesner Bridge	*Bridge Replacement of four-lane bridge, with incorporated future six-lane capacity.*	Virginia Beach	Urban	$84.9	173
London Bridge Rd (Dam Neck Rd to Shipps Corner Rd)	Widen from 2-lane undivided arterial to a 4-lane divided arterial.	Virginia Beach	Urban	$40.8	66
Shore Drive (Great Neck Rd to Page Ave)	Widen 4-lane divided roadway to 6-lane divided roadway.	Virginia Beach	Urban	$12.9	N/A
Shore Drive (Marlin Bay Dr to East Stratford Rd)	Widen 4-lane divided roadway to 6-lane divided roadway.	Virginia Beach	Urban	$14.8	N/A
Shore Drive (Pleasure House Rd to Treasure Island Dr)	Widen 4-lane divided roadway to 6-lane divided roadway.	Virginia Beach	Urban	$18.4	N/A
Route 460 (Suffolk Bypass to Zuni)	Build new 4-lane limited access tollway parallel to existing undivided arterial. VDOT is currently reviewing three PPTA proposals, with construction costs ranging from $1.5 Billion to $2.7 Billion.	Suffolk/Isle of Wight		$1,500 - 2,700	187

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Projects in italics are included as a candidate projects in Governor McDonnell's transportation funding proposal (HB 2527/SB 1446).

Source: Hampton Roads Transportation Project Priorities for the 2034 LRTP, Updated on June 16, 2011.

Table 10 – 2034 LRTP Studies that Benefit the Military*

Project	Description of Work	Locality	System	Project Cost Estimate (Millions)	Study Cost Estimate (Millions)	Prioritization Score
I-64 Northern Peninsula Widening between Fort Eustis Blvd (Exit 250) and VA-30 (Exit 227)	*Add capacity by widening from 2 lanes in each direction to 3 general purpose lanes and 1 HOV lane in each direction.*	Multi	Interstate	$1,700.0	$7.7	178
Patriots Crossing (I-64/I-564 to I-664 & VA-164)	New 4-lane multimodal E-W B/T Connector from I-664 to Norfolk, new 4-lane limited access Craney Island Connector from E-W B/T Connector to VA-164, new 4-lane limited access multimodal Intermodal Connector from I-564 to E-W B/T Connector, and widen I-564 from I-64 to future Intermodal Connector to 8-lanes.	Multi	Interstate (Bridges and Tunnels)	$2,931.6	$0.5	221
HRBT/I-64 (8-lane) (I-64/I-664 Coliseum Junction to I-64/I-564 Junction)	Per recent PPTA proposal submitted to VDOT, expand capacity across Hampton Roads from 4 lanes to 8 lanes.	Multi	Interstate (Bridges and Tunnels)	$3,500 - 4,500	$5.0	208
Southeastern Parkway and Greenbelt (I-264 to Chesapeake Expy)	Build new 4-lane limited access highway, providing east-west access to tourism destinations, and emergency evacuation as an alternative to congested I-264.	Multi	Primary	$2,500.0	$1.0	180
Richmond to Hampton Roads Passenger Rail Project	Enhancement work along the existing Peninsula intercity passenger rail corridor to improve service/reliability (79-mph, 3 daily roundtrips) and enhancement work along the Norfolk Southern rail line to bring higher speed passenger rail service (90-mph, 6 daily roundtrips) to the Southside.	Multi	Public Transportation	$785.0	$10.0	N/A
VB Fixed Guideway Transit Project (Norfolk CL @ LRT terminus to Virginia Beach Oceanfront)	Construction of Fixed Guideway system along alignment of abandoned Norfolk Southern (NS) Railroad. Access options from east end of NS railroad at Birdneck Road to the Oceanfront are being evaluated.	Virginia Beach	Public Transportation	N/A	$10.0	204
Air Terminal Interchange	Construction of new interchange on I-564 to provide alternate access to Norfolk Naval Air Station.	Norfolk	Interstate (Interchange)	$60.0	$3.6	150

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Projects in italics are included as a candidate projects in Governor McDonnell's transportation funding proposal (HB 2527/SB 1446).

Source: Hampton Roads Transportation Project Priorities for the 2034 LRTP, Updated on June 16, 2011.

Recommendations

- It is recommended that all projects and studies that benefit the military as included in the 2034 LRTP (from **Tables 9 and 10** on pages 57-58) be completed as scheduled.

UNFUNDED 2034 LRTP CANDIDATE PROJECTS

HRTPO staff reviewed the list of 155 candidate projects analyzed with the Project Prioritization Tool and identified all projects that benefit the military that do not currently have funds identified in the 2034 LRTP. **Table 11** on pages 59-60 shows the unfunded 2034 LRTP candidate projects that benefit the military. Projects are grouped by prioritization category (highway, highway interchange, bridge and tunnel, intermodal, and transit) and are sorted by prioritization score from the Project Prioritization Tool.

Table 11 – Unfunded 2034 LRTP Candidate Projects that Benefit the Military*

Project	Description of Work	Locality	System	Cost Estimate (Millions)	Prioritization Score
Highway Projects					
Southeastern Parkway and Greenbelt (I-264 to Chesapeake Expy)	Build new 4-lane limited access highway, providing east-west access to tourism destinations, and emergency evacuation as an alternative to congested I-264.	Multi	Primary	$2,500.0	180
I-64 Peninsula Widening between Route 199 (Exit 242) to Jefferson Ave (Exit 255)	Add capacity by widening from 2 lanes in each direction to 3 general purpose lanes and 1 HOV lane in each direction.	Multi	Interstate	$779.4	178
Mt. Pleasant Road, Phase 1 (Chesapeake Expy to Etheridge Rd)	Relieve congestion w/ 2 additional travel lanes & improve pedestrian accommodations	Chesapeake	Urban	$26.4	134
I-64 North Peninsula Widening between Route 199 (Exit 242) and New Kent County Line	Add capacity by widening from 2 lanes in each direction to 3 general purpose lanes and 1 HOV lane in each direction.	Multi	Interstate	$1,098.0	119
J. Clyde Morris Blvd (Route 17) (I-64 to York CL)	Provides interstate access on Route 17 from York County	Newport News	Urban	$80.0	114
Route 17 (G.W. Memorial Highway) (Denbigh Blvd to Fort Eustis Blvd)	Congestion Relief	York County	Primary	$17.2	109
Route 17 (G.W. Memorial Highway) (Newport News CL to Victory Blvd)	Congestion Relief	York County	Primary	$15.3	109
Route 17 (G.W. Memorial Highway) (Victory Blvd to Hampton Hwy)	Congestion Relief	York County	Primary	$12.4	108
Route 17 (G.W. Memorial Highway) (Fort Eustis Blvd to Coleman Bridge)	Congestion Relief	York County	Primary	$78.0	106
Mt. Pleasant Road, Phase 2 (Etheridge Rd to Centerville Tnpk)	Relieve congestion w/ 2 additional travel lanes & improve pedestrian accommodations	Chesapeake	Urban	$20.0	103
Route 17 (G.W. Memorial Highway) (1 mi North of Coleman Bridge to Main St)	Congestion Relief	Gloucester County	Primary	$89.2	102
Brambleton Ave (Midtown Tunnel to I-264)	Corridor improvements to improve travel flow, pedestrian safety and comfort and landscaping	Norfolk	Urban	$76.0	100
Hampton Blvd (21st St to 38th St)	Corridor improvements to improve travel flow, pedestrian safety and comfort and landscaping	Norfolk	Urban	$27.0	98
Little Creek Road (Tidewater Dr to Shore Dr)	Corridor improvements to improve travel flow, pedestrian safety and comfort and landscaping	Norfolk	Urban	$113.0	97
Dam Neck Road (Princess Anne Rd to Holland Rd)	Relieve congestion on parallel facilty	Virginia Beach	Urban	$60.0	90
Shore Drive (Norfolk CL to Diamond Springs Rd)	Relieve congestion on parallel facilty	Virginia Beach	Urban	$12.0	88
Route 17 (G.W. Memorial Highway) (Main St to Ark Rd)	Congestion Relief	Gloucester County	Primary	$34.6	75
General Booth Blvd (Birdneck Rd to Oceana Blvd)	Relieve congestion on parallel facilty	Virginia Beach	Urban	$71.0	67
Highway Interchange Projects					
I-264/Witchduck Interchange	Interchange improvement	Virginia Beach	Interstate	$172.5	192
I-264 EB Ramp from I-64 WB (Curlew Dr to Witchduck Rd)	Modify Interchange	Multi	Interstate	$97.3	179
I-264/Independence Blvd Interchange	Interchange improvement	Virginia Beach	Interstate	$250.0	168
I-64/464 Interchange (I-64 EB / Battlefield Blvd to I-464 NB)	Address Geometric Deficiencies with interchange. Add 1 mile lane extension from I-464 to Battlefield Blvd on I-64 EB.	Chesapeake	Interstate	$19.0	154
Air Terminal Interchange	Construction of new interchange on I-564 to provide alternate access to Norfolk Naval Air Station.	Norfolk	Interstate	$60.0	150
I-64 @ Ft. Eustis Blvd	Address Geometric Deficiencies with interchange	Newport News	Interstate	$134.0	149
I-264/Lynnhaven Interchange Phase II	Interchange improvement	Virginia Beach	Interstate	$140.2	145
I-64 Interchange @ Bland Blvd/Denbigh Blvd	Construct new interchange either at Bland Blvd or at Denbigh Blvd.	Newport News	Interstate	$128.9	141
I-64/City Line Interchange and Arterial (I-64 to Centerville Tnpk)	New Interchange and two lane access road	Multi	Interstate	$104.9	114
Chesapeake Expressway Interchange @ Mt. Pleasant Road	Add clover-leaf ramps for northbound 168 Bypass and eastbound and westbound clover-leaf ramps on Mt. Pleasant Road.	Chesapeake	Primary	$26.0	102
Northampton Blvd/Shore Dr Interchange	Improve Interchange	Virginia Beach	Urban	$33.0	99
I-64 @ Military Hwy (Military Hwy NB to I-64 EB)	New ramp from NB Military Hwy to EB I-64	Norfolk	Interstate	$29.0	80
I-664/Terminal Avenue Interchange (I-664 at Terminal Interchange to Jefferson Ave via 12th St)	Upgrade Terminal Avenue/I-664 interchange to provide direct access to 12th Street and Jefferson Avenue.	Newport News	Interstate	$18.0	65

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Source: Hampton Roads Regional Prioritization Tool – List of 2034 LRTP Candidate Projects.

Table 11 – Unfunded 2034 LRTP Candidate Projects that Benefit the Military* (continued)

Project	Description of Work	Locality	System	Cost Estimate (Millions)	Prioritization Score
Bridge and Tunnel Projects					
HRBT/I-64 (8-lane) (I-64/I-664 Coliseum Junction to I-64/I-564 Junction)	Expand capacity across Hampton Roads from 4 lanes to 8 lanes.	Multi	Interstate	$4,500.0	208
Third Crossing: Craney Island Connector and Eastern EW Tunnel Connector (VA-164 to I-564)		Multi	Interstate	$2,133.6	203
Third Crossing: Complete Implementation (Peninsula to Southside)		Multi	Interstate	$5,392.6	201
Third Crossing: East-West Bridge-Tunnel Connector & Craney Island Connector (I-564 to I-664 & VA-164)		Multi	Interstate	$2,931.6	190
Third Crossing: East-West Bridge-Tunnel Connector (I-564 to I-664)		Multi	Interstate	$2,185.0	187
Third Crossing: I-664 Widening (I-64/I-664 Coliseum Junction to I-664 Bowers Hill Junction)	Add capacity by widening on I-664 from Bowers Hill to I-64 on the Peninsula	Multi	Interstate	$2,461.6	179
MLK Freeway extension to I-464 (I-264 to I-464)	Most viable alternate for 3rd river crossing to supplement Midtown and Downtown tunnels and high rise bridge	Portsmouth	Primary	$883.0	176
HRBT/I-64 (6-lane) (Mallory St to I-64/I-564 Junction	Expand capacity across Hampton Roads from 4 lanes to 6 lanes.	Multi	Interstate	$3,500.0	171
Fort Eustis Blvd Bridge Replacements over Lee Hall Reservoir (Warwick Blvd to I-64)	Maintenance Bridge Replacement	Newport News	Urban	$6.0	166
I-64 Southside Widening (includes High-Rise Bridge replacement) (I-64/I-464 Junction to I-664 Bowers Hill Junction)		Chesapeake	Interstate	$1,080.0	160
Warwick Blvd Bridge Replacement over Lake Maury (Gatewood Rd to J. Clyde Morris Blvd)		Newport News	Urban	$6.5	135
Intermodal Projects					
Finney Ave Flyover (Pinner St to Route 13/337 E Washington St)	Provides grade separated crossing of existing railroad in core downtown area	Suffolk	Urban	$25.0	139
Hampton Blvd (Route 337) Interchange - Int'l Terminal Blvd Gate Improvement (Trouville Ave/Porter St to Hampton Blvd)		Norfolk	Urban	$203.6	115

Project	Locality	System	Capital Cost Estimate (Annualized in Millions)	Operating Cost Estimate (Annualized in Millions)	Prioritization Score
Transit Projects					
VB Fixed Guideway Transit Project (Norfolk CL @ LRT terminus to Virginia Beach Oceanfront)	Virginia Beach	Public Transportation	$54.2	$11.6	204
Naval Station Norfolk Fixed Guideway Transit Project (Newtown Rd to Naval Station Norfolk)	Norfolk	Public Transportation	$43.1	$28.0	187
Fast Ferry Service (Newport News to Naval Station Norfolk and Norfolk Waterside)	Newport News	Public Transportation	$1.2	$6.3	130
Peninsula Fixed Guideway Transit Project (A3 Alignment) (Christopher Newport University to Huntington Pointe)	Newport News	Public Transportation	$20.3	$11.9	113
Peninsula Fixed Guideway Transit Project (A1 Alignment) (Newport News City Hall to Denbigh Blvd)	Newport News	Public Transportation	$30.8	$10.0	111

***These projects are either on "Roadways Serving the Military" or they are non-highway transportation projects (i.e. ITS and operational upgrades, public transit, and travel management) that may yield benefits to military travel.**

Source: Hampton Roads Regional Prioritization Tool – List of 2034 LRTP Candidate Projects.

Recommendations

Based on stakeholder input and analysis from this study, the HRTPO staff recommends advancing the following projects (from **Table 11** on pages 59-60) as additional funding permits:

- I-64 Peninsula Widening between Route 199 (Exit 242) and Fort Eustis Boulevard (Exit 250)*
- I-64 Southside Widening (including High-Rise Bridge Replacement) from I-64/I-464 Junction to I-664 Bowers Hill Junction*
- I-264/Witchduck Road Interchange*
- I-264 Eastbound Ramp from I-64 Westbound (Curlew Drive to Witchduck Road)*
- I-64 at Fort Eustis Boulevard Interchange*
- Improved ability to cross Hampton Roads harbor – Hampton Roads Bridge Tunnel (HRBT) expansion, Patriots Crossing, or Third Crossing
- Air Terminal Interchange
- Virginia Beach Fixed Guideway Transit Project (Norfolk City Line at Light Rail Transit terminus to Virginia Beach Oceanfront)
- Naval Station Norfolk Fixed Guideway Transit Project (Newtown Road to Naval Station Norfolk)

**Included in 2034 LRTP: "Unfunded Projects Recommended for Future Consideration" (Approved by HRTPO on 3/17/11).*

Chapter 6:
Comparison of Travel Conditions with Other U.S. Military Regions

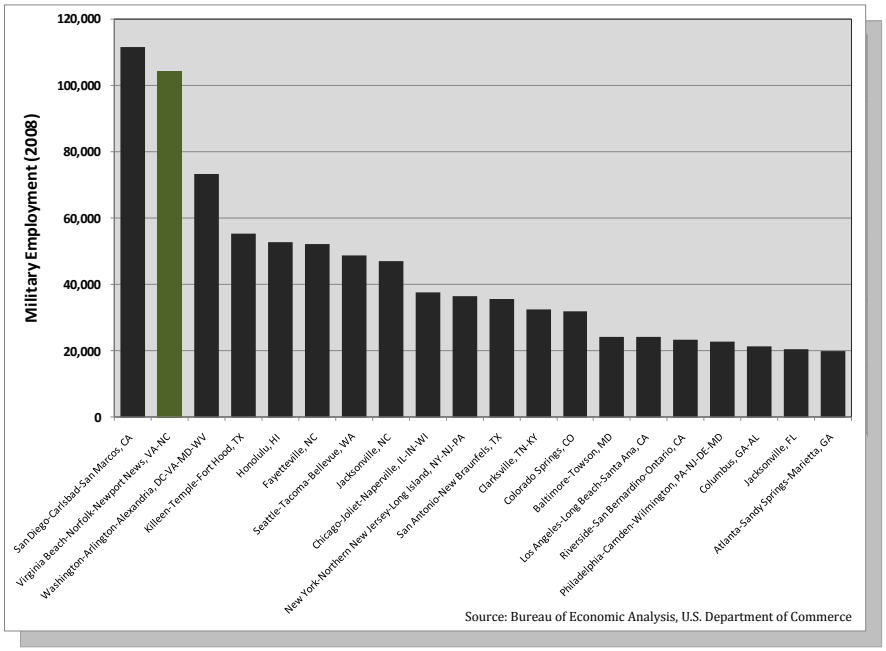
The purpose of this chapter is to provide a comparison of Hampton Roads with other U.S. metropolitan areas that have a high concentration of military sites using national travel performance metrics. In order to complete this analysis, data was assembled from a variety of public and private sources for the top twenty U.S. Metropolitan Statistical Areas (MSAs) by military employment (see **Figure 2 and Table 12** on page 63). There are 366 MSAs in the U.S. defined by the Office of Management and Budget and used by the Census Bureau and other government agencies for statistical purposes. According to 2008 Bureau of Economic Analysis data, Hampton Roads has the second highest concentration of military employment in the nation behind the San Diego, CA area. The Washington DC/Northern VA, Killeen-Temple-Fort Hood, TX, and Honolulu, HI MSAs round out the top five MSAs for military employment in the nation.

Of the top twenty military MSAs, Hampton Roads had the 8th highest *Peak Period Travel Time Tax* in 2010 (13%), meaning the average trip took about 13% longer than a trip during uncongested free-flow conditions (**Figure 3** on page 64). The peak travel period (as defined by Inrix, Inc.) is 6-10 am and 3-7 pm, Monday through Friday. According to Inrix, Hampton Roads had the 6th *Worst Time Travel Time Tax:* 42%, which occurred from 4:30 to 4:45 pm on Fridays. The *Worst Time Travel Time Tax* is calculated similarly to the *Peak Period Travel Time Tax*, but represents travel conditions during the worst 15-minute period throughout the week in each region.

According to the FHWA Highway Statistics Series, Hampton Roads ranks 5th highest out of the top 20 military employment MSAs with an average of 24 daily vehicle miles of travel per capita. According to the U.S. Census Bureau, of the top military regions, Hampton Roads had the 2nd highest percentage of commuters in 2009 that traveled alone (82.4%)[40] (**Figure 4** on page 64). The U.S. Census Bureau also found that the average travel time to work in Hampton Roads in 2009 was 23.2 minutes, which ranked 14th out of the top 20 MSAs (**Figure 5** on page 64).

According to the Texas Transportation Institute (TTI), the *Average Yearly Delay per Auto Commuter* in 2009 in Hampton Roads was 32 hours (ranked 10th among the top 20 MSAs). TTI defines *Yearly Delay per Auto Commuter* as the extra time spent traveling at congested speeds rather than free-flow speeds by drivers and passengers who travel in the peak periods (6-10 am and 3-7 pm, Monday through Friday). Hampton Roads also had the 8th highest *Travel Time Index* (1.19) among the top 20 military regions (**Figure 6** on page 64). The *Travel Time Index* is defined as the ratio of travel time in the peak period to travel time at free-flow conditions, which is similar to Inrix's Peak Period Travel Time Tax. For example, a value of 1.30 indicates that a 20-minute free flow trip would take 30% longer or 26 minutes in the peak period of travel.

Figure 2 – Top 20 U.S. Metro Areas by Military Employment, 2008



[40] This statistic shows the need to continue exploring transit and transportation demand management (TDM) strategies (i.e. carpool, vanpool, telecommute, etc.) in Hampton Roads, particularly for concentrated population/employment areas, such as military installations.

Table 12 – Travel Performance Measures for Top 20 U.S. Metro Areas by Military Employment

			INRIX Data[2] (2010)				Census/ACS Data[3] (2009)				TTI Data[4] (2009)				Highway Statistics Data[5] (2008)	
Rank	Metropolitan Statistical Area	Military Employment[1] (2008)	Peak Period Travel Time Tax	Rank	Worst Time Travel Time Tax	Rank	% Commuting Alone	Rank	Mean Travel Time to Work (min)	Rank	Yearly Delay (hr) Per Auto Commuter	Rank	Travel Time Index	Rank	Daily VMT Per Capita	Rank
1	San Diego-Carlsbad-San Marcos, CA	111,510	14.8%	7	36.0%	8	75.8%	10	23.9	13	37	9	1.18	9	23.0	7
2	Virginia Beach-Norfolk-Newport News, VA-NC	104,414	13.0%	8	42.0%	6	82.4%	2	23.2	14	32	10	1.19	8	24.0	5
3	Washington-Arlington-Alexandria, DC-VA-MD-WV	73,310	24.0%	3	51.0%	3	66.1%	18	33.4	2	70	1	1.30	2	22.6	9
4	Killeen-Temple-Fort Hood, TX	55,480	N/A	N/A	N/A	N/A	81.1%	3	19.1	20	N/A		N/A		16.1	18
5	Honolulu, HI	52,918	32.8%	2	76.0%	1	66.9%	17	27.1	10	31	11	1.18	10	20.5	14
6	Fayetteville, NC	52,248	N/A	N/A	N/A	N/A	81.1%	4	21.7	17	N/A		N/A		24.5	4
7	Seattle-Tacoma-Bellevue, WA	48,665	19.8%	5	48.0%	4	69.5%	16	27.4	9	44	6	1.24	5	22.0	11
8	Jacksonville, NC	47,186	N/A	N/A	N/A	N/A	59.9%	19	21.2	18	N/A		N/A		15.4	20
9	Chicago-Joliet-Naperville, IL-IN-WI	37,607	16.7%	6	41.0%	7	70.9%	15	30.7	3	70	2	1.25	4	19.1	16
10	New York-Northern New Jersey-Long Island, NY-NJ-PA	36,598	23.1%	4	47.0%	5	50.4%	20	34.6	1	42	7	1.27	3	16.0	19
11	San Antonio-New Braunfels, TX	35,569	6.5%	13	22.0%	14	79.3%	6	25.1	12	30	14	1.16	13	25.0	3
12	Clarksville, TN-KY	32,512	N/A	N/A	N/A	N/A	83.6%	1	22.4	15	N/A		N/A		18.3	17
13	Colorado Springs, CO	31,979	4.9%	14	29.0%	13	76.9%	8	22.3	16	31	12	1.12	14	20.7	13
14	Baltimore-Towson, MD	24,339	12.7%	9	36.0%	9	76.8%	9	29.7	6	50	4	1.17	11	24.0	6
15	Los Angeles-Long Beach-Santa Ana, CA	24,213	35.4%	1	71.0%	2	73.6%	12	27.9	8	63	3	1.38	1	22.0	10
16	Riverside-San Bernardino-Ontario, CA	23,524	11.0%	12	30.0%	11	74.5%	11	30.0	5	30	13	1.16	12	22.0	12
17	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	22,790	12.2%	10	29.0%	12	73.6%	13	28.0	7	39	8	1.19	7	20.0	15
18	Columbus, GA-AL	21,284	N/A	N/A	N/A	N/A	73.5%	14	20.0	19	N/A		N/A		22.8	8
19	Jacksonville, FL	20,462	2.8%	15	9.0%	15	79.7%	5	25.5	11	26	15	1.12	15	31.2	1
20	Atlanta-Sandy Springs-Marietta, GA	19,999	11.6%	11	34.0%	10	77.2%	7	30.1	4	44	5	1.22	6	27.9	2

Definition of Terms:

Peak Period Travel Time Tax – the percentage of extra travel time the average trip takes during the peak travel periods as compared to uncongested free flow conditions. For example, a Peak Period Travel Time Tax of 10% means an average of 10% additional trip time due to congestion. Inrix defines the peak travel period hours as 6-10 am and 3-7 pm, Monday through Friday.

Worst Time Travel Time Tax – calculated similar to the Peak Period Travel Time Tax, but represents travel conditions during the worst 15-minute period throughout the week in each region.

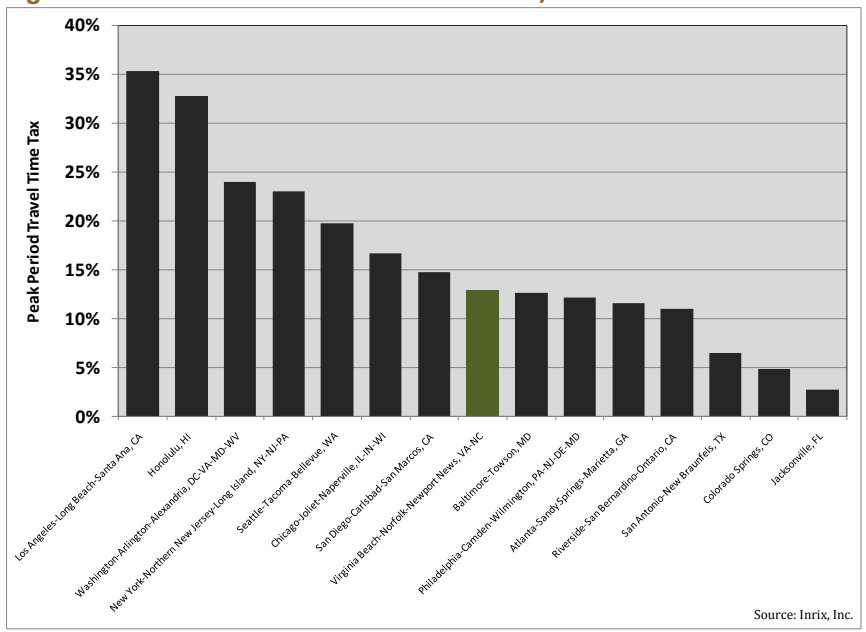
Yearly Delay Per Auto Commuter – the extra time spent (hours) traveling at congested speeds rather than free-flow speeds by drivers and passengers who travel in the peak periods (6-10 am and 3-7 pm, Monday through Friday).

Travel Time Index – defined as the ratio of travel time in the peak period (6-10 am and 3-7 pm, Monday through Friday) to travel time at free-flow conditions. This is very similar to Inrix's Peak Period Travel Time Tax. For example, a value of 1.30 indicates that a 20-minute free flow trip would take 30% longer or 26 minutes in the peak period of travel.

Daily VMT Per Capita – Average daily vehicle miles of travel per person.

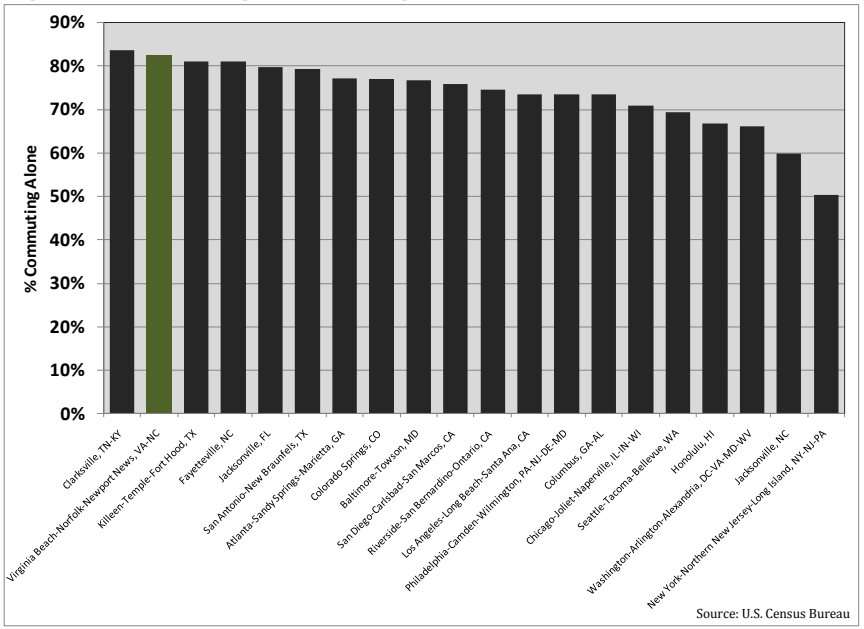
Data Sources:
1 - Bureau of Economic Analysis, U.S. Department of Commerce
2 - Inrix, Inc.
3 - U.S. Census Bureau
4 - Texas Transportation Institute
5 - FHWA Highway Statistics Series

Figure 3 – Inrix Peak Period Travel Time Tax, 2010



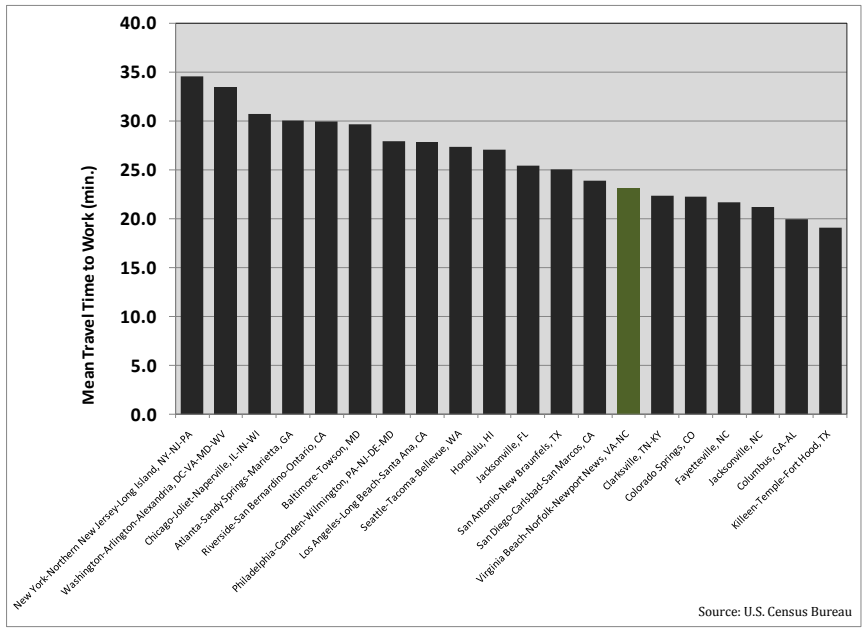
Source: Inrix, Inc.

Figure 4 – Percentage Commuting Alone, 2009



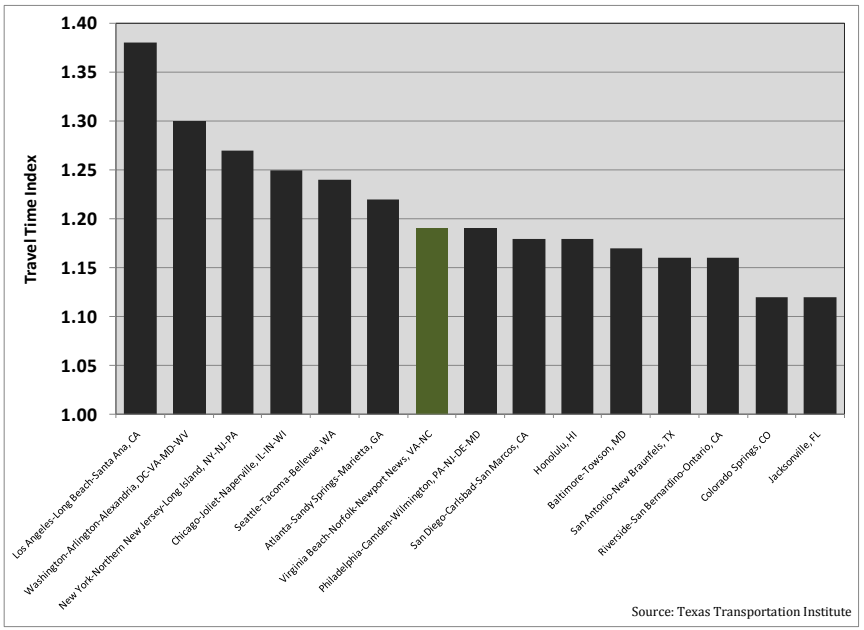
Source: U.S. Census Bureau

Figure 5 – Mean Travel Time to Work (Minutes), 2009



Source: U.S. Census Bureau

Figure 6 – TTI Travel Time Index, 2009



Source: Texas Transportation Institute

Chapter 7: Future Integration into the Planning Process

This chapter describes the current criteria and scoring used in the Congestion Management Process (CMP)[41] and the regional Long-Range Transportation Plan (LRTP) Project Prioritization Tool[42] and recommends changes to them based on the previously-developed "Roadways Serving the Military in Hampton Roads" (Chapter 3). Each of these planning processes already includes a military component, primarily based on the location of major military sites and Strategic Highway Network (STRAHNET) designations. This study, however, has expanded the number of military and supporting sites beyond those in STRAHNET and has developed a comprehensive list of "Roadways Serving the Military in Hampton Roads," including, and expanding on, those in STRAHNET. The HRTPO staff plans to incorporate these additional sites and roadways into future iterations of the CMP and the LRTP Project Prioritization Tool to assist decision makers in considering military needs as they select future transportation projects.

UPDATE CMP SEGMENT RANKING CRITERIA

As part of the 2010 Hampton Roads Congestion Management Process (CMP), a CMP Segment Ranking Criteria was developed to identify the most critical corridors in the region with severe congestion. This system was developed by HRTPO staff to assist regional planners, engineers, and decision makers determine the top congested freeway and arterial corridors in the region.

CMP Segment Ranking Criteria included a scoring system for five factors:

1) Existing Level of Service (10 point max.)
2) Freight (5 point max.)
3) Safety (5 point max.)
4) Travel Speeds (2 point max.)
5) National Highway System (NHS)/Strategic Highway Network (STRAHNET) (3 point max.)

If the roadway segment was part of the NHS, then it received 2 points. If the roadway segment was part of the STRAHNET, then it received 3 points. This study recommends that the CMP process be updated with the roadways identified within this study that serve the military.

Recommendations

- For CMP scoring, award 2 points to roadway segments that are part of the NHS or the Non-STRAHNET Roadways Serving the Military, which were identified within this study.
- For CMP scoring, award 3 points to roadway segments that are part of the STRAHNET.

UPDATE PROJECT PRIORITIZATION TOOL CRITERIA AND SCORING

As part of the Hampton Roads Long-Range Transportation Planning Process (LRTP), the HRTPO recently created a Project Prioritization Tool to score candidate transportation projects. This tool was developed to assist decision makers in selecting projects to be included in the 2034 LRTP, which is currently under development. The prioritization methodology evaluated projects based on three components: Project Utility, Project Viability, and Economic Vitality. The maximum score that a candidate project could receive was 300 points (100 points per component).

Within the Economic Vitality component for highways, highway interchanges, and bridges and tunnels, projects that increased access for defense installations received the maximum score (6 points) and 4 points were awarded to projects located on the STRAHNET. From the HRTPO Program Priorities Methodology

[41] Hampton Roads Congestion Management Process: 2010 Update, HRTPO, September 2010.
[42] Hampton Roads Prioritization of Transportation Projects, HRTPO, December 2010.

Report[43], the following definition is provided for "Increases Access for Defense Installations":

> Increases Access for Defense Installations: Defense installations are determined as TAZs that touch upon major military bases in the region. A project increases access to defense installations if it significantly reduces travel time for trips that end in those TAZs[44].

Within the Economic Vitality component for public transit projects, a maximum of 10 points (¼ mile or less = 10 points, between ¼ mile and ½ mile = 5 points, greater than ½ mile = 0 points) were awarded to projects that provided or improved access for defense installations. From the HRTPO Program Priorities Methodology Report, the following definition is provided for "Provides or Improves Access for Defense Installations":

> Provides or Improves Access for Defense Installations: This subcriterion awards points to transit projects that pass within ¼ or ½ mile of a major defense installation[45].

HRTPO Staff intends to apply the following changes to future iterations of the Project Prioritization Tool.

Recommendations

- Remove Fort Monroe from the Project Prioritization Tool as it is scheduled to be closed as a military facility in September 2011 pursuant to the recommendation of the 2005 Base Realignment Alignment Closure Commission (BRAC).
- Use the Military and Supporting Sites identified in Chapter 3 in future applications of the Project Prioritization Tool (reiterated in **Table 13** on page 67).
- Within the Economic Vitality component for highways, highway interchanges, and bridges and tunnels (Project Prioritization Tool), award 3 points to projects that are located on Non-STRAHNET "Roadways Serving the Military in Hampton Roads", which were identified within this study.

[43] HRTPO Program Priorities Methodology Report, HRTPO and Kimley-Horn and Associates, Inc., July 2010.
[44] Ibid.
[45] Ibid.

Table 13 – Military and Supporting Sites (to be used in the next application of the LRTP Project Prioritization Tool)

Military and Supporting Site	Jurisdiction	Included in the current LRTP Prioritization as Defense Installation?	Included in this Military Transportation Needs Study?
STRAHNET Site			
Fort Eustis	Newport News	Yes	Yes
Joint Expeditionary Base Little Creek - Fort Story (East)	Virginia Beach	Yes	Yes
Joint Expeditionary Base Little Creek - Fort Story (West)	Norfolk/ Virginia Beach	Yes	Yes
Langley Air Force Base	Hampton	Yes	Yes
Naval Air Station Oceana	Virginia Beach	Yes	Yes
Naval Supply Center Cheatham Annex	York County	Yes	Yes
Naval Weapons Station Yorktown	York County/ Newport News	Yes	Yes
Naval Station Norfolk (NSN)	Norfolk	Yes	Yes
Naval Support Activity Norfolk (NSA)	Norfolk	Yes	Yes
Norfolk Naval Shipyard	Portsmouth	Yes	Yes
Port of Virginia - Norfolk International Terminals*	Norfolk	No	Yes
Port of Virginia - Newport News Marine Terminal*	Newport News	No	Yes
Port of Virginia - Portsmouth Marine Terminal*	Portsmouth	No	Yes
Lambert's Point Docks*	Norfolk	No	Yes
Other Intermodal Facility			
Amtrak - Newport News*	Newport News	No	Yes
Chesapeake Intermodal - Norfolk Southern*	Chesapeake	No	Yes
Newport News/Williamsburg International Airport*	Newport News	No	Yes
Norfolk International Airport*	Norfolk	No	Yes
Williamsburg Transportation Center*	Williamsburg	No	Yes
Other Military Site			
Camp Peary	York County	Yes	Yes
Camp Pendleton - Military Reservation	Virginia Beach	Yes	Yes
Craney Island Fuel Terminal	Portsmouth	Yes	Yes
Lafayette River Annex - Naval Support Activity Norfolk*	Norfolk	No	Yes
NASA Langley Research Center*	Hampton	No	Yes
NAS Oceana Dam Neck Annex	Virginia Beach	Yes	Yes
Naval Auxiliary Landing Field Fentress*	Chesapeake	No	Yes
Naval Medical Center Portsmouth	Portsmouth	Yes	Yes
Naval Support Activity Northwest Annex	Chesapeake	Yes	Yes
Newport News Shipbuilding - Huntington Ingalls Industries*	Newport News	No	Yes
Saint Helena Annex - Norfolk Naval Shipyard*	Norfolk	No	Yes
St. Julien's Creek Annex - Norfolk Naval Shipyard*	Chesapeake	No	Yes
US Army Corps of Engineers - Norfolk District*	Norfolk	No	Yes
US Coast Guard - Atlantic Area and Fifth District (Portsmouth Federal Building)*	Portsmouth	No	Yes
US Coast Guard - Base Portsmouth	Portsmouth	Yes	Yes
US Coast Guard Training Center Yorktown*	York County	No	Yes
US Joint Forces Command - Suffolk Campus (USJFCOM)*	Suffolk	No	Yes
US Marine Corps Reserve Center*	Newport News	No	Yes
Yorktown Fuel Depot - Naval Weapons Station Yorktown*	York County	No	Yes

***Recommend adding these sites to LRTP Project Prioritization Tool**

Chapter 8: Conclusions and Summary of Recommendations

Hampton Roads is home to many U.S. military and supporting sites that are important to the defense and security of our nation. The total military population—including active duty, reserve, retirees and family members—totals approximately 300,000[46] or almost 20% of the area's total population of 1.6 million[47]. As a result of the area's large military presence, much of the local economy is driven by the U.S. Department of Defense (DoD). Defense readiness and efficient military operations require a sufficient transportation network so that cargo and personnel can be moved as quickly and safely as possible.

For this study, the HRTPO staff worked with various stakeholders—local military representatives, federal agencies, Virginia Department of Transportation (VDOT), Virginia Port Authority (VPA) and local jurisdictions—to determine transportation concerns and needs of the local military. Based on stakeholder input at the initial scoping meeting, HRTPO staff identified a roadway network that includes both the Strategic Highway Network (STRAHNET) and additional roadways that serve the military sites and intermodal facilities not included in the STRAHNET. Staff reviewed this "Roadways Serving the Military in Hampton Roads" network to determine deficient locations, such as congested segments, deficient bridges, and inadequate geometrics. Recommendations have been developed for these deficient locations and are reiterated in this chapter.

This study also identified the transportation projects in the region that may improve travel to and from military and supporting sites in Hampton Roads, both those with identified funds as well as those without identified funding. Based on stakeholder input and the analysis of deficient locations in this study, the HRTPO staff has recommended several transportation projects that may benefit military travel from the list candidate projects that were not funded in the 2034 LRTP[48].

Furthermore, the HRTPO staff plans to incorporate this work into future iterations of the Congestion Management Process (CMP)[49] and the regional Long-Range Transportation Plan (LRTP) Project Prioritization Tool[50] to assist decision makers as they select future transportation projects.

SUMMARY OF RECOMMENDATIONS

Based on the analysis presented in this report, the recommendations made in earlier chapters are reiterated below:

Proposed STRAHNET Changes

- Add Yorktown Road between I-64 and Jefferson Avenue as a STRAHNET Connector for Naval Weapons Station Yorktown. This recommendation will be forwarded to VDOT for submittal to FHWA through the official update procedures for STRAHNET changes at the conclusion of this study (page 24).
- Extend the current STRAHNET Connector for Naval Air Station (NAS) Oceana 3.5 miles to NAS Oceana Dam Neck Annex, including Oceana Boulevard from Tomcat Boulevard (NAS Oceana main entrance) to General Booth Boulevard, General Booth Boulevard from Oceana Boulevard to Dam Neck Road, and Dam Neck Road from General Booth Boulevard to NAS Oceana Dam Neck Fleet Combat Training Center entrance. This recommendation will be forwarded to VDOT for submittal to FHWA through the official update procedures for STRAHNET changes at the conclusion of this study (page 25).

[46] United States Joint Forces Command (USJFCOM), www.jfcom.mil, January 2011.
[47] Hampton Roads 2009 Socioeconomic Data.
[48] Hampton Roads 2034 Long-Range Transportation Plan: List of projects for air quality conformity analysis, HRTPO, As approved on June 16, 2011.
[49] Hampton Roads Congestion Management Process: 2010 Update, HRTPO, September 2010.
[50] Hampton Roads Prioritization of Transportation Projects, HRTPO, December 2010.

Maintenance of "Roadways Serving the Military"

- Conduct maintenance on all Interstates, arterials, collectors and bridges/tunnels that comprise the "Roadways Serving the Military in Hampton Roads" in order to preserve existing infrastructure and support military travel (page 19).

Update CMP Segment Ranking Criteria

- For CMP scoring, award 2 points to roadway segments that are part of the NHS or the Non-STRAHNET Roadways Serving the Military, which were identified within this study (page 65).
- For CMP scoring, award 3 points to roadway segments that are part of the STRAHNET (page 65).

Update Project Prioritization Tool Criteria and Scoring

- Remove Fort Monroe from the Project Prioritization Tool as it is scheduled to be closed as a military facility in September 2011 pursuant to the recommendation of the 2005 Base Realignment Alignment Closure Commission (BRAC) (page 66).
- Use the Military and Supporting Sites identified in Chapter 3 in future applications of the Project Prioritization Tool (**Table 13** on page 67).
- Within the Economic Vitality component for highways, highway interchanges, and bridges and tunnels (Project Prioritization Tool), award 3 points to projects that are located on Non-STRAHNET "Roadways Serving the Military in Hampton Roads", which were identified within this study (page 66).

Congested Roadways

- Evaluate, develop, and apply congestion mitigation strategies to all severely congested (Level of Service E or F) "Roadways Serving the Military in Hampton Roads" in the next the Hampton Road Congestion Management Process (CMP) update (page 29).
- When selecting projects for the Hampton Roads Transportation Improvement Program (TIP) and the Hampton Roads Long-Range Transportation Plan (LRTP), it is recommended that the HRTPO give priority to transportation projects that improve severe congestion on the "Roadways Serving the Military" network (page 29).
- Likewise, when selecting projects for VDOT's Six-Year Improvement Program (SYIP), it is recommended that the Commonwealth Transportation Board give priority to transportation projects that improve severe congestion on the "Roadways Serving the Military" network (page 30).

Deficient Bridges

- Rehabilitate or replace the following Structurally Deficient bridges that are located on "Roadways Serving the Military in Hampton Roads", have sufficiency ratings below 50, and do not currently have identified funding (page 38):
    - Victory Boulevard over Paradise Creek in Portsmouth (Federal ID: 21217)
    - Lasalle Avenue over Tide Mill Creek in Hampton (Federal ID: 20366)
    - I-264 over Lynnhaven Parkway in Virginia Beach (Federal ID: 22228)
- Closely monitor the remaining 7 Structurally Deficient bridges as well as the 133 Functionally Obsolete bridges. It is recommended that priority be given to these facilities for rehabilitation or replacement, if necessary (page 38).

Vertical Clearances below Military Preferences

- Use a minimum vertical clearance of 14 feet as tunnels are constructed or replaced at the following locations (page 44):
    - Chesapeake Bay Bridge-Tunnel (Federal ID: 12749)
    - Downtown Tunnel Eastbound under Southern Branch Elizabeth River in Norfolk (Federal ID: 20952)
    - Downtown Tunnel Westbound under Southern Branch Elizabeth River in Norfolk (Federal ID: 20951)
    - Hampton Roads Bridge-Tunnel Westbound tunnel under Hampton Roads in Hampton (Federal ID: 20354)
    - Midtown Tunnel under Elizabeth River in Norfolk (Federal ID: 20808)

- Use a minimum vertical clearance of 16 feet as Interstate bridge structures are constructed or replaced at the following locations (page 44):
    - I-64 over Lasalle Avenue in Hampton (Federal ID: 20326)
    - I-64 Eastbound over Ramp from Northampton Boulevard in Norfolk (Federal ID: 20852)
    - I-64 Westbound over Ramp from Northampton Boulevard in Norfolk (Federal ID: 20854)
    - I-64 Eastbound Ramp over Northampton Boulevard in Norfolk (Federal ID: 20856)
    - I-64 Eastbound over Northampton Boulevard in Norfolk (Federal ID: 20858)
    - I-64 Westbound over Northampton Boulevard in Norfolk (Federal ID: 20860)
    - Admiral Taussig Boulevard over I-564 Ramps in Norfolk (Federal ID: 21021)
    - I-564 Southbound over Granby Street in Norfolk (Federal ID: 21072)
    - Court Street over I-264 Westbound in Portsmouth (Federal ID: 21193)
    - I-264 Eastbound Ramp over Frederick Boulevard in Portsmouth (Federal ID: 21222)
    - I-264 over Frederick Boulevard in Portsmouth (Federal ID: 21229)
    - I-264 over Ramp from Frederick Boulevard in Portsmouth (Federal ID: 21235)
    - I-264 over Victory Boulevard in Portsmouth (Federal ID: 21237)
    - I-264 over Effingham Street in Portsmouth (Federal ID: 21240)
    - I-264 over London Bridge Road in Virginia Beach (Federal ID: 22232)
    - I-264 over Birdneck Road in Virginia Beach (Federal ID: 22243)

Lane Widths below Military Preferences

- Widen all roadways with average lane widths below 12 feet to a minimum of 12 feet on all "Roadways Serving the Military in Hampton Roads" in order to accommodate military vehicles. Give priority for widening lanes to deficient STRAHNET roadways (page 48):
    - Lasalle Avenue from Armistead Avenue to Mercury Boulevard in Hampton
    - Route 460/Pruden Boulevard from Sussex County line to Suffolk Bypass in Suffolk
    - Hampton Boulevard from Brambleton Avenue to 21st Street in Norfolk
    - Virginia Beach Boulevard from Monticello Avenue to Tidewater Drive in Norfolk
    - Route 58 from Business Route 58 West to Camp Parkway (Business Route 58 East) in Southampton County
    - Constance Road from Main Street to Wilroy Road in Suffolk
    - Main Street from Washington Street to Constance Road in Suffolk
    - Portsmouth Boulevard from Wilroy Road to Suffolk Bypass in Suffolk
    - Oceana Boulevard/First Colonial Road from Tomcat Boulevard (NAS Main Entrance) to Virginia Beach Boulevard in Virginia Beach
    - Shore Drive from Great Neck Road to Atlantic Avenue in Virginia Beach

Transportation Improvement Program (TIP FY12-15) Projects

- It is recommended that all projects that benefit the military as included in the FY12-15 TIP (from **Tables 7 and 8** on pages 51-55) be completed as scheduled.

2034 Long-Range Transportation Plan (LRTP) Projects

- It is recommended that all projects and studies that benefit the military as included in the 2034 LRTP (from **Tables 9 and 10** on pages 57-58) be completed as scheduled.

Recommended Candidate Projects not included in 2034 LRTP List of Funded Projects

Based on stakeholder input and analysis from this study, the HRTPO staff recommends advancing the following projects (from **Table 11** on pages 59-60) as additional funding permits (page 61):

- I-64 Peninsula Widening between Route 199 (Exit 242) and Fort Eustis Boulevard (Exit 250)*

- I-64 Southside Widening (including High-Rise Bridge Replacement) from I-64/I-464 Junction to I-664 Bowers Hill Junction*
- I-264/Witchduck Road Interchange*
- I-264 Eastbound Ramp from I-64 Westbound (Curlew Drive to Witchduck Road)*
- I-64 at Fort Eustis Boulevard Interchange*
- Improved ability to cross Hampton Roads harbor – Hampton Roads Bridge Tunnel (HRBT) expansion, Patriots Crossing, or Third Crossing
- Air Terminal Interchange
- Virginia Beach Fixed Guideway Transit Project (Norfolk City Line at Light Rail Transit terminus to Virginia Beach Oceanfront)
- Naval Station Norfolk Fixed Guideway Transit Project (Newtown Road to Naval Station Norfolk)

**Included in 2034 LRTP: "Unfunded Projects Recommended for Future Consideration" (Approved by HRTPO on 3/17/11).*

Public Transportation and Transportation Demand Management

- Implement high-speed and intercity passenger rail service connecting Hampton Roads to Petersburg (Fort Lee), Richmond, Washington, DC and beyond. Representatives from the U.S. Navy have stated that a high-speed rail connection would allow military servicemen and officials to conduct a full day's business in Washington, DC without remaining overnight (page 3).
- It is recommended that local military leaders and commands modify policies concerning work times and work location and solidify partnerships with Hampton Roads Transit (HRT), Williamsburg Area Transport (WAT), and other regional stakeholders to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing, and using public transit (page 30).

NEXT STEPS

During FY 2012, the HRTPO staff plans to work with local military officials to distribute a military personnel survey to determine transportation challenges and problems in Hampton Roads, particularly during daily commutes.

Public Comments

The Hampton Roads Military Transportation Needs Study was released for public comment from July 6, 2011 until August 1, 2011. All public comments and HRTPO staff responses are included in **Appendix G**.

Appendices

Comments by Rear Admiral Mark Boensel to HRTPO Board at its December 16, 2009 Meeting.

Regional Project Prioritization: Navy Perspective

Vice Chair Ward introduced Rear Admiral Mark Boensel from the U.S. Navy to give a presentation on the Navy's perspective of Regional Project Prioritization. Admiral Boensel is a Regional Commander and although his headquarters are in Norfolk, his responsibilities are very broad beyond Hampton Roads. He stated the Navy is a service that has a lot of hardware but behind that are people operating it, fixing it and maintaining it. There are active duty, reservists, civilians and contractors all working together to accomplish the Navy's mission. There are approximately 330,000 active duty, 108,000 reservists who are mobilized serving somewhere around the world, and approximately 195,000 civilian employees. There are 285 commissioned ships with 134 of those, almost 50 percent, currently deployed. There are approximately 25,000 people deployed in the two areas of war with 15,000 on the ground.

Admiral Boensel explained each base has a mayor and Captain Johnson is the mayor of Naval Station Norfolk. He is responsible for all aspects of supporting the people, families and forces at his station. He is responsible for everything from public works, fire departments, police, hotels, stores and restaurants. In addition, he is responsible for airports and port facilities.

Admiral Boensel's responsibilities run from Hampton Roads to the Canadian border. He has 17major installations, 33 Navy operational support centers and 119 congressional districts. Within the 14 states under his jurisdiction, there are Senators that are paying attention to what the Navy is doing. In most cases, the Navy is the largest employer in the area so what the Navy does is important in a lot of ways, not the least of which is economics. Within the 285 ships in the fleet, 120 of those are in Admiral Boensel's region. There are approximately 4,000 airplanes in his inventory. Many people live on the bases and they are not all Navy personnel. There are Army, Air Force, Coast Guard, NATO command and other federal agencies.

The Navy population is about 20 percent of the Hampton Roads population which is more than 250,000 people. Admiral Boensel stated his chain of command expects him to keep them out of harm's way during a storm or other natural disaster. He is very concerned about the transportation situation in Hampton Roads. More than 66,000 vehicles go through the gates of Naval Station Norfolk, which makes transportation a readiness and operational issue for the Navy. During a typical weekday, there are approximately 125,000 Navy personnel traveling to the bases. The Navy would like to make a consolidated and unified effort to improve transportation in Hampton Roads, but what Admiral Boensel cannot do is put one municipality's interests over another.

In order to meet the Navy's needs, there has to be compatibility with its operations. Safety and quality of life are very important. Privately Owned Vehicles (POV), accidents and incidents are briefed to the Fleet Commander every week. When individuals choose to stay in the Navy, a lot goes into that decision. If they do not feel as if they are being taken care of and they get tired of sitting on I-564 for a long time, for instance, they are going to start to think about other things to do and possibly other places to go, which is not good for Hampton Roads. There are a lot of servicemen and servicewoman that come to Hampton Roads from out of state and stay here, which is a big benefit to the region. They are skilled, educated, dedicated, dependable, reliable and very good citizens.

One of the issues the Navy has commented on and is currently working on is the new I-564 connector. They have also commented officially on the light rail expansion specifically with the interest to have it come to the Naval Station. Admiral Boensel stated Navy personnel are proud to be citizens of Hampton Roads and are willing to assist the TPO.

Source: HRTPO Minutes – December 16, 2009

Military Transportation Needs Agenda Item at HRTPO Retreat on February 10, 2010

AGENDA ITEM #1: MILITARY TRANSPORTATION NEEDS

SUBJECT:

The allocation or lack of allocation of transportation funding is a "projection" of the Commonwealth of Virginia's and Hampton Roads' value of the presence of the military in this community.

BACKGROUND:

During the December 16, 2009 meeting, Rear Admiral Mark S. Boensel, Navy Region Mid-Atlantic Commander, provided the HRTPO Board the U.S. Navy's perspective on regional project prioritization for the Hampton Roads region. With approximately 20% of the Hampton Roads population comprised of military personnel and 125,000 Navy personnel traveling to the bases during a typical weekday, Admiral Boensel expressed his concern regarding transportation congestion and the quality of life of his personnel in the region.

In order to meet the Navy's needs, Admiral Boensel advised there has to be compatibility with its operations. Safety and quality of life are very important. Furthermore, Admiral Boensel indicated that the U.S. Navy and Hampton Roads have much to gain from servicemen and servicewomen that choose to remain in the military and continue taking residence in Hampton Roads as they are considered to be skilled, educated, dedicated, dependable, reliable, and good citizens.

The HRTPO staff has arranged for Rear Admiral Miles B. "Ben" Wachendorf (former U.S. Joint Forces Command Chief of Staff), to provide brief remarks during the meeting. Also invited are Mr. Frank Roberts, Hampton Roads Military and Federal Facilities Alliance Executive Director, and Mr. Dana Dickens, Hampton Roads Partnership President and CEO, to brief the HRTPO Board on the issue of military presence and how the HRTPO planning priorities can complement carrying out the military's existing and future functions. In addition, written statements from retired Marine Corps Major General Jon Gallinetti (former Deputy Commander Marine Forces Command and U.S. Joint Forces Command Director of Training) and retired Rear Admiral Byron E. "Jake" Tobin (former Naval Base Commander), have been submitted to the HRTPO Board (Attachment 1).

Attachment 1

HRTPO STAFF COMMENTARY:

The HRTPO should proactively engage a strong long-term dialogue between the military, the HRTPO, and the Commonwealth of Virginia.

Source: HRTPO Retreat Agenda – February 10, 2010

Comments to HRTPO Board at its February 10, 2010 Retreat Meeting.

Military Transportation Needs

Mr. Farmer introduced Mr. Frank Roberts, Executive Director of the Hampton Roads Military and Federal Facilities Alliance (HRMFFA), to present the military's view regarding the lack of allocations in transportation funding in terms of its ability to carry out its functions, commands, and missions.

Mr. Roberts stated HRMFFA was a not-for-profit corporation that was created to represent the collective interests of the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, and the counties of Isle of Wight, James City, and York in matters related to protecting, sustaining, and growing military and federal capabilities in Hampton Roads. He noted that because Hampton Roads was home to so many military and federal activities, almost fifty cents of every dollar of economic activity was due to federal spending.

He indicated the 2005 base realignment and closure data revealed the Navy included two questions directly related to transportation, one regarding commute times and one pertaining to whether a military installation was served by regularly scheduled public transportation.

Mr. Roberts continued, affirming the remarks by Rear Admiral Mark Boensel from the December 16, 2009 HRTPO Board Meeting. He paraphrased Rear Admiral Boensel, stating transportation was a readiness issue and the Navy wanted to assist with the solutions in Hampton Roads; however, the Navy could not choose sides, but it would communicate impacts regarding safety and quality of life issues.

Mr. Roberts shared information attained by HRMFFA through a memo from General James N. Mattis, Commander of the U.S. Joint Forces Command (USJFCOM), to Senator Jim Webb. He stated the General must deal with a new issue, that of transportation in the Tidewater area, specifically the amount of time wasted by his troops travelling to and from work due to traffic congestion.

In conclusion, Mr. Roberts stated that just as physical encroachment outside the "fence line" around military and federal installations had the potential to negatively impact the mission performance inside the "fence line", failure to provide the best possible transportation infrastructure outside the "fence line" also endangered the preservation and growth of the military and federal capabilities so critical to the economy.

Mr. Roberts then introduced Retired Rear Admiral Ben Wachendorf, a member of the HRMFFA Board. RADM Wachendorf stated he recently retired from thirty eight years of active duty in the Navy and the last three of those were as Chief of Staff of USJFCOM. He noted the demographics of the military had changed over the years and the quality of transportation requirements should change with it.

He concluded by stating there were several near-term opportunities that could bode well for the region and transportation infrastructure could possibly figure into the military's decisions regarding these prospects.
Mr. Farmer introduced Mr. Aubrey Layne of the Commonwealth Transportation Board (CTB).

Mr. Layne stated the military represented approximately 45% of the economic base in Hampton Roads. He noted the region's competitors could use the disadvantages of the Hampton Roads area to their advantage, not only targeting potential assets, but possible current assets. He planned to share this perspective with the State in the near future.

Mr. Dana Dickens, also with the CTB, remarked how the region reacted to project prioritization would be of great magnitude. He noted the Midtown Tunnel project, the I-564 Intermodal Connector, and the widening of I-64 on the Peninsula would be of importance to the military. He complimented the HRTPO Board Members regarding the cohesiveness that he has now seen within the HRTPO.

Mr. Farmer stated no action was required on this item, but HRTPO Staff wanted to make sure it was continually mindful of how the decisions made by the HRTPO could impact the military and its efforts to carry out its functions.

Source: HRTPO Retreat Minutes – February 10, 2010

Written Statement by Major Jon Gallinetti to HRTPO Board at its February 10, 2010 Retreat Meeting.

STATEMENT OF

MAJOR GENERAL JON GALLINETTI

U.S. MARINE CORPS (Retired)

I am submitting this written statement in lieu of appearing before the Board due to business that precludes my presence.

My comments are provided from the perspective of my last two positions on active duty before retiring in **2007** and in my capacity as a member of the Hampton Roads Military and Federal Facilities Alliance (HRMFFA) Flag Officers Group. My last two assignments were as the Deputy Commander Marine Forces Command, which is headquartered in Norfolk, and prior to that, as the **Commander, Joint Warfighting Center and the J7-Director of Joint Training for U.S. Joint Forces Command in Suffolk.**

Traffic congestion in Hampton Roads is unquestionably an impact to military activities in Hampton Roads – on two levels. First, and most importantly, numerous hours of unproductive time are accumulated every day by **Soldiers**, Sailors, Airmen, **M**arines, **C**oast **G**uardsmen, and support contractors whose business **requires them to leave their homes at an early hour to get to their places of work on time and then return to their homes each day at a respectable hour, as well as the requirement to depart their respective installation during the working day to transit to another installation on official business. Time in transit – particularly when amplified by delays at bridges, tunnels and severe traffic congestion delays– significantly detracts from mission performance effectiveness and efficiency.**

During my tenure as the **Commander, Joint Warfighting Center and the U.S. Joint Forces Command J7-Director of Training**, I operated from the Joint Warfighting Center complex in Suffolk. The **JFCOM** Commander's headquarters were located in Norfolk at the Naval Support Activity, approximately 12 miles road distance separated from the Warfighting Center **in Suffolk.** Because of congestion and natural slowdowns at the Midtown Tunnel, the one-way transit could easily take 45 minutes. Thus an hour and a half out of the working day was not unusual when meetings at the headquarters were planned, **which were common place.**

The second impact of intra-regional traffic issues **is** quality of life – both for **service members** and **their** dependents. **When service members** and their families **are routinely** impacted by traffic challenges such as are found here in Hampton Roads they are less likely to seek to spend additional tours of duty in **this** location or consider this area for retirement.

I urge the Transportation Planning Organization Board to do all in their power to proactively and aggressively address the myriad of intra-regional transportation issues as a necessary step in creating the most positive environment **possible** in which to retain **service members and their dependents, as well as grow both current and future capabilities.**

Page 4 Attachment 1

Source: HRTPO Retreat Agenda – February 10, 2010

Written Statement by Rear Admiral Byron E. Tobin to HRTPO Board at its February 10, 2010 Retreat Meeting.

STATEMENT OF

REAR ADMIRAL BYRON E. "JAKE" TOBIN

U.S. NAVY (Retired)

Impact of Transportation Challenges

On the Military in the

Hampton Roads Region

I am the former Commander, Naval Base Norfolk, whose responsibilities included oversight of the many Naval facilities throughout the Hampton Roads Region. My wife and I settled here in 1996 upon the completion of 36 years of Active Duty service, and have been active in civic and community affairs ever since.

I don't need to bore this group with statistics, or describe in detail the impact of Defense and other Federal dollars upon our local economy. Nor do I need to tell you about the dedication of our military members, their families, the civil servants who support their efforts, the Defense contractors who produce and maintain the equipment that they employ, or the significant contribution to our region made by our military and federal retired community. Simply put, Hampton Roads is home to the largest contingent of military and national security facilities in the United States, and we are dependent, in large measure, upon the resources and support of this region for the efficient and successful conduct of our mission. One of the key components of that success is mobility, and my observation is that our mobility is impeded because our transportation infrastructure is in decline and is struggling to meet our needs.

- Consider the twice-daily traffic jams at the Midtown, Downtown, and Hampton Roads Bridge tunnels, and at other strategic locations throughout the region.

- Consider the closing of the Jordan Bridge due to structural failure.

- Consider the delayed construction of the I-564 interconnector serving both the Naval Base and the International Terminal and the failure to fund the Third Crossing.

- Consider our inability to maintain existing roadways.

- Consider our ability to evacuate in times of local or national emergency.

- Consider our ability to respond to crisis.

- Consider also the savings that would accrue to our Military, to our defense contractors, to our Coast Guard and Homeland Security officials, to our resident NATO officers, and

Page 5 Attachment 1

Source: HRTPO Retreat Agenda – February 10, 2010

Written Statement by Rear Admiral Byron E. Tobin to HRTPO Board at its February 10, 2010 Retreat Meeting (continued).

to our business community if they were able to conduct a full day's business in Richmond or Washington without remaining overnight, thanks to the availability of high speed rail service.

Our region has been behind the power curve in the planning, funding, and construction of transportation infrastructure for many years. We can, and should, do better. Understanding that the competition for scarce dollars is high, I urge the HRTPO to step up and provide the rationale, planning, and justification necessary for improved transportation infrastructure in Hampton Roads. I urge our legislators in Richmond and Washington to fight to bring those plans to fruition. In doing so, you would serve not only our Military, but also our entire community in the years to come. We are all in this together, and we will all benefit from the success of your efforts.

Page 6 Attachment 1

Source: HRTPO Retreat Agenda – February 10, 2010

Letter from U.S. Navy Commanding Officer in Hampton Roads to VDOT Regarding Transportation Projects that will Impact the Military

DEPARTMENT OF THE NAVY
NAVAL STATION NORFOLK
1530 GILBERT STREET, SUITE 2000
NORFOLK, VIRGINIA 23511-2722

IN REPLY REFER TO:
4640
Ser 00/0017
January 18, 2011

Mr. Tom Fahrney
VDOT Commonwealth BRAC Coordinator
Virginia Department of Transportation
4975 Alliance Drive
Fairfax, VA 22030

Dear Mr. Fahrney:

SUBJECT: TRANSPORTATION FUNDING

On behalf of Installation Commanding Officers in the Hampton Roads Area, and Commander, Navy Region, Mid-Atlantic, I would like to thank you for your December 29, 2010 letter, and the opportunity to comment on transportation projects that will enhance access to Navy facilities in this area.

As the Navy's appointed liaison officer to the Hampton Roads Transportation Planning Organization (HRTPO), I am aware of the challenges of developing a prioritization process that results in a Long Range Transportation Plan that best serves the needs of all Virginia citizens. While overall transportation priorities must be determined by the Virginia Department of Transportation (VDOT) and the Commonwealth Transportation Board (CTB), we are pleased that the relative military value of individual projects is considered.

Navy leadership in Hampton Roads is on record stating that public transportation systems are a military readiness issue. To that end, we will continue to encourage local, State, and regional efforts to identify solutions that reduce congestion for military commuters, increase capacity for access to and from Hampton Roads, and enhance safety and quality of life for the 100,000+ military, civilian, and contract personnel that support the Navy mission in the Hampton Roads Fleet concentration area.

Among transportation projects that we believe will accomplish these goals are the I-564 Intermodal Connector, with Air Terminal Interchange; light rail, including the extension to Naval Station, Norfolk; and improved Harbor crossing, whether Hampton Roads Bridge Tunnel (HRBT) expansion or Third Crossing.

Source: SDDCTEA

Letter from U.S. Navy Commanding Officer in Hampton Roads to VDOT Regarding Transportation Projects that will Impact the Military (continued)

4640
N00/0017
January 18, 2011

For many years, we have worked cooperatively with VDOT, the Virginia Port Authority, and the City of Norfolk on the I-564 Intermodal Connector and the Air Terminal Interchange, in accordance with Federal legislation authorizing us to do so (FY 2000 National Defense Authorization Act, Section 2858). While both are included in the current Six-Year Improvement Plan (SYIP), only the Intermodal Connector has been allocated funding; hopefully, both projects will be sufficiently funded in the updated SYIP so that progress may continue.

The light rail initiative is a means to reduce overall traffic congestion but, more specifically, the Norfolk extension to the Naval Station will reduce congestion and associated traffic hazards to and from the world's largest Naval Base.

Improved Harbor crossing capacity would significantly benefit our military mission, if designed so as to not interfere with Navy Port and Air Operations. To maintain operational readiness, military personnel residing on one side of the Harbor must be able to reach their duty stations on the other side, no matter when or where they are called to do so. Expanded ingress and egress between the Southside and Peninsula will also provide for fast and safe emergency evacuation when necessary.

In summary, as a large residential and economic component of the Hampton Roads Community, and prominent destination of area commuters, the Navy welcomes transportation projects that will enhance Base access and make this area more attractive to military personnel, without adversely impacting operational activities. We also want to remind you of the importance of maintaining those Hampton Roads Interstates, primary arterials and bridges that form part of the Strategic Highway Network (STRAHNET), which provide defense access and emergency capabilities for movements of personnel and equipment.

Sincerely,

M. M. JACKSON
Captain, U.S. Navy
Commanding Officer

Copy to:
CNRMA
FFC

2

Source: SDDCTEA

Letter from U.S. Coast Guard Captain in Hampton Roads to VDOT Regarding Transportation Projects that will Impact the Military

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Sector Hampton Roads

4000 Coast Guard Blvd.
Portsmouth, VA 23703
Staff Symbol: (s)
Phone: (757) 483-8565
Fax: (757) 295-2046

1000
5 January 2011

Mr. Tom Fahreny
VDOT Commonwealth BRAC Coordinator
4975 Alliance Drive
Fairfax, VA 22030

Re: Transportation Funding

Dear Tom:

Thank you for your letter and the opportunity to make recommendations for future transportation projects that would impact the U.S. Coast Guard here in Hampton Roads.

Last year, RADM Justice and I briefed Secretary Connaughton on transportation issues in the port. Both the Admiral and I had previously served in the region some 10-15 years earlier and were able to discuss first hand our observations on how transportation in the region had changed. This included the significant increase in population and congestion that had outpaced infrastructure investment making both quality of life and service efficiency anecdotally decline.

The Coast Guard, while small in numbers compared to our DOD counterparts, has the second highest concentration of our service personnel in the country based here in Hampton Roads. Our Atlantic, Fifth District, Sector and a major support base serving as homeport for numerous ships are all located in different locations within Portsmouth. We have roughly half of my Sector staff split between the base in Portsmouth and the Norfolk Federal Building. We also have the Atlantic's Logistics Support Command in downtown Norfolk, the Atlantic's Communications Command and Intelligence Command and the service's only "counter terror" unit based in southern Chesapeake. On the Peninsula, we have one of our largest training bases in Yorktown. We also have other smaller facilities throughout the region. Due to the senior command structure residing in Hampton Roads, we also frequently travel to and from our Service's Headquarters based in Washington, DC making the 64 corridor expansion important. Because we are geographically decentralized, our productivity is impacted significantly by traffic delays.

Coast Guard Personnel tend to return to this area throughout our careers, but not necessarily to the same unit. Many purchase homes during their first tour and then rent upon transfer, gambling on a return tour of duty and home appreciation. Upon return, often it is to a different work site. For example, personally, I have been stationed in Yorktown, the Portsmouth Federal Building and the base at Portsmouth. Between each of these assignments, I had an out of state tour. Each time I returned, my commute was to a different location which increased my commute time. I think this is somewhat unique to our service, but bears mentioning for your study.

The Coast Guard has also been directly involved with permitting bridge construction projects and modification of scheduled openings that have impacted both vehicular and maritime interest. At the end of the day, the region's bridges and tunnels are fragile and aging. In just the past year, we have seen firsthand how vulnerable they are to flooding, ship strikes, mechanical failures and vehicular accidents. We have yet to experience a major terrorist attack or storm that could easily cripple the region.

Source: SDDCTEA

Letter from U.S. Coast Guard Captain in Hampton Roads to VDOT Regarding Transportation Projects that will Impact the Military (continued)

1000
05 Jan 2011

From the Maritime Commerce perspective, with the Heartland Corridor opening last summer and the projected completion of the Panama Canal expansion in 2014, we will likely see a significant increase in container traffic in the port. The health and competitiveness of the port and associated industry will rely on getting cargo from a well positioned waterfront to external markets inland. The number one impediment is transportation congestion in our port cities. Additional cargo will put an even greater strain on already choked transportation arteries if aggressive infrastructure improvements aren't made. Therefore, looking at all these factors, the following seem to make the most sense in the future:

(1) Rapid approval and construction of the Patriot Crossing to alleviate port commerce and naval base traffic.
(2) Midtown and Downtown tunnel expansion and modernization – due to connectivity and volume.
(3) Expansion of 64 to Richmond
(4) Consider moving to HOV 3 vice 2 to parallel DC
(5) Create easy pass system as tolls hit
(6) Consider Military decals for HOV lanes for certain time windows.

(7) Long term: As the light rail system gets underway in Norfolk, the ultimate goal would be to expand spurs to connect to Portsmouth – (Naval Hospital/Downtown/APM/Craney Island/Portsmouth Naval Shipyard, Intelos), the Peninsula (Shipyard, FT Eustis, Williamsburg Amusement areas capitalizing on existing rail) Chesapeake (growing populations areas down to Hickory), and a western Spur out to the fast growing Suffolk/Isle of Wight area. The first step to consider would be a freight/passenger connection paralleling the new vehicular 3rd crossing.

Thank you for the opportunity to comment and we applaud your effort to improve Hampton Roads transportation woes.

Sincerely,

M.S. OGLE
Captain
U.S. Coast Guard

2

Source: SDDCTEA

Letter from U.S. Army Colonel in Hampton Roads to VDOT Regarding Transportation Projects that will Impact the Military

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FT MONROE
102 MCNAIR DRIVE
FORT MONROE VIRGINIA 23651-1047

REPLY TO ATTENTION OF
Office of the Garrison Commander

January 11, 2011

Mr. Tom Fahrney
Virginia Department of Transportation
Commonwealth BRAC Coordinator
4975 Alliance Drive
Fairfax, Virginia 22030

Dear Mr. Fahrney:

Traffic congestion, the Nation's stalled economy, high fuel costs as well as construction costs are critical components to the improvement and revamping of transportation movement in and around the Hampton Roads area.

Therefore, in responding to the Virginia Department of Transportation's (VDOT) request for input from Fort Monroe, we considered the dynamics of population density and the socio-economic demographics relative to commuter traffic in Hampton Roads and surrounding communities. In addition to initiatives already in place, we offer the following for consideration in your solicitation for suggestions to improve traffic congestion in the Hampton Roads area.

Although Fort Monroe will close in September of this year, it is clear that traffic movement will only "re-route" itself. Broadening I-64 lanes (eastbound and westbound) into Fort Eustis is highly recommended since a major component of the Army will permanently transfer to that installation. Ease of access to that post is essential to decreasing traffic backups and delays. Additionally, we recommend adding a lane in both directions inside the Hampton Roads Bridge Tunnel.

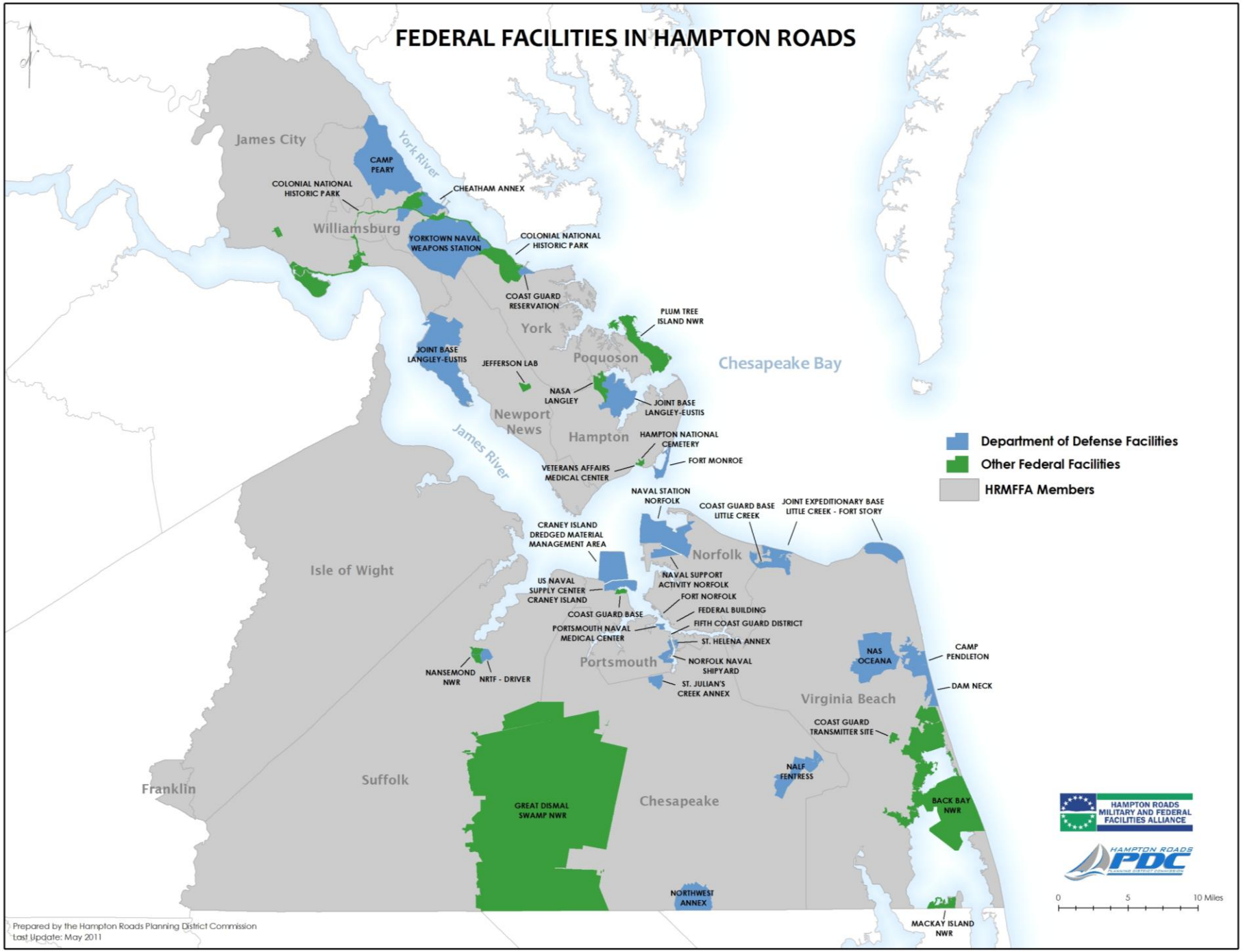
Finally, we believe that a metro system should be on the VDOT agenda for future traffic relief. The efficiency of the Washington, D.C. Metro System is well received by its travelers; and given the population upswing in this area, such a system that runs from Southside Hampton Roads to the National Capitol Region is another option to consider.

Thank you for the opportunity to participate in this survey.

Sincerely,

Anthony D. Reyes
Colonel, US Army
Commanding

Source: SDDCTEA


FEDERAL FACILITIES IN HAMPTON ROADS
James City
York River
CAMP PEARY
COLONIAL NATIONAL HISTORIC PARK
CHEATHAM ANNEX
Williamsburg
YORKTOWN NAVAL WEAPONS STATION
COLONIAL NATIONAL HISTORIC PARK
COAST GUARD RESERVATION
PLUM TREE ISLAND NWR
York
JOINT BASE LANGLEY-EUSTIS
JEFFERSON LAB
Poquoson
Chesapeake Bay
NASA LANGLEY
JOINT BASE LANGLEY-EUSTIS
Newport News
Hampton
HAMPTON NATIONAL CEMETERY
James River
VETERANS AFFAIRS MEDICAL CENTER
FORT MONROE
NAVAL STATION NORFOLK
COAST GUARD BASE LITTLE CREEK
JOINT EXPEDITIONARY BASE LITTLE CREEK - FORT STORY
CRANEY ISLAND DREDGED MATERIAL MANAGEMENT AREA
Norfolk
Isle of Wight
US NAVAL SUPPLY CENTER CRANEY ISLAND
NAVAL SUPPORT ACTIVITY NORFOLK
FORT NORFOLK
COAST GUARD BASE
FEDERAL BUILDING
FIFTH COAST GUARD DISTRICT
PORTSMOUTH NAVAL MEDICAL CENTER
ST. HELENA ANNEX
NAS OCEANA
CAMP PENDLETON
NANSEMOND NWR
NRTF - DRIVER
Portsmouth
NORFOLK NAVAL SHIPYARD
ST. JULIAN'S CREEK ANNEX
DAM NECK
Virginia Beach
COAST GUARD TRANSMITTER SITE
NALF FENTRESS
Franklin
Suffolk
GREAT DISMAL SWAMP NWR
Chesapeake
BACK BAY NWR
NORTHWEST ANNEX
MACKAY ISLAND NWR
Department of Defense Facilities
Other Federal Facilities
HRMFFA Members
HAMPTON ROADS MILITARY AND FEDERAL FACILITIES ALLIANCE
HAMPTON ROADS PDC
0
5
10 Miles
Prepared by the Hampton Roads Planning District Commission
Last Update: May 2011

Appendix D – Roadways Serving the Military in Hampton Roads – Interstates and Freeways/Expressways

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES (INCLUDES HOV LANES) ONE-WAY EXISTING	TWO-WAY EXISTING	COUNT YEAR	2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
CHES	I-64	CITY LINE RD/VA BEACH CL	GREENBRIER PKWY	EB	1.30	68,875	132,632	2007	4	D	YES
				WB		63,757		2010	4	A-C	YES
CHES	I-64	GREENBRIER PKWY	BATTLEFIELD BLVD	EB	1.42	62,857	128,219	2009	4	D	YES
				WB		65,362		2005	4	A-C	YES
CHES	I-64	BATTLEFIELD BLVD	I-464	EB	1.08	51,960	102,982	2008	4	A-C	YES
				WB		51,022		2008	4	A-C	YES
CHES	I-64	I-464	GEORGE WASHINGTON HWY	EB	4.38	42,327	85,174	2009	2	E	YES
				WB		42,847		2009	2	E	YES
CHES	I-64	GEORGE WASHINGTON HWY	MILITARY HWY	EB	1.53	39,096	78,486	2009	2	D	YES
				WB		39,390		2009	2	E	YES
CHES	I-64	MILITARY HWY	I-264&664	EB	2.31	39,623	77,216	2010	2	E	YES
				WB		37,593		2010	2	E	YES
CHES	I-264	I-64&664	WCL PORTSMOUTH	EB	1.23	28,920	58,141	2009	2	A-C	YES
				WB		29,221		2009	2	D	YES
CHES	I-464	I-64	MILITARY HWY	NB	1.00	30,266	56,899	2009	3	A-C	YES
				SB		26,633		2009	3	A-C	YES
CHES	I-464	MILITARY HWY	FREEMAN AVE	NB	0.97	26,982	50,487	2009	3	A-C	YES
				SB		23,505		2009	3	A-C	YES
CHES	I-464	FREEMAN AVE	POINDEXTER ST	NB	1.90	26,444	49,106	2010	3	A-C	YES
				SB		22,662		2010	3	A-C	YES
CHES	I-464	POINDEXTER ST	NORFOLK CL	NB	0.72	27,535	50,200	2009	2	A-C	YES
				SB		22,665		2009	2	A-C	YES
CHES	I-664	I-64 & I-264	ROUTES 13/58/460	EB	1.70	60,548	121,718	2009	4	A-C	YES
				WB		61,170		2009	4	A-C	YES
CHES	I-664	ROUTES 13/58/460	DOCK LANDING RD	EB	1.25	48,415	96,336	2009	2	E	YES
				WB		47,921		2009	2	E	YES
CHES	I-664	DOCK LANDING RD	PORTSMOUTH BLVD	EB	1.14	47,767	95,206	2009	2	E	YES
				WB		47,439		2009	2	D	YES
CHES	I-664	PORTSMOUTH BLVD	PUGHSVILLE RD	EB	2.06	45,295	90,031	2009	2	E	YES
				WB		44,736		2009	2	D	YES
CHES	I-664	PUGHSVILLE RD	SUFFOLK CL	EB	0.83	39,832	80,445	2008	3	A-C	YES
				WB		40,613		2008	3	A-C	YES
CHES	CHESAPEAKE EXPWY	GALLBUSH RD	BATTLEFIELD BLVD (NEAR INDIAN CREEK)	NB	2.61	5,333	10,665	2010	2	A-C	NO
				SB		5,332		2010	2	A-C	NO
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (NEAR INDIAN CREEK)	HILLCREST PKWY	NB	2.63	6,271	12,103	2006	2	A-C	NO
				SB		5,832		2006	2	A-C	NO
CHES	CHESAPEAKE EXPWY	HILLCREST PKWY	BATTLEFIELD BLVD (S OF GREAT BRIDGE)	NB	2.21	13,362	26,628	2006	2	A-C	NO
				SB		13,266		2006	2	A-C	NO
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (S OF GREAT BRIDGE)	HANBURY RD	NB	0.59	13,666	26,075	2008	2	A-C	NO
				SB		12,409		2008	2	A-C	NO
CHES	CHESAPEAKE EXPWY	HANBURY RD	MT PLEASANT RD	NB	1.31	21,971	42,143	2008	2	A-C	NO
				SB		20,172		2008	2	A-C	NO
CHES	CHESAPEAKE EXPWY	MT PLEASANT RD	BATTLEFIELD BLVD (N OF GREAT BRIDGE)	NB	2.31	32,791	63,350	2008	2	A-C	NO
				SB		30,559		2008	2	F	NO
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (N OF GREAT BRIDGE)	DOMINION BLVD	NB	1.90	30,592	62,861	2008	2	A-C	NO
				SB		32,269		2008	2	F	NO
CHES	CHESAPEAKE EXPWY	DOMINION BLVD	I-64	NB	0.57	28,581	65,998	2009	3	A-C	NO
				SB		37,417		2009	3	A-C	NO
CHES	ROUTE 13/58/460	SUFFOLK CL	I-664	EB	2.50	35,319	70,456	2010	3	A-C	YES
				WB		35,137		2010	3	A-C	YES
HAM	I-64	NEWPORT NEWS CL	HRC PARKWAY	EB	2.24	83,629	165,780	2010	4	D	YES
				WB		82,151		2010	4	F	YES
HAM	I-64	HRC PARKWAY	MAGRUDER BLVD	EB	0.77	74,462	147,276	2010	4	A-C	YES
				WB		72,814		2010	4	D	YES

See page 96 for Legend

Appendix D – Roadways Serving the Military in Hampton Roads – Interstates and Freeways/Expressways (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES (INCLUDES HOV LANES) ONE-WAY EXISTING	TWO-WAY EXISTING	COUNT YEAR	2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
HAM	I-64	MAGRUDER BLVD	MERCURY BLVD	EB	1.04	79,983	152,482	2010	5	A-C	YES
				WB		72,499		2010	5	D	YES
HAM	I-64	MERCURY BLVD	I-664	EB	0.96	73,093	148,023	2010	6	A-C	YES
				WB		74,930		2010	6	A-C	YES
HAM	I-64	I-664	ARMISTEAD AVE	EB	0.88	63,185	125,154	2010	3	A-C	YES
				WB		61,969		2010	3	A-C	YES
HAM	I-64	ARMISTEAD AVE	RIP RAP RD	EB	0.46	54,289	104,160	2010	3	A-C	YES
				WB		49,871		2010	3	A-C	YES
HAM	I-64	RIP RAP RD	SETTLERS LANDING RD	EB	1.55	54,289	104,160	2010	3	A-C	YES
				WB		49,871		2010	3	A-C	YES
HAM	I-64	SETTLERS LANDING RD	MALLORY ST	EB	0.54	47,404	96,501	2010	3	A-C	YES
				WB		49,097		2010	3	A-C	YES
HAM	I-64/HRBT	MALLORY ST	NORFOLK CL	EB	3.69	45,971	90,683	2010	2	F	YES
				WB		44,712		2010	2	F	YES
HAM	I-664	NEWPORT NEWS CL	ABERDEEN RD	EB	0.44	38,504	76,586	2010	3	A-C	YES
				WB		38,082		2010	3	A-C	YES
HAM	I-664	ABERDEEN RD	POWER PLANT PKWY	EB	1.29	38,758	73,977	2010	3	A-C	YES
				WB		35,219		2010	3	A-C	YES
HAM	I-664	POWER PLANT PKWY	I-64	EB	1.38	42,715	84,512	2010	3	A-C	YES
				WB		41,797		2010	3	A-C	YES
JCC	I-64	NEW KENT CL	RTE 30	EB	2.69	23,103	48,913	2010	2	A-C	YES
				WB		25,810		2010	2	A-C	YES
JCC	I-64	RTE 30	CROAKER RD (RTE 607)	EB	4.34	26,140	51,775	2010	2	A-C	YES
				WB		25,635		2010	2	A-C	YES
JCC	I-64	CROAKER RD (RTE 607)	YORK CL	EB	1.67	29,549	58,252	2010	2	A-C	YES
				WB		28,703		2010	2	A-C	YES
JCC	I-64	YORK CL	NEWPORT NEWS CL	EB	2.38	42,495	87,885	2010	2	D	YES
				WB		45,390		2010	2	D	YES
NN	I-64	JAMES CITY CL	RTE 143 (NORTH)	EB	0.27	42,495	87,885	2010	2	D	YES
				WB		45,390		2010	2	D	YES
NN	I-64	RTE 143 (NORTH)	YORKTOWN RD	EB	0.88	43,637	87,312	2010	2	D	YES
				WB		43,675		2010	2	D	YES
NN	I-64	YORKTOWN RD	FORT EUSTIS BLVD	EB	2.45	46,996	94,337	2010	2	E	YES
				WB		47,341		2010	2	D	YES
NN	I-64	FORT EUSTIS BLVD	JEFFERSON AVE	EB	4.86	52,479	103,475	2010	2	E	YES
				WB		50,996		2010	2	E	YES
NN	I-64	JEFFERSON AVE	OYSTER POINT RD	EB	1.60	63,384	127,241	2010	4	A-C	YES
				WB		63,857		2010	4	D	YES
NN	I-64	OYSTER POINT RD	J C MORRIS BLVD	EB	1.64	68,995	135,455	2010	4	D	YES
				WB		66,460		2010	4	E	YES
NN	I-64	J C MORRIS BLVD	HAMPTON CL	EB	0.90	83,629	165,780	2010	4	D	YES
				WB		82,151		2010	4	F	YES
NN	I-664/MMMBT	SUFFOLK CL	TERMINAL AVE	EB	2.85	31,290	63,534	2010	2	D	YES
				WB		32,244		2010	2	E	YES
NN	I-664	TERMINAL AVE	23RD ST	EB	0.92	27,054	63,188	2010	3	A-C	YES
				WB		36,134		2010	3	A-C	YES
NN	I-664	23RD ST	CHESTNUT AVE	EB	1.69	35,508	69,586	2010	3	A-C	YES
				WB		34,078		2010	3	A-C	YES
NN	I-664	CHESTNUT AVE	HAMPTON CL	EB	0.24	38,504	76,586	2010	3	A-C	YES
				WB		38,082		2010	3	A-C	YES
NOR	I-64/HRBT	HAMPTON CL	OCEAN VIEW AVE	EB	0.19	45,971	90,683	2010	2	F	YES
				WB		44,712		2010	2	F	YES

See page 96 for Legend

Appendix D – Roadways Serving the Military in Hampton Roads – Interstates and Freeways/Expressways (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES (INCLUDES HOV LANES) ONE-WAY EXISTING	TWO-WAY EXISTING	COUNT YEAR	2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
NOR	I-64	OCEAN VIEW AVE	4TH VIEW AVE	EB	1.82	45,971	90,683	2010	2	D	YES
				WB		44,712		2010	2	E	YES
NOR	I-64	4TH VIEW AVE	BAY AVE	EB	1.01	42,598	84,254	2009	2	D	YES
				WB		41,656		2009	2	D	YES
NOR	I-64	BAY AVE	GRANBY ST	EB	1.60	48,292	93,926	2009	2	E	YES
				WB		45,634		2009	2	D	YES
NOR	I-64	GRANBY ST	I-564/LITTLE CREEK RD	EB	0.21	48,292	93,926	2009	2	E	YES
				WB		45,634		2009	2	D	YES
NOR	I-64 REV	I-564/LITTLE CREEK RD	TIDEWATER DR	R	1.17	24,847	141,679	2010	2	A-C	YES
	I-64	I-564/LITTLE CREEK RD	TIDEWATER DR	EB		51,594		2010	4	A-C	YES
	I-64	I-564/LITTLE CREEK RD	TIDEWATER DR	WB		65,238		2010	4	A-C	YES
NOR	I-64 REV	TIDEWATER DR	CHESAPEAKE BLVD	R	1.04	24,847	146,643	2010	2	A-C	YES
	I-64	TIDEWATER DR	CHESAPEAKE BLVD	EB		59,299		2008	3	D	YES
	I-64	TIDEWATER DR	CHESAPEAKE BLVD	WB		62,497		2010	3	A-C	YES
NOR	I-64 REV	CHESAPEAKE BLVD	NORVIEW AVE	R	0.97	24,847	157,320	2010	2	A-C	YES
	I-64	CHESAPEAKE BLVD	NORVIEW AVE	EB		68,784		2006	3	E	YES
	I-64	CHESAPEAKE BLVD	NORVIEW AVE	WB		63,689		2003	3	A-C	YES
NOR	I-64 REV	NORVIEW AVE	MILITARY HWY	R	1.22	24,847	172,698	2010	2	A-C	YES
	I-64	NORVIEW AVE	MILITARY HWY	EB		74,076		2008	3	E	YES
	I-64	NORVIEW AVE	MILITARY HWY	WB		73,775		2010	3	D	YES
NOR	I-64 REV	MILITARY HWY	NORTHAMPTON BLVD	R	1.07	24,847	163,312	2010	2	A-C	YES
	I-64	MILITARY HWY	NORTHAMPTON BLVD	EB		65,202		2006	3	D	YES
	I-64	MILITARY HWY	NORTHAMPTON BLVD	WB		73,263		2010	3	D	YES
NOR	I-64 REV	NORTHAMPTON BLVD	I-264	R	2.12	18,177	184,312	2006	2	A-C	YES
	I-64	NORTHAMPTON BLVD	I-264	EB		78,556		2010	3	F	YES
	I-64	NORTHAMPTON BLVD	I-264	WB		87,579		2009	4	D	YES
NOR	I-64	I-264	VA BEACH CL	EB	0.93	75,197	149,520	2010	3	F	YES
	I-64	I-264	VA BEACH CL	WB		74,323		2010	3	D	YES
NOR	I-264/DOWNTOWN TUNNEL	PORTSMOUTH CL	I-464	EB	0.40	47,124	97,488	2010	2	F	YES
				WB		50,364		2010	2	F	YES
NOR	I-264/BERKLEY BRIDGE	I-464	WATERSIDE/CITY HALL/TIDEWATER	EB	0.72	63,338	126,050	2010	4	A-C	YES
				WB		62,712		2006	4	E	YES
NOR	I-264	WATERSIDE/CITY HALL/TIDEWATER	BRAMBLETON AVE	EB	0.91	57,655	108,633	2009	5	A-C	YES
				WB		50,978		2009	4	A-C	YES
NOR	I-264	BRAMBLETON AVE	BALLENTINE BLVD	EB	0.85	67,845	135,200	2009	4	D	YES
				WB		67,355		2009	4	A-C	YES
NOR	I-264	BALLENTINE BLVD	MILITARY HWY	EB	2.43	70,253	139,533	2008	4	F	YES
				WB		69,280		2008	4	A-C	YES
NOR	I-264	MILITARY HWY	I-64	EB	0.78	74,332	142,368	2010	6	A-C	YES
				WB		68,036		2010	6	A-C	YES
NOR	I-264	I-64	NEWTOWN RD/WCL VA. BEACH	EB	0.74	125,000	254,872	2006	6	E	YES
				WB		129,872		2006	6	A-C	YES
NOR	I-464	CHESAPEAKE CL	SOUTH MAIN ST	NB	0.42	27,535	50,200	2009	2	A-C	YES
				SB		22,665		2009	2	A-C	YES
NOR	I-464	SOUTH MAIN ST	I-264	NB	0.61	26,036	47,355	2009	2	A-C	YES
				SB		21,319		2009	2	A-C	YES
NOR	I-564	ADMIRAL TAUSSIG BLVD	FUTURE INTERMODAL CONNECTOR	NB	0.50	20,314	42,601	2010	2	A-C	YES
				SB		22,287		2010	2	E	YES
NOR	I-564	FUTURE INTERMODAL CONNECTOR	INTERNATIONAL TERMINAL BLVD	NB	1.37	20,314	42,601	2010	3	A-C	YES
				SB		22,287		2010	3	E	YES
NOR	I-564	INTERNATIONAL TERMINAL BLVD	I-64	NB	0.90	38,032	66,655	2009	3	A-C	YES
				SB		28,623		2009	3	F	YES
PORT	I-264	WCL PORTSMOUTH	GREENWOOD DR	EB	0.42	28,920	58,141	2009	2	A-C	YES
				WB		29,221		2009	2	D	YES

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Appendix D – Roadways Serving the Military in Hampton Roads – Interstates and Freeways/Expressways (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES (INCLUDES HOV LANES) ONE-WAY EXISTING	TWO-WAY EXISTING	COUNT YEAR	2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
PORT	I-264	GREENWOOD DR	VICTORY BLVD	EB	1.31	27,998	56,972	2009	2	A-C	YES
				WB		28,974		2009	2	D	YES
PORT	I-264	VICTORY BLVD	PORTSMOUTH BLVD	EB	0.75	32,160	63,804	2010	3	A-C	YES
				WB		31,644		2010	3	A-C	YES
PORT	I-264	PORTSMOUTH BLVD	FREDERICK BLVD	EB	0.91	33,645	68,327	2009	3	A-C	YES
				WB		34,682		2009	3	A-C	YES
PORT	I-264	FREDERICK BLVD	FUTURE MLK FWY	EB	0.45	40,864	80,531	2009	3	A-C	YES
				WB		39,667		2009	3	A-C	YES
PORT	I-264	FUTURE MLK FWY	DES MOINES AVE	EB	0.51	40,864	80,531	2009	3	A-C	YES
				WB		39,667		2009	3	A-C	YES
PORT	I-264	DES MOINES AVE	EFFINGHAM ST	EB	0.72	37,690	74,667	2009	3	A-C	YES
				WB		36,977		2009	3	A-C	YES
PORT	I-264/DOWNTOWN TUNNEL	EFFINGHAM ST	NORFOLK CL	EB	0.72	47,124	97,488	2010	2	F	YES
				WB		50,364		2010	2	F	YES
PORT	M L K FREEWAY	LONDON BLVD	WESTERN FREEWAY/MIDTOWN TUNNEL	NB	0.98	18,020	33,425	2010	3	A-C	NO
				SB		15,405		2010	3	A-C	NO
PORT	WESTERN FWY	SUFFOLK CL	TOWN POINT RD	EB	1.01	25,037	49,622	2010	2	A-C	YES
				WB		24,585		2010	2	A-C	YES
PORT	WESTERN FWY	TOWN POINT RD	CEDAR LN	EB	1.31	27,260	54,744	2009	2	A-C	YES
				WB		27,484		2009	2	D	YES
PORT	WESTERN FWY	CEDAR LN	APM BLVD	EB	1.00	24,756	50,038	2009	2	A-C	YES
				WB		25,282		2009	2	A-C	YES
PORT	WESTERN FWY	APM BLVD	WEST NORFOLK RD	EB	0.61	22,632	46,128	2010	2	A-C	YES
				WB		23,496		2010	2	A-C	YES
PORT	WESTERN FWY	WEST NORFOLK RD	MLK FREEWAY/MIDTOWN TUNNEL	EB	1.78	25,438	50,669	2010	2	A-C	YES
				WB		25,231		2010	2	D	YES
SUF	I-664	CHESAPEAKE CL	BRIDGE RD	EB	0.74	39,832	80,445	2008	3	A-C	YES
				WB		40,613		2008	3	A-C	YES
SUF	I-664	BRIDGE RD	WESTERN FWY	EB	0.15	28,298	57,399	2008	2	D	YES
				WB		29,101		2008	2	A-C	YES
SUF	I-664	WESTERN FWY	COLLEGE DR	EB	1.41	30,661	63,318	2010	3	A-C	YES
				WB		32,657		2010	3	A-C	YES
SUF	I-664/MMMBT	COLLEGE DR	NEWPORT NEWS CL	EB	3.28	31,290	63,534	2010	2	D	YES
				WB		32,244		2010	2	E	YES
SUF	ROUTE 13/58/460	SUFFOLK BYPASS	CHESAPEAKE CL	EB	3.61	35,319	70,456	2010	3	A-C	YES
				WB		35,137		2010	3	A-C	YES
SUF	SUFFOLK BYPASS	HOLLAND RD	PITCHKETTLE RD	EB	1.69	16,715	33,474	2008	2	A-C	YES
				WB		16,759		2008	2	A-C	YES
SUF	SUFFOLK BYPASS	PITCHKETTLE RD	PRUDEN BLVD	EB	1.63	19,436	39,738	2008	2	A-C	YES
				WB		20,302		2008	2	A-C	YES
SUF	SUFFOLK BYPASS	PRUDEN BLVD	GODWIN BLVD	EB	1.06	22,053	44,027	2010	2	A-C	YES
				WB		21,974		2010	2	A-C	YES
SUF	SUFFOLK BYPASS	GODWIN BLVD	WILROY RD	EB	1.85	27,086	53,016	2010	2	A-C	YES
				WB		25,930		2010	2	A-C	YES
SUF	SUFFOLK BYPASS	WILROY RD	ROUTES 13/58/460	EB	2.02	22,413	44,510	2010	2	A-C	YES
				WB		22,097		2010	2	A-C	YES
SUF	WESTERN FWY	I-664	COLLEGE DR	EB	0.57	20,375	40,222	2010	2	A-C	YES
				WB		19,847		2010	2	A-C	YES
SUF	WESTERN FWY	COLLEGE DR	PORTSMOUTH CL	EB	0.20	25,037	49,622	2010	2	A-C	YES
				WB		24,585		2010	2	A-C	YES
VB	I-264	NEWTOWN RD/ECL NORFOLK	WITCHDUCK RD	EB	1.47	103,792	213,320	2009	4	F	YES
				WB		109,528		2003	4	E	YES
VB	I-264	WITCHDUCK RD	INDEPENDENCE BLVD	EB	1.27	100,522	202,486	2010	4	F	YES
				WB		101,964		2010	4	D	YES

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Appendix D – Roadways Serving the Military in Hampton Roads – Interstates and Freeways/Expressways (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	DIR	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES (INCLUDES HOV LANES) ONE-WAY EXISTING	TWO-WAY EXISTING	COUNT YEAR	2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
VB	I-264	INDEPENDENCE BLVD	ROSEMONT RD	EB	2.36	83,246	166,032	2007	4	D	YES
				WB		82,786		2009	4	D	YES
VB	I-264	ROSEMONT RD	LYNNHAVEN PKWY	EB	1.72	72,331	144,321	2009	4	D	YES
				WB		71,990		2010	4	D	YES
VB	I-264	LYNNHAVEN PKWY	LONDON BRIDGE RD	EB	0.65	64,325	124,500	2009	4	A-C	YES
				WB		60,175		2009	4	A-C	YES
VB	I-264	LONDON BRIDGE RD	LASKIN RD	EB	0.83	64,325	124,500	2009	4	A-C	YES
				WB		60,175		2009	4	A-C	YES
VB	I-264	LASKIN RD	FIRST COLONIAL RD	EB	1.19	32,110	70,367	2010	4	A-C	YES
				WB		38,257		2010	4	A-C	YES
VB	I-264	FIRST COLONIAL RD	S.E. PARKWAY	EB	0.92	30,823	63,062	2009	3	A-C	YES
				WB		32,239		2009	3	A-C	YES
VB	I-264	S.E. PARKWAY	BIRDNECK RD	EB	0.56	30,823	63,062	2009	3	A-C	YES
				WB		32,239		2009	3	A-C	YES
VB	I-264	BIRDNECK RD	PARKS AVE	EB	0.49	16,182	30,609	2009	3	A-C	YES
				WB		14,427		2009	3	A-C	YES
VB	I-64	NORFOLK CL	INDIAN RIVER RD	EB	1.57	75,197	149,520	2010	4	F	YES
				WB		74,323		2010	4	A-C	YES
VB	I-64	INDIAN RIVER RD	CITY LINE RD/CHESEAPEAKE CL	EB	1.36	68,875	132,632	2007	4	D	YES
				WB		63,757		2010	4	A-C	YES
YC	I-64	JAMES CITY CL	RTE 199/646	EB	1.12	29,549	58,252	2010	2	A-C	YES
				WB		28,703		2010	2	A-C	YES
YC	I-64	RTE 199/646	RTE 143	EB	4.29	29,096	56,909	2010	2	A-C	YES
				WB		27,813		2010	2	A-C	YES
YC	I-64	RTE 143	RTE 199 (EAST OF WILLIAMSBURG)	EB	3.88	32,648	65,349	2010	2	A-C	YES
				WB		32,701		2010	2	A-C	YES
YC	I-64	RTE 199 (EAST OF WILLIAMSBURG)	GROVE CONNECTOR	EB	1.14	42,140	83,621	2010	2	D	YES
				WB		41,481		2010	2	D	YES
YC	I-64	GROVE CONNECTOR	JAMES CITY CL	EB	0.85	42,495	87,885	2010	2	D	YES
				WB		45,390		2010	2	D	YES

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Appendix E – Roadways Serving the Military in Hampton Roads – Arterials and Collectors

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES		2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
					EXISTING	COUNT YEAR			
CHES	ATLANTIC AVE	CAMPOSTELLA RD	PROVIDENCE RD	0.38	16,154	2008	4	A-C	NO
CHES	ATLANTIC AVE	PROVIDENCE RD	OLD ATLANTIC AVE	1.07	18,046	2010	4	A-C	NO
CHES	BALLAHACK RD	GEORGE WASHINGTON HWY	OLD BATTLEFIELD BLVD	11.72	810	2008	2	A-C	NO
CHES	BATTLEFIELD BLVD	NORTH CAROLINA STATE LINE	BALLAHACK RD	0.50	22,239	2010	4	A-C	NO
CHES	BATTLEFIELD BLVD	BALLAHACK RD	GALLBUSH RD	1.00	22,239	2010	4	A-C	NO
CHES	BATTLEFIELD BLVD	I-64	MILITARY HWY	0.76	42,012	2006	6	A-C	NO
CHES	BATTLEFIELD BLVD	MILITARY HWY	CAMPOSTELLA RD	0.56	22,710	2008	4	A-C	NO
CHES	DOMINION BLVD	GEORGE WASHINGTON HWY	CEDAR RD	4.00	10,090	2008	2	D	NO
CHES	DOMINION BLVD/STEEL BRIDGE	CEDAR RD	BAINBRIDGE BLVD	0.93	30,988	2010	2	F	NO
CHES	DOMINION BLVD	BAINBRIDGE BLVD	GREAT BRIDGE BLVD	1.62	26,409	2008	2	F	NO
CHES	GEORGE WASHINGTON HWY	NORTH CAROLINA STATE LINE	DOMINION BLVD	9.83	12,524	2010	4	A-C	NO
CHES	GEORGE WASHINGTON HWY	I-64	MILITARY HWY	0.94	20,928	2008	4	A-C	NO
CHES	GEORGE WASHINGTON HWY	MILITARY HWY	CANAL DR	0.98	14,292	2008	2	A-C	NO
CHES	GEORGE WASHINGTON HWY	CANAL DR	PORTSMOUTH CL	0.61	26,248	2008	4	D	NO
CHES	MLK HWY (FORMER DOMINION BLVD)	GREAT BRIDGE BLVD	CHESAPEAKE EXPRESSWAY	0.30	40,526	2008	4	A-C	NO
CHES	MOUNT PLEASANT RD	CHESAPEAKE EXPRESSWAY	CENTERVILLE TNPK	2.43	19,230	2008	2	F	NO
CHES	MOUNT PLEASANT RD	CENTERVILLE TNPK	FENTRESS AIRFIELD RD	4.53	11,066	2008	2	D	NO
CHES	OLD BATTLEFIELD BLVD	BALLAHACK RD	BATTLEFIELD BLVD	0.17	810	2008	2	A-C	NO
GLO	RTE 17 (COLEMAN BRIDGE)	YORK CL	RTE 216 (GUINEA RD)	2.96	34,051	2010	4	F	NO
GLO	RTE 17	RTE 216 (GUINEA RD)	RTE 614 (HICKORY FORK RD)	4.29	36,528	2009	4	F	NO
GLO	RTE 17	RTE 614 (HICKORY FORK RD)	RTE 17 BUS S (MAIN ST)	4.76	30,100	2009	4	A-C	NO
GLO	RTE 17	RTE 17 BUS S (MAIN ST)	RTE 17 BUS N (MAIN ST)	1.68	19,916	2009	4	A-C	NO
GLO	RTE 17	RTE 17 BUS N (MAIN ST)	RTE 606 (ARK RD)	2.38	16,238	2009	4	A-C	NO
GLO	RTE 17	RTE 606 (ARK RD)	ROUTE 14	5.44	12,380	2009	4	A-C	NO
GLO	RTE 17	ROUTE 14	ROUTES 33/198	4.78	6,642	2009	4	A-C	NO
GLO	RTE 17	ROUTES 33/198	MIDDLESEX CL	1.55	12,024	2009	4	A-C	NO
HAM	ARMISTEAD AVE	COMMANDER SHEPPARD BLVD	HRC PARKWAY	1.52	26,121	2009	4	D	NO
HAM	COMMANDER SHEPPARD BLVD	MAGRUDER BLVD	ARMISTEAD AVE	0.73	7,513	2007	4	A-C	NO
HAM	COMMANDER SHEPPARD BLVD	ARMISTEAD AVE	NASA MAIN GATE	0.32	19,757	2009	4	A-C	NO
HAM	COMMANDER SHEPPARD BLVD	NASA MAIN GATE	WYTHE CREEK RD	0.96	17,652	2009	4	A-C	NO
HAM	HRC PARKWAY	I-64	MAGRUDER BLVD	0.87	43,643	2010	4	F	NO
HAM	HRC PARKWAY	MAGRUDER BLVD	COLISEUM DR	0.45	34,704	2009	4	A-C	NO
HAM	HRC PARKWAY	COLISEUM DR	ARMISTEAD AVE	0.40	26,595	2009	4	A-C	NO
HAM	KING ST	MERCURY BLVD	OLD FOX HILL RD	0.12	25,870	2010	4	D	NO
HAM	KING ST	OLD FOX HILL RD	LITTLE BACK RIVER RD	0.54	23,924	2009	4	A-C	NO
HAM	KING ST	LITTLE BACK RIVER RD	LAMINGTON RD	0.30	6,921	2009	4	A-C	NO
HAM	KING ST	LAMINGTON RD	OLD BUCKINGHAM RD	0.49	6,921	2009	2	A-C	NO
HAM	KING ST	OLD BUCKINGHAM RD	LANGLEY AFB	0.61	6,921	2009	3	A-C	NO
HAM	LA SALLE AVE	ARMISTEAD AVE	MERCURY BLVD	0.63	14,252	2009	4	A-C	YES
HAM	LA SALLE AVE	MERCURY BLVD	LANGLEY GATE	1.46	13,387	2009	4	A-C	YES
HAM	MAGRUDER BLVD	COMM SHEPPARD BLVD (SOUTH)	HRC PARKWAY	1.38	37,994	2009	4	A-C	NO
HAM	MAGRUDER BLVD	HRC PARKWAY	I-64	0.67	31,147	2010	4	A-C	NO
HAM	MERCURY BLVD	NEWPORT NEWS CL	BIG BETHEL RD	1.26	51,785	2009	8	A-C	NO
HAM	MERCURY BLVD	BIG BETHEL RD	ABERDEEN RD	0.78	50,124	2009	8	A-C	NO
HAM	MERCURY BLVD	ABERDEEN RD	POWER PLANT PKWY	0.43	57,746	2007	8	A-C	NO
HAM	MERCURY BLVD	POWER PLANT PKWY	I-64	0.38	62,071	2009	8	A-C	NO
HAM	MERCURY BLVD	I-64	COLISEUM DR	0.35	55,452	2009	8	A-C	NO
HAM	MERCURY BLVD	COLISEUM DR	CUNNINGHAM DR	0.42	45,396	2009	8	A-C	NO
HAM	MERCURY BLVD	CUNNINGHAM DR	ARMISTEAD AVE	0.24	54,209	2009	8	A-C	NO
HAM	MERCURY BLVD	ARMISTEAD AVE	LA SALLE AVE	0.70	54,611	2009	8	A-C	NO
HAM	MERCURY BLVD	LA SALLE AVE	KING ST	0.82	57,242	2009	8	A-C	NO
HAM	WYTHE CREEK RD	COMMANDER SHEPPARD BLVD	POQUOSON CL	1.00	16,688	2010	2	F	NO
IW	ROUTE 460	SOUTHAMPTON CL	FIRETOWER RD (RTE 644)	0.54	9,697	2008	4	A-C	YES
IW	ROUTE 460	FIRETOWER RD (RTE 644)	WCL WINDSOR	5.56	9,697	2008	4	A-C	YES
IW/WIND	ROUTE 460	WCL WINDSOR	ROUTE 258	0.08	9,697	2008	4	A-C	YES

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Appendix E – Roadways Serving the Military in Hampton Roads – Arterials and Collectors (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES		2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
					EXISTING	COUNT YEAR			
IW/WIND	ROUTE 460	ROUTE 258	COURT ST (RTE 610)	0.46	13,942	2008	4	A-C	YES
IW	ROUTE 460	COURT ST (RTE 610)	ECL WINDSOR	0.75	13,236	2008	4	A-C	YES
IW	ROUTE 460	ECL WINDSOR	SUFFOLK CL	2.35	13,236	2008	4	A-C	YES
NN	23RD/25TH CONNECTOR	HUNTINGTON AVE	JEFFERSON AVE	0.36	1,626	2010	2	A-C	NO
NN	26TH ST	JEFFERSON AVE	WARWICK BLVD	0.34	3,563	2009	2	A-C	NO
NN	26TH ST	WARWICK BLVD	HUNTINGTON AVE	0.13	3,563	2009	2	A-C	NO
NN	BLAND BLVD	JEFFERSON AVE	McMANUS BLVD	0.48	15,917	2010	4	A-C	NO
NN	FORT EUSTIS BLVD	WARWICK BLVD	I-64	0.82	41,650	2010	4	F	YES
NN	FORT EUSTIS BLVD	I-64	JEFFERSON AVE	0.16	25,244	2010	4	A-C	NO
NN	FORT EUSTIS BLVD	JEFFERSON AVE	.54 MILES EAST OF RTE 143	0.54	16,939	2009	4	A-C	NO
NN	FORT EUSTIS BLVD	.54 MILES EAST OF RTE 143	YORK CL	0.74	16,939	2009	2	A-C	NO
NN	HUNTINGTON AVE	71ST ST	39TH ST	1.78	11,428	2009	3	A-C	NO
NN	HUNTINGTON AVE	39TH ST	26TH ST	0.65	6,712	2009	3	A-C	NO
NN	HUNTINGTON AVE	26TH ST	23RD ST	0.13	6,712	2009	3	A-C	NO
NN	J CLYDE MORRIS BLVD	I-64	HARPERSVILLE RD	0.60	53,800	2008	4	F	NO
NN	J CLYDE MORRIS BLVD	HARPERSVILLE RD	YORK CL	0.19	27,568	2009	4	A-C	NO
NN	JEFFERSON AVE	JAMES CITY CL	YORKTOWN RD	1.14	13,987	2009	4	A-C	YES
NN	JEFFERSON AVE	BLAND BLVD	I-64	0.92	88,778	2010	6	F	NO
NN	MERCURY BLVD	WARWICK BLVD	JEFFERSON AVE	0.34	46,291	2009	6	A-C	NO
NN	MERCURY BLVD	JEFFERSON AVE	HAMPTON CL	0.25	43,121	2009	6	A-C	NO
NN	SHELLABARGER DR	FORT EUSTIS	WARWICK BLVD	0.56	12,148	2009	3	F	NO
NN	WARWICK BLVD	FORT EUSTIS BLVD	SNIDOW BLVD	1.86	34,221	2009	4	D	NO
NN	WARWICK BLVD	SNIDOW BLVD	DENBIGH BLVD	1.66	42,347	2010	4	E	NO
NN	WARWICK BLVD	DENBIGH BLVD	BLAND BLVD	0.84	37,728	2010	4	F	NO
NN	WARWICK BLVD	BLAND BLVD	OYSTER POINT RD	1.39	34,363	2010	4	F	NO
NN	WARWICK BLVD	OYSTER POINT RD	MAXWELL LN	1.31	26,629	2009	4	A-C	NO
NN	WARWICK BLVD	MAXWELL LN	DEEP CREEK RD	0.55	30,404	2010	4	D	NO
NN	WARWICK BLVD	DEEP CREEK RD	J CLYDE MORRIS BLVD	1.43	45,867	2009	4	F	NO
NN	WARWICK BLVD	J CLYDE MORRIS BLVD	HARPERSVILLE RD	1.07	25,444	2009	5	A-C	NO
NN	WARWICK BLVD	HARPERSVILLE RD	MAIN ST	1.49	27,769	2010	4	F	NO
NN	WARWICK BLVD	MAIN ST	CENTER AVE	0.69	24,017	2009	4	F	NO
NN	WARWICK BLVD	CENTER AVE	MERCURY BLVD	0.50	29,314	2009	6	D	NO
NN	WARWICK BLVD	MERCURY BLVD	HUNTINGTON AVE	0.50	32,296	2009	6	F	NO
NN	WARWICK BLVD	23RD ST	39TH ST	0.75	3,754	2009	3	A-C	NO
NN	WARWICK BLVD	39TH ST	HUNTINGTON AVE	1.75	13,584	2009	3	D	NO
NN	YORKTOWN RD	I-64	JEFFERSON AVE	0.15	12,300	2010	2	A-C	NO
NN	YORKTOWN RD	JEFFERSON AVE	CRAWFORD RD	0.61	13,196	2009	2	D	YES
NN	YORKTOWN RD	CRAWFORD RD	YORK CL	0.44	11,158	2010	2	A-C	YES
NOR	ADMIRAL TAUSSIG BLVD	HAMPTON BLVD	I-564	0.74	26,756	2009	4	F	YES
NOR	BAY AVE	FIRST VIEW ST	I-64	0.27	16,820	2009	4	E	NO
NOR	BERKLEY AVE	I-464	STATE ST	0.10	15,500	2009	4	D	NO
NOR	BERKLEY AVE	STATE ST	MAIN ST	0.10	15,003	2009	4	A-C	NO
NOR	BRAMBLETON AVE	HAMPTON BLVD	COLLEY AVE	0.50	34,404	2006	6	A-C	YES
NOR	BRAMBLETON AVE	COLLEY AVE	BOUSH ST	0.85	46,317	2006	6	A-C	YES
NOR	BRAMBLETON AVE	BOUSH ST	MONTICELLO AVE	0.18	29,635	2009	6	A-C	YES
NOR	BRAMBLETON AVE	MONTICELLO AVE	ST PAULS BLVD	0.12	29,635	2009	6	A-C	YES
NOR	BRAMBLETON AVE	ST PAULS BLVD	CHURCH ST	0.30	19,381	2009	6	A-C	NO
NOR	BRAMBLETON AVE	CHURCH ST	TIDEWATER DR	0.29	28,168	2009	6	A-C	NO
NOR	BRAMBLETON AVE	TIDEWATER DR	PARK AVE	0.42	33,658	2009	4	D	YES
NOR	BRAMBLETON AVE	PARK AVE	I-264	0.20	47,162	2006	6	D	YES

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Appendix E – Roadways Serving the Military in Hampton Roads – Arterials and Collectors (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES		2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
					EXISTING	COUNT YEAR			
NOR	COLLEY AVE	FRONT ST	BRAMBLETON AVE	0.21	N/A		2	N/A	NO
NOR	GRANBY ST	LITTLE CREEK RD	I-564	0.26	27,329	2009	6	A-C	NO
NOR	GRANBY ST	I-564	I-64	0.18	25,984	2009	4	A-C	NO
NOR	GRANBY ST	I-64	BAYVIEW BLVD	0.99	25,984	2009	4	D	NO
NOR	HAMPTON BLVD	BRAMBLETON AVE	PRINCESS ANNE RD	0.40	37,415	2006	4	F	YES
NOR	HAMPTON BLVD	PRINCESS ANNE RD	21ST ST	0.48	37,415	2006	4	F	YES
NOR	HAMPTON BLVD	21ST ST	26TH ST	0.21	37,587	2009	4	D	NO
NOR	HAMPTON BLVD	26TH ST	27TH ST	0.05	38,416	2009	4	D	NO
NOR	HAMPTON BLVD	27TH ST	38TH ST	0.18	38,416	2009	4	D	NO
NOR	HAMPTON BLVD	38TH ST	JAMESTOWN CRESCENT	1.32	40,550	2010	6	A-C	NO
NOR	HAMPTON BLVD	JAMESTOWN CRESCENT	LITTLE CREEK RD	1.28	40,550	2010	6	A-C	NO
NOR	HAMPTON BLVD	LITTLE CREEK RD	INTERNATIONAL TERMINAL BLVD	0.18	41,701	2006	6	A-C	NO
NOR	HAMPTON BLVD	INTERNATIONAL TERMINAL BLVD	INTERMODAL CONNECTOR	1.00	34,242	2006	6	A-C	NO
NOR	HAMPTON BLVD	INTERMODAL CONNECTOR	ADM TAUSSIG BLVD	0.92	34,242	2006	6	A-C	NO
NOR	INTERNATIONAL TERMINAL BLVD	HAMPTON BLVD	I-564	1.74	28,917	2010	4	A-C	YES
NOR	LITTLE CREEK RD	GRANBY ST	I-64	0.35	27,158	2009	4	D	NO
NOR	LITTLE CREEK RD	I-64	TIDEWATER DR	0.77	25,991	2009	6	A-C	NO
NOR	LITTLE CREEK RD	TIDEWATER DR	SEWELLS POINT RD	0.18	29,385	2009	4	A-C	NO
NOR	LITTLE CREEK RD	SEWELLS POINT RD	CHESAPEAKE BLVD	0.53	29,385	2009	4	A-C	NO
NOR	LITTLE CREEK RD	CHESAPEAKE BLVD	MILITARY HWY	0.15	40,517	2009	4	D	NO
NOR	LITTLE CREEK RD	MILITARY HWY	AZALEA GARDEN RD	1.54	28,328	2009	4	A-C	NO
NOR	LITTLE CREEK RD	AZALEA GARDEN RD	SHORE DR	1.10	25,157	2009	4	A-C	NO
NOR	MIDTOWN TUNNEL	PORTSMOUTH CL	BRAMBLETON AVE	0.59	40,962	2010	2	F	YES
NOR	MONTICELLO AVE	ST PAULS BLVD	VA BEACH BLVD	0.10	26,231	2009	4	A-C	YES
NOR	NORTHAMPTON BLVD	I-64	WESLEYAN DR/VA BEACH CL	0.34	90,685	2006	8	F	YES
NOR	NORVIEW AVE	I-64	MILITARY HWY	0.47	28,127	2009	4	A-C	NO
NOR	NORVIEW AVE	MILITARY HWY	AZALEA GARDEN RD	0.50	14,346	2009	4	A-C	NO
NOR	NORVIEW AVE	AZALEA GARDEN RD	NORFOLK INT AIRPORT	0.20	13,103	2009	4	A-C	NO
NOR	SHORE DRIVE	LITTLE CREEK RD	VA BEACH CL	0.98	34,434	2009	4	D	NO
NOR	SOUTH MAIN ST	I-464	BAINBRIDGE BLVD	0.07	1,300	2003	2	A-C	NO
NOR	SOUTH MAIN ST	BAINBRIDGE BLVD	LIBERTY ST	0.21	5,270	2009	2	D	NO
NOR	SOUTH MAIN ST	LIBERTY ST	BERKLEY AVE	0.06	2,300	2003	2	A-C	NO
NOR	ST PAULS BLVD	CITY HALL AVE	I-264 RAMP/MACARTHUR MALL	0.11	43,558	2009	6	D	NO
NOR	ST PAULS BLVD	I-264 RAMP/MACARTHUR MALL	BRAMBLETON AVE	0.39	43,558	2009	6	A-C	NO
NOR	ST PAULS BLVD	BRAMBLETON AVE	MONTICELLO AVE	0.25	24,199	2009	6	A-C	YES
NOR	TIDEWATER DR	BRAMBLETON AVE	VA BEACH BLVD	0.29	33,995	2009	6	A-C	YES
NOR	VA BEACH BLVD	MONTICELLO AVE	CHURCH ST	0.45	13,427	2009	4	A-C	YES
NOR	VA BEACH BLVD	CHURCH ST	TIDEWATER DR	0.30	13,427	2009	4	A-C	YES
PORT	CEDAR LN	WESTERN FREEWAY	S PERIMETER RD	0.93	10,512	2010	2	D	NO
PORT	COAST GUARD BLVD	CEDAR LN	COAST GUARD BASE GATE	1.15	3,409	2010	2	D	NO
PORT	CRAWFORD ST	LONDON BLVD	HIGH ST	0.11	5,207	2010	4	A-C	NO
PORT	CRAWFORD ST	HIGH ST	COUNTY ST	0.11	5,571	2010	4	A-C	NO
PORT	CRAWFORD ST/BART ST	COUNTY ST	COURT ST	0.23	5,562	2010	4	D	NO
PORT	EFFINGHAM ST	PORTSMOUTH BLVD	I-264	0.77	29,345	2010	6	A-C	YES
PORT	EFFINGHAM ST	I-264	SOUTH ST	0.14	38,830	2010	6	A-C	NO
PORT	EFFINGHAM ST	SOUTH ST	HIGH ST	0.21	28,279	2010	4	D	NO
PORT	EFFINGHAM ST	HIGH ST	LONDON BLVD	0.11	25,149	2010	4	A-C	NO
PORT	EFFINGHAM ST	LONDON BLVD	NORTH ST	0.10	16,322	2010	5	D	NO
PORT	EFFINGHAM ST	NORTH ST	CRAWFORD PKWY	0.19	15,467	2010	4	D	NO
PORT	EFFINGHAM ST	CRAWFORD PKWY	NAVAL MEDICAL CENTER	0.09	15,433	2010	4	D	NO

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Appendix E – Roadways Serving the Military in Hampton Roads – Arterials and Collectors (continued)

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES		2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
					EXISTING	COUNT YEAR			
PORT	ELM AVE	EFFINGHAM ST	VICTORY BLVD	0.70	5,146	2010	2	D	NO
PORT	ELM AVE	VICTORY BLVD	BURTONS POINT RD	0.30	2,782	2010	4	A-C	NO
PORT	FREDERICK BLVD	GEORGE WASHINGTON HWY	PORTSMOUTH BLVD	0.66	14,464	2010	4	A-C	NO
PORT	FREDERICK BLVD	PORTSMOUTH BLVD	DEEP CREEK BLVD	0.08	17,672	2010	4	A-C	NO
PORT	FREDERICK BLVD	DEEP CREEK BLVD	I-264	0.52	24,091	2010	4	A-C	NO
PORT	GEORGE WASHINGTON HWY	CHESAPEAKE CL	VICTORY BLVD	0.17	25,961	2010	4	D	NO
PORT	GEORGE WASHINGTON HWY	VICTORY BLVD	DAVIS ST	0.19	22,009	2010	5	D	NO
PORT	GEORGE WASHINGTON HWY	DAVIS ST	GREENWOOD DR	0.42	24,218	2010	4	D	NO
PORT	GEORGE WASHINGTON HWY	GREENWOOD DR	FREDERICK BLVD	0.33	26,076	2010	4	D	NO
PORT	GEORGE WASHINGTON HWY	FREDERICK BLVD	ELM AVE	0.35	18,527	2010	4	D	NO
PORT	GEORGE WASHINGTON HWY	ELM AVE	PORTSMOUTH BLVD	0.70	17,405	2010	4	A-C	NO
PORT	LONDON BLVD	M L K FWY	ELM AVE	0.86	28,332	2010	6	A-C	NO
PORT	LONDON BLVD	ELM AVE	EFFINGHAM ST	0.32	25,472	2010	6	A-C	NO
PORT	MIDTOWN TUNNEL	MLK FWY/WESTERN FREEWAY	NORFOLK CL	0.95	40,962	2010	2	F	YES
PORT	PORTCENTRE PKWY	PORTSMOUTH BLVD	CRAWFORD ST	0.68	9,483	2010	4	D	NO
PORT	PORTSMOUTH BLVD	EFFINGHAM ST	PORTCENTRE PKWY	0.54	4,825	2010	2	D	NO
PORT	VICTORY BLVD	I-264	GREENWOOD DR	0.55	22,534	2010	4	D	NO
PORT	VICTORY BLVD	GREENWOOD DR	DEEP CREEK BLVD	1.08	15,788	2010	4	A-C	NO
PORT	VICTORY BLVD	DEEP CREEK BLVD	GEORGE WASHINGTON HWY	0.44	16,660	2010	5	A-C	NO
PORT	VICTORY BLVD	GEORGE WASHINGTON HWY	AFTON PKWY	1.24	9,822	2010	4	A-C	NO
PORT	VICTORY BLVD	AFTON PKWY	ELM AVE	0.57	4,701	2010	4	A-C	NO
SH	ROUTE 58	GREENSVILLE CL	ADAMS GROVE RD (RTE 615)	5.44	11,211	2009	4	A-C	YES
SH	ROUTE 58	ADAMS GROVE RD (RTE 615)	DREWRY RD (RTE 659)	4.72	10,703	2009	4	A-C	YES
SH	ROUTE 58	DREWRY RD (RTE 659)	PINOPOLIS RD (ROUTE 653)	5.69	11,080	2009	4	A-C	YES
SH	ROUTE 58	PINOPOLIS RD (ROUTE 653)	ROUTE 35	5.71	13,463	2009	4	A-C	YES
SH	ROUTE 58	ROUTE 35	BUS RTE 58 W	3.46	14,019	2009	4	A-C	YES
SH	ROUTE 58	BUS RTE 58 W	CAMP PKWY (BUS RTE 58 E)	2.50	18,878	2010	4	A-C	YES
SH	ROUTE 58	CAMP PKWY (BUS RTE 58 E)	ARMORY DR (RTE 671)	2.70	16,602	2009	4	A-C	YES
SH	ROUTE 58	ARMORY DR (RTE 671)	ROUTE 258	0.97	16,602	2009	4	A-C	YES
SH	ROUTE 58	ROUTE 258	PRETLOW RD (RTE 714)	1.88	16,546	2009	4	A-C	YES
SH	ROUTE 58	PRETLOW RD (RTE 714)	SUFFOLK CL	0.93	17,541	2008	4	A-C	YES
SH	ROUTE 460	SUSSEX CL	WCL IVOR	3.72	9,415	2007	4	A-C	YES
SH	ROUTE 460	WCL IVOR	ROUTE 616 (IVOR RD)	0.56	9,029	2010	4	A-C	YES
SH	ROUTE 460	ROUTE 616 (IVOR RD)	ECL IVOR	0.73	7,724	2009	4	A-C	YES
SH	ROUTE 460	ECL IVOR	ISLE OF WIGHT CL	3.59	10,377	2006	4	A-C	YES
SUF	CAROLINA RD	WHALEYVILLE BLVD	TURLINGTON RD	0.87	15,611	2008	4	A-C	YES
SUF	CAROLINA RD	TURLINGTON RD	SW SUFFOLK BYPASS	0.61	15,611	2008	4	A-C	YES
SUF	CAROLINA RD	SW SUFFOLK BYPASS	FAYETTE ST	1.84	11,450	2008	4	A-C	YES
SUF	COLLEGE DR	WESTERN FREEWAY	HAMPTON ROADS PKWY	0.74	17,722	2008	4	A-C	NO
SUF	COLLEGE DR	HAMPTON ROADS PKWY	I-664	0.70	21,299	2008	4	A-C	NO
SUF	CONSTANCE RD	MAIN ST	WILROY RD	0.88	17,240	2008	4	A-C	YES
SUF	MAIN ST	FAYETTE ST	WASHINGTON ST	0.35	12,397	2008	4	A-C	YES
SUF	MAIN ST	WASHINGTON ST	CONSTANCE RD	0.67	22,347	2008	4	A-C	YES
SUF	PORTSMOUTH BLVD	WILROY RD	WASHINGTON ST	1.59	16,692	2008	4	A-C	YES
SUF	PORTSMOUTH BLVD	WASHINGTON ST	SUFFOLK BYPASS	1.04	24,369	2008	4	A-C	YES
SUF	PRUDEN BLVD	ISLE OF WIGHT CL	LAKE PRINCE DR	3.08	14,551	2008	4	A-C	YES
SUF	PRUDEN BLVD	LAKE PRINCE DR	KINGS FORK RD	0.58	15,848	2008	4	A-C	YES
SUF	PRUDEN BLVD	KINGS FORK RD	SUFFOLK BYPASS	1.47	20,789	2008	4	A-C	YES
SUF	ROUTE 58	SOUTHAMPTON CL	RTE 189/258	1.34	17,541	2008	4	A-C	YES
SUF	ROUTE 58	RTE 189/258	RTE 272 (S. QUAY RD)	1.26	17,192	2008	4	A-C	YES

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JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES		2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
					EXISTING	COUNT YEAR			
SUF	ROUTE 58	RTE 272	S. QUAY RD (ROUTE 189)	4.17	18,530	2008	4	A-C	YES
SUF	ROUTE 58 (HOLLAND BYPASS)	S. QUAY RD (ROUTE 189)	BUS RTE 58 (HOLLAND RD)	1.19	18,248	2008	4	A-C	YES
SUF	ROUTE 58 (HOLLAND RD)	BUS RTE 58 (HOLLAND RD)	RTE 649 (LUMMIS RD)	4.01	22,085	2008	4	A-C	YES
SUF	ROUTE 58 (HOLLAND RD)	RTE 649 (LUMMIS RD)	RTE 643 (MANNING BRIDGE RD)	2.05	22,707	2008	4	A-C	YES
SUF	ROUTE 58 (HOLLAND RD)	RTE. 643 (MANNING BRIDGE RD)	COVE POINT DR	1.03	26,910	2008	4	A-C	YES
SUF	ROUTE 58 (HOLLAND RD)	COVE POINT DR	SUFFOLK BYPASS	1.20	28,798	2008	4	D	YES
SUF	WHALEYVILLE BLVD	NC STATE LINE	RTE 616 (MINERAL SPRING RD)	5.37	4,761	2010	2	A-C	YES
SUF	WHALEYVILLE BLVD	RTE 616 (MINERAL SPRING RD)	RTE 677 (GREAT FORK RD)	1.27	5,734	2008	2	A-C	YES
SUF	WHALEYVILLE BLVD	RTE 677 (GREAT FORK RD)	RTE 675 (CYPRESS CHAPEL RD)	0.83	7,528	2008	2	D	YES
SUF	WHALEYVILLE BLVD	RTE 675 (CYPRESS CHAPEL RD)	RTE 759 (BABBTOWN RD)	3.28	8,428	2008	2	D	YES
SUF	WHALEYVILLE BLVD	RTE 759 (BABBTOWN RD)	RTE 32 (CAROLINA RD)	2.56	9,395	2008	2	D	YES
VB	BIRDNECK RD	GENERAL BOOTH BLVD	NORFOLK AVE	2.29	12,411	2010	2	A-C	NO
VB	BIRDNECK RD	NORFOLK AVE	VA BEACH BLVD	0.31	18,954	2006	4	A-C	NO
VB	BIRDNECK RD	VA BEACH BLVD	I-264	0.33	29,399	2010	4	A-C	NO
VB	CHESAPEAKE BAY BRIDGE-TUNNEL	SHORE DR	TOLL PLAZA	0.91	7,963	2010	4	A-C	YES
VB	CHESAPEAKE BAY BRIDGE-TUNNEL	TOLL PLAZA	NCL VA BEACH	0.24	7,963	2010	4	A-C	YES
VB	DAM NECK RD	PRINCESS ANNE RD	ROSEMONT RD	0.44	41,267	2010	4	F	NO
VB	DAM NECK RD	ROSEMONT RD	HOLLAND RD	0.55	41,267	2010	4	F	NO
VB	DAM NECK RD	HOLLAND RD	DRAKESMILE RD	0.72	39,520	2010	4	D	NO
VB	DAM NECK RD	DRAKESMILE RD	LONDON BRIDGE RD	0.86	49,378	2010	4	F	NO
VB	DAM NECK RD	LONDON BRIDGE RD	HARPERS RD	0.60	27,912	2010	4	A-C	NO
VB	DAM NECK RD	HARPERS RD	GENERAL BOOTH BLVD	2.19	26,846	2010	4	A-C	NO
VB	DAM NECK RD	GENERAL BOOTH BLVD	UPTON DR	0.40	36,219	2010	6	A-C	NO
VB	DAM NECK RD	UPTON DR	USN TRAINING CENTER	1.70	22,066	2010	4	A-C	NO
VB	DIAMOND SPRINGS RD	NORTHAMPTON BLVD	SHORE DR	1.32	28,603	2010	4	A-C	NO
VB	DRAKESMILE RD	DAM NECK RD	SHIPPS CORNER RD	0.25	22,835	2010	4	A-C	NO
VB	GENERAL BOOTH BLVD	DAM NECK RD	OCEANA BLVD/PROSPERITY RD	0.60	52,024	2010	6	D	NO
VB	GENERAL BOOTH BLVD	OCEANA BLVD/PROSPERITY RD	BIRDNECK RD	1.20	22,001	2010	4	A-C	NO
VB	GENERAL BOOTH BLVD	BIRDNECK RD	HARBOUR POINT	1.61	17,090	2010	4	A-C	NO
VB	HARPERS RD	DAM NECK RD	OCEANA BLVD	2.44	10,034	2010	2	E	NO
VB	INDEPENDENCE BLVD	NORTHAMPTON BLVD	SHORE DR	0.58	25,136	2010	4	A-C	YES
VB	LONDON BRIDGE RD	SHIPPS CORNER RD/DRAKESMILE RD	INTERNATIONAL PKWY	1.34	30,629	2010	4	F	NO
VB	LONDON BRIDGE RD	INTERNATIONAL PKWY	POTTERS RD	2.08	29,563	2010	4	A-C	NO
VB	LONDON BRIDGE RD	POTTERS RD	I-264	0.31	27,280	2010	6	D	NO
VB	NORTHAMPTON BLVD	WESLEYAN DR/NORFOLK CL	DIAMOND SPRINGS RD	0.98	63,461	2010	8	A-C	YES
VB	NORTHAMPTON BLVD	DIAMOND SPRINGS RD	INDEPENDENCE BLVD	2.13	39,007	2010	6	A-C	YES
VB	NORTHAMPTON BLVD	INDEPENDENCE BLVD	SHORE DR	1.01	28,194	2010	6	A-C	YES
VB	OCEANA BLVD	GENERAL BOOTH BLVD	HARPERS RD/S.E. PARKWAY	0.63	33,587	2010	4	A-C	NO
VB	OCEANA BLVD	HARPERS RD/S.E. PARKWAY	TOMCAT BLVD (NAS MAIN ENT)	0.39	33,587	2010	4	A-C	NO
VB	OCEANA BLVD/FIRST COLONIAL RD	TOMCAT BLVD (NAS MAIN ENT)	VA BEACH BLVD	3.11	37,774	2010	4	A-C	YES
VB	SHORE DRIVE	NORFOLK CL	DIAMOND SPRINGS RD	0.21	30,596	2010	4	D	NO
VB	SHORE DRIVE	DIAMOND SPRINGS RD	INDEPENDENCE BLVD	1.82	26,147	2010	4	A-C	YES
VB	SHORE DRIVE	INDEPENDENCE BLVD	NORTHAMPTON BLVD	1.01	21,445	2010	4	A-C	NO
VB	SHORE DRIVE	NORTHAMPTON BLVD	GREAT NECK RD	3.47	40,018	2010	4	F	YES
VB	SHORE DRIVE	GREAT NECK RD	ATLANTIC AVE	4.61	14,335	2009	4	A-C	YES
VB	VA BEACH BLVD	LASKIN RD	FIRST COLONIAL RD	1.04	32,035	2010	4	D	YES
WMB	HENRY ST N.	LAFAYETTE ST	RTE 132Y	0.44	6,853	2010	2	A-C	NO
WMB	LAFAYETTE ST	RICHMOND RD	HENRY ST	0.95	9,835	2010	2	D	NO
WMB	ROUTE 132	ROUTE 132Y	BYPASS RD/YORK CL	0.26	10,116	2010	4	A-C	NO
YC	BALLARD ST	COOK RD	COAST GUARD TRAINING CENTER	1.32	2,430	2010	2	D	NO

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JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (MILES)	WEEKDAY VOLUMES		2009 LANES	2009 PM PEAK HR LOS*	STRAHNET ROUTE?
					EXISTING	COUNT YEAR			
YC	COOK RD	GEORGE WASHINGTON HWY	GOOSLEY RD	2.09	6,368	2010	2	A-C	NO
YC	COOK RD	GOOSLEY RD	BALLARD ST	0.25	6,000	2003	2	A-C	NO
YC	FORT EUSTIS BLVD	NEWPORT NEWS CL	ROUTE 17	2.36	18,188	2007	2	E	NO
YC	GEORGE WASHINGTON HWY	NEWPORT NEWS CL	VICTORY BLVD (RTE 171)	1.20	38,983	2010	4	D	NO
YC	GEORGE WASHINGTON HWY	VICTORY BLVD (RTE 171)	HAMPTON HWY (RTE 134)	0.64	42,347	2010	4	E	NO
YC	GEORGE WASHINGTON HWY	HAMPTON HWY (RTE 134)	DARE RD	2.37	54,914	2010	4	F	NO
YC	GEORGE WASHINGTON HWY	DARE RD	DENBIGH BLVD (RTE 173)	1.08	39,235	2010	4	F	NO
YC	GEORGE WASHINGTON HWY	DENBIGH BLVD (RTE 173)	FORT EUSTIS BLVD (RTE 105)	1.38	39,111	2010	4	A-C	NO
YC	GEORGE WASHINGTON HWY	FORT EUSTIS BLVD (RTE 105)	COOK RD	0.59	38,988	2010	4	A-C	NO
YC	GEORGE WASHINGTON HWY	COOK RD	GOOSLEY RD (RTE 238)	2.52	29,384	2010	4	A-C	NO
YC	GEORGE WASHINGTON HWY	GOOSLEY RD (RTE 238)	GLOUCESTER CL (COLEMAN BRIDGE)	1.06	34,117	2010	4	F	NO
YC	GOOSLEY RD	OLD WILLIAMSBURG RD	CRAWFORD RD	0.89	6,878	2010	2	A-C	NO
YC	GOOSLEY RD	CRAWFORD RD	ROUTE 17	0.30	6,878	2010	2	A-C	NO
YC	GOOSLEY RD	ROUTE 17	COOK RD	0.52	1,690	2010	2	A-C	NO
YC	OLD WILLIAMSBURG RD	NECL NEWPORT NEWS	BAPTIST RD/MAIN RD	1.35	11,158	2010	2	A-C	YES
YC	OLD WILLIAMSBURG RD	BAPTIST RD/MAIN RD	GOOSLEY RD	0.91	9,833	2010	2	A-C	NO
YC	PENNIMAN RD (RTE 641)	ROUTE 199	COLONIAL PKWY	1.19	5,479	2010	2	A-C	YES
YC	ROUTE 132	BYPASS RD/WILLIAMSBURG CL	ROUTE 143	1.16	11,135	2010	2	A-C	NO
YC	ROUTE 143	ROUTE 132	I-64	0.60	19,138	2010	4	A-C	NO
YC	ROUTE 199	I-64	MARQUIS PKWY	0.48	20,012	2010	4	A-C	YES
YC	ROUTE 199	MARQUIS PKWY	RTE 641 (PENNIMAN RD)	0.42	9,598	2010	4	A-C	YES

LEGEND:

- LEVEL OF SERVICE A, B, OR C (LOW TO MODERATE CONGESTION)
- LEVEL OF SERVICE D (MODERATE CONGESTION)
- LEVEL OF SERVICE E OR F (SEVERE CONGESTION)

Traffic data sources: Virginia Department of Transportation, Hampton Roads jurisdictions, and other regional traffic counts.

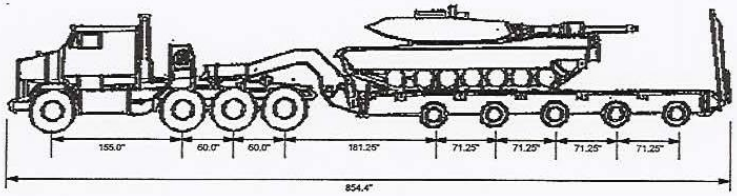
*2009 PM Peak Hour Level of Service results were obtained from the Hampton Roads Congestion Management Process (CMP): 2010 Update. Some roadways were not analyzed in the CMP and thus LOS for those segments were determined for existing conditions. The PM Peak Hour is defined as the highest hourly traffic volume within 4 consecutive 15-minute periods between the hours of 3 pm and 7 pm on typical weekdays.

For Arterials and Collectors, the PM Peak Hour Level of Service (LOS) is based on the peak direction of travel during the PM Peak Hour.
For Interstates and Freeways/Other Expressways, the PM Peak Hour Level of Service (LOS) was determined for both directions of travel.

Appendix F – Heavy Equipment Transporter System (HETS) Military Vehicle Example

- ENCLOSURE 2 –

M1070/M1000
HEAVY EQUIPMENT TRANSPORTER
WITH M1A1/M1A2 TANK



AXLE NUMBER:	1	2	3	4	5	6	7	8	9	TOTAL
TIRES PER AXLE: 1/	2	2	2	2	8	8	8	8	8	48
EMPTY LOAD: 2/ (pounds (tons))	18,368 (9.2)	10,513 (5.3)	10,473 (5.2)	10,366 (5.2)	7,120 (3.6)	7,120 (3.6)	7,120 (3.6)	10,160 (5.1)	10,160 (5.1)	91,400 (45.8)
64.5-TON LOAD: 3/ (pounds (tons))	21,340 (10.7)	21,345 (10.7)	21,280 (10.6)	20,660 (10.3)	28,140 (14.1)	28,250 (14.1)	27,840 (13.9)	28,940 (14.5)	28,855 (14.4)	226,650 (113.3)
70-TON LOAD: 3/ (pounds (tons))	21,425 (10.7)	22,354 (11.2)	22,280 (11.1)	21,653 (10.8)	29,793 (14.9)	29,911 (15.0)	29,541 (14.8)	30,411 (15.2)	30,273 (15.1)	237,641 (118.8)

	M1070 Truck Tractor	M1000 Semitrailer	M1A1/M1A2 Tank
WIDTH	102"	144"	144"
HEIGHT	140"	43" (cargo bed) 143.14" (overall)	113.7" (trailer with tank: 156.7")

NOTES:
1/ M1070 Tire size - 16.00R20X2LT LRM
Cross country - 55psi
Highway - 75 psi
M1000 Tire size - 215/75R 17.5XTA(135J)LRH - 95 psi
2/ Axle loads are based on manufacturer's calculated data
3/ Axle loads are based on measured data

Source: SDDCTEA Information Paper: Military Design Standards for the National Highway System, August 31, 2000.

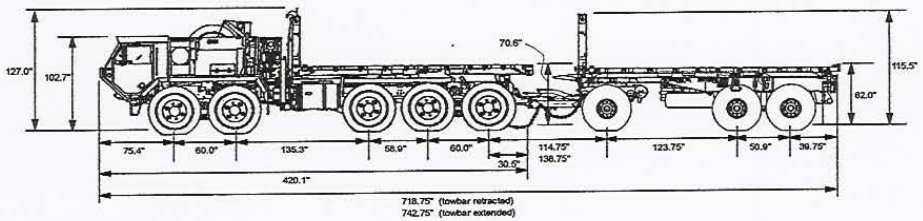
Appendix F – Palletized Load System (PLS) Military Vehicle Example

- ENCLOSURE 3 –

M1074/M1076
PALLETIZED LOAD SYSTEM

M1074 Tire size: 16.00R20XZLT
M1076 Tire size: 15.5X80R20

	Weight (pounds (tons)) Empty	Weight (pounds (tons)) Loaded	Payload (pounds (tons))
M1074 TRUCK	53,810 (26.9)	86,810 (43.4)	33,000 (16.5)
M1074/M1076 TRUCK TRAILER	69,435 (34.7)	135,435 (67.7)	66,000 (33.0)



AXLE NUMBER:	1	2	3	4	5	6	7	8
TIRES PER AXLE:	2	2	2	2	2	2	2	2
EMPTY LOAD: (pounds (tons))	15,605 (7.8)	15,981 (8.0)	6,834 (3.4)	8,072 (4.0)	7,318 (3.7)	6,422 (3.2)	4,703 (2.4)	4,500 (2.3)
GROSS LOAD: (pounds (tons))	15,626 (7.8)	16,147 (8.1)	16,233 (8.1)	19,532 (9.8)	19,272 (9.6)	17,067 (8.5)	15,949 (8.0)	15,609 (7.8)

Source: SDDCTEA Information Paper: Military Design Standards for the National Highway System, August 31, 2000.

Public Comments

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HRTPO Public Comment (via email/Word document)

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RE: Public Comment Regarding the Hampton Roads Military Transportation Needs Study: Highway Network Analysis Draft Report
(HRTPO Staff Response Follows Public Comment)

Name: Ray Taylor
Date: July 10, 2011
Subject: Public comment input

For a first time effort, this draft study is superb in its depth, scope, value and potentially positive impact for the larger metropolitan area of Hampton Roads as well as for the DOD and federal facilities which it seeks to assist. The TPO staff deserves an enormous well done for this outstanding, first draft study. Comments and recommendations follow:

HRTPO Staff Response:
Thank you for reviewing and submitting comments on the Hampton Roads Military Transportation Needs Study DRAFT report. I have attached your public comment document with HRTPO Staff responses. Please advise if we can provide any further assistance.

A. Overarching Comments:
(Details for these comments are provided in the Specific Comments section below)

1. **Rail Transportation.** The report mentions rail transportation and it mentions the national rail STRACNET system established by DOD and FRA. With a depth of analysis equal to that used in the draft report for highways and the STRAHNET system, recommend (a) addressing freight rail projects that the military needs and recommend (b) addressing intercity passenger rail systems that the military will need.

HRTPO Staff Response:
(a) In this effort, we did not determine military freight rail needs. We will address this with the military study stakeholders in this fiscal year (FY-2012). (b) On pages 73 and 74 (Appendix A), we included the following comments from Rear Admiral Byron E. "Jake" Tobin, U.S. Navy (Retired):

> *"-Consider also the savings that would accrue to our Military, to our defense contractors, to our Coast Guard and Homeland Security officials, to our resident NATA officers, and to our biggest community if they were able to conduct a full day's business in Richmond or Washington without remaining overnight, thanks to the availability of high speed rail service."*

This concern was also summarized in the 3rd paragraph on page 3. In response to your comment, we have revised the term "high-speed rail" to "high-speed and intercity passenger rail". On page 65, we made a recommendation for "high-speed rail". It now reads, "Implement high-speed and intercity passenger rail service connecting Hampton Roads to Petersburg (Fort Lee), Richmond, Washington, DC and beyond. Representatives from the U.S. Navy have stated that a high-speed rail connection would allow military servicemen and officials to conduct a full day's business in Washington, DC without remaining overnight (page 3)."

2. **How to use this study:** The military is one of the major, but only one of the major stake holders with critical transportation needs in the Hampton Roads metropolitan area. The region's thirteen jurisdictions, the Ports Authority, the ten largest employment work centers and other stake holders also have critical transportation

needs. This is an excellent report with cogent and valid recommendations, but the report should not trump or go around the formal regional planning and programming process. We have suffered in the past from those kinds of activities. Fortunately and wisely, the TPO Staff has anticipated this requirement. On page 63 in the Conclusions section, the text reads, "…the HRTPO Staff plans to incorporate this work into future iterations of the Congestion Management Process (CMP), and the regional Long Range Transportation Plan (LRTP) Project Prioritization Tool to assist decision makers as they select future transportation projects". This was not always adequately clear in several places in preceding chapters of the study. Recommend that the study be emphatic on this point early on and throughout the study to avoid the case where some would try to say that the study says one thing and the HRTPO board-approved federally required LRTP and TIP documents say something else.

HRTPO Staff Response:
In response to your comment, the following sentence has been added to the last paragraph in the Introduction: Background section on page 1:

The results of this study will be incorporated into the federally required metropolitan planning and programming processes for the HRTPO (i.e. project development and selection for future Transportation Improvement Programs and Long-Range Transportation Plans).

3. **Quality new research and description of military unique parameters and programs for military transportation needs:** Both Chapter 2 and 6 provide concise, unique and excellent information that will help military leaders in the region better coordinate with the HRTPO and that will also strengthen the TPO's hand during its regular coordination work with the state.

    a. Chapter 2 describes the national transportation programs and infrastructure for military defense. It describes the nationwide STRAHNET and STRACNET systems as well as grant funding opportunities available via the Defense Access Road program. For the TPO, this is largely all new and useful information.

    b. Chapter 6 provides TPO Staff research results from having compared "Travel Conditions" as they exist in the 20 largest military concentrations in the nation. Obviously, this is useful information that will assist military leaders and the HRTPO to focus on and prioritize needed projects. This Chapter clarifies that Hampton Roads is the second largest "military region" in the nation but that it is not the second most hampered region when it comes to adverse transportation impacts. Among the twenty largest military regions in the nation, we rank 8th, 6th, 14th and 10th when it comes to parameters such as lost time, travel tax, delay per auto, etc. (See Table 12, page 58 for interesting details).

        At the same time, the study has identified many priority issues (deficient bridges, congestion points, etc.) that need priority attention. Many of these projects are in the region's 4-year Program or 20-year Plan. Compared to other military regions, it appears that we do not have an overall crisis on our hands, but rather that we need to more carefully nurse (and advance) projects that are in the pipeline forward with more care than in the past. As for just one example, the Route 564 Intermodal Connector project was once fully funded ten years ago but was not monitored or advanced, and its funding was rescinded. Reliable military representation and participation in the TTAC and TPO board meeting processes will assist with this effort.

        This Chapter also identified Hampton Roads and our military region as having the second highest fraction of driving-alone-commuters. The military needs to assist with this issue and cannot only complain and consume roadway space. Recommend including a recommendation that will address

how military leaders and commands can participate in providing travel options that will tame congestion and the other adverse impacts of commuting by auto in the region.

HRTPO Staff Response:
In response to your comments we have added the following text on page 26 regarding military assistance and participation in transportation alternative programs:

Roadway congestion can be reduced by either increasing capacity or lowering travel demand. The addition of roadway capacity is primarily out of the military's control; however, the military can influence and reduce the demand side. Working off-peak hours, telecommuting, ridesharing, and using public transit are several strategies which lower congestion. Recent experience in these areas has been mixed in Hampton Roads. Over 100 local military commands (with over 2,000 participants) are actively participating in travel management programs offered by TRAFFIX (a cooperative public service designed to promote transportation alternatives) to eliminate or shift automobile trips to other alternatives. However, the overall percentage of Hampton Roads commuters that drive alone to work has increased from 73% in 1990 to 82% in 2009[51].

Due to the prevalence of the military in Hampton Roads, in order to reduce regional congestion, the role of military leadership in increasing participation in demand reduction programs is paramount. Therefore, it is important for local military leaders and commands to modify policies concerning work times and work location and to solidify partnerships with Hampton Roads Transit (HRT), Williamsburg Area Transport (WAT), TRAFFIX, and other regional stakeholders to increase travel options for military personnel and reduce congestion near bases and across Hampton Roads.

We have also included the following recommendations on page 26 and 66:

- *It is recommended that local military leaders and commands modify policies concerning work times and work location and solidify partnerships with Hampton Roads Transit (HRT), Williamsburg Area Transport (WAT), and other regional stakeholders to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing, and using public transit.*

4. **Projects in the region's Long Range Transportation Plan (LRTP):** There are several places in the study which use the phrase "funded projects in the 2034 LRTP" or the phrase "unfunded 2034 LRTP candidate projects". This is very misleading. As stated on page 51 and elsewhere, "the LRTP serves as a blueprint". Indeed, it is a 20-year plan that is fiscally constrained so as to be realistic and not a dream list. There is, however, no funding budgeted, allocated or obligated to any of the projects in the Plan. It is the region's 4-year Transportation Improvement Program (TIP) that contains funding figures for projects. When referring to the LRTP, therefore, recommend identifying projects in the 2034 LRTP as those that are TPO board-approved for planning purposes rather than as "funded projects". Also recommend identifying projects that are not in the 2034 LRTP as future candidate projects that will be addressed during the next 2038 LRTP development cycle rather than as "unfunded projects".

HRTPO Staff Response:
Just as the TIP is financially-constrained (all dollars available over 4 years are allocated to projects), the LRTP is financially-constrained (all dollars available over 20+ years are allocated to projects). This allocation will be published in the forthcoming LRTP document.

5. **Defense Access Road (DAR) Program:** This program is described on page 13 of the study. While informative, there is no description of how this program has been used in the Hampton Roads metropolitan area. Recommend listing all projects that have gained DAR assistance in the past. If research results show that DAR has not ever been used in Hampton Roads, then pose a recommendation that will examine why

[51] U.S. Census Bureau.

this has been the case. Recommend listing candidate projects for DAR assistance in the future. Recommend describing the precise HRTPO and military actions necessary to initiate or participate in such DAR activities.

HRTPO Staff Response:
In response to your comment, we have contacted the Military Surface Deployment and Distribution Command (SDDCTEA) re: the DAR program history of past projects within Hampton Roads. SDDCTEA responded and stated that three projects have received DAR funding assistance in the last twenty years. We have added the following list to the report within the DAR section:

According to the SDDCTEA, the following projects in Hampton Roads have received financial assistance through the DAR Program since 1986[52]:

- *Norfolk Naval Shipyard in Portsmouth – Access road beginning at the intersection of George Washington Highway and the proposed main entrance to the Scott Center Annex (Certified on July 21, 1995).*
- *Naval Support Activity Norfolk – Access road beginning at the intersection of International Terminal Boulevard and Meredith Street (Certified on June 24, 1991).*
- *Fort Eustis in Newport News – Project implemented in the 2000s to provide second access (Certified on October 31, 1986).*

In terms of your suggestion of describing actions necessary to initiate DAR projects, we have added the following text below the DAR program eligibility bullets on page 13:

According to FHWA's website[53]:

> *"To initiate a DAR project, the local military installation identifies the access or mobility needs and brings these deficiencies to the attention of the Military Surface Deployment and Distribution Command (SDDC). The SDDC reviews the requirement and makes a preliminary eligibility determination. If it appears eligible, the SDDC requests the FHWA to prepare an engineering evaluation to identify the cost and scope of the needs. The FHWA forwards the evaluation and recommendations to the SDDC. The SDDC then submits its determination of eligibility and its recommended fair share of the improvements to the Commander, SDDC, with the recommendation that the route be certified as important for the national defense. Once certified by the Commander, SDDC, the roads become eligible for DAR funding."*

In response to your comments, we will also ask our Fort Eustis contact about their DAR plans for their recent influx of military personnel.

6. **Including/advancing military transportation projects in the SYIP, TIP and the LRTP:** On page 26 and elsewhere, the text recommends giving priority in the SYIP, the TIP and LRTP documents to projects that improve conditions on Roadways Serving the Military network. Recommend that this repeated paragraph be divided into two paragraphs, one that addresses regional HRTPO's LRTP and TIP actions and one that addresses state level SYIP and STIP actions. It is important and will be useful to have distinction between what are the regional actions required and what are the state level actions that are required. When addressing the state level actions, it is important to note, per federal regulations, that the regional TIP is "included unchanged" in the state's STIP document. These distinctions and clarity are blurred as currently described in the draft study.

HRTPO Staff Response:
In response to our comment, we separated state and TPO actions into two sentences as follows:

[52] Email correspondence with Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), July 2011.
[53] US Department of Transportation & Federal Highway Administration website, Defense Access Roads (DAR), http://flh.fhwa.dot.gov/programs/dar/.

- *When selecting projects for VDOT's Six-Year Improvement Program (SYIP), the Commonwealth Transportation Board should give priority to transportation projects that improve severe congestion on the "Roadways Serving the Military" network.*
- *Likewise, when selecting projects for the Hampton Roads Transportation Improvement Program (TIP) and the Hampton Roads Long-Range Transportation Plan (LRTP), the HRTPO should give priority to transportation projects that improve severe congestion on the "Roadways Serving the Military" network.*

The relationship between the TIP and STIP, although important, does not appear pertinent to this military effort.

B. Specific Comments:

1. Page 1: In the 2nd paragraph, the text notes that two military liaison seats were established for military participation at TPO board meetings (one Navy and one Coast Guard). Recommend review this as I had thought there was also (and should be) one representative from the Peninsula representing both Fort Eustis and Langley AFB. Also recommend including similar range representation on the TTAC.

   HRTPO Staff Response:
   You are correct as we used to have participation from the U.S. Army, however, they are no longer participating at this time. Invitations were originally sent in May 2009 to all military service branches in the region requesting their participation at HRTPO board meetings. Currently, only the U.S. Navy and U.S. Coast Guard are participating as non-voting members on the HRTPO board. This invitation is always open. Similarly, participation in TTAC is open to all military service branches. In response to your comment, we have revised the second paragraph on page 1 to include the following two sentences:

   In May 2009, invitations were extended to all military branches in the region requesting their participation in the planning process and at monthly HRTPO Board meetings. Two military liaisons (U.S. Navy and U.S. Coast Guard) are currently participating as non-voting HRTPO Board members. The invitation remains open to all interested military parties.

2. Page 1: The last paragraph notes that efforts have been launched to permit annual military briefings for the HRTPO board and for the CTB. Recommend following up on this point, either here in the text, or later on in summary recommendations where these briefings are being conducted or not along with best recommendations as may be appropriate.

   HRTPO Staff Response:
   We tentatively have scheduled a briefing by a military representative to the HRTPO board for September 2011.

3. Page 3, third paragraph: Here the text notes that military leaders requested consideration be given to high speed rail connections to and from Hampton Roads along with desired parameters such as one day travel back and forth, etc. Recommend adding a new section to this study that fully addresses High Performance Passenger Rail projects to and from Hampton Roads.

   HRTPO Staff Response:
   We have included all of the military-related high-speed rail information that we have. See comments in A.1 above. High-speed rail projects "to and from Hampton Roads" are addressed in documents being produced by TEMS.

4. Page 6: For the list of participants involved in this Military Transportation Needs Study, recommend considering the addition of a veteran or a veteran's organization such as the Navy League or a regional Defense Contractor's Association. Alternatively, the HRMFFA organization coordinates with all defense

contractors and commands and, if available, could provide an able representative for this purpose. In any case, this action would help bridge the military-civilian dialog process.

HRTPO Staff Response:
Craig Quigley, Executive Director HRMFFA has been added to our contact list.

5. Page 7, Chapter 2, National Transportation Programs: In the first paragraph, give as much attention to the STRACNET system as is now given to the STRAHNET system. And, as mentioned above, develop and add a new section to this study that will address the emerging High Performance Passenger Rail system and its utility as a military transportation system. In particular, address the rail liaisons between Hampton Roads and Fort Lee and between Hampton Roads and Washington, DC.

   HRTPO Staff Response:
   In response to your comment, we revised the recommendation on page 65 to the following:
   - *Implement high-speed and intercity passenger rail service connecting Hampton Roads to Petersburg (Fort Lee), Richmond, Washington, DC and beyond. Representatives from the U.S. Navy have stated that a high-speed rail connection would allow military servicemen and officials to conduct a full day's business in Washington, DC without remaining overnight (page 3).*

6. Page 13: Recommend giving more attention to the Defense Access Road (DAR) program as has been suggested in item A.5 above.

   HRTPO Staff Response:
   Changes have been made and are outlined in item A.5 above.

7. Page 15: Recommend adding Amtrak-Norfolk (under construction) and Amtrak-Bower's Hill (in the CTB-approved, Tier I EIS Alternative-1 Plan) to the list of Other Intermodal Facilities serving the military. Related to this item, also recommend including the Tri-Cities MPO (Greater Petersburg) to the distribution list for, and as a participant in, this study.

   HRTPO Staff Response:
   For this study, we listed only existing military and supporting sites. We plan to update this list as well as the roadways serving the military when new sites are added/deleted. We will add Amtrak-Norfolk and Amtrak-Bower's Hill to this list when they are completed.

8. Page 45, Chapter 5, Identification of Projects: The first paragraph in this Chapter provides a useful description of how transportation projects are entered in the planning and construction plans. In particular, it notes the order of importance of key documents (TIP list, LRTP list and Future Candidates list). In the second, TIP paragraph, recommend describing the TIP as a 4-year Program that is updated at the regional level each two years. Also, recommend referring to the state level STIP document in this paragraph and noting that the HRTPO board and Governor-approved regional TIP, per federal regulations, is "included unchanged" in the STIP.

   HRTPO Staff Response:
   HRTPO staff agrees that it would be beneficial to update the TIP more frequently than every three to four years (current federal requirement) and believes a schedule to update the document every two years would be the most effective. HRTPO staff is currently working with VDOT and DRPT on this issue. The relationship between the TIP and STIP, although important, does not appear pertinent to this military effort.

9. Page 51: This page describes the region's Long Range Transportation Plan (LRTP). The text begins with the correct statement that the LRTP is the blueprint for the region's transportation development process. It is not a funding document; there are no budgeted, obligated or allocated funds attached to projects listed in the LRTP blueprint. The text gets close to being unclear on this point. Recommend added clarification, and recommend deleting reference to the HB-2527/SB-1446 legislation that served primarily to identify projects for the near term development of the state and regional level Programs, the SYIP and the TIP. Also recommend moving table 10 which lists "funded" studies to the Chapter that addresses the TIP where "funded" projects, and studies, are listed.

   HRTPO Staff Response:
   See comments made in item A.4 above. Because the studies list came from the LRTP process, it is included in the LRTP section.

10. Page 53: Recommend changing the title which starts at the bottom of this page from Unfunded 2034 Candidate Projects to "Future 2038 LRTP Candidate Projects". This will align with the Conclusions at the end of the study. This change also acknowledges that the LRTP is not the document that lists funded or unfunded projects but rather it is the document that lists the projects that were selected using the region's prioritization tool and that it is the realistic and financially constrained list of projects which was approved by the HRTPO board for planning purposes. This improper reference to funded or unfunded 2034 LRTP projects occurs in other places in the study and should be similarly edited, for example, see page 65 in the study.

    HRTPO Staff Response:
    See comments made in item A.4 above.

11. Page 56: This page provides recommendations as concerns military transportation projects in the LRTP. Recommend editing the opening paragraph to read: "Based on stakeholder input and analysis from this study, the HRTPO staff recommends that the following list of projects be reconsidered during the region's next 2038 LRTP development process and during the next scheduled biennial update of the regional TIP". This puts the action item back into the standard and approved Plan and Program development process as is described well in the Conclusions of this study. This also avoids the hint that we could just change the approved list outside of due process.

    HRTPO Staff Response:
    In response to your comment, the 1st paragraph on page 56 has been revised as follows:
    "Based on stakeholder input and analysis from this study, the HRTPO staff recommends advancing the following projects (from Table 11 on pages 54-55) as additional funding permits:"

12. Page 65: The last paragraph on this page is titled Public Transportation and it calls attention to the goal of implementing high speed rail service between Washington, DC and Hampton Roads. This High Performance Passenger Rail topic needs more attention than is afforded in the study so far. Recommend adding another Chapter to the study that will address current and future planning activities for passenger rail systems as an important and inevitable piece of Military Transportation needs, especially future needs for this particular mode of travel.

    HRTPO Staff Response:
    See comments made in item B.3 above.

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HRTPO Public Comment (via email)

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RE: Public Comment Regarding the Hampton Roads Military Transportation Needs Study: Highway Network Analysis Draft Report
(HRTPO Staff Response Follows Public Comment)

Name: Skip Stiles
Date: July 14, 2011
Subject: Comments on draft military transportation needs report

In reviewing the draft military transportation needs report, I find the same deficiencies as with the region's long range transportation plan: there is no consideration of the increasing inundation threats posed by sea level rise. The HRPDC's own documents illustrate this threat, and observations in the region point this out as well. The US Department of Transportation has conducted initial assessments of inundation vulnerability for the region and point to increasing problems. There is currently a highway study underway with the HRPDC as a partner to look at climate change challenges to transportation. In 2012, the Department of Defense will release a study on sea level rise impacts on military facilities in Hampton Roads.

I strongly urge that this issue be included in the report, since it has a long range planning horizon and since the problem is so pervasive in the region.

Thank you,
Skip Stiles

HRTPO Staff Response:
Thank you for taking the time to send us comments regarding sea level rise and climate change. You are correct. This is an important issue that affects many residents and facilities within the Hampton Roads region. The HRPDC has done work in this area and continues to partner with other organizations regarding these impacts. This study is the first effort to integrate military transportation needs into the planning process and we plan to continue/expand this effort in the future. We are in the process of finalizing this final document and will discuss this issue with the study stakeholders for consideration in future updates.

If you have any additional questions or comments, please feel free to submit them to us.

Letter from U.S. Navy Commanding Officer in Hampton Roads to HRTPO Regarding the Hampton Roads Military Transportation Needs Study: Highway Network Analysis

DEPARTMENT OF THE NAVY
NAVAL STATION NORFOLK
1530 GILBERT STREET, SUITE 2000
NORFOLK, VIRGINIA 23511-2722

IN REPLY REFER TO:
11000
00/AM3/1191
9 AUG 2011

Mr. Dwight Farmer
Executive Director
Hampton Roads Transportation Planning Organization
723 Woodlake Drive
Chesapeake, VA 23320

Dear Mr. Farmer,

On behalf of the Installation Commanding Officers in the Hampton Roads area, and Commander, Navy Region Mid-Atlantic, I would like to thank you for the opportunity to provide comments on the draft "Hampton Roads Military Transportation Needs Study" dated July 2011.

Prior to providing specific comments on the study, I would like to express our appreciation to the Hampton Roads Transportation Planning Organization (HRTPO) and in particular, to the staff of the HRTPO, for the time and effort that has been involved in the preparation of this study. I would also like to express our gratitude to the HRTPO for its recognition of the importance of the region's transportation systems to the area's military installations. In that regard, I would like to affirm our continued interest and willingness to collaborate with the HRTPO to address the complex transportation issues facing the Hampton Roads region and the military installations located here.

The Navy has an acute interest in many of the transportation programs and issues identified in the study including specific interest in reducing congestion for military commuters, increasing capacity to and from the Hampton Roads area, as well as enhancing safety and improving the quality of life for our military, civilian and contractor personnel. Many of the study's recommendations directly address or would impact these issues, and I believe could have a positive effect if implemented.

RECEIVED
AUG 18 2011
HRPDC

Letter from U.S. Navy Commanding Officer in Hampton Roads to HRTPO Regarding the Hampton Roads Military Transportation Needs Study: Highway Network Analysis (continued)

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During the course of the study the Navy identified several projects of particular interest. These include the Interstate I-564 Intermodal Connector with Air Terminal

Interchange, expansion of the regional light rail system to include the proposed extension to Naval Station Norfolk, improved harbor crossings such as the Hampton Roads Bridge Tunnel expansion, Patriots Crossing or Third Crossing, and the physical maintenance of the many components of the STRAHNET system including the Interstate, primary arterials and bridges. The report carefully considers these issues in the analysis sections as well as including them in the report's final recommendations.

In regard to the STRAHNET, we support the decision to assess not only the existing STRAHNET network but also to include the additional roadways necessary to create a more efficient and effective strategic highway system. The addition of these critical roadways is reflective of the need for access to a more robust roadway network due to the large number of military installations dispersed throughout the Hampton Roads region. For the STRAHNET analysis specifically, we endorse the recommendation to include Yorktown Road (Route 238) between Interstate 64 and Jefferson Avenue (Route 143) which serves the Naval Weapons Station Yorktown. In addition, we strongly support the recommendation to properly maintain the roads that comprise the STRAHNET and "Roadways Serving the Military" System.

As high-speed rail continues to be assessed, the potential military ridership component to the greater Washington area and Richmond would seem to advocate such service. The Navy supports continued efforts in this area.

RADM Alexander will be relieving RADM Boensel in late September as Commander, Navy Region Mid-Atlantic. We will look forward to an opportunity in the late fall (Oct-Dec) for him to attend a TPO meeting. We greatly appreciate the strong support of the HRTPO to address transportation issues of concern to the military installations in Hampton Roads, for including military representation in the regional transportation planning processes

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and finally, for the decision to create this study. We look forward to working with the HRTPO in continuing this important work.

Sincerely,

M. M. JACKSON
Captain, U.S. Navy
Commanding Officer

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