

# **Integrating the Military into the Metropolitan Transportation Planning Process: The Hampton Roads, Virginia Experience**

## **Author:**

Samuel S. Belfield  
Senior Transportation Engineer  
[sbelfield@hrtpo.org](mailto:sbelfield@hrtpo.org)

## **Address:**

Hampton Roads Transportation Planning Organization  
723 Woodlake Drive  
Chesapeake, Virginia 23320  
Phone: (757) 420-8300  
Fax: (757) 523-4881  
[www.hrtpo.org](http://www.hrtpo.org)

**Word Count:** 5,625+ 1 Table + 3 Figures = 6,625

**1      Abstract**

2  
3      According to the Transportation Research Board (TRB) Military Transportation Committee, most U.S.  
4      metropolitan planning areas with military installations currently have a disconnect between DoD military bases,  
5      Metropolitan Planning Organizations (MPOs), Department of Transportations (DOTs), and local communities. The  
6      Hampton Roads Transportation Planning Organization (HRTPO), however, has a long-standing relationship with the  
7      military community and has taken steps to increase related efforts in recent years. The HRTPO has advanced the  
8      cause of planning in Hampton Roads—and, by example, in the United States—through a coordinated approach to  
9      meeting the transportation needs of the military located in the Hampton Roads region.

10     In response to military concerns regarding local traffic congestion and delays, the HRTPO Board placed  
11     greater emphasis on military transportation planning in the region by endorsing annual military briefings by military  
12     representatives to the MPO Board, and by including a military needs study in its work program. The Hampton  
13     Roads Military Transportation Needs Study, an on-going effort by the HRTPO, is reportedly the first and only  
14     attempt of an MPO to identify solutions to the transportation needs of local military. The purpose of this paper is to  
15     inform other metropolitan areas about the integration of the military into the transportation planning process in  
16     Hampton Roads and to provide a summary of key findings from the region's Military Transportation Needs Study.  
17     Other MPOs can apply the methodologies, results, successes, and lessons learned from Hampton Roads to their  
18     respective regions.

19

# 1      **Integrating the Military into the**

## 2      **Metropolitan Transportation Planning Process:**

### 3      The Hampton Roads, Virginia Experience

#### 4      **INTRODUCTION**

5      The Hampton Roads region contains one of the largest natural harbors in the world, making the region an  
6      attractive location for military facilities. The region's military presence is comprised of the Norfolk Naval Base, the  
7      largest in the world, and dozens of other military facilities, all together having more than 110,000 active duty  
8      military personnel (1). As a result of the area's large military presence, much of the local economy is driven by the  
9      U.S. Department of Defense (DoD). The total direct economic impact of the Navy alone on Hampton Roads was  
10     \$14.8 Billion in 2009 (2). The total military population—including active duty, reserve, retirees and family  
11     members— totals approximately 300,000 (3) or almost 20% of the area's total population of 1.6 million (4).  
12     Efficient military operations require a transportation network which moves cargo and personnel quickly and safely.  
13     Not only does the condition of the Hampton Roads transportation network impact the future viability of the region  
14     as a military hub, but it impacts national security as well.

15     According to the Transportation Research Board (TRB) Military Transportation Committee (5), most U.S.  
16     metropolitan planning areas with military installations currently have a disconnect between DoD military bases,  
17     Metropolitan Planning Organizations (MPOs), Department of Transportation (DOTs), and local communities. The  
18     Hampton Roads Transportation Planning Organization (HRTPO), however, has a long-standing relationship with the  
19     military community and has taken steps to increase related efforts in recent years. The HRTPO has advanced the  
20     cause of planning in Hampton Roads—and, by example, in the United States—through an innovative and  
21     coordinated approach to meeting the transportation needs of the military located in the Hampton Roads region.

22     The Hampton Roads Military Transportation Needs Study, an on-going effort by the HRTPO, is reportedly  
23     the first and only attempt of an MPO to identify solutions to the transportation needs of local military. According to  
24     Wendy Vachet, Regional Community Plans and Liaison Officer, U.S. Navy Mid-Atlantic Region, this study is the  
25     only one of its kind in the United States. According to the remarks of a television interview, Captain M.M. Jackson,  
26     Commanding Officer of Naval Station Norfolk, the largest military base in the world (6), labeled the study "historic"  
27     (7).

28     The purpose of this paper is to inform other metropolitan areas about the integration of the military into the  
29     transportation planning process in Hampton Roads and to provide a summary of key findings from the region's  
30     Military Transportation Needs Study. Other MPOs can apply the methodologies, results, successes, and lessons  
31     learned from Hampton Roads to their respective regions.

#### 32      **The Need for Integration**

33      SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users),  
34      requires MPOs to address eight planning factors through their metropolitan transportation planning process:

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

46      The integration of the military in Hampton Roads into the transportation planning process is part of the  
47      MPO's overall effort to promote each of the eight planning factors with a special focus on military transportation

1 needs. Addressing military transportation needs in Hampton Roads enhance regional and national security and  
 2 defense readiness. This initiative is aimed at supporting economic vitality (Factor 1), increasing safety (Factor 2),  
 3 increasing accessibility and mobility of military personnel and freight (Factor 4), enhancing integration and  
 4 connectivity (Factor 6), and emphasizing the preservation of the existing transportation system for the military  
 5 (Factor 8). Many transportation projects that benefit the military support one or more of the federal planning  
 6 factors. For example, projects that reduce roadway congestion will also help the region maintain its current military  
 7 assets and attract future military growth, thereby improving the regional economy.

8  
 9 *Military Personnel and Economic Impact*

10  
 11 Hampton Roads hosts one of the largest military populations in the United States. It is estimated that the  
 12 U.S. Navy alone owns more than 36,000 acres and more than 6,750 buildings in the area. In 2009, the Navy and  
 13 Marines had approximately 86,377 active duty personnel and 35,987 civilian employees and a total estimated Navy  
 14 "Family" of 266,874, including retired Navy, survivors, and family members (8). The Navy and Marines active  
 15 duty and civilian personnel represented about 11% of the total employment in Hampton Roads in 2009 (9). In  
 16 addition to the U.S. Navy and Marines, the Hampton Roads region hosts numerous bases and installations for the  
 17 U.S. Army, Coast Guard, and Air Force. Table 1 below provides the 2010 military and civilian employment for  
 18 some of the major military sites in Hampton Roads.

TABLE 1: Hampton Roads Military and Civilian Employment by Military Site, 2010 (10)

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 <sup>1</sup>	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 <sup>1</sup>	4,088	1,490	5,578
Navy/Marines	Naval Weapons Station Yorktown <sup>1</sup>	1,311	839	2,150
Navy/Marines/ Army	Naval Amphibious Base Little Creek-Fort Story	12,468	5,623	18,091
Army	Fort Eustis <sup>1</sup>	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

<sup>1</sup> 2009 Employment

19  
 20 *Local Military Concerns*

21  
 22 Given the strong military presence in the Hampton Roads region, the HRTPO engaged various stakeholders  
 23 to determine military concerns related to transportation. Several local military representatives (active and retired)  
 24 recently provided oral and written statements to the HRTPO Board to express their concerns regarding  
 25 transportation in Hampton Roads (11) (12). Some representatives requested that the HRTPO Board consider their  
 26 ability to respond quickly to military crisis as well as being able to evacuate in times of national defense  
 27 emergencies or natural disaster. They stated that traffic congestion affects commuting for their military personnel as  
 28 well as travel times between installations. Delays at specific bridges/tunnels significantly detract from mission

1 performance effectiveness and efficiency. Military leaders are also concerned about traffic congestion's impact on  
2 overall quality of life for service members and their dependents.

3 According to these military representatives, mobility, is currently impeded by insufficient local  
4 transportation infrastructure. They mentioned several proposed projects as being important to the military, including  
5 a light rail extension to Naval Station Norfolk. They also requested consideration of time savings associated with  
6 high-speed and intercity passenger rail service connecting Hampton Roads to Richmond, Washington, DC and  
7 beyond. For example, a high-speed rail connection would allow military servicemen and officials to conduct a full  
8 day's business in Washington, DC without remaining overnight.

9 These military representatives expressed concern regarding traffic safety and congestion and suggested  
10 some potential consequences for the Hampton Roads region. They stated that local service members and their  
11 families who are routinely impacted by traffic challenges are therefore less likely to spend additional tours of duty in  
12 this location or consider this area for retirement. Furthermore, they suggested that transportation congestion may  
13 hinder the ability to maintain or bring additional military personnel to our region. For these reasons, it is important  
14 for the HRTPO to plan and implement transportation improvement projects that provide a safe and efficient  
15 transportation network for the military.

## 16 OTHER REGIONS

17

18 The HRTPO staff conducted a cursory review of military-related planning activities in other U.S. regions.  
19 Some MPOs, such as Delaware Valley Regional Planning Commission (DVRPC), include transportation projects  
20 that address military needs. The Broad Street Subway Extension to the Navy Yard is included in DVRPC's 2008  
21 Long-Range Vision for Transit.

22 In December 2008, the Federal Highway Administration (FHWA) Georgia Division completed the Georgia  
23 Strategic Highway Network (STRAHNET) initiative to ensure military routes in the State were fully capable of  
24 supporting a national defense deployment. This was a coordinated effort between FHWA, the Georgia DOT, and  
25 the Military Surface Deployment and Distribution Transportation Engineering Agency, in cooperation with the Fort  
26 Stewart Transportation Division, the Port of Savannah and the Chatham Urban Transportation Study.  
27 Recommendations for improvement were in the following areas: STRAHNET revisions, traffic capacity, pavement  
28 conditions, deficient bridges, access/maintenance, and drainage.

29 The approach found to be closest to the HRTPO effort was the 2011 "Regional Transportation Vision"  
30 (RTV) for Naval District Washington (NDW). RTV 2035 is a holistic and forward-thinking vision to proactively  
31 address transportation needs, demonstrate compliance with laws, regulations and policies, and become a leader in  
32 sustainability. This effort was conducted by the Naval Facilities Engineering Command (NAVFAC) Washington  
33 with the assistance of three transportation consultants (Atkins Global, AECOM, and the Louis Berger Group). The  
34 RTV is specific to Naval District Washington and not the entire metropolitan planning area. The RTV contains a  
35 good framework for military planning with the establishment of regional partnerships, improved traveler  
36 information, employee incentives/teleworking, land use development strategies, parking management, mobility  
37 options, and usage of alternative fuels.

38 Upon review of the military-related planning activities in other U.S. regions, no initiatives were found with  
39 comprehensive methodologies or tools to address military needs on a regional level like the HRTPO effort.

## 40 FIRST STEPS TOWARD INTEGRATION

41

### 42 Military Involvement

43

44 For many years, the military community has worked with the HRTPO to help steer HRTPO transportation  
45 studies and to participate, as non-voting members, in the HRTPO Technical Transportation Advisory Committee  
46 (TTAC). In June 2007, the HRTPO staff worked with various stakeholders and completed a traffic management  
47 study requested by the U.S. Navy and the City of Norfolk that recommended solutions to decrease delays moving  
48 into and out of Naval Station Norfolk. In May 2009, invitations were extended to all military branches in the region  
49 requesting their participation at monthly HRTPO Board meetings. Four military liaisons (U.S. Navy, U.S. Coast  
50 Guard, U.S. Army, and U.S. Air Force) are currently participating as non-voting HRTPO Board members. The  
51 invitation remains open to all interested military parties. One liaison from the Navy is also currently participating as  
52 a non-voting member on the HRTPO Freight Transportation Advisory Committee (FTAC). Through participation in  
53 these meetings, local military representatives are engaged with VDOT, HRTPO, local communities, and various  
54 other stakeholders on a regular basis, communicating their transportation concerns and providing valuable input.

## 1 Congestion Management Process (CMP)

2

3 A Congestion Management Process (CMP) is an on-going program which evaluates congestion in a  
4 region's multi-modal, transportation system and recommends improvements. The CMP is a federal requirement for  
5 urbanized areas over 200,000 in population. The main goals of the CMP are to reduce congestion/travel time delays,  
6 encourage the use of alternative modes of transportation, and improve air quality. The CMP is used as a guide to  
7 develop project recommendations for the Transportation Improvement Program and the Long-Range Transportation  
8 Plan.

9 The first Congestion Management System for Hampton Roads was released in 1995, and was updated in  
10 1997, 2001, 2005, and 2010. In recent years, the Hampton Roads CMP has been showcased around the country as a  
11 model region at various FHWA CMP training workshops. The 2010 Hampton Roads CMP takes a "region-wide"  
12 approach to identify and address congestion concerns (13). The CMP also develops a "toolbox" of strategies to  
13 address the most congested locations. In addition, this report ranks corridors based on congestion and a variety of  
14 other criterion, including freight, safety, travel speed, and military significance. Finally, congestion mitigation  
15 strategies are identified and recommended for these locations.

### 17 *Military Consideration in CMP Segment Ranking Criteria*

19 As part of the 2010 Hampton Roads CMP, a CMP Segment Ranking Criteria was developed to identify the  
20 most critical corridors in the region with severe congestion. HRTPO staff developed this system to assist regional  
21 planners, engineers, and decision makers determine the top congested freeway and arterial corridors in the region.

22 HRTPO staff included the consideration of the military in the CMP Segment Ranking Criteria factors:

- 24 1) Existing Level of Service (10 point max.)
- 25 2) Freight (5 point max.)
- 26 3) Safety (5 point max.)
- 27 4) Travel Speeds (2 point max.)
- 28 5) National Highway System (NHS)/Military (3 point max.)

30 Weights were applied to each criterion to produce scores for each congested roadway segment. The maximum score  
31 that any roadway segment could achieve was 25 points. Concerning the fifth factor, if the roadway segment is part  
32 of the NHS or the Non-STRAHNET Roadways Serving the Military (identified in the Highway Network Analysis  
33 portion of Hampton Roads Military Transportation Needs Study), 2 points are awarded. If the roadway segment is  
34 part of the STRAHNET, 3 points are awarded.

## 36 Long-Range Transportation Plan (LRTP)

38 A Long-Range Transportation Plan (LRTP) is a multimodal transportation plan that is developed, adopted,  
39 and updated by an MPO through the metropolitan transportation planning process. The LRTP addresses a planning  
40 horizon of at least 20 years and includes strategies and transportation investments that lead to an integrated  
41 multimodal transportation system. The HRTPO, in partnership with local, state, federal, military, freight, transit,  
42 and citizen stakeholders, released the 2034 LRTP in January 2012 (14). These key stakeholders worked together to  
43 prioritize projects in order to develop a long-term investment framework for addressing the region's transportation  
44 system.

### 46 *Military Consideration in Project Prioritization Tool*

48 As part of the Hampton Roads LRTP, the HRTPO created a Project Prioritization Tool to score candidate  
49 transportation projects. This tool was developed to assist decision makers in selecting projects to be included in the  
50 2034 LRTP. The prioritization methodology evaluates projects based on three components: Project Utility, Project  
51 Viability, and Economic Vitality. The maximum score that a candidate project can receive is 300 points (100 points  
52 per component).

53 Within the Economic Vitality component for highways, highway interchanges, and bridges and tunnels,  
54 projects that increase access for defense installations receive the maximum score (6 points) and 4 points are awarded  
55 to projects located on the STRAHNET. Projects that are located on Non-STRAHNET "Roadways Serving the  
56 Military in Hampton Roads" (discussed in detail below) are now awarded 3 points. Within the Economic Vitality

1 component for public transit projects, a maximum of 10 points were awarded to projects that provided or improved  
2 transit access for defense installations ( $\frac{1}{4}$  mile or less = 10 points, between  $\frac{1}{4}$  mile and  $\frac{1}{2}$  mile = 5 points, greater  
3 than  $\frac{1}{2}$  mile = 0 points).

4

## 5 Past Military-Related Studies

6

7 The HRTPO staff conducts special studies for various transportation issues in order to improve safety,  
8 increase mobility, and relieve congestion in the region. These special studies are typically requested by local  
9 municipal governments, the HRTPO Board, military or other transportation stakeholders, or the general public. As  
10 mentioned above, the HRTPO staff worked with the U.S. Navy and the City of Norfolk to complete a traffic  
11 management study for Naval Station Norfolk in June 2007. This study examined commuting characteristics, traffic  
12 congestion, travel times, rail crossings, crash rates, transit/transportation demand management programs, planned  
13 projects, and future traffic conditions in the vicinity of the military base. An alternatives analysis was conducted  
14 and recommendations were made, such as safety countermeasures, improvements in traffic signal phasing at  
15 intersections, extending turn lanes, improved traveler information, gate management techniques, and encouraging  
16 carpooling/vanpooling.

17

## 18 HAMPTON ROADS MILITARY TRANSPORTATION NEEDS STUDY

19

20 Late in 2009, several local military representatives told the HRTPO Board that congestion and delays at  
21 bridges and tunnels hurt mission performance effectiveness and efficiency. Rear Admiral Byron E. Tobin (Retired  
22 US Navy) addressed the HRTPO Board during February 2010 stating:

23 “...we are dependent, in large measure, upon the resources and support of this region for the  
24 efficient and successful conduct of our mission. One of the key components of that success is  
25 mobility, [which is currently impeded] because our transportation infrastructure is in decline and  
26 struggling to meet our needs.”

27 In response, the HRTPO Board placed greater emphasis on military transportation planning in the region and  
28 endorsed annual military briefings by military representatives to the HRTPO Board and to the Commonwealth  
29 Transportation Board, and included a military needs study in its work program. The purpose of the Hampton Roads  
30 Military Transportation Needs Study is to identify and address the transportation needs of the military in Hampton  
31 Roads.

32 The Hampton Roads Military Transportation Needs Study is comprised of three phases:

33

- 34 1. Highway Network Analysis (15)
- 35 2. Military Commuter Survey (16)
- 36 3. Sea-Level Rise for Roadways Serving the Military

37

### 38 Phase I: Highway Network Analysis

39

40 Phase I of the Hampton Roads Military Transportation Needs Study was completed and approved by the  
41 HRTPO Board in September 2011. In this first phase, HRTPO staff worked with various stakeholders – local  
42 military representatives, state and federal agencies, port officials and local jurisdictions – to determine transportation  
43 concerns and needs of the local military. Based on stakeholder input, the HRTPO staff identified a roadway network  
44 that includes both the Strategic Highway Network (STRAHNET) and additional roadways that serve the military  
45 sites and intermodal facilities not included in the STRAHNET. Staff then reviewed this “Roadways Serving the  
46 Military” network to determine deficient locations, such as congested segments, deficient bridges, and inadequate  
47 geometrics—and recommended related improvements.

48

#### 49 Coordination and Participation

50

51 To coordinate the needs of stakeholders and guide the development of the study, the HRTPO staff  
52 organized and led a group of stakeholders from the following organizations:

53

- 54 • U.S. Navy, U.S. Army, U.S. Air Force, U.S. Coast Guard

- 1 • FHWA and Virginia Department of Transportation (VDOT)
- 2 • Military Surface Deployment and Distribution Command Transportation Engineering Agency
- 3 • Virginia Port Authority (VPA)
- 4 • Hampton Roads Transit (HRT)
- 5 • City of Norfolk, City of Virginia Beach, and other local jurisdictions

6  
7 At the beginning of the study, the HRTPO staff convened the group to determine the scope of the effort. The group  
8 was reconvened at various key stages in the process to maintain two-way communication with staff. In addition,  
9 HRTPO staff obtained input and buy-in from the group via frequent email exchanges. Throughout the effort, the  
10 HRTPO staff coordinated its efforts with those of the MPO Technical Committee's representative from the U.S.  
11 Navy, Wendy Vachet, Regional Community Plans and Liaison Officer.

12 *Examination of the Adequacy of STRAHNET in Hampton Roads*

13 The Strategic Highway Network (STRAHNET) is a national 61,000-mile system of roads (45,000 miles of  
14 Interstate and 16,000 miles of other important public roadways) deemed necessary for emergency mobilization and  
15 peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support U.S.  
16 military operations. STRAHNET Connectors (approximately 1,700 miles) are additional roadways that link over  
17 200 important military installations and ports to the network. Together, STRAHNET and the Connectors define the  
18 total minimum defense public highway network needed to support a defense emergency.

19 The HRTPO staff, in coordination with the local military stakeholder group, conducted a review of the  
20 current STRAHNET route designations in Hampton Roads to determine if they were adequate. The Hampton Roads  
21 region contains fourteen STRAHNET sites, consisting of major military installations and port facilities. The  
22 STRAHNET system that serves those locations consists of all Interstate highways (I-64, I-264, I-464, I-564, I-664),  
23 several non-Interstate STRAHNET U.S. highways (13, 58, 460), and STRAHNET Connectors (Figure 1). As part  
24 of the study, the HRTPO staff made recommendations concerning needed additions to the local STRAHNET and  
25 obtained documented support from the Navy for these recommendations. The HRTPO staff then submitted the  
26 recommendations and letters of support to VDOT for submittal to FHWA.

27 *Identification of Roadways Serving the Military*

28 At the initial military study group meeting, several stakeholders expressed concern that many military-  
29 related sites in Hampton Roads were not included as STRAHNET sites. As a result, HRTPO staff identified  
30 additional Hampton Roads military sites and intermodal facilities not included in STRAHNET and prepared a list of  
31 roadways that serve those locations.

32 First, HRTPO staff worked with the stakeholder group to develop a list of 38 "Military and Supporting  
33 Sites" that were grouped into three categories: 1) STRAHNET Sites 2) Other Intermodal Facilities and 3) Other  
34 Military Sites. The new intermodal facilities provide military support by moving military personnel and goods in  
35 the event of a national or local emergency.

36 Secondly, HRTPO staff developed a comprehensive "Roadways Serving the Military" network unique to  
37 Hampton Roads (Figure 2). This new roadway network consisted of existing Strategic Highway Network  
38 (STRAHNET) roadways as well as non-STRAHNET roadways that serve military sites or intermodal facilities in  
39 the region. Staff used the following criteria in selecting the non-STRAHNET roadways:

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

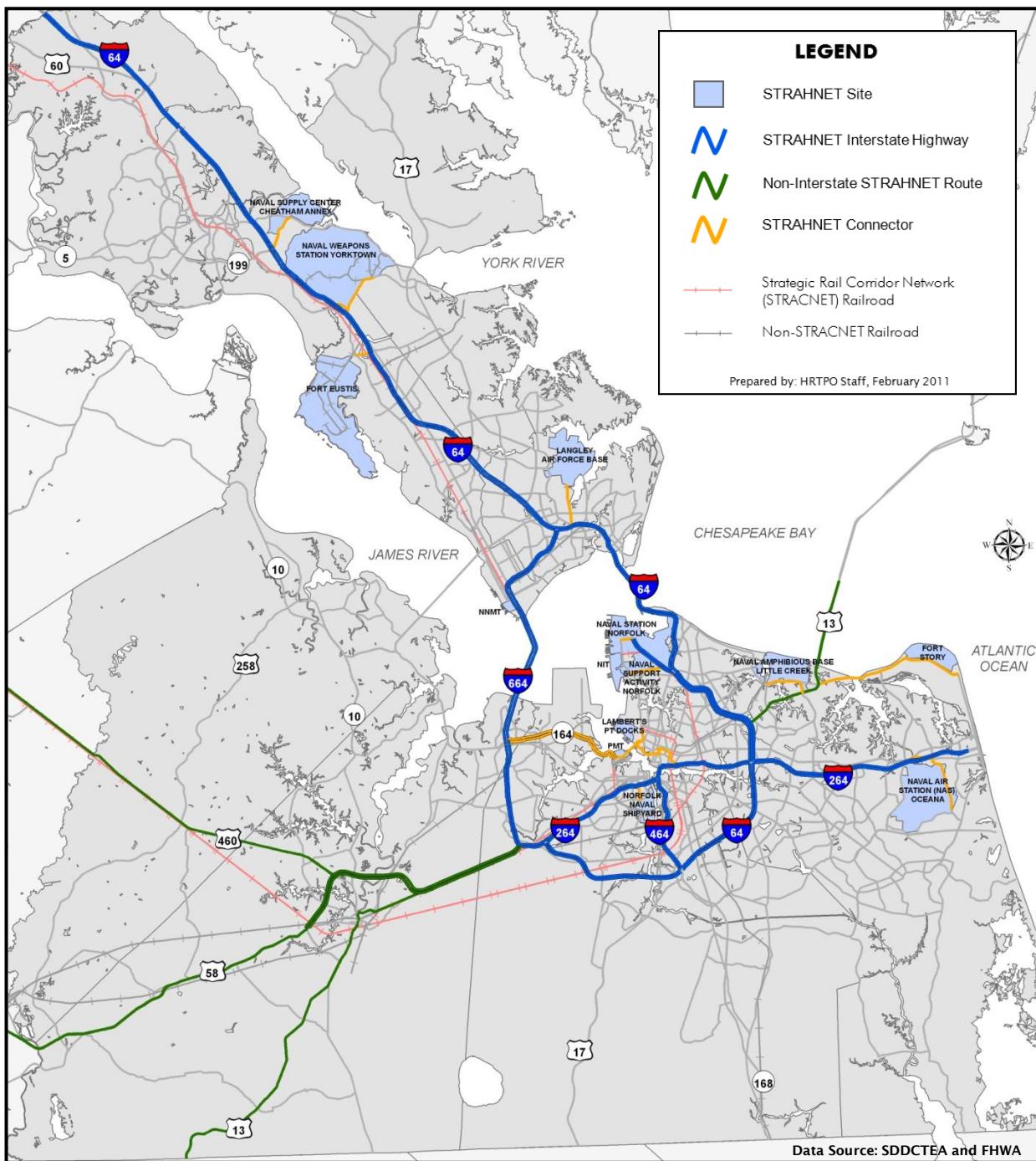
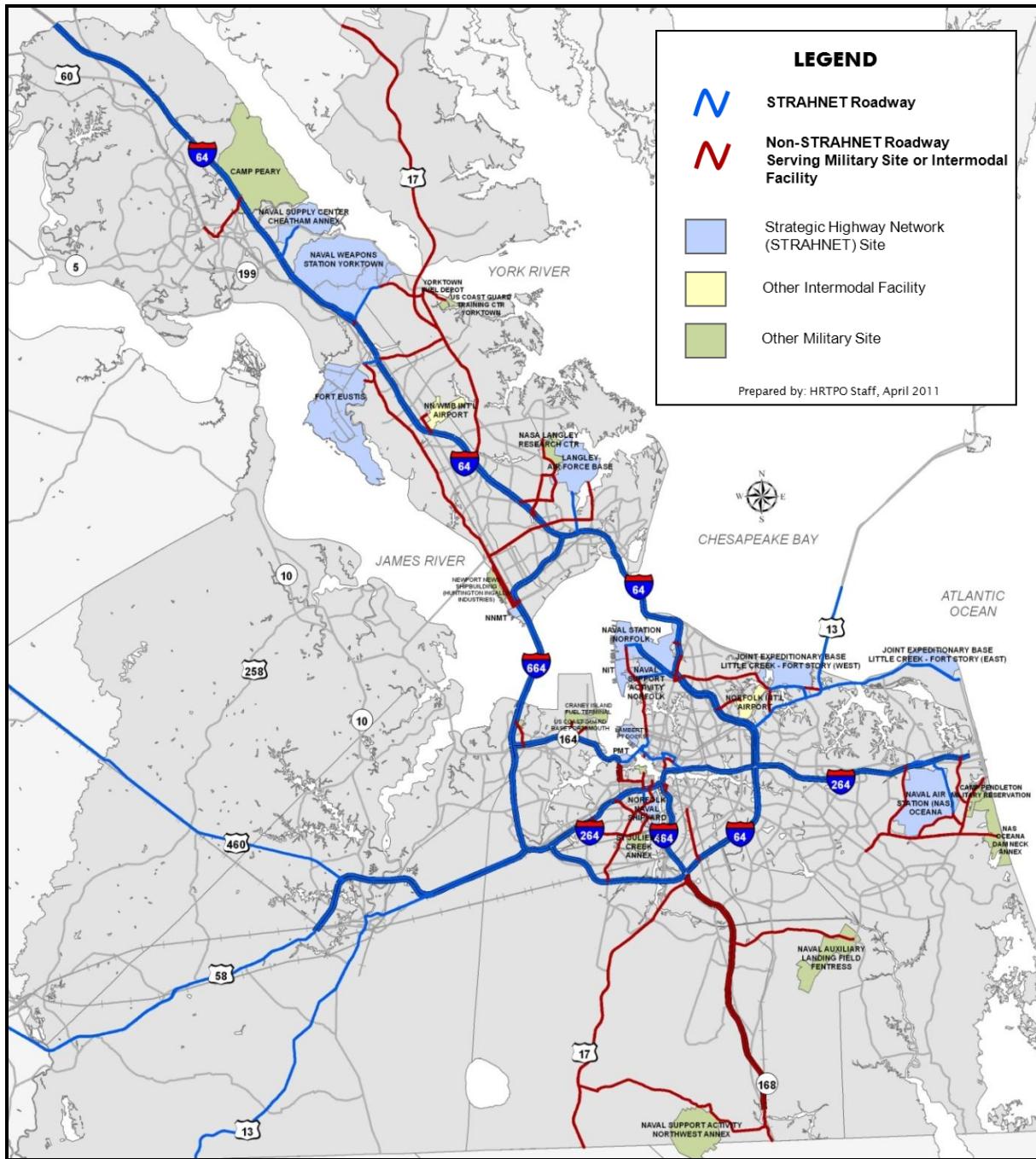
**FIGURE 1: Strategic Highway Network (STRAHNET) in Hampton Roads**

FIGURE 2: Roadways Serving the Military – Hampton Roads



1      *Determination of Deficiencies in Roadways Serving the Military*

2  
3      The next step in this study was to determine current deficiencies in the “Roadways Serving the Military” in  
4      order that countermeasures could be developed for them. This part of the study identified any severely congested  
5      roadway segments, deficient bridges, vertical clearances and lane widths below military preferences, as well as other  
6      issues that may hinder the military function in the region. A comprehensive set of tables and maps detailing the  
7      location and condition for each deficiency was included.  
8

9      *Identification of Transportation Projects that Benefit the Military*

10  
11     As a step toward rectifying the deficiencies, the HRTPO staff identified all transportation projects and  
12     studies within the current Transportation Improvement Program (TIP) and Long-Range Transportation Plan that  
13     benefit the military. The primary criteria used to identify transportation projects beneficial to the military was to  
14     include any project, such as a roadway widening, interchange improvement, or bridge replacement, located on the  
15     “Roadways Serving the Military” in Hampton Roads. Other non-highway transportation projects, such as Intelligent  
16     Transportation System (ITS) and operational upgrades, public transit, and Transportation Demand Management  
17     (TDM) programs that may yield benefits to military travel were also included.  
18

19      *Comparison of Travel Conditions with Other U.S. Military Regions*

20  
21     The purpose of this section was to provide a comparison of Hampton Roads with other U.S. metropolitan  
22     areas that have a high concentration of military sites using national travel performance metrics. According to 2008  
23     Bureau of Economic Analysis data, Hampton Roads has the second highest concentration of military employment in  
24     the nation behind the San Diego, CA area. The Washington DC/Northern VA, Killeen-Temple-Fort Hood, TX, and  
25     Honolulu, HI MSAs round out the top five MSAs for military employment in the nation. The measures of  
26     comparison included average yearly delay per auto commuter, mean travel time to work, daily vehicle miles of  
27     travel per capita, and peak period travel time tax.  
28

29      *Recommendations*

30  
31     The study made numerous recommendations to address existing deficiencies and to accommodate future  
32     military travel needs, including:

33  
34        

- Revisions to current STRAHNET designations
- Conducting roadway maintenance to preserve the existing infrastructure
- Increasing vertical clearance of tunnels
- Expanding the width of highway lanes to accommodate military vehicles
- Rehabilitating or replacing structurally deficient bridges
- Extending light rail transit to Naval Station Norfolk and high-speed passenger rail service to  
Washington, D.C.

  
41

42      **Phase II: Military Commuter Survey**

43  
44     This portion of the Hampton Roads Military Transportation Needs Study built on the first phase (Highway  
45     Network Analysis) by conducting a survey of local military. HRTPO staff collected responses for the Hampton  
46     Roads Military Commuter Survey from November 8, 2011 to February 24, 2012. Within the survey, the HRTPO  
47     collected information about the commuting experience of military personnel (active-duty, civilians, contractors,  
48     reservists and others) travelling to/from the region's military bases. The survey was developed by HRTPO staff in  
49     concert with the commands of the region's military installations and various other transportation stakeholders. The  
50     purpose of the survey was to determine the transportation challenges facing local military personnel during their  
51     daily commutes in Hampton Roads. The results will enable transportation decision-makers, including the HRTPO  
52     Board, to direct resources to solve those problems in an informed manner.

1     *Coordination and Development*

2           To coordinate the development of the survey, the HRTPO staff reconvened the military stakeholders group.  
3     At the kickoff meeting for the survey, the group reviewed and provided feedback on an initial set of survey  
4     questions drafted by the HRTPO staff. The group also discussed potential distribution methods and outreach  
5     strategies. Several members from the group were reconvened at various key stages in the process to maintain two-  
6     way communication throughout the process. Throughout the survey process, the HRTPO staff coordinated its  
7     efforts with those of the MPO Technical Committee's representative from the U.S. Navy, Wendy Vachet, Regional  
8     Community Plans and Liaison Officer.

9           The survey was developed using Google documents and was hosted on the HRTPO website. Even though  
10    survey responses were sought from all military commuters in the region, military commuters were specifically  
11    targeted who travel to/from 29 of the 38 military and supporting sites identified in phase I of the study. These 29  
12    military sites are the primary locations for military-related employment. The remaining 9 locations are supporting  
13    sites, such as port terminals and airports, which move military personnel and goods in the event of a national or local  
14    emergency. Note that one benefit of hosting the survey on the HRTPO website was that thousands of military  
15    personnel who reside within Hampton Roads were introduced to the HRTPO, some learning about its metropolitan  
16    planning process and activities.

17     *Outreach and Distribution*

18           Prior to launching the survey, HRTPO staff asked various military personnel to beta test the survey from  
19    various military sites in the region. Given that several military sites were initially blocked by internal security and  
20    firewalls, this was an important step. Once the access issues had been resolved, the HRTPO staff prepared an  
21    official press release to promote the survey to all military commuters in the region. Several local press organizations  
22    published articles regarding the survey, helping jumpstart participation. Given that two military liaisons (U.S. Navy  
23    and U.S. Coast Guard) were already participating as non-voting HRTPO Board members, there was initial buy-in to  
24    the survey from top regional military leaders, many of whom strongly encouraged their military personnel to  
25    participate in the survey through email blasts and various other methods.

26           HRTPO staff coordinated with military and other local stakeholders to distribute the survey using a variety  
27    of methods:

28           

- 29           • HRTPO website and e-newsletter
- 30           • Military websites
- 31           • Military and study stakeholders
- 32           • Transportation Technical Advisory Committee (TTAC) members
- 33           • Jurisdiction websites
- 34           • Military email chains from military leaders
- 35           • Local news and print media
- 36           • Newsletters and flyers
- 37           • Social Media (i.e. Facebook, Twitter)

38     *Summary of Results*

39           A total of 10,994 Hampton Roads military commuters completed the HRTPO Military Commuter Survey.  
40     The comprehensive survey contained over 50 transportation-related questions in the following areas:

41           

- 42           • Work Location and Military Demographics
- 43           • Home Residences
- 44           • Travel Time and Primary Mode
- 45           • Gate Installation Usage
- 46           • Transportation Problems to/from Work
- 47           • Congested Locations during Commute
- 48           • Commuting Alternatives
- 49           • Job-Related Travel within Hampton Roads
- 50           • Job-Related Travel outside of Hampton Roads

1     • Interest in High-Speed Passenger Rail  
2     • Comments/Suggestions Regarding Transportation

3  
4     Respondents were asked to identify items such as length of morning and afternoon commutes, mode of  
5     transportation, transportation problems, and any locations of recurring trouble along their commute. Although most  
6     results were summarized on a regional level to reveal general travel trends and patterns for local military  
7     commuters, some results were summarized by military site to reveal travel patterns for that location.

8     The top reported transportation problems by military commuters were traffic congestion (79%), traffic  
9     backups at military gates (67%), and poor roadway maintenance (42%) (Figure 3). At the end of the survey,  
10    respondents were asked to submit any suggestions they had regarding transportation in the region. Not only did they  
11    provide excellent feedback, but many expressed thanks for having the opportunity to communicate their  
12    transportation challenges. Some of the top suggestions made by military commuters were:

13  
14    • Expand Light Rail Transit (LRT)  
15    • Make changes to HOV lanes (i.e. convert to HOT, open to military, convert to transit)  
16    • Improve military gate operations (i.e. more personnel, travel lanes, gates, id scanning)  
17    • Interested in more public transit  
18    • Better maintenance of roads/bridges (i.e. potholes, rough joints)  
19    • Not in favor of tolls for transportation funding  
20    • Encourage/allow alternative work schedules (i.e. staggered work hours, telework)  
21    • Additional bike lanes/paths  
22    • Construct/expand regional roadways, bridges and tunnels  
23    • Expand public transit hours of operation

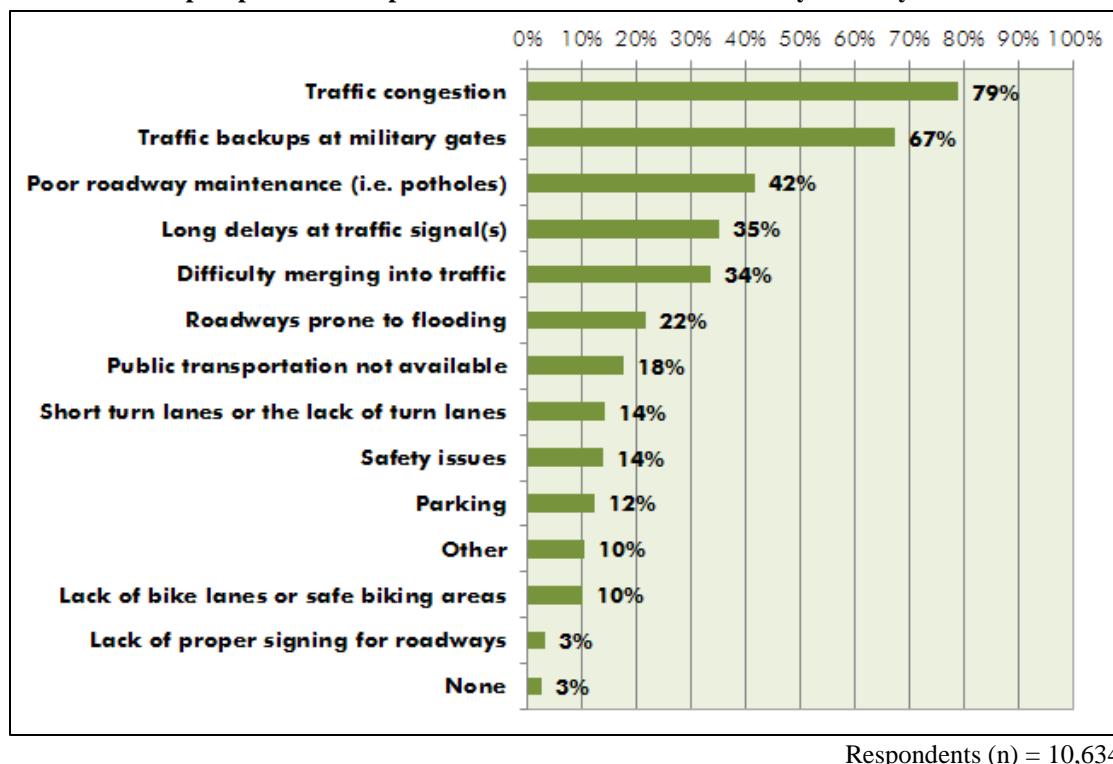
24  
25 *Recommendations*

26  
27     As part of the survey report, the HRTPO staff developed a set of recommendations based on survey  
28     responses and staff analysis. The recommendations for improving military travel throughout Hampton Roads  
29     included:

30  
31    • Addressing congested locations on public roadways with congestion mitigation strategies contained in the  
32     Hampton Roads CMP  
33    • Improving operations at congested military gates  
34    • Extending light rail passenger service to Naval Station Norfolk and Virginia Beach  
35    • Increasing the speed and frequency of intercity passenger rail service  
36    • Changes to existing transit bus routes and stops  
37    • Providing designated vehicles/bikes (vehicle/bike pool) or other transportation services, such as zipcar  
38     ([www.zipcar.com](http://www.zipcar.com)), to military personnel who commute via public transportation for mid-day errands  
39     and/or meetings  
40    • Providing enhanced transit service/options at major military bases, such as a shuttle/transit circulator  
41     service within the base and to/from other locations (exchange, medical facilities, other military sites, etc.)  
42    • Promoting the usage of Travel Demand Management (TDM) strategies such as working off-peak hours,  
43     telecommuting, ridesharing (carpools/vanpools), and using public transit  
44    • Improving bicycle and pedestrian facilities and street lighting

45  
46     The survey represents an extension of the partnership between the region's leaders, transportation planners,  
47     and the local military commands. The results from the survey will help the HRTPO plan improvements with scarce  
48     transportation resources. In addition, the U.S. Navy and two private consultants are utilizing portions of the survey  
49     results for initiatives to improve passenger rail and travel to and from Naval Station Norfolk and Naval Support  
50     Activity Hampton Roads.

51     The survey helped the MPO reach out to its community, which is a federal requirement for MPO planning.  
52     The HRTPO military commuter survey is proving to be a valuable tool for determining the transportation needs of  
53     the military.

**FIGURE 3: Top Reported Transportation Problems to/from Work by Military Commuters**

Respondents (n) = 10,634

## 1 Future Phases

## 2

## 3

4 The results of this study are being incorporated into the on-going federally required metropolitan planning  
 5 and programming processes for the HRTPO. In fiscal year 2013, the HRTPO staff plans to build on the results of  
 6 phases I and II by estimating the sea-level threats to Roadways Serving the Military in Hampton Roads. The  
 7 HRTPO also plans to continually update the Hampton Roads Military Transportation Needs Study as part of the  
 8 Hampton Roads Congestion Management Process (CMP). HRTPO staff will make specific updates to phases I, II,  
 9 and III of the study as conditions change and warrant additional analysis. The study can also serve as a basis for  
 10 future military-related studies.

## 11 CONCLUSIONS

## 12

## 13

14 The integration of special stakeholders, such as the military, into the metropolitan transportation planning  
 15 process can be a challenging, but rewarding experience. For Hampton Roads, the local military represents a unique  
 16 component of the region comprising a large portion of the population with a tremendous impact on the regional  
 17 economy. Solving issues pertaining to military transportation needs within Hampton Roads is critical to the local  
 18 military's success. An efficient regional transportation infrastructure not only affects the quality of life for local  
 19 military personnel, but is important to our national security as well.

20 It is important for regions with a military presence to engage local military leaders and maintain a  
 21 cooperative exchange of information. A partnership between the military and transportation stakeholders takes time  
 22 to develop and strengthen. By providing a thorough assessment of the military's views on this vital topic to an MPO  
 23 Board, MPO staff can enable that Board to respond to those views.

## 24

## 25 ACKNOWLEDGEMENTS

## 26

27 The project was completed through funding from the Federal Highway Administration, Virginia  
 28 Department of Transportation, and local governments within the HRTPO. The authors would like to thank the  
 29 members of the HRTPO Technical Transportation Advisory Committee (TTAC) for supporting the study. Special

1 appreciations are also extended to Ms. Wendy Vachet (U.S. Navy Mid-Atlantic Region), Mr. Ivan Rucker, (FHWA  
2 Division Office in Richmond, Virginia), and members of the military stakeholders group in Hampton Roads.

3 **REFERENCES**

4

5 (1) United States Joint Forces Command (USJFCOM), [www.jfcom.mil](http://www.jfcom.mil), January 2011.

6 (2) Navy Region Mid-Atlantic Public Affairs Office News Release, January 5, 2011.

7

8 (3) United States Joint Forces Command (USJFCOM), [www.jfcom.mil](http://www.jfcom.mil), January 2011.

9

10 (4) HRTPO, Hampton Roads 2009 Socioeconomic Data.

11

12 (5) Transportation Research Board (TRB) Annual Meeting, January 2011.

13

14 (6) NCIS ([www.ncis.navy.mil/AboutNCIS/Locations/Norfolk/Pages/default.aspx](http://www.ncis.navy.mil/AboutNCIS/Locations/Norfolk/Pages/default.aspx)).

15

16 (7) WVEC (WVEC.com, September 14, 2011).

17

18 (8) Navy Region Mid-Atlantic Public Affairs Office News Release, January 5, 2011.

19

20 (9) Navy Economic Impact Brief, HRPDC Special Report, No. 7, January 6, 2011.

21

22 (10) Virginia Business, 2010 Hampton Roads Statistical Digest.

23

24 (11) HRTPO Board Meeting, December 16, 2009.

25

26 (12) HRTPO Board Meeting - Retreat, February 10, 2010.

27

28 (13) HRTPO, Hampton Roads Congestion Management Process: 2010 Update, September 2010.

29

30 (14) HRTPO, 2034 Long-Range Transportation Plan, January 2012.

31

32 (15) HRTPO, Hampton Roads Military Transportation Needs Study: Highway Network Analysis, September 2011.

33

34 (16) HRTPO, DRAFT Hampton Roads Military Transportation Needs Study: Military Commuter Survey,  
35 July 2012.

36

37