Hampton Roads 2040 Long-Range Transportation Plan:

Plan Performance

the heartbeat of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

June 2016

T16-06

Updated February 2020

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ABSTRACT
The Hampton Roads Transportation Planning Organization (HRTPO) is currently in the process of updating the regional Long-Range Transportation Plan to the horizon year 2040. As part of this process and in keeping with federal regulations, HRTPO must consider multimodal transportation options to effectively address future regional needs based upon projected population and employment growth for the next 20 years.

The document – part of the compendium of reports that comprise the 2040 Hampton Roads Long-Range Transportation Plan – summarizes the forecasted performance of the 2040 LRTP.

ACKNOWLEDGEMENTS
This document was prepared by the Hampton Roads Transportation Planning Organization (HRTPO) in cooperation with the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Virginia Department of Transportation (VDOT), Virginia Department of Rail and Public Transportation (DRPT), Transportation District Commission of Hampton Roads (TDCHR), and Williamsburg Area Transit Authority (WATA). The contents of this report reflect the views of the HRTPO. The HRTPO staff is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the FHWA, FTA, VDOT or DRPT. This report does not constitute a standard, specification, or regulation. FHWA, FTA, VDOT or DRPT acceptance of this report as evidence of fulfillment of the objectives of this program does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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The HRTPO assures that no person shall, on the ground of race, color, national origin, handicap, sex, age, or income status as provided by Title VI of the Civil Rights Act of 1964 and subsequent authorities, be excluded from participation in, be denied the benefits of, or be otherwise subject to discrimination under any program or activity. The HRTPO Title VI Plan provides this assurance, information about HRTPO responsibilities, and a Discrimination Complaint Form.

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PREPARED BY:

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Table of Contents

List of Tables

List of Figures

List of Maps

Hampton Roads 2040 Long-Range Transportation Plan: Plan Performance

2040 Long-Range Transportation Vision Statement

With an engaged public, the 2040 Long-Range Transportation Plan sets forth a vision to develop a well-balanced transportation system that promotes good quality of life while enhancing the unique character of Hampton Roads.

LRTP Update Overview

Over the past four years, the Hampton Roads Transportation Planning Organization, or HRTPO (the MPO for Hampton Roads), has been updating the regional Long-Range Transportation Plan (LRTP) to the horizon year of 2040. The updated LRTP, entitled *Navigating the Future to 2040*, is anticipated to be complete by summer of 2016.

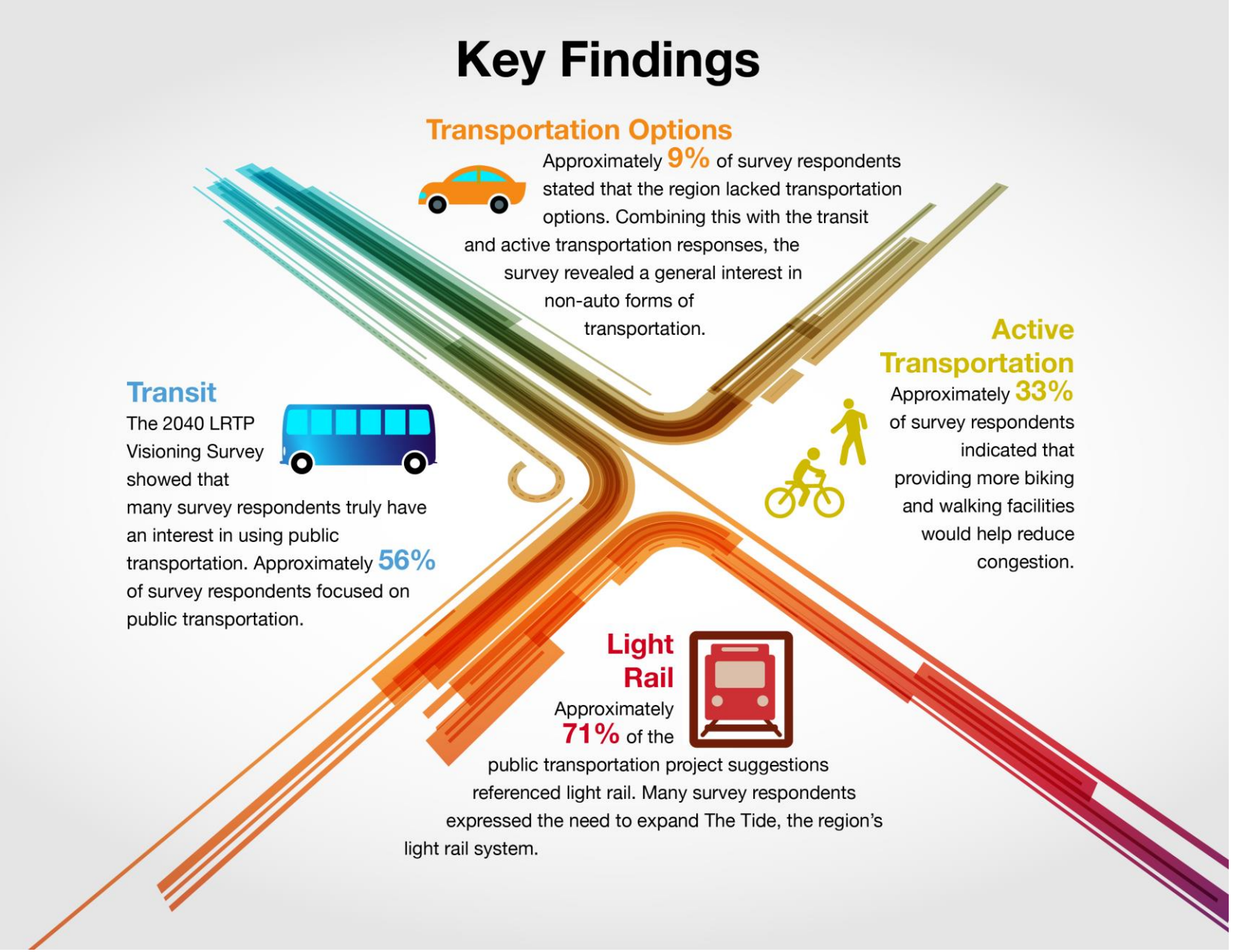
This report is one in a series of reports outlining the development of the 2040 LRTP. Previous reports include information on the visioning survey designed to solicit regional concerns to help define the plan's vision and goals, the socioeconomic forecast describing projected population and employment growth for the region, the collection of candidate transportation projects to consider in the development of the LRTP, the evaluation and prioritization of these candidate projects, transportation challenges that exist in the region and associated strategies designed to meet these challenges, the assessment of candidate projects from a Title VI and Environmental Justice perspective, the documentation of the funding plan, and a project information guide.

Regional Priorities

Utilizing a survey questionnaire, regional priorities were solicited from stakeholders and interested citizens across Hampton Roads. These priorities were then used to help define the vision and goals that would help guide the development of the 2040 LRTP. Key Findings from the 2013 Visioning Survey included:

- Interest in Public Transportation
- Interest in the Expansion of Light Rail
- More Active Transportation Facilities
- More Transportation Options

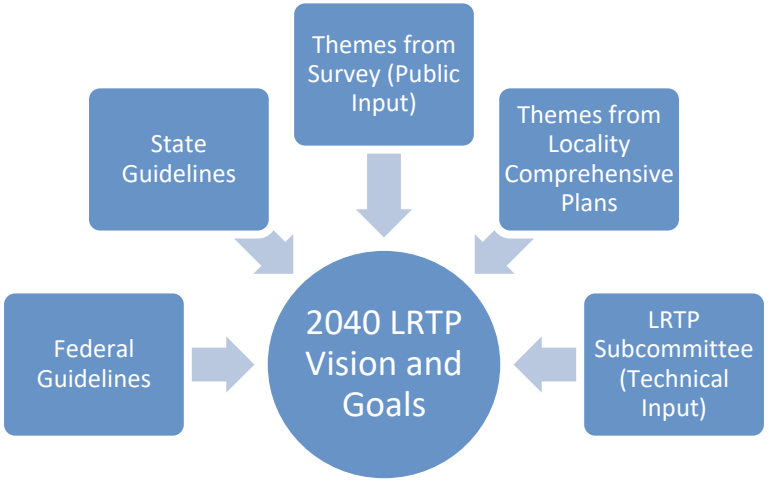
FIGURE 1: KEY FINDINGS FROM 2040 LRTP VISIONING SURVEY



2040 LRTP Vision Statement and Goals

The Vision Statement for the 2040 LRTP is to develop a well-balanced transportation system that promotes good quality of life while enhancing the unique character of Hampton Roads – while engaging the public throughout the planning process. To help achieve this vision, 13 goals (refer to Table 1) were identified. Both the Vision Statement and accompanying goals were developed by incorporating Federal and State guidelines, common themes from local comprehensive plans as well as public input from the Visioning Survey, and further refined with input from the LRTP Subcommittee (subcommittee responsible for guiding the development of the LRTP).

Figure 2: Various Inputs for 2040 LRTP Vision and Goals

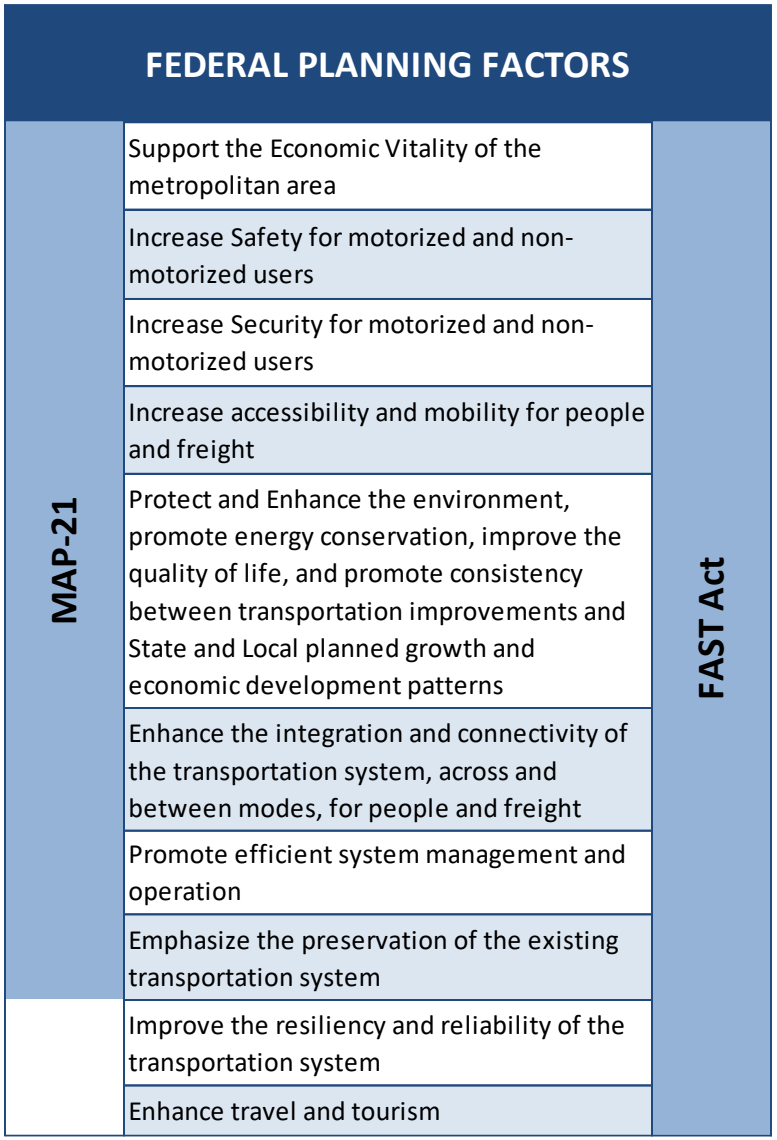


Federal Planning Priorities

On July 6, 2012, President Obama signed *Moving Ahead for Progress in the 21st Century Act* (MAP-21) into law. Like its predecessor transportation bill SAFETEA-LU, a large majority of funding in MAP-21 is dedicated to highway spending with a funding split of 80% for highways and 20% for transit. In addition to strengthening the nation's highway and public transportation systems, MAP-21 also streamlined the regulatory process, expediting project delivery while encouraging the protection of the environment. MAP-21 also sped up the environmental review process for approving projects, in part by allowing certain projects to fall under Categorical Exclusions, as well as allowing for multiple agency reviews to be conducted concurrently rather than sequentially, cutting the project delivery time in half—from 15 years to about seven. MAP-21 also required the establishment of performance measures and targets to evaluate transportation investments. MAP-21 expired on September 30, 2014, but Congress authorized several extensions until the bill was replaced on December 4, 2015 with *Fixing America's Surface Transportation Act*, or FAST Act. FAST Act is the first law enacted in over ten years that provides long-term funding certainty for surface transportation. FAST Act largely maintains current program structures and funding shares between highways and transit; the law also makes some changes and reforms to many Federal transportation programs, provides new safety tools, and establishes new programs to advance critical freight projects.

FAST Act builds on the eight Planning Factors identified under MAP-21, incorporating two additional factors related to resiliency/reliability and travel/tourism. As stated previous, Federal Planning Factors were used as guidelines in developing the goals for the 2040 LRTP.

Figure 3: Federal Planning Factors



VTrans2040 Vision

Virginia's multimodal transportation system will be ***Good for Business***, ***Good for Communities***, and ***Good to Go***. Virginians will benefit from a sustainable, reliable transportation system that advances Virginia businesses, attracts a 21st century workforce, and promotes healthy communities where Virginians of all ages and abilities can thrive.

State Planning Priorities

The Commonwealth's long-range multimodal transportation plan, *VTrans2040*, is being developed in two phases and will be reported in two companion documents: the *VTrans2040 Vision* and the *VTrans2040 Multimodal Transportation Plan*.

VTrans2040 will focus on the needs of the Commonwealth's statewide network of Corridors of Statewide Significance, the multimodal regional networks that support travel within metropolitan regions, and improvements to promote locally designated Urban Development Areas (UDAs). In order to be considered for funding under the statewide prioritization process (established under House Bill 2), projects must help address a need identified in *VTrans2040*.

Adopted by the Commonwealth Transportation Board on December 9, 2015, the *VTrans2040* Vision establishes Virginia's Guiding Principles, Vision, Goals, and Objectives in a policy framework to guide partner agency investment decision over the next 25 years. The *VTrans2040* Vision was informed by detailed trend analyses and stakeholder input regarding transportation-related issues and opportunities associated with major economic generators, freight movement, household characteristics, land development patterns, transportation technology, and the natural environment. Additionally, seven Guiding Principles and 5 Goals have also been defined to help realize the overall state vision.

Figure 4: VTrans2040 Guiding Principles

FIGURE 5: VTRANS2040 GOALS

COMMON REGIONAL PLANNING THEMES

In addition to the Federal and State planning guidelines discussed above, common themes from the 2040 LRTP Visioning Survey and local comprehensive plans were also identified and referenced in the development of the LRTP Vision and Goals (refer to Figures 5 and 6 on the following pages).

INPUT FROM LRTP SUBCOMMITTEE

After incorporating Federal and State planning guidelines and common themes from the Visioning Survey and local comprehensive plans from across the region, the LRTP Subcommittee further refined the 2040 LRTP Vision and Goals. Input from the Subcommittee included:

Vision statement should:

- Reflect unique character of Hampton Roads
- Engage the public
- Promote a transportation system that will enhance:
  - Quality of Life
  - Economy
  - Environment
  - Safety
- Promote an efficient and well-balanced transportation system

Goals should include:

- Maintenance for all modes of transportation
- Coordination between modes
- Reduction of congestion on existing infrastructure
- Dedicated and sustainable revenue sources

FIGURE 6: COMMON THEMES FROM VISIONING SURVEY (PUBLIC INPUT)

FIGURE 7: COMMON THEMES FROM LOCAL COMPREHENSIVE PLANS

Table 1 provides the relationship between federal, state, and regional transportation planning goals.

TABLE 1: FEDERAL, STATE, AND 2040 LRTP GOALS RELATIONSHIP

FEDERAL PLANNING FACTORS	*VTrans2040* PLANNING GOALS	2040 LRTP PLANNING GOALS
Support the economic vitality of the metropolitan area.	Economic Competitiveness and Prosperity	Support the economic vitality of the metropolitan area, enabling global competitiveness, productivity, and efficiency.
Enhance travel and tourism.		
Increase safety for motorized and non-motorized users.	Safety for All Users	Increase the safety of the transportation system for all users, including minimizing conflicts between motorized and non-motorized modes.
Increase security for motorized and non-motorized users.		Ensure the security of the region's transportation infrastructure and its users.
Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and Local planned growth and economic development patterns.	Healthy Communities and Sustainable Transportation Communities	Protect and enhance the environment, promote energy conservation and improve the quality of life.
		Consider the impact of transportation investments on the environment.
		Promote compatibility between transportation improvements and planned land use and economic development patterns.
Increase accessibility and mobility for people and freight.	Accessible and Connected Places	Increase accessibility and mobility of people and goods.
Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.		Provide a variety of transportation options that accommodates all users.
		Increase the coordination of the transportation system, across and between modes, for people and goods.
Promote efficient system management and operation.	Proactive System Management	Promote an efficient and reliable regional transportation system.
Improve the resiliency and reliability of the transportation system.		
Emphasize the preservation of the existing transportation system.		Preserve and maintain the existing transportation system.
		Engage a diverse public in the development of the region's transportation system.
		Continue to work towards finding dedicated and sustainable revenue sources for transportation to close the funding gap.

Plan Performance

The goals developed for the 2040 LRTP serve as a foundation in which to formulate transportation investment strategies and projects. The goals aim to maximize the utility of transportation dollars within the guidance of Federal, State, and Regional strategies. The HRTPO has established technical approaches to help realize the LRTP goals. These technical approaches include ongoing planning efforts (e.g. congestion management, safety, freight, etc.), the HRTPO Project Prioritization Tool which evaluates candidate projects based on technical merits and regional benefits, the application of the Regional Travel Demand Model, and spatial analyses. Some of these technical approaches produce quantifiable measures and maps and are reported in this document. Other approaches involve monitoring of the transportation system and focused planning studies.

Table 2 on the following page outlines the approaches in place to help achieve the 2040 LRTP goals. This table also documents which quantifiable measures are contained within this document to help gauge the forecasted performance of the plan from a regional perspective. Table 2 also references other planning efforts in place to help move the Hampton Roads region towards realizing its long-range transportation goals.

Figure 8: Transportation Terms to Know

TERMS TO KNOW

Congested Speed	Reduced vehicle speed as a result of congestion
HBO	Home Based Other - Vehicle trip where one trip end is home (e.g. home to post office)
HBS	Home Based Shopping - Vehicle trip where one trip end is home and the other trip end is shopping (e.g. home to mall)
HBW	Home Based Work - Vehicle trip where the trip ends are either home or work (i.e. home to work or work to home)
Mode Share	The mode or choice of travel (e.g. drive alone in car, share a ride, take transit, etc.)
NHB	Non Home Based - Vehicle trip where neither trip end is home (e.g. workplace to restaurant)
Off Peak Period	Time of day when the region experiences lower traffic volumes (i.e. 9 am - 3 pm and 7 pm - 5 am)
Peak Period	Time of day when the region experiences higher traffic volumes (i.e. 5 am - 9 am and 3 pm - 7 pm)
Shared Ride 2+	Two or more travelers in a vehicle (e.g. carpool)
Transit Boarding	A passenger trip made on one transit vehicle. If a passenger boards two buses to get from origin to destination that is considered to be two transit boardings.
Travel Time	The time required to complete a trip
VHT	Vehicle Hours Traveled - The total amount of time (in hours) every vehicle in the region travels over a period of time
VMT	Vehicle Miles Traveled - The total number of miles every vehicle in the region travels over a period of time

TABLE 2: 2040 LRTP GOALS AND APPROACH STRATEGY

2040 LRTP Goals	Approaches/Regional Efforts	Measures/Planning Efforts		
		Measure	Source/Reference	
Support the economic vitality of the metropolitan area, enabling global competitiveness, productivity, and efficiency.	HRTPO Project Prioritization Tool Rob's Driving the Economy Study Regional Freight Studies	Access to Jobs (Average Travel Time)	Regional Travel Demand Model	Figure 9
		Regional Accessibility (for Regional Priority Projects)	GIS	Maps 16 - 21
		Transit Accessibility	GIS	Map 12
		Regional Economic Analysis	Planning Efforts	Refer to Driving the Economy study (anticipated completion 2016)
		Freight Data	Planning Efforts	Refer to regional freight planning efforts
Increase the safety of the transportation system for all users, including minimizing conflicts between motorized and non-motorized modes.	Regional Safety Study (Crash Trends and Locations, Crash Countermeasures) Active Transportation Safety Study Participation with Virginia Strategic Highway Safety Plan and Traffic Records Coordinating Committee HRTPO Project Prioritization Tool Performance Management Planning Efforts	Fatal and Serious Injuries Avoided Per Year (for Regional Priority Projects)	Safety Studies	Table 3
		Crash Data	Safety Studies	Refer to safety studies
		Performance Management Data	Performance Management Efforts	Refer to Performance Management planning efforts
Ensure the security of the region's transportation infrastructure and its users.	Regional Evacuation Planning Efforts Urban Area Security Initiative HRTPO Project Prioritization Tool	N/A	Planning Efforts	Refer to security/hurricane evacuation planning efforts

TABLE 2 CONTINUED: 2040 LRTP GOALS AND APPROACH STRATEGY

Protect and enhance the environment, promote energy conservation and improve the quality of life.	Reduction in Travel Time/Vehicle Miles Traveled Air Quality Conformity (Hampton Roads is in attainment) Environmental Mitigation Coordination with Regional Environmental Agencies Climate Change/Sea Level Rise Planning Efforts Coordination with Planning District Commission Planning Efforts HRTPO Project Prioritization Tool	Vehicle Miles Traveled	Regional Travel Demand Model	Figure 10
		Travel Time Savings (Vehicle Hours Traveled)	Regional Travel Demand Model	Figure 11
		Accessibility (Average Travel Time)	Regional Travel Demand Model	Figure 9
		Transit Boardings	Regional Travel Demand Model	Figure 19
		Mode Share	Regional Travel Demand Model	Figures 17 and 18
		Transit Accessibility	GIS	Map 12
		Bikeable Facilities	GIS	Map 13
		Title VI/Environmental Justice (EJ) Accessibility (by alternate modes)	GIS	Maps 14 and 15
		Air Quality Conformity (in attainment)	N/A (region in attainment)	Refer to the Air Quality section in the *2040 LRTP Transportation Challenges and Strategies* Report
Consider the impact of transportation investments on the environment.	Air Quality Conformity (Hampton Roads is in attainment) Environmental Mitigation Coordination with Regional Environmental Agencies	Air Quality Conformity (in attainment)	Planning Efforts	Refer to Environmental Mitigation Coordination efforts documented in the *2040 LRTP Transportation Challenges and Strategies* Report
Promote compatibility between transportation improvements and planned land use and economic development patterns.	HRTPO Project Prioritization Tool Regional Land Use Map	N/A	Planning Efforts	Refer to the Regional Land Use maps

TABLE 2 CONTINUED: 2040 LRTP GOALS AND APPROACH STRATEGY

Increase accessibility and mobility of people and goods.	Multimodal Transportation Planning EffortsCongestion Management ProcessTransit Vision PlanRegional Freight StudiesHRTPO Project Prioritization Tool	Travel Time Savings (Vehicle Hours Traveled)	Regional Travel Demand Model	Figure 11
		Reduction in Total Annual Delay (for Regional Priority Projects)	Regional Travel Demand Model	Table 3
		Average Delay – Water Crossings	Regional Travel Demand Model	Figures 12 - 15
		Access to Jobs (Average Travel Time)	Regional Travel Demand Model	Figure 9
		Congested Speeds	Regional Travel Demand Model	Figure 16
		Regional Accessibility (for Regional Priority Projects)	GIS	Maps 16 - 21
		Vehicle Miles Traveled	Regional Travel Demand Model	Figure 10
		Transit Boardings	Regional Travel Demand Model	Figure 19
		Mode Share	Regional Travel Demand Model	Figures 17 and 18
		Transit Accessibility	GIS	Map 12
		Bikeable Facilities	GIS	Map 13
		Title VI/Environmental Justice (EJ) Accessibility (by alternate modes)	GIS	Maps 14 and 15
		Fatal and Serious Injuries Avoided Per Year (for Regional Priority Projects)	Safety Studies	Table 3
		Congestion Data	Congestion Management Process and Regional Travel Demand Model	Refer to CMP studies and Maps 2 – 11

TABLE 2 CONTINUED: 2040 LRTP GOALS AND APPROACH STRATEGY

Provide a variety of transportation options that accommodates all users.	Multimodal Transportation Planning Efforts Transit Vision Plan TRAFFIX HRTPO Project Prioritization Tool	Mode Share	Regional Travel Demand Model	Figures 17 and 18
		Transit Accessibility	GIS	Map 12
		Bikeable Facilities	GIS	Map 13
		Title VI/Environmental Justice (EJ) Accessibility (by alternate modes)	GIS	Maps 14 and 15
Increase the coordination of the transportation system, across and between modes, for people and goods.	Multimodal Transportation Planning Efforts Transit Vision Plan Regional Freight Studies HRTPO Project Prioritization Tool	N/A	Planning Efforts	Refer to Transit Vision Plan, regional freight planning efforts, and multimodal transportation planning efforts
Promote an efficient and reliable regional transportation system.	Performance Management Planning Efforts Congestion Management Process Intelligent Transportation Systems/Operations Traffic Incident Management Coordination of Hampton Roads Transportation Operations (HRTO) Subcommittee Climate Change/Sea Level Rise Planning Efforts HRTPO Project Prioritization Tool	Travel Time Savings (Vehicle Hours Traveled)	Regional Travel Demand Model	Figure 11
		Reduction in Total Annual Delay (for Regional Priority Projects)*	Regional Travel Demand Model	Table 3
		Average Delay – Water Crossings	Regional Travel Demand Model	Figures 12 - 15
		Fatal and Serious Injuries Avoided Per Year (for Regional Priority Projects)	Safety Studies	Table 3
		Congestion and Reliability Data	Congestion Management Process	Refer to CMP studies, ITS and Operations planning efforts, and sea level rise planning efforts
		Crash Data	Safety Studies	Refer to safety studies

TABLE 2 CONTINUED: 2040 LRTP GOALS AND APPROACH STRATEGY

Preserve and maintain the existing transportation system.	Performance Management Planning Efforts Regional Bridge Study	Pavement/Bridge Condition	Performance Management Efforts	Refer to Performance Management planning efforts and regional bridge study
Engage a diverse public in the development of the region's transportation system.	Public Participation Plan/Implementation	N/A	Public Involvement Efforts	Refer to the 2040 LRTP Public Involvement documentation (anticipated completion June 2016) and other HRTPO public involvement planning efforts
Continue to work towards finding dedicated and sustainable revenue sources for transportation to close the funding gap.	HRTAC Public/Private Partnerships Tolls Legislative Action Local Contribution	N/A	Planning Efforts	Refer to *2040 LRTP Funding Pla*n and *Transportation Challenges and Strategies* reports

MAP 1: HAMPTON ROADS REGIONAL PRIORITY PROJECTS

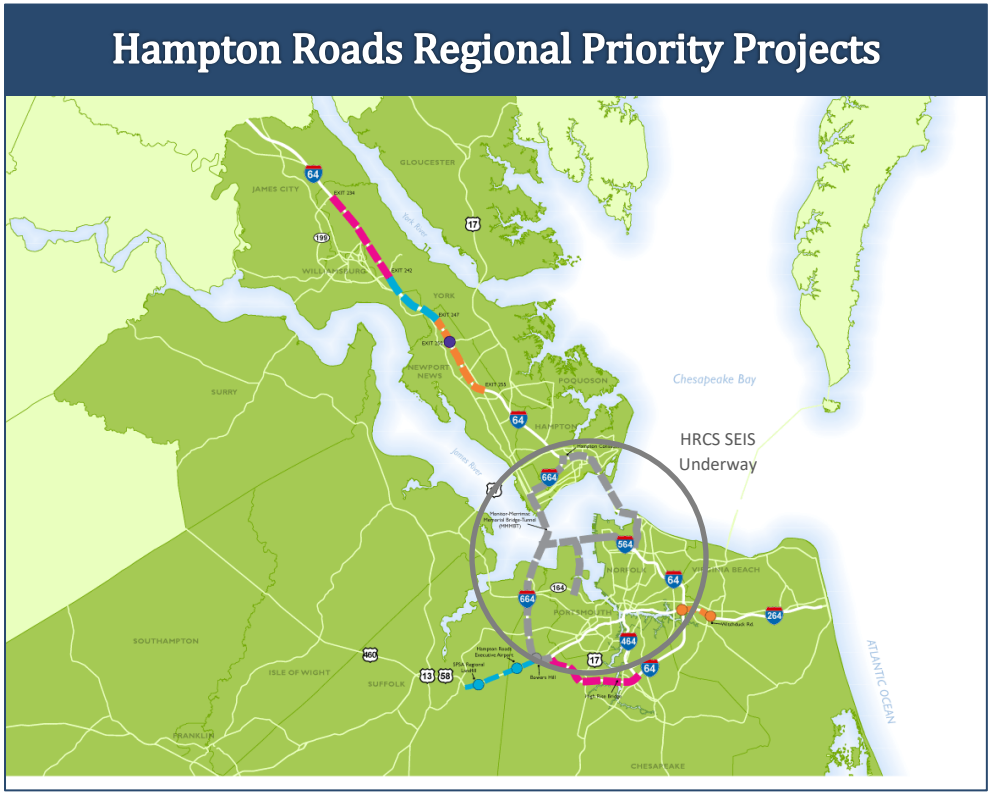
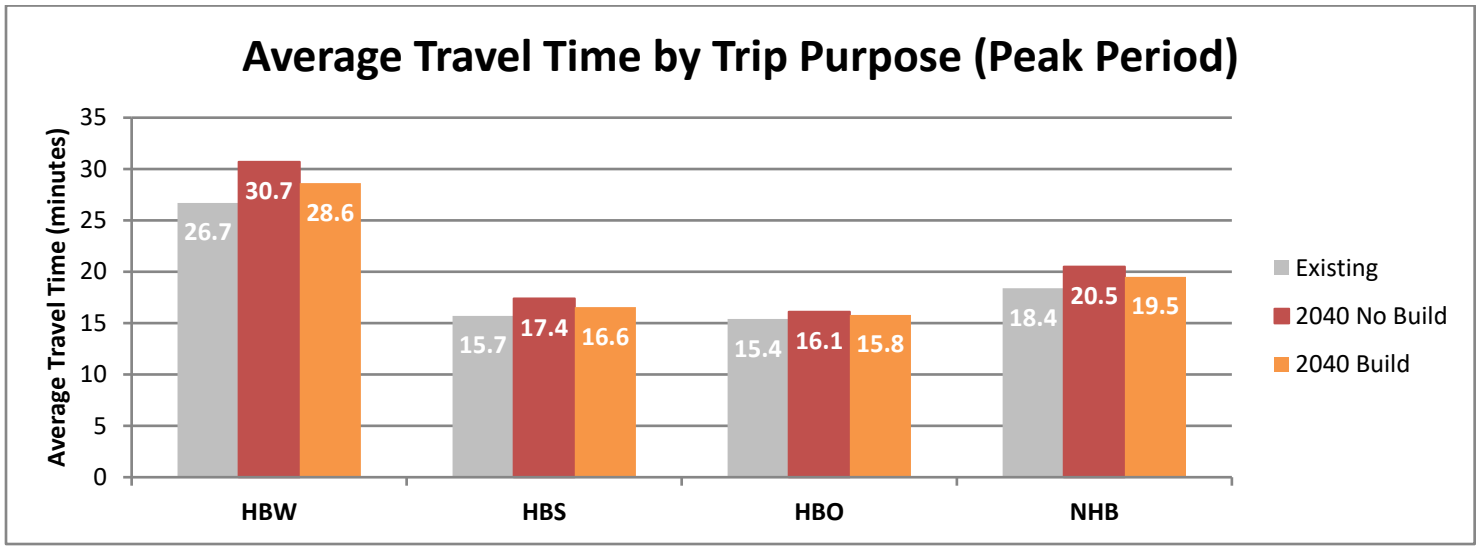


TABLE 3: HAMPTON ROADS REGIONAL PRIORITY PROJECTS - IMPACTS TO CORRIDOR

Regional Priority Project	Reduction in Total Annual Delay	Fatal and Serious Injuries Avoided per Year
I-64 Peninsula Widening	1,205,300 Hours (79%)	11.9
I-64/I-264 Interchange	236,200 Hours (87%)	1.4
I-64 Southside Widening/High Rise Bridge	858,702 Hours (87%)	3.2
Hampton Roads Harbor Crossing	Project Supplemental Environmental Impact Statement (SEIS) underway.	
US Route 460/58/13 Connector	N/A	2.4

FIGURE 9: AVERAGE TRAVEL TIME BY TRIP PURPOSE



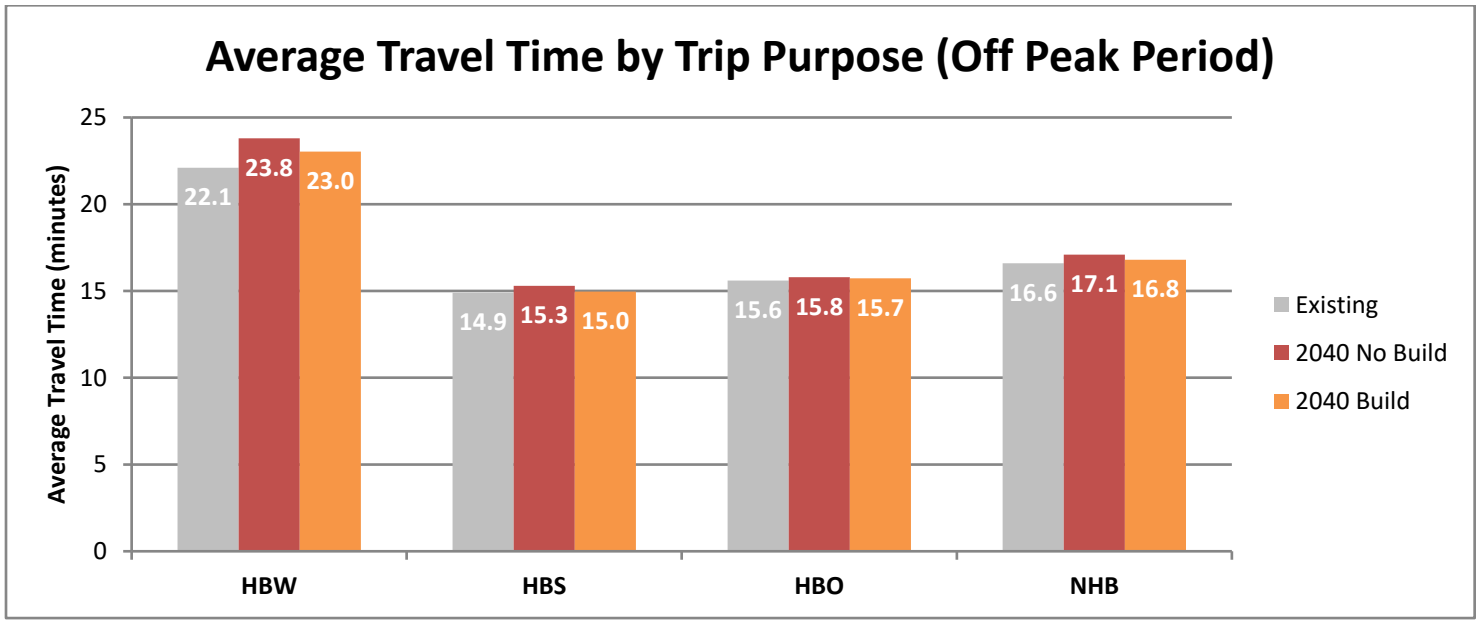


FIGURE 10: FORECASTED VEHICLE MILES TRAVELED (VMT)

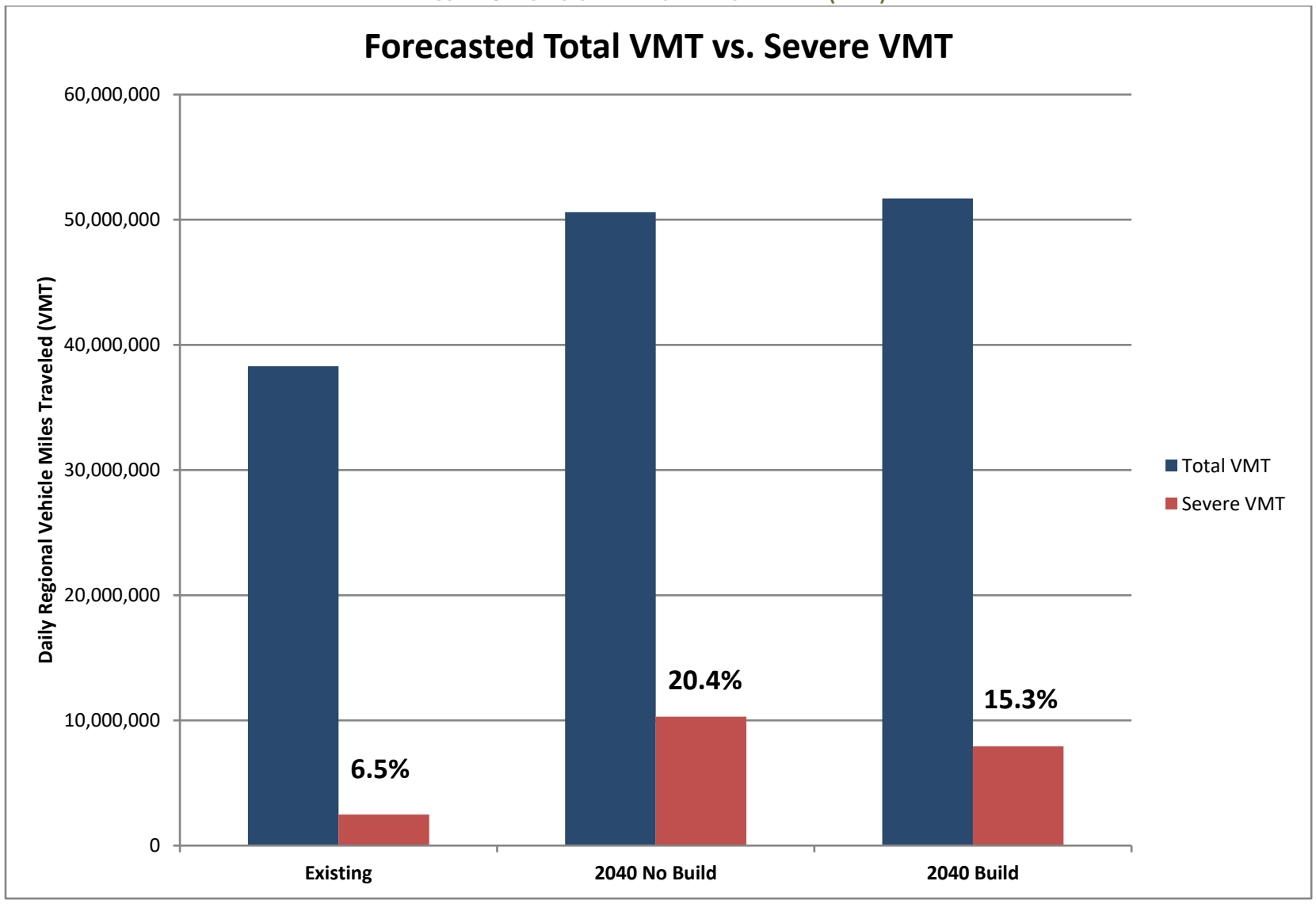


FIGURE 11: FORECASTED REDUCTION IN SEVERELY CONGESTED TRAVEL (TRAVEL TIME SAVINGS)

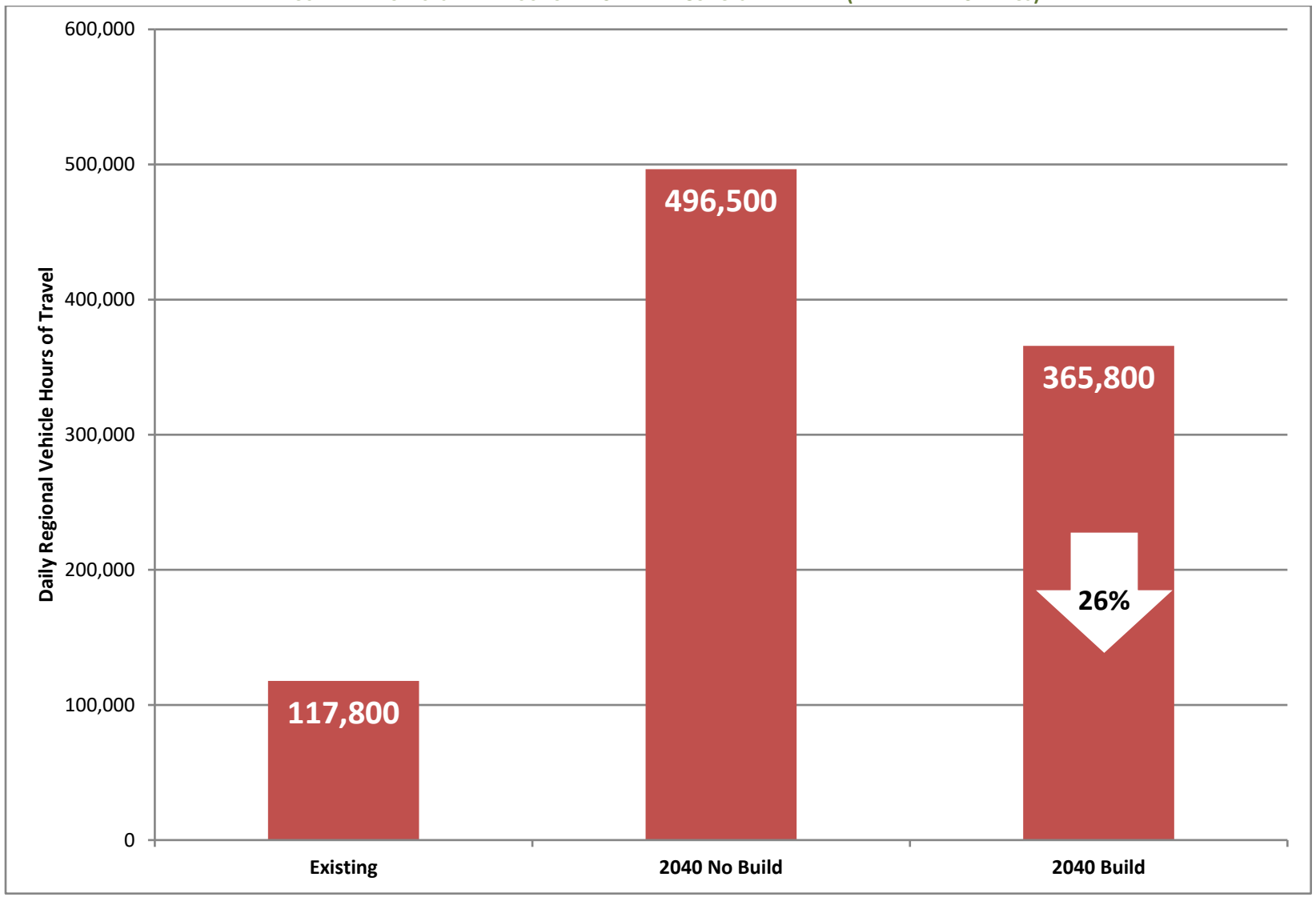
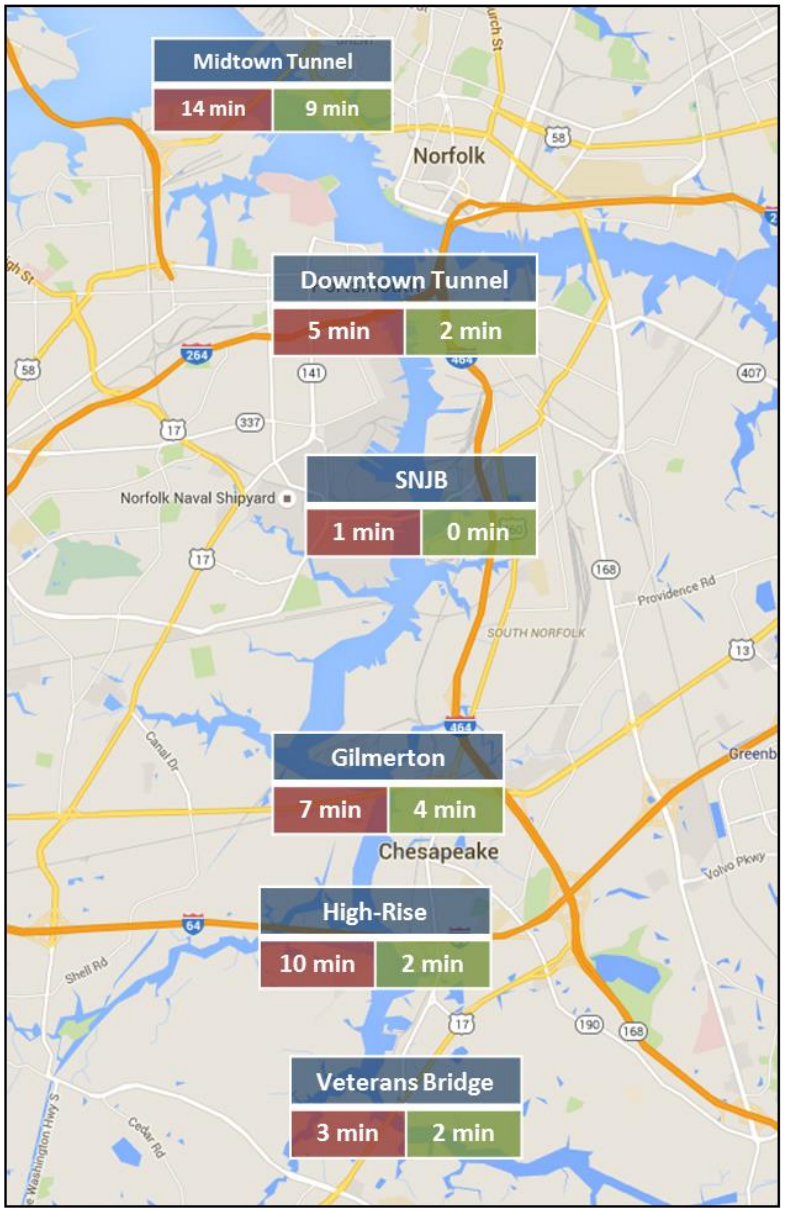


FIGURE 12: AVERAGE MORNING DELAY - ELIZABETH RIVER



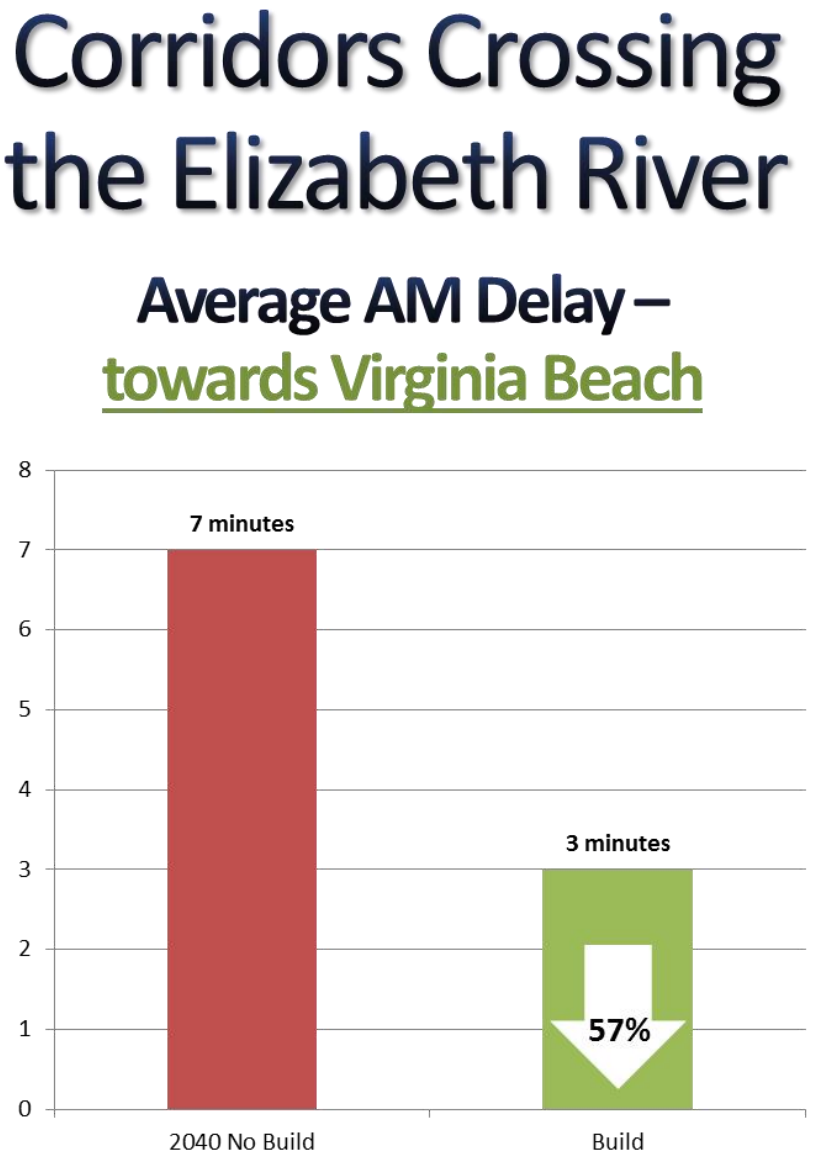
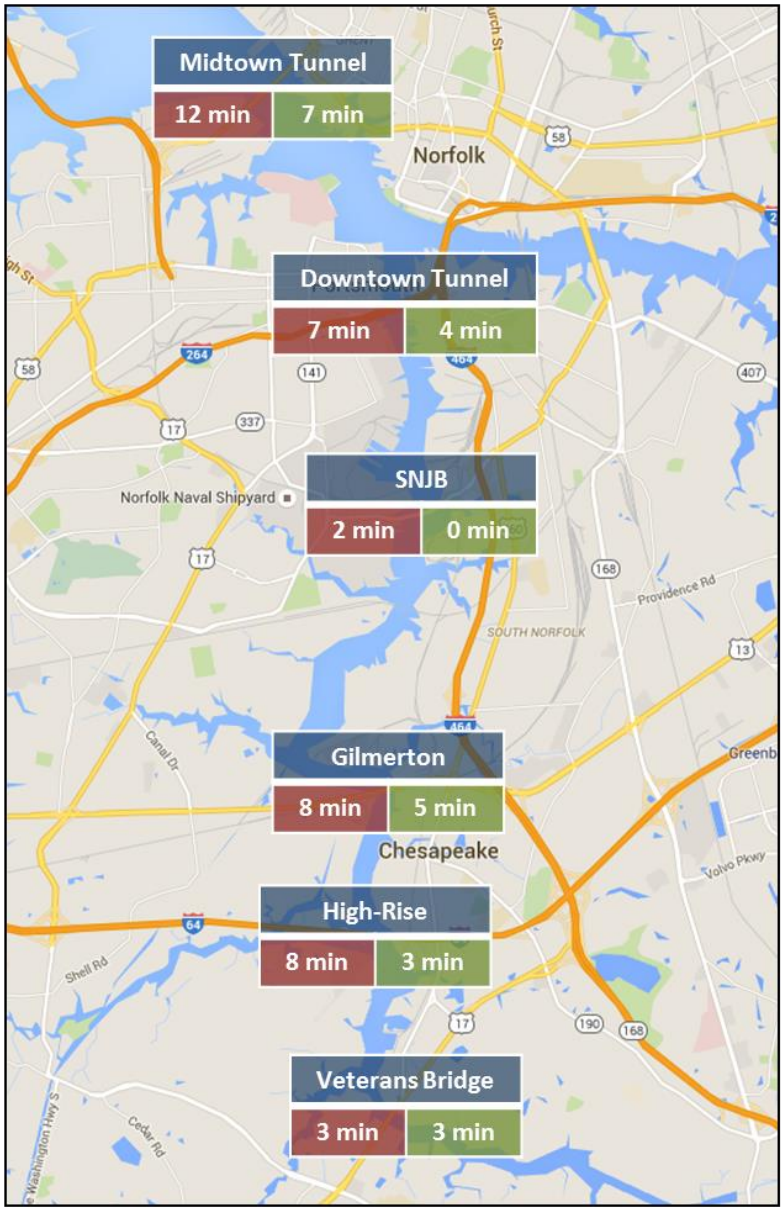


FIGURE 13: AVERAGE AFTERNOON DELAY - ELIZABETH RIVER



Corridors Crossing the Elizabeth River

Average PM Delay – towards Suffolk

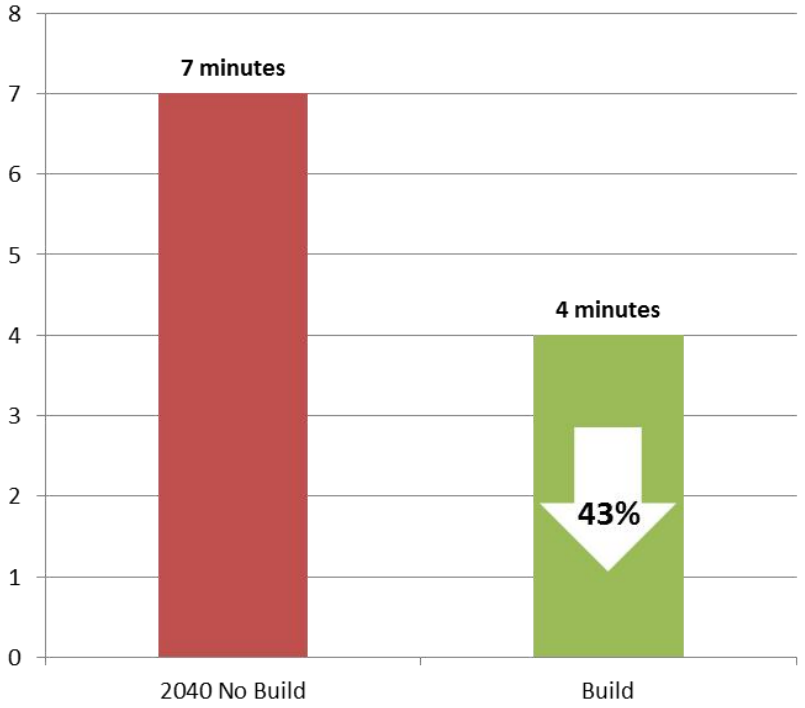


FIGURE 14: AVERAGE MORNING DELAY - HAMPTON ROADS HARBOR

Corridors Crossing the Hampton Roads Harbor

Average AM Delay – towards Southside

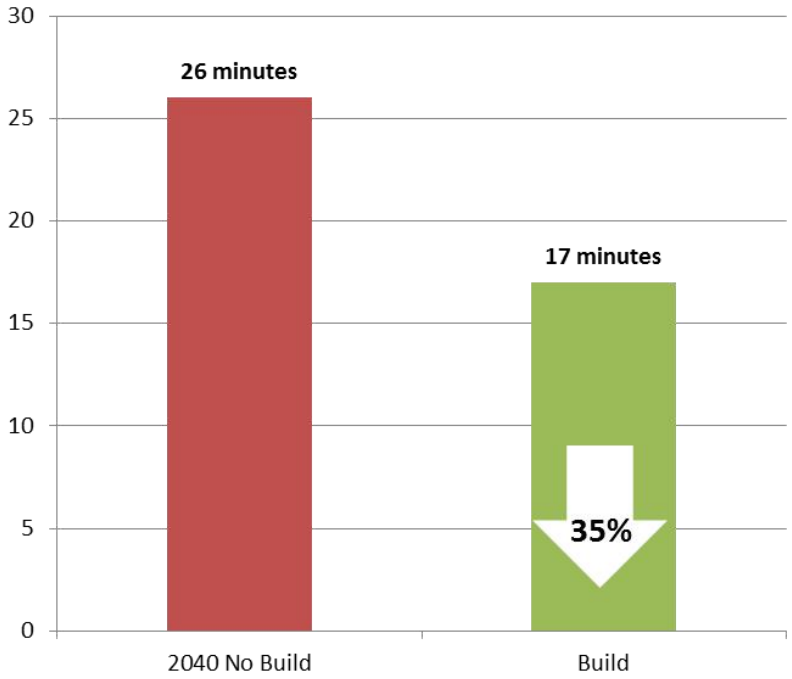


FIGURE 15: AVERAGE AFTERNOON DELAY - HAMPTON ROADS HARBOR

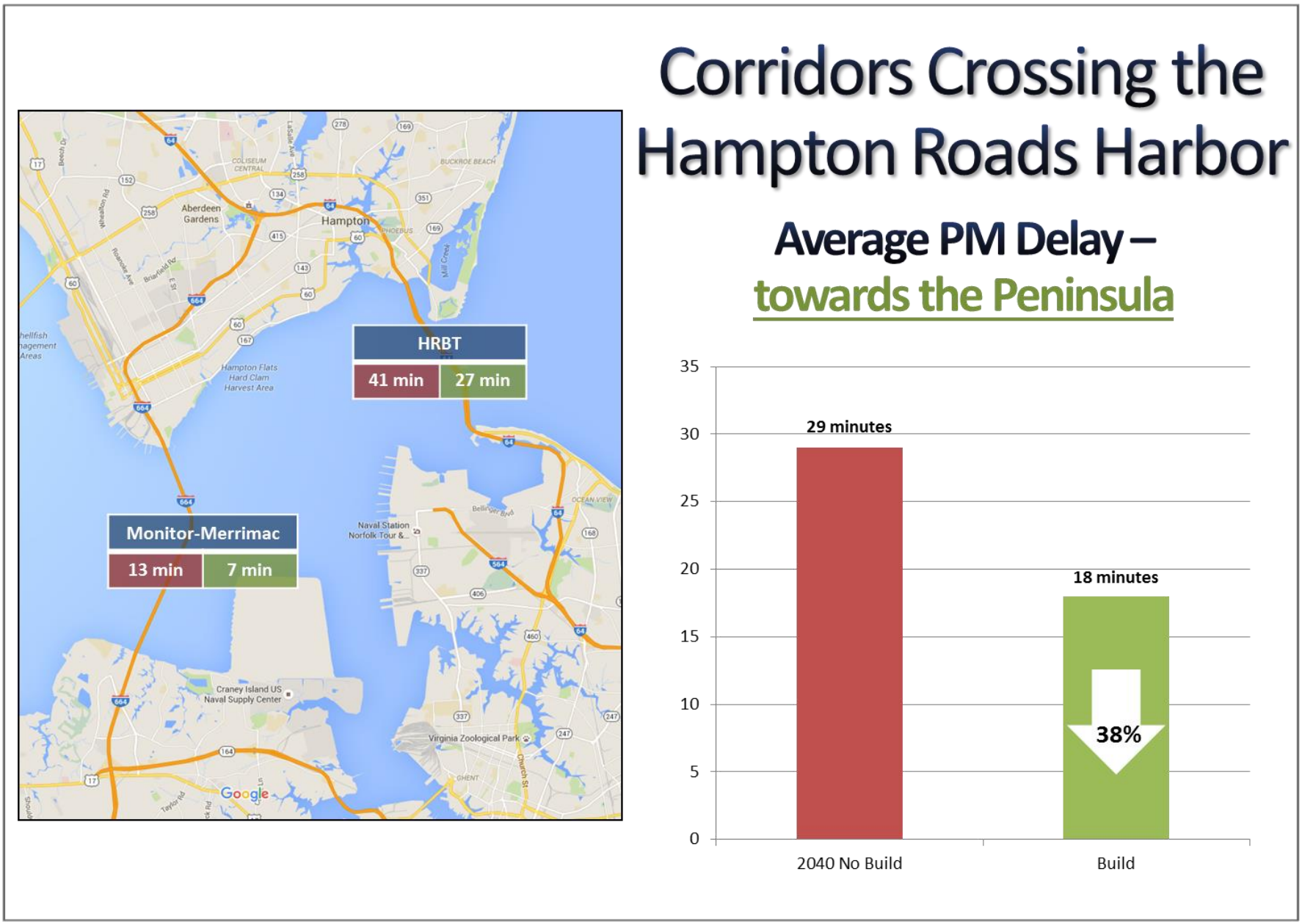


FIGURE 16: FORECASTED AVERAGE CONGESTED SPEEDS

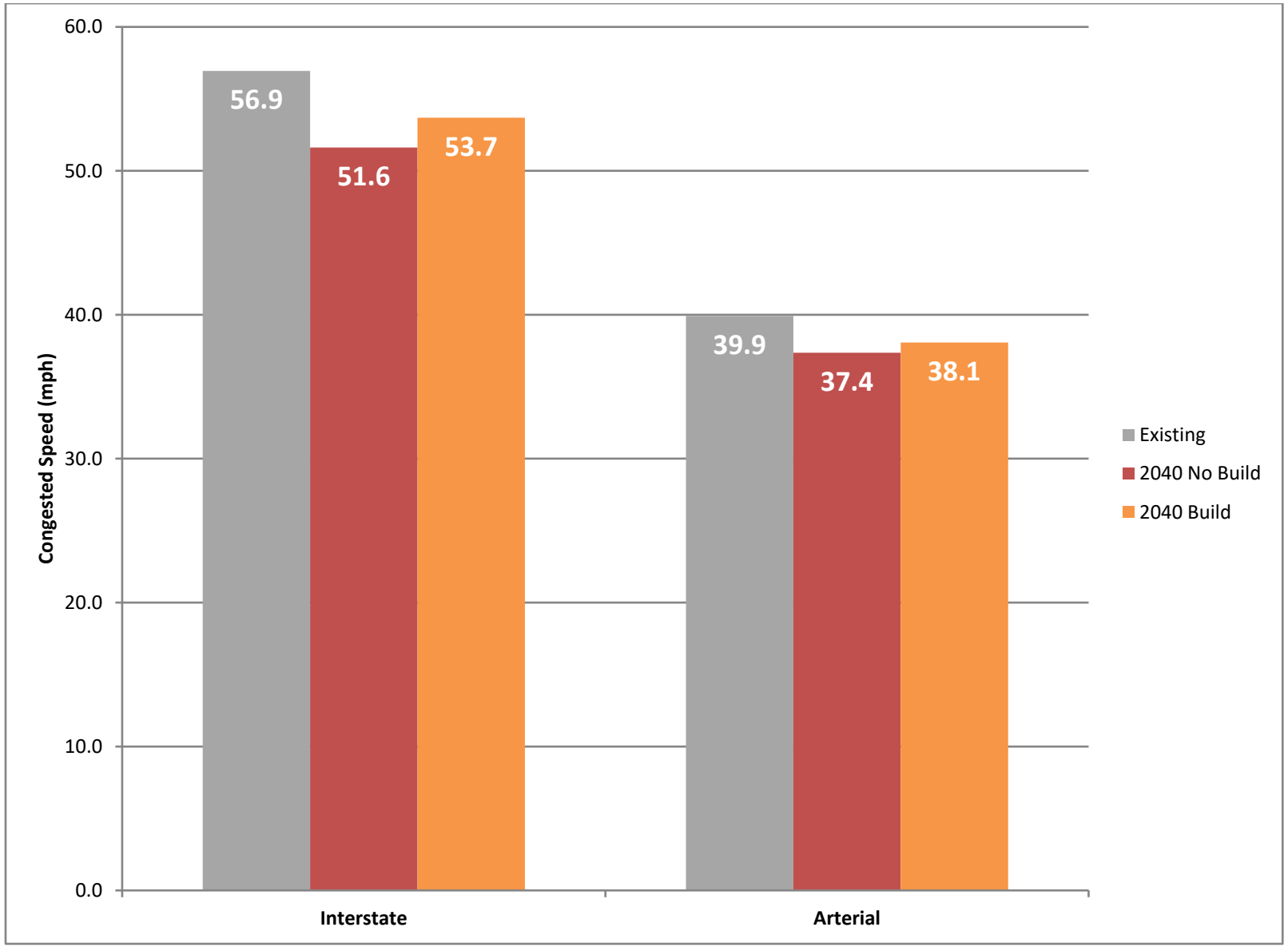
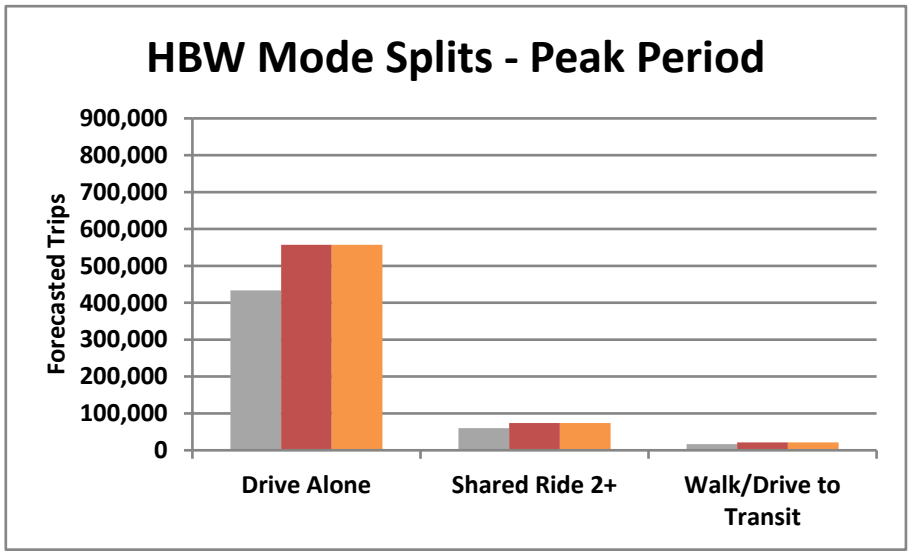
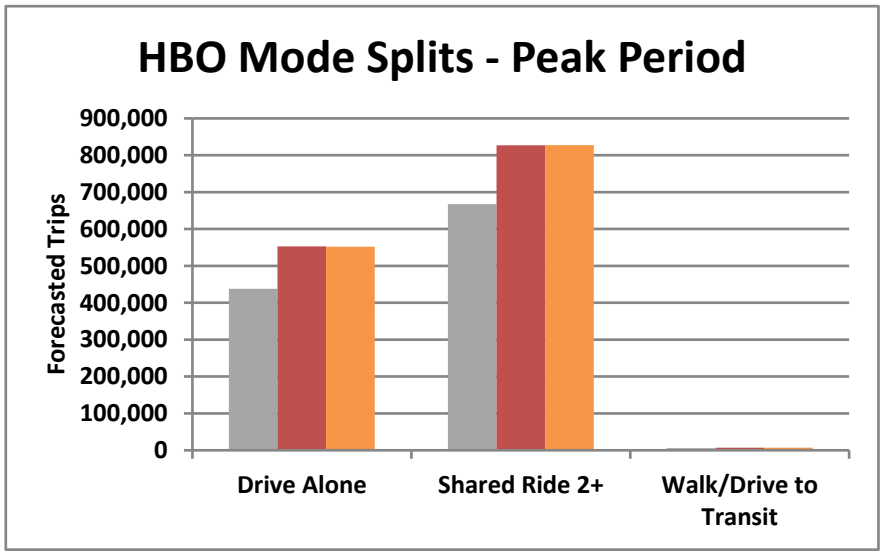


FIGURE 17: FORECASTED MODE SHARE (PEAK PERIOD)





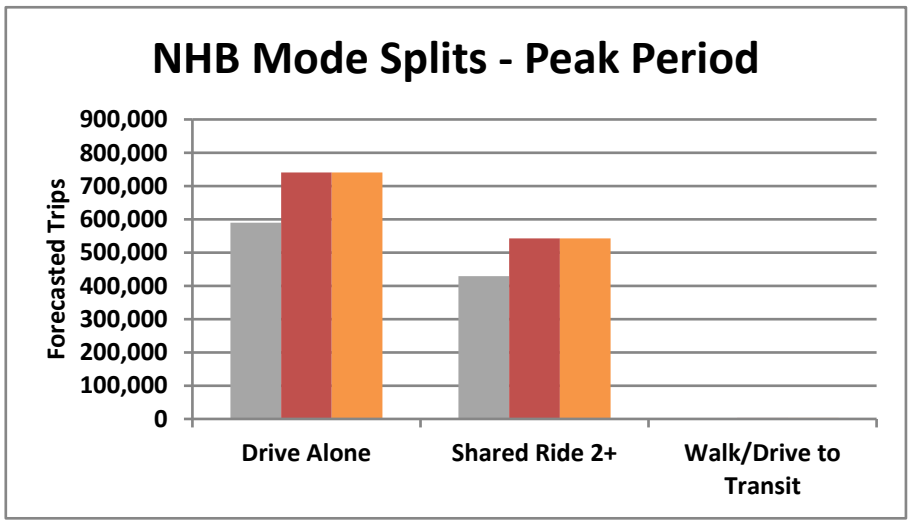
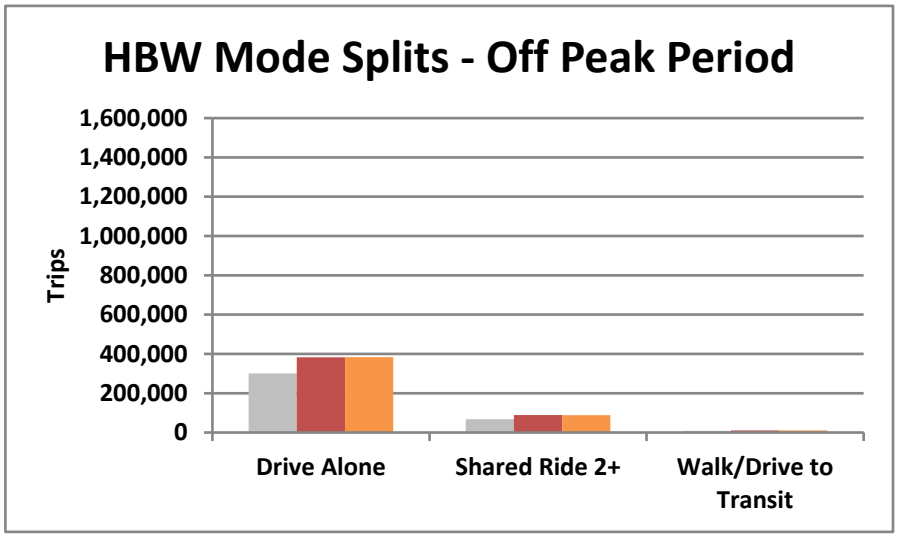
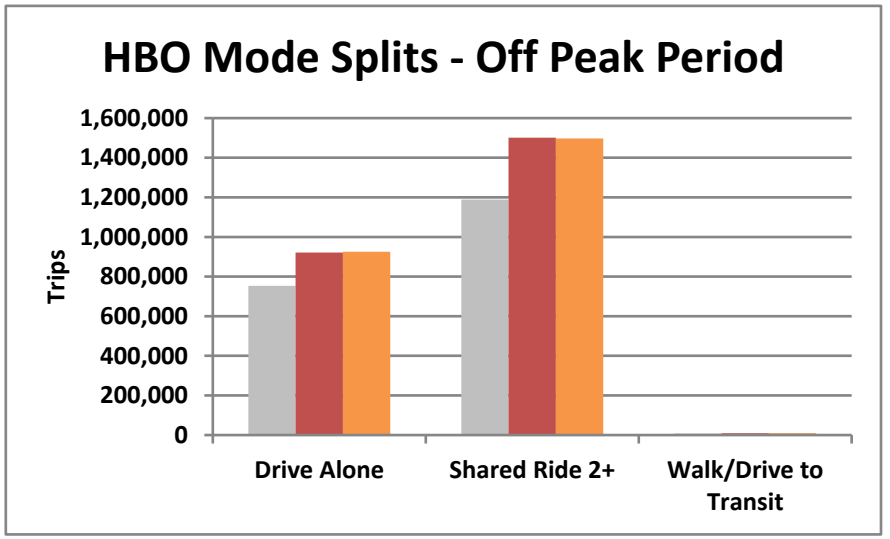
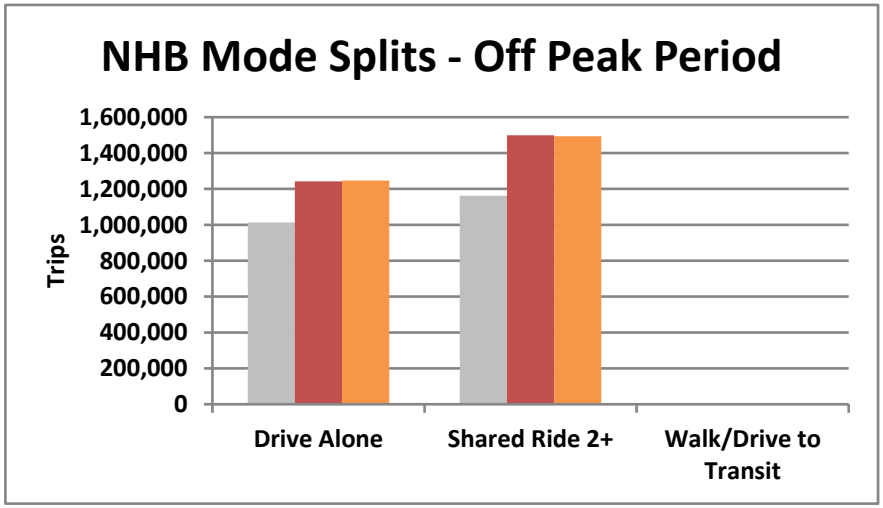


FIGURE 18: FORECASTED MODE SHARE (OFF PEAK PERIOD)







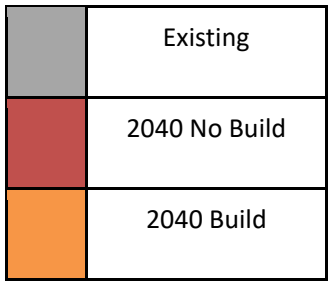
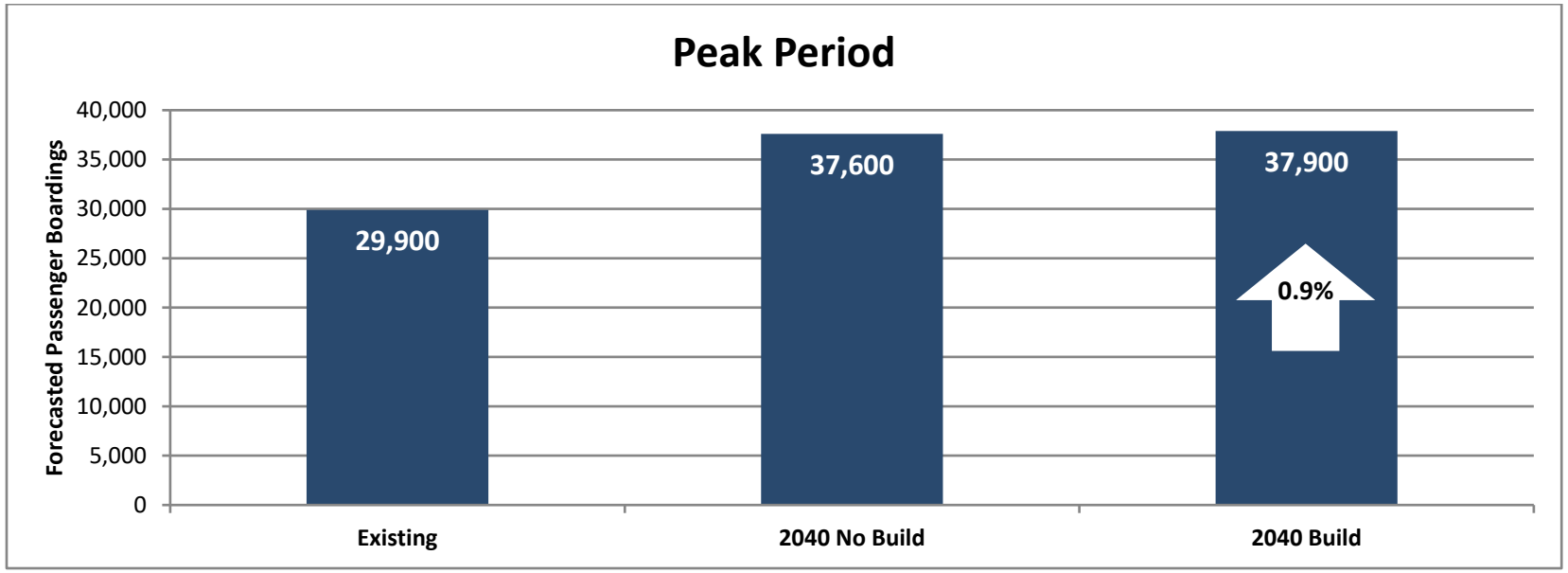
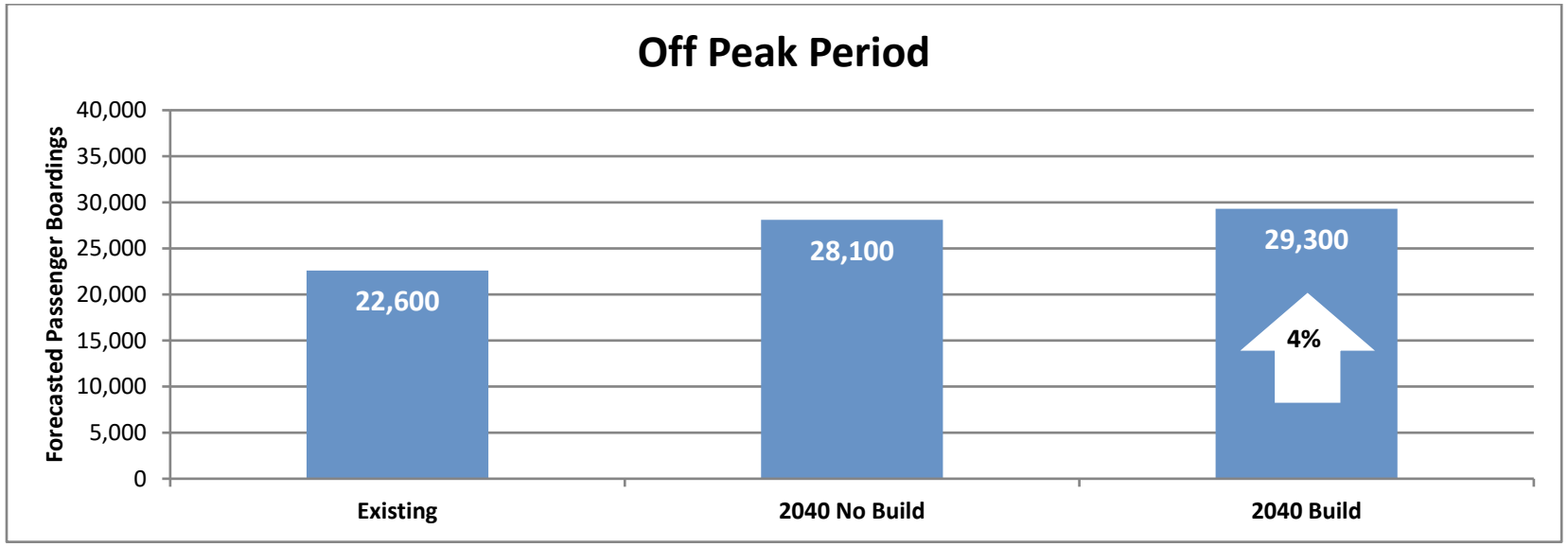
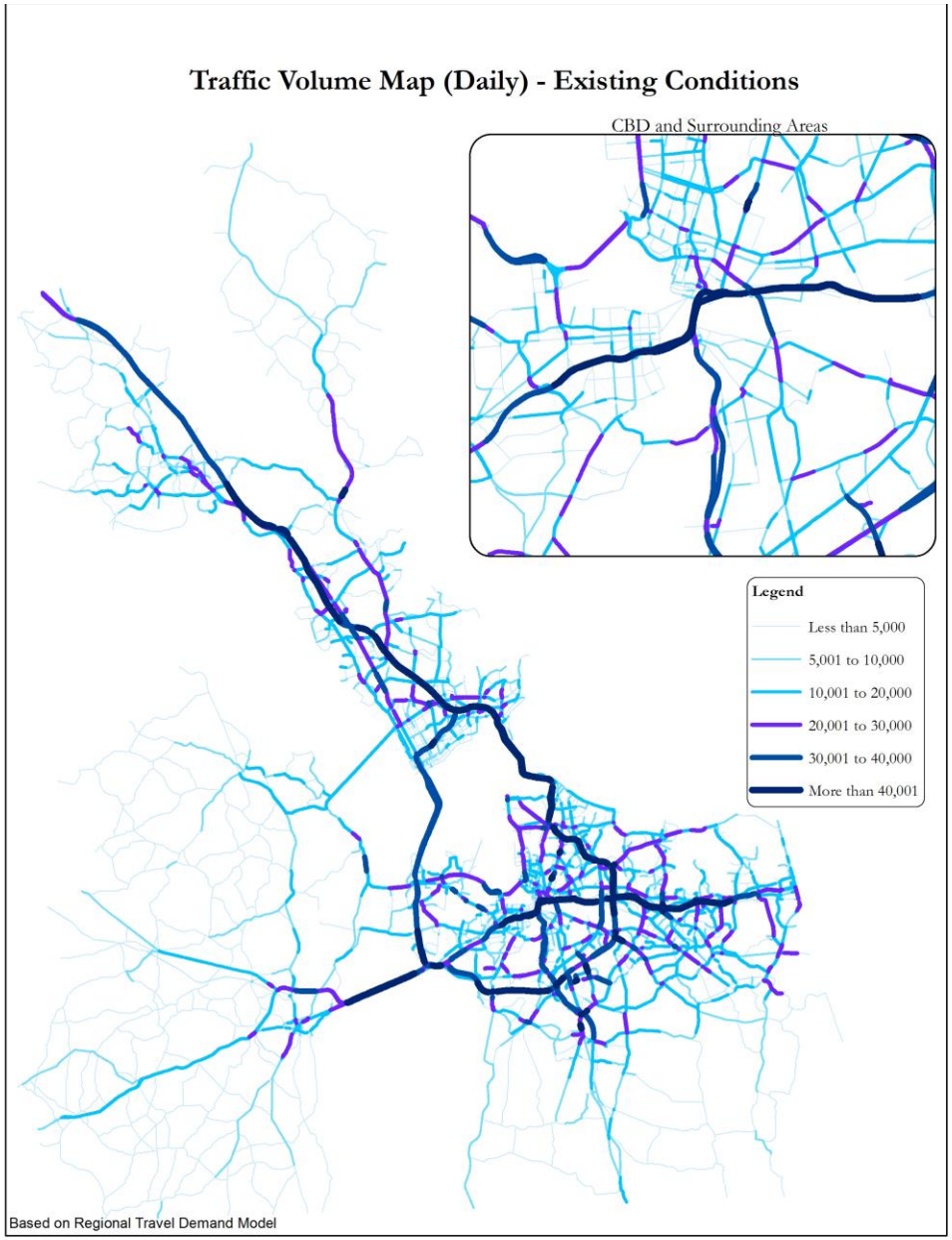


FIGURE 19: FORECASTED TRANSIT BOARDINGS

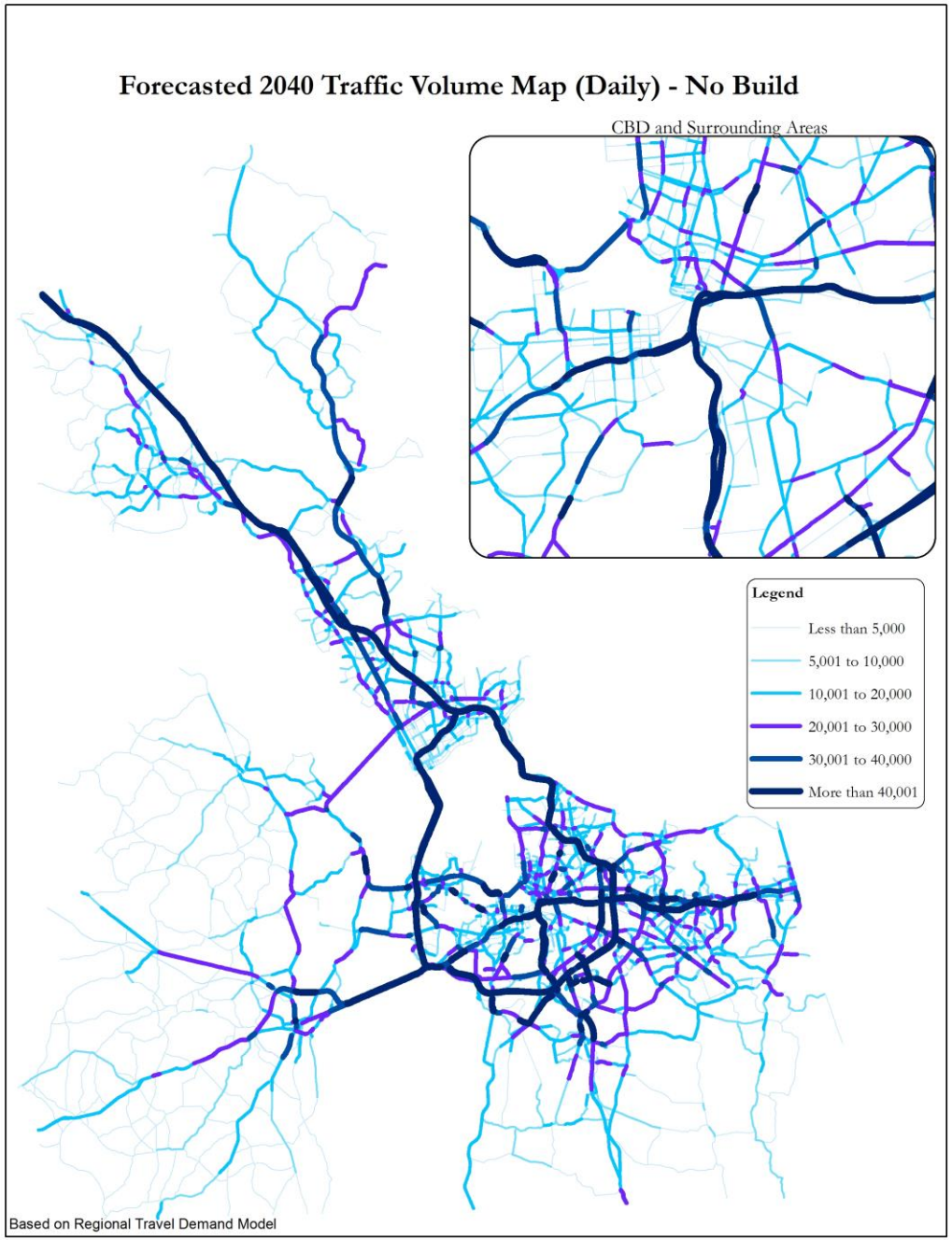




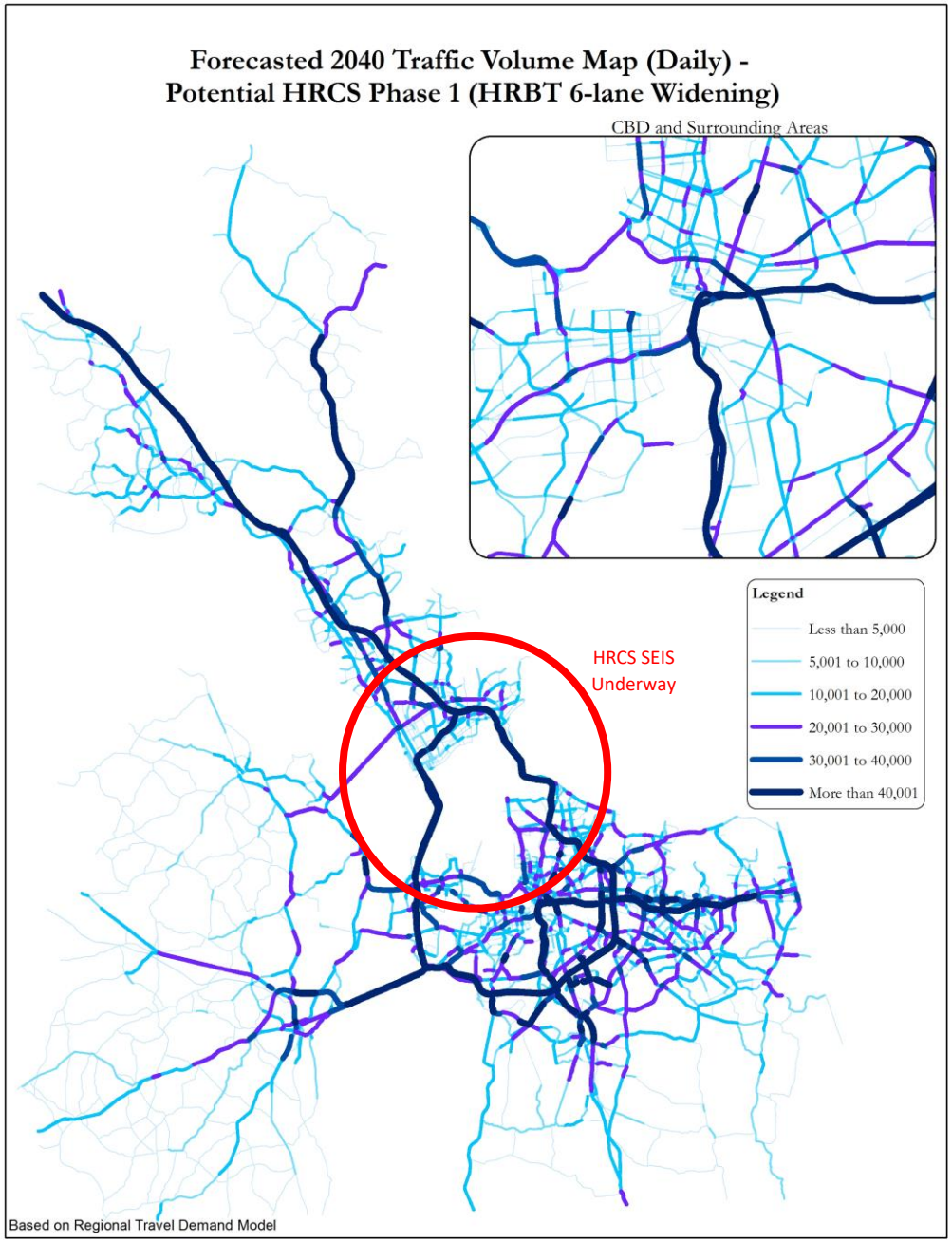
MAP 2: FORECASTED TRAFFIC VOLUME - EXISTING



MAP 3: FORECASTED 2040 TRAFFIC VOLUME - NO BUILD

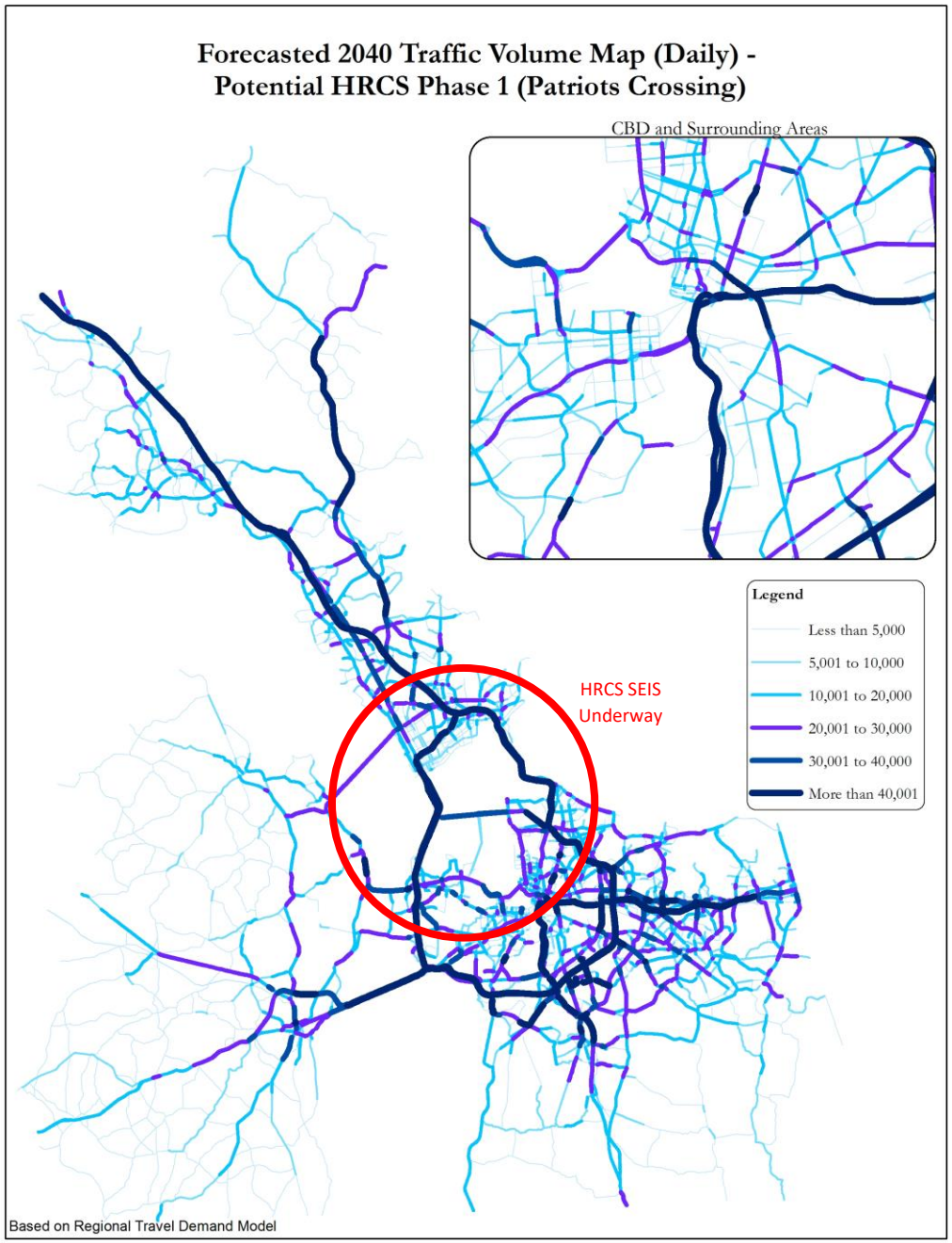


MAP 4: FORECASTED 2040 TRAFFIC VOLUME - POTENTIAL HRCS PHASE 1 (HRBT 6-LANE WIDENING)



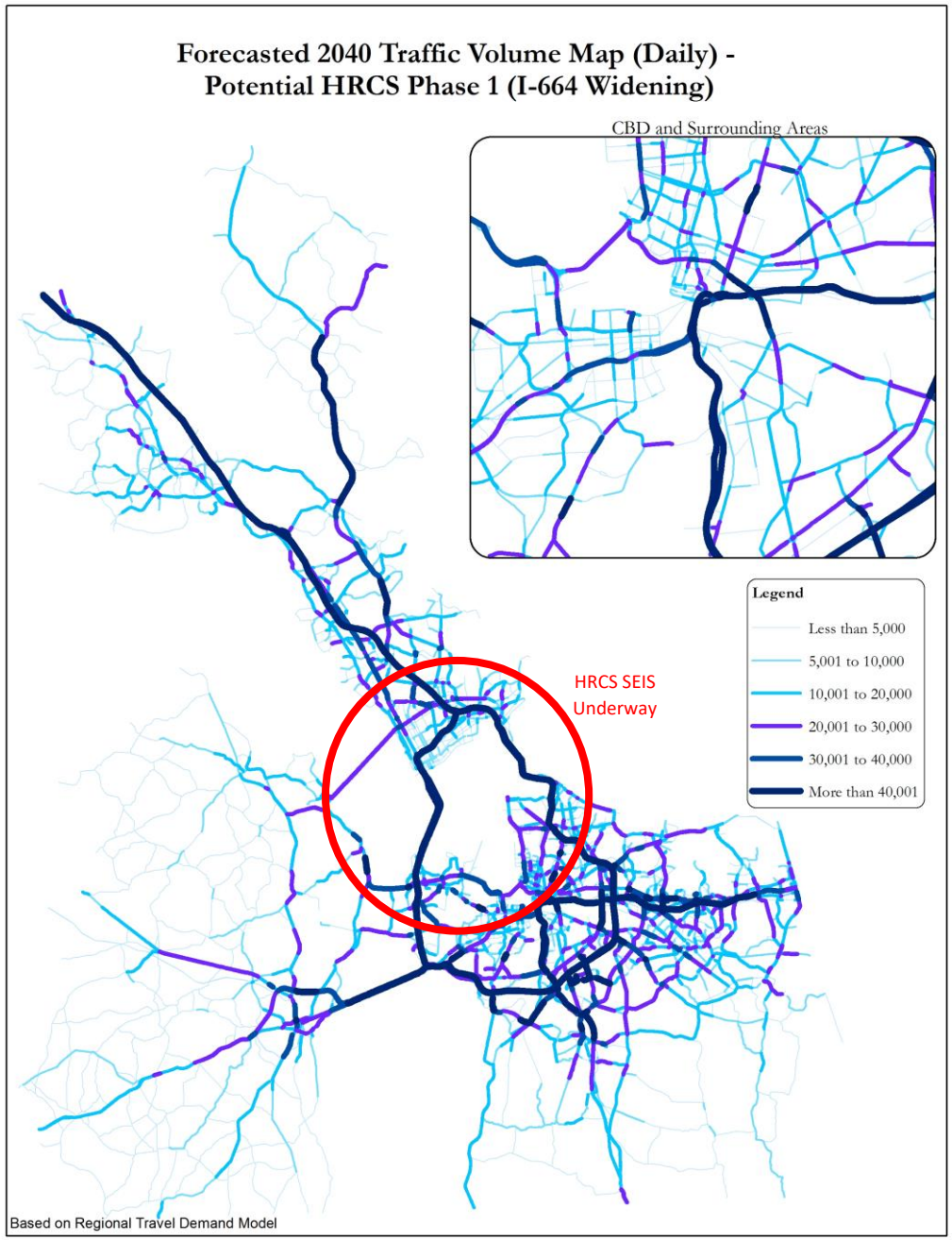
Note: Since the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS) is currently underway, 3 alternatives were analyzed as a potential Phase 1 of the Locally Preferred Alternative.

MAP 5: FORECASTED 2040 TRAFFIC VOLUME - POTENTIAL HRCS PHASE 1 (PATRIOTS CROSSING)



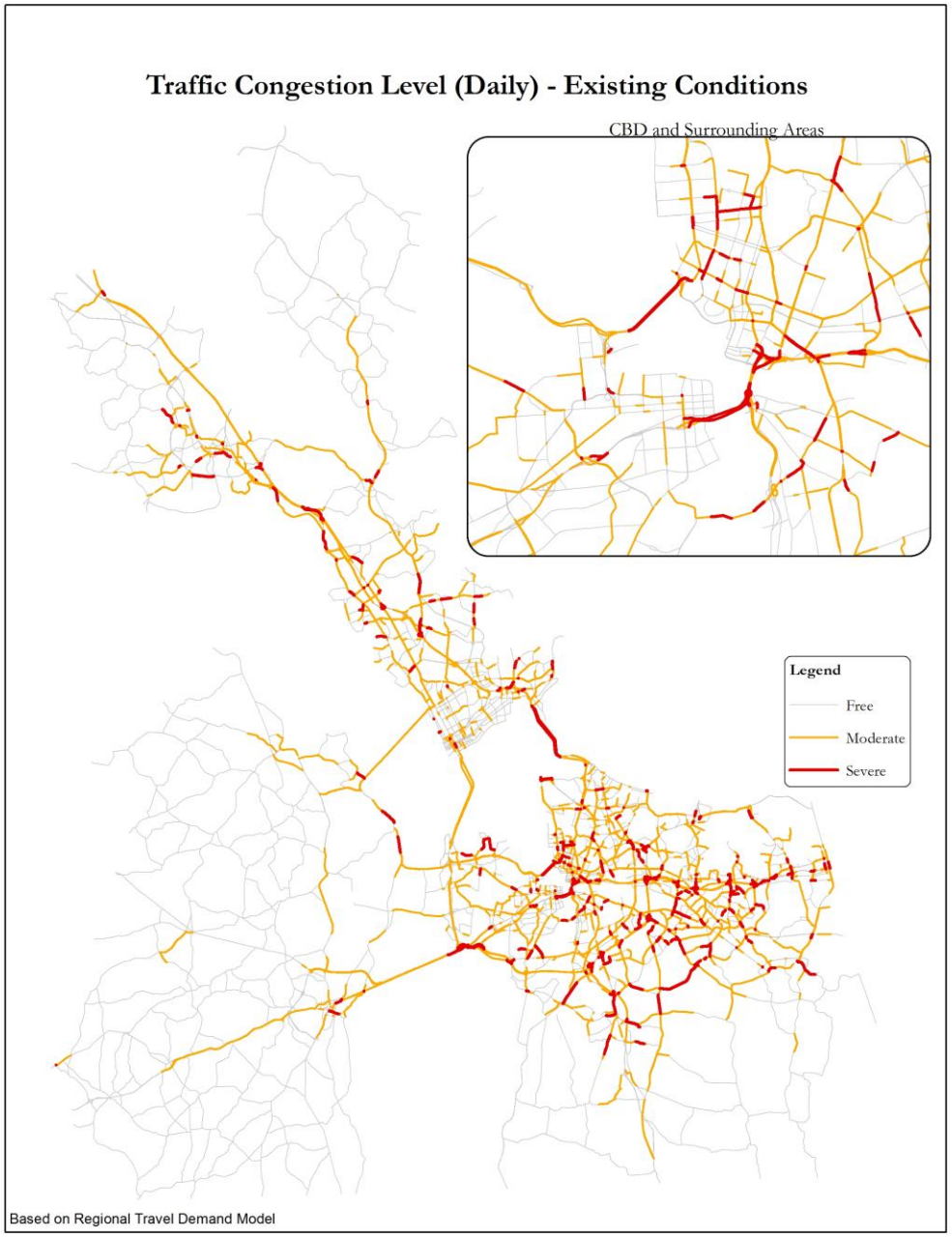
Note: Since the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS) is currently underway, 3 alternatives were analyzed as a potential Phase 1 of the Locally Preferred Alternative.

MAP 6: FORECASTED 2040 TRAFFIC VOLUME - POTENTIAL HRCS PHASE 1 (I-664 WIDENING)

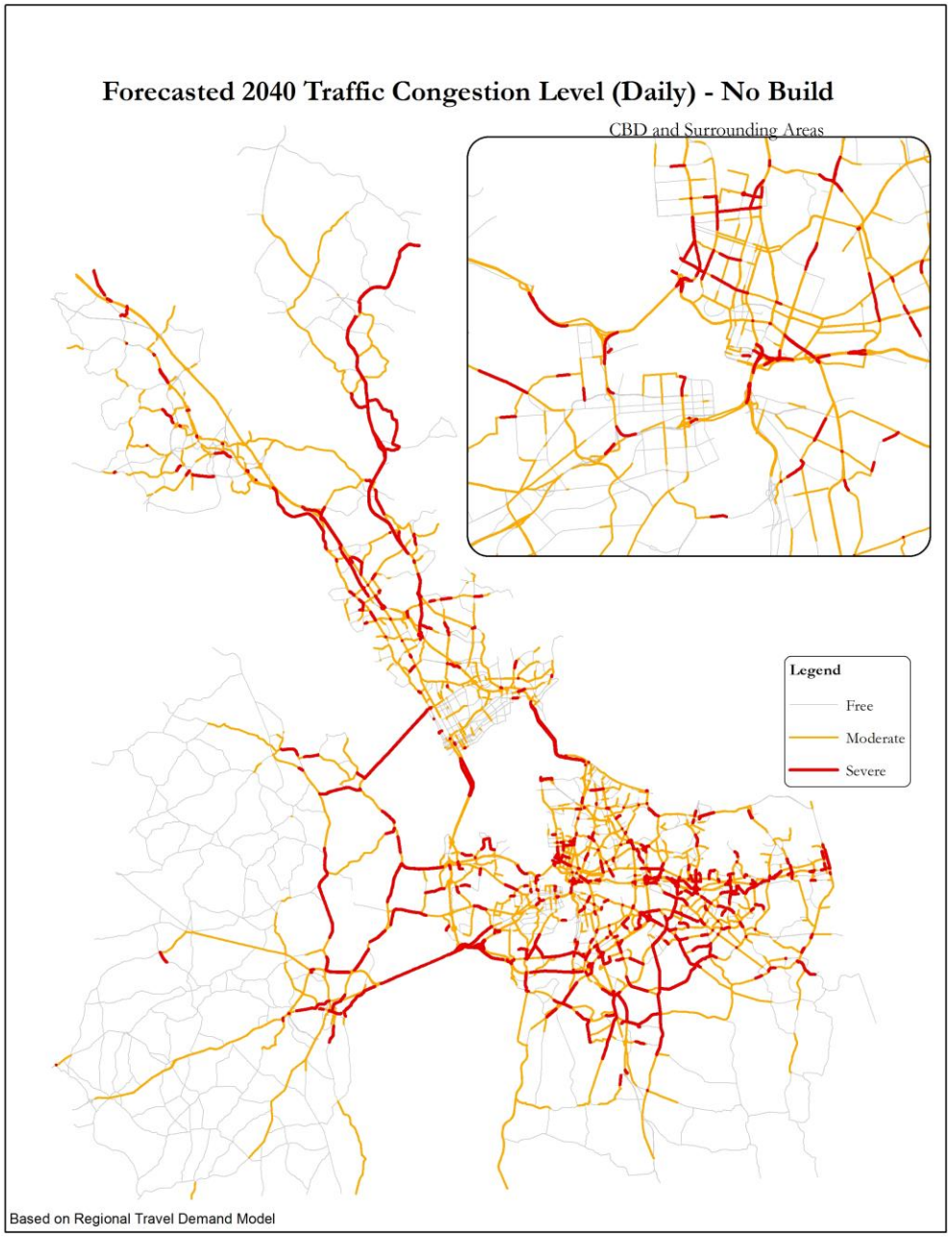


Note: Since the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS) is currently underway, 3 alternatives were analyzed as a potential Phase 1 of the Locally Preferred Alternative.

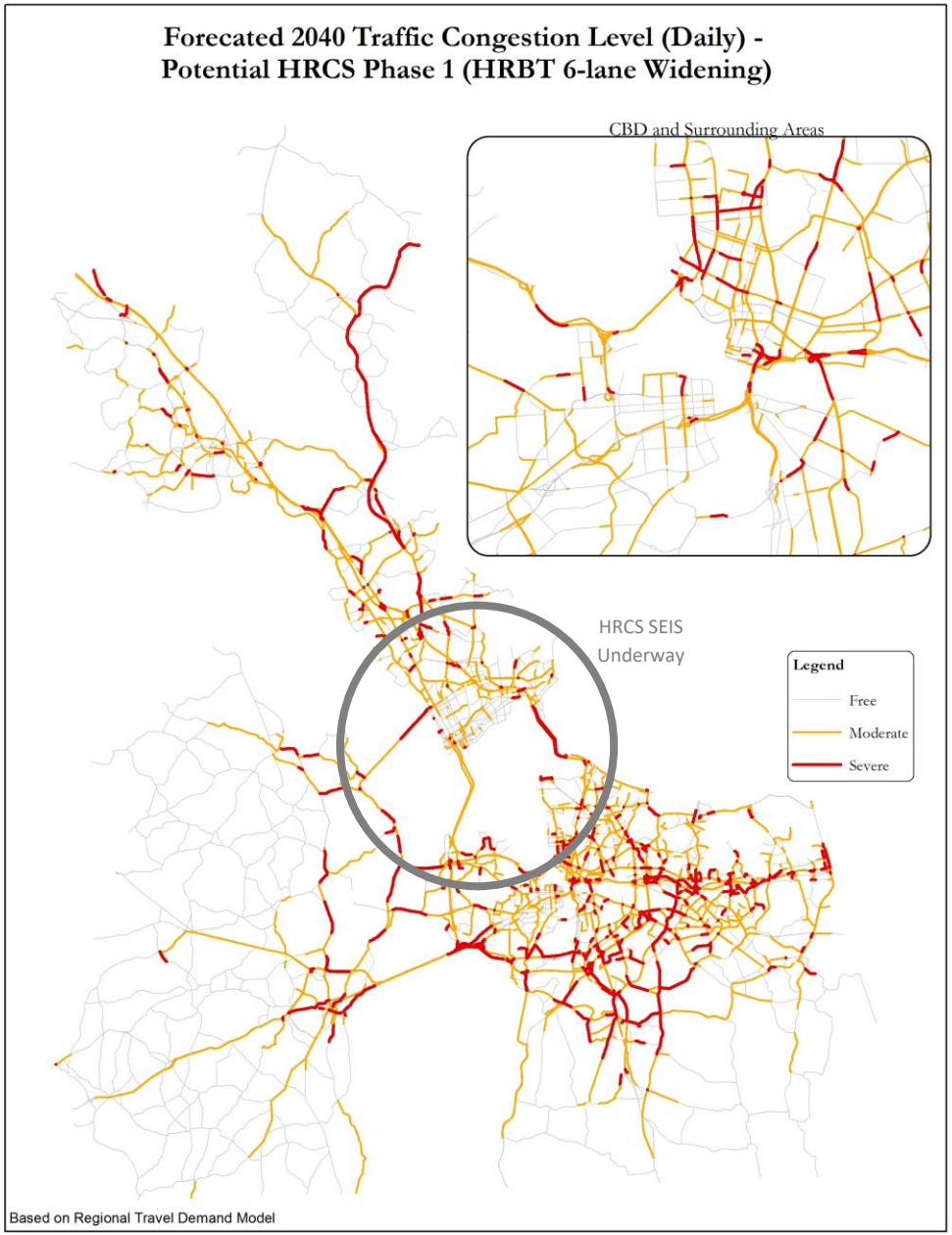
MAP 7: FORECASTED TRAFFIC CONGESTION LEVEL - EXISTING



MAP 8: FORECASTED 2040 TRAFFIC CONGESTION LEVEL - NO BUILD

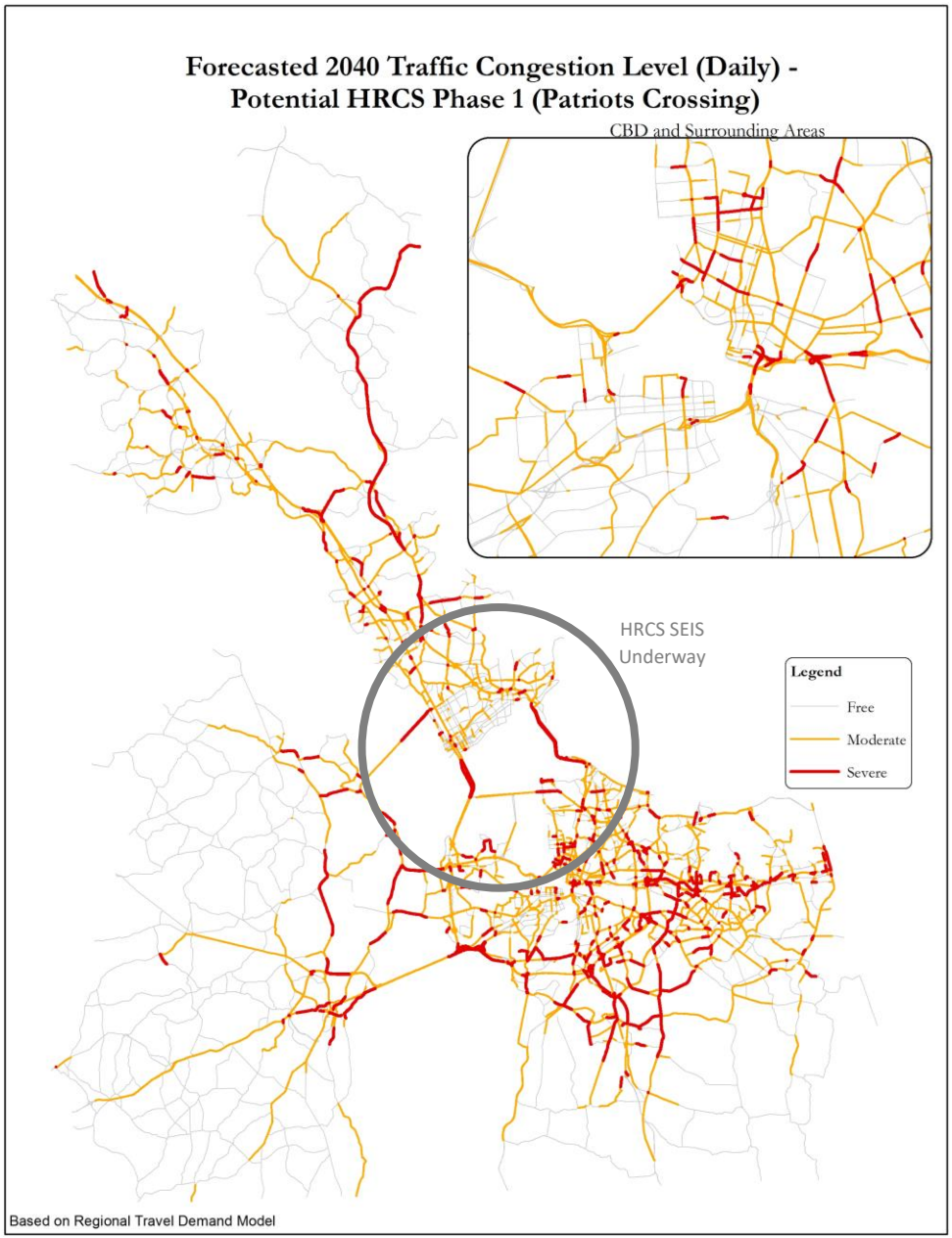


MAP 9: FORECASTED 2040 TRAFFIC CONGESTION LEVEL – POTENTIAL HRCS PHASE 1 (HRBT 6-LANE WIDENING)



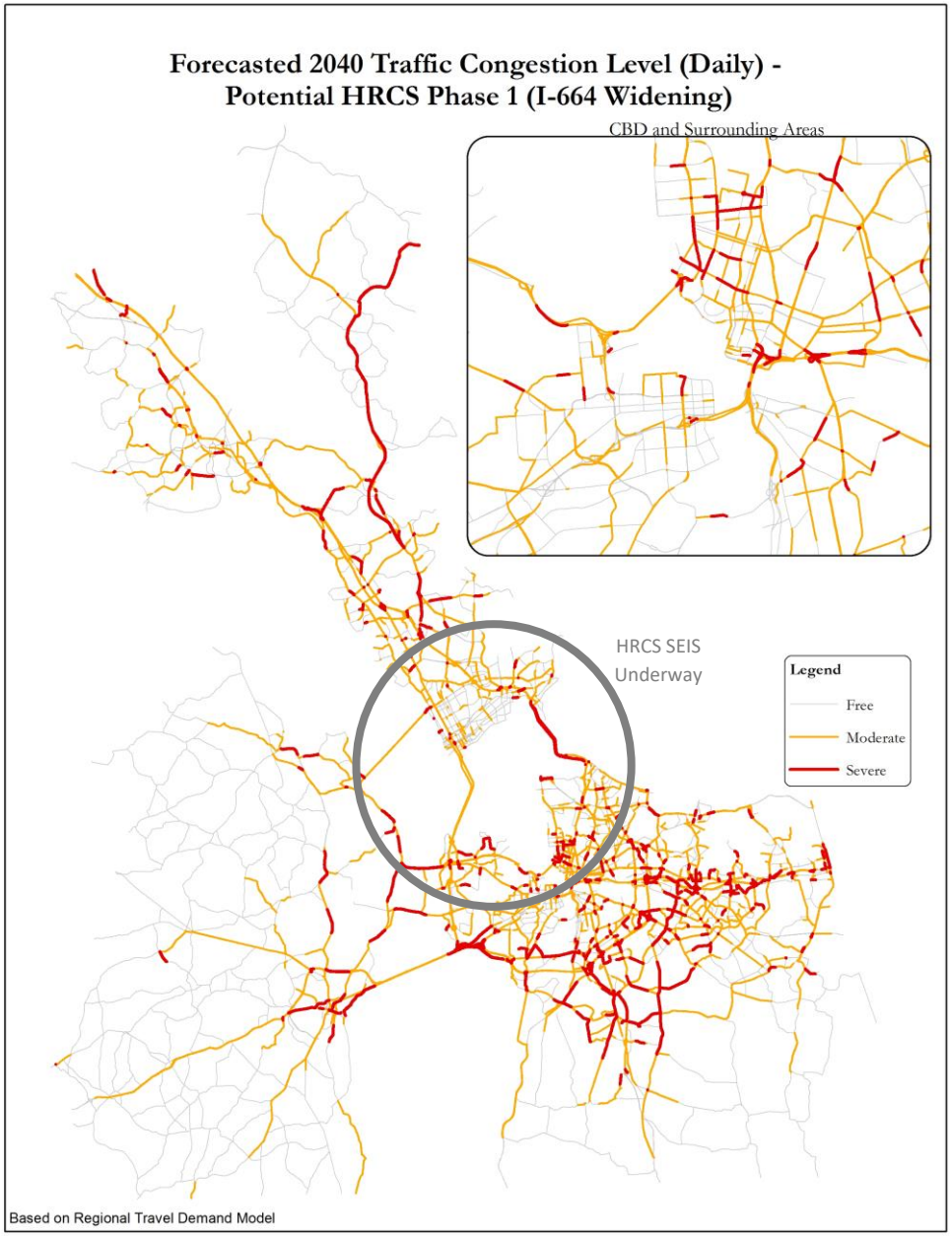
Note: Since the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS) is currently underway, 3 alternatives were analyzed as a potential Phase 1 of the Locally Preferred Alternative.

MAP 10: FORECASTED 2040 TRAFFIC CONGESTION LEVEL - POTENTIAL HRCS PHASE 1 (PATRIOTS CROSSING)



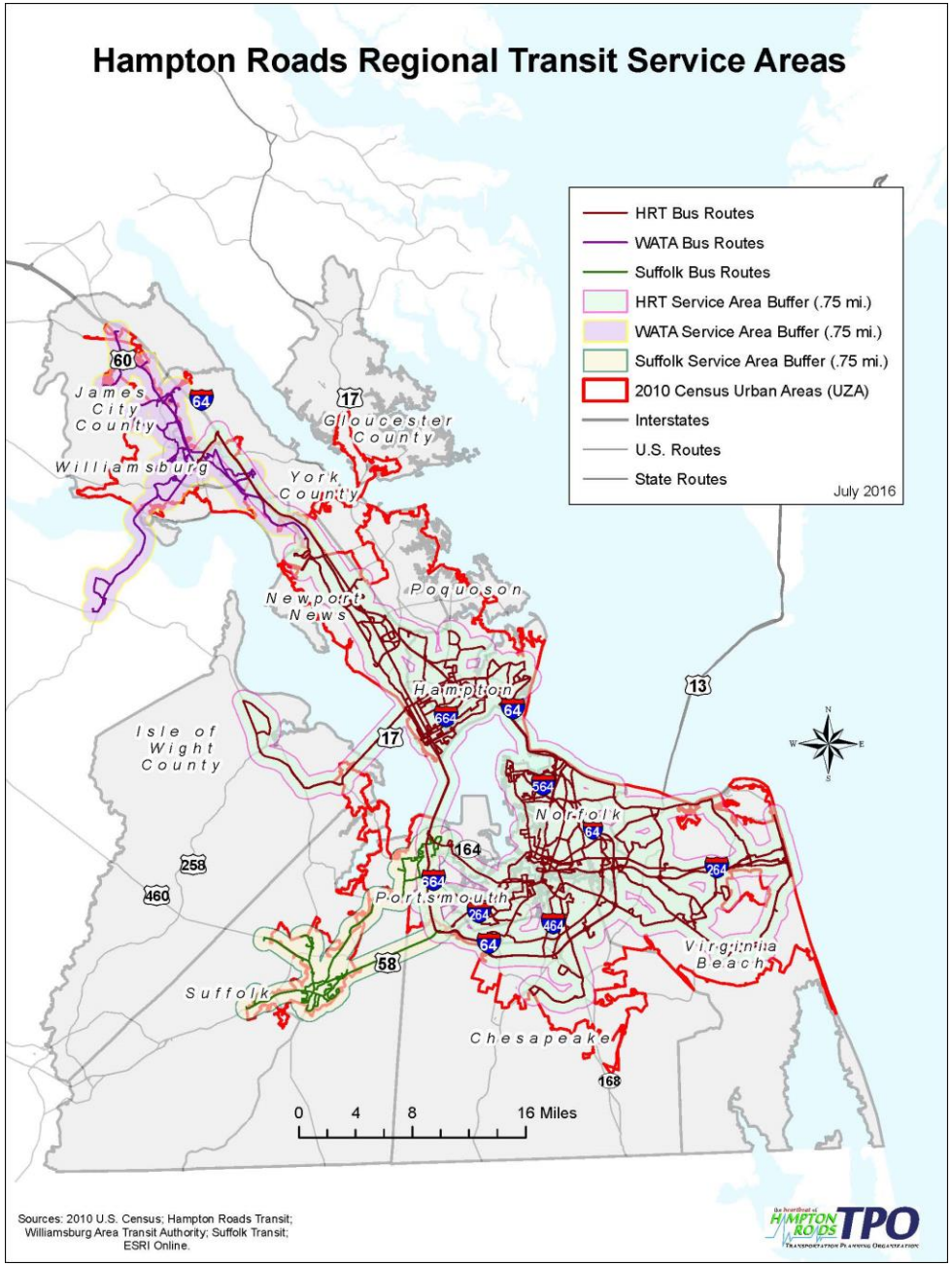
Note: Since the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS) is currently underway, 3 alternatives were analyzed as a potential Phase 1 of the Locally Preferred Alternative.

MAP 11: FORECASTED 2040 TRAFFIC CONGESTION LEVEL - POTENTIAL HRCS PHASE 1 (I-664 WIDENING)

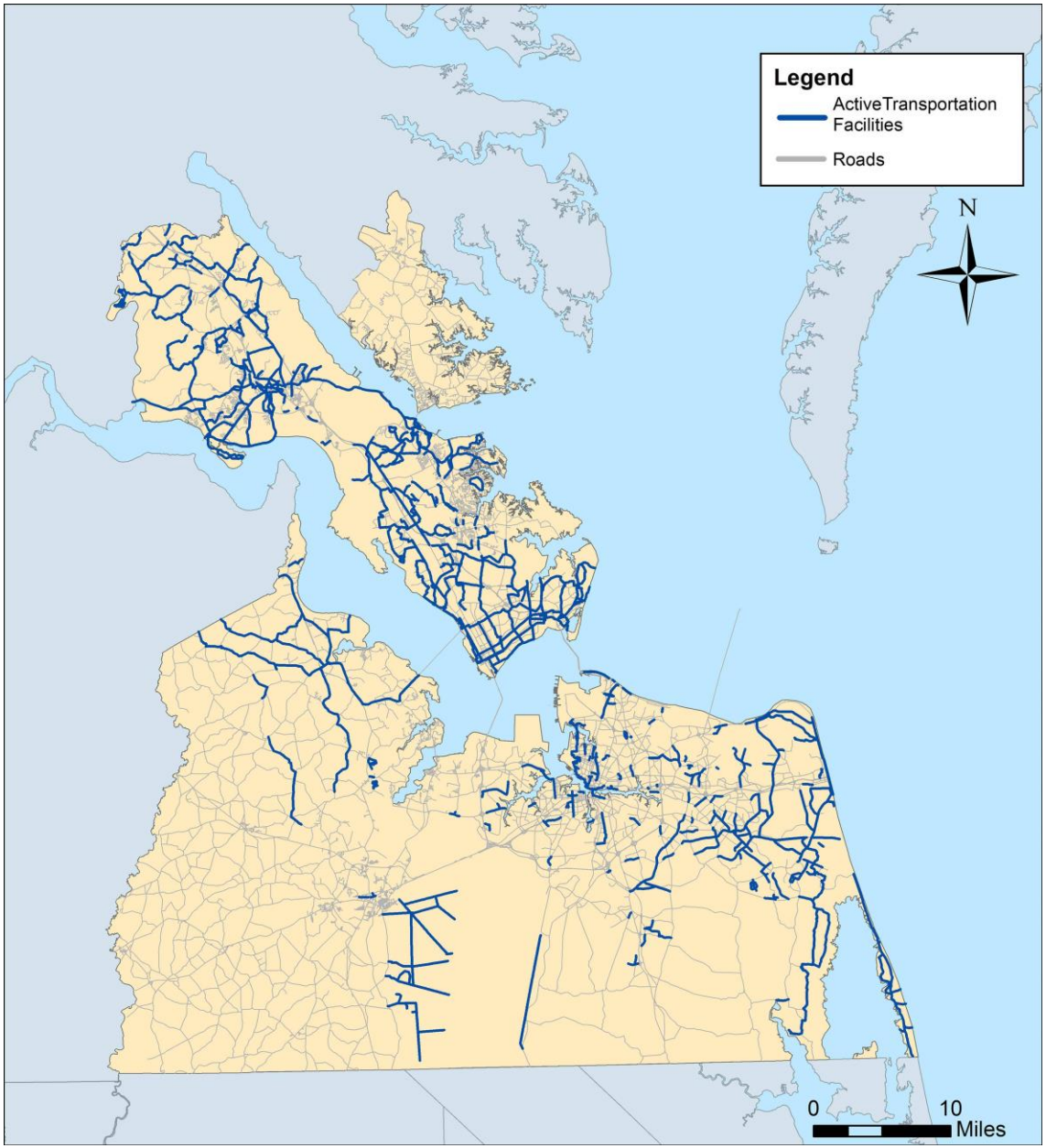


Note: Since the Hampton Roads Crossing Study (HRCS) Supplemental Environmental Impact Statement (SEIS) is currently underway, 3 alternatives were analyzed as a potential Phase 1 of the Locally Preferred Alternative.

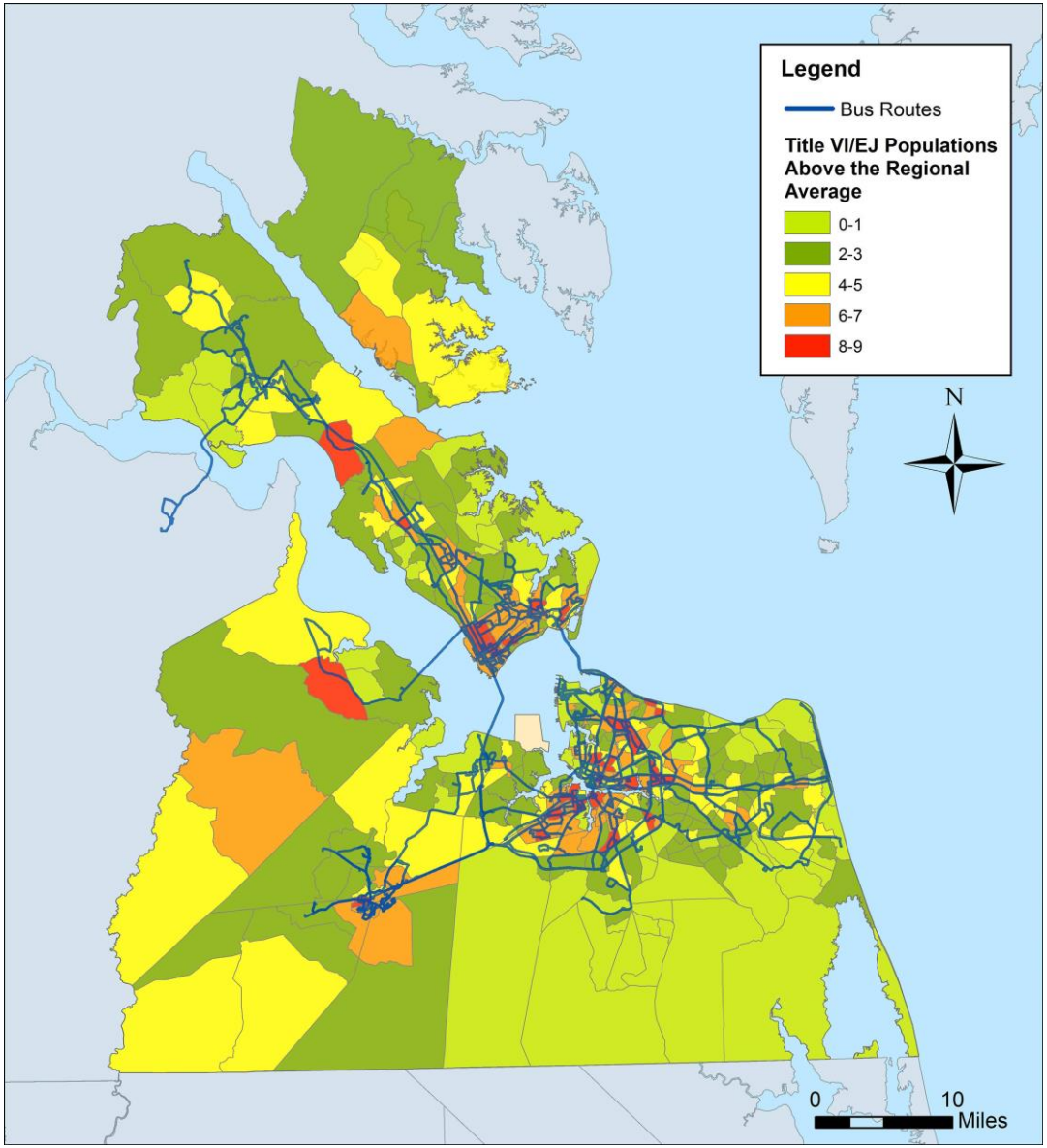
MAP 12: HAMPTON ROADS TRANSIT SERVICE AREAS



MAP 13: EXISTING ACTIVE TRANSPORTATION FACILITIES IN HAMPTON ROADS

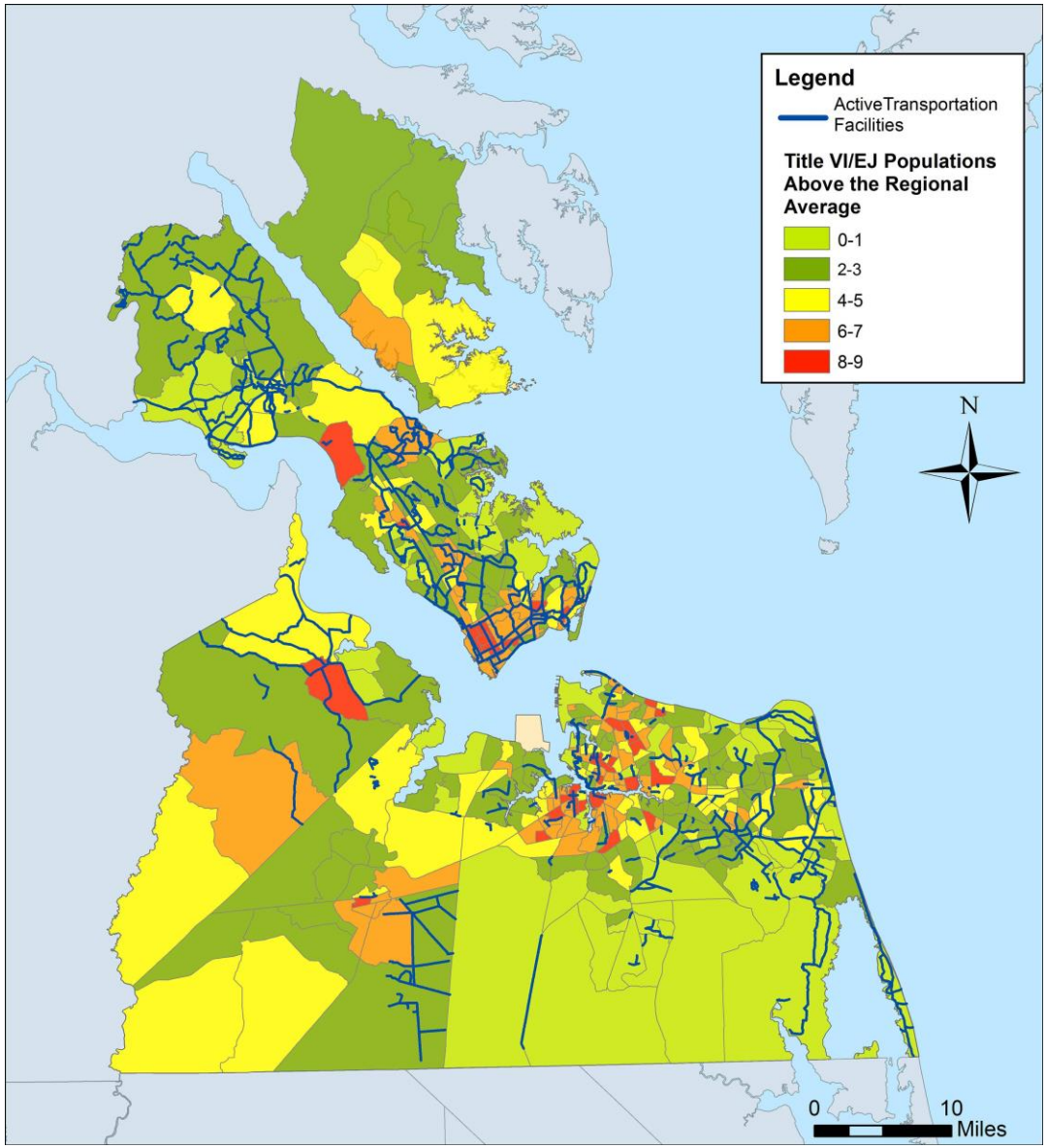


MAP 14: TITLE VI/ENVIRONMENTAL JUSTICE COMMUNITIES ACCESSIBILITY TO ALTERNATE MODES OF TRAVEL (TRANSIT)



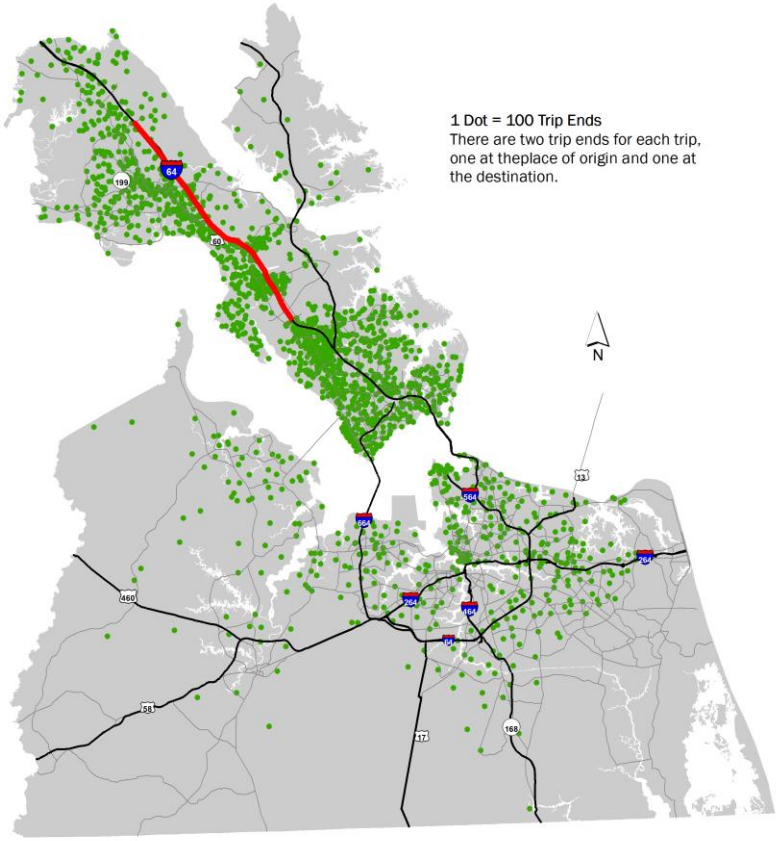
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 15: TITLE VI/ENVIRONMENTAL JUSTICE COMMUNITIES ACCESSIBILITY TO ALTERNATE MODES OF TRAVEL (ACTIVE TRANSPORTATION)

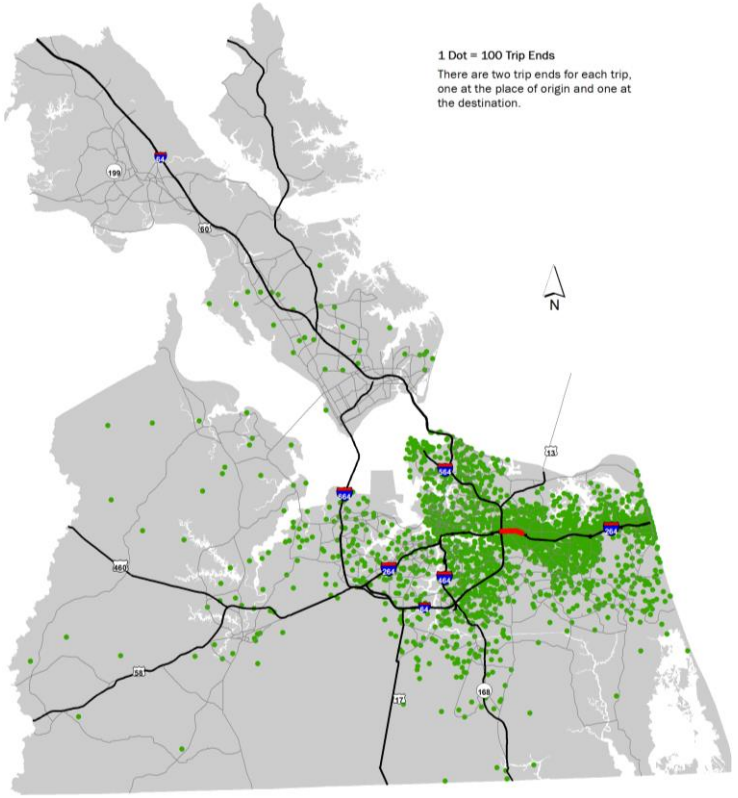


Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

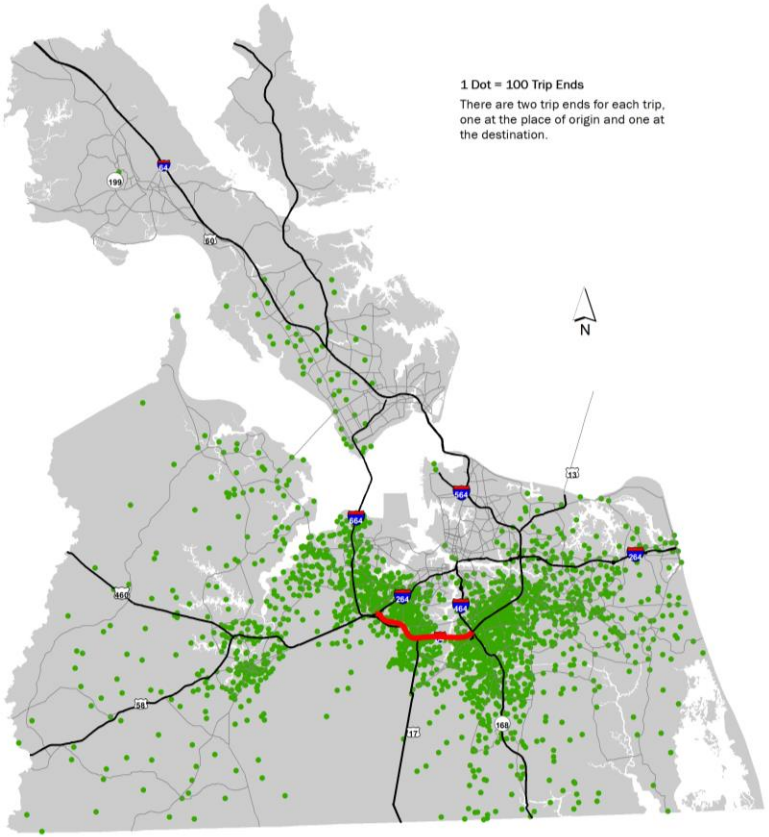
Map 16: I-64 Peninsula 2040 Trip Locations



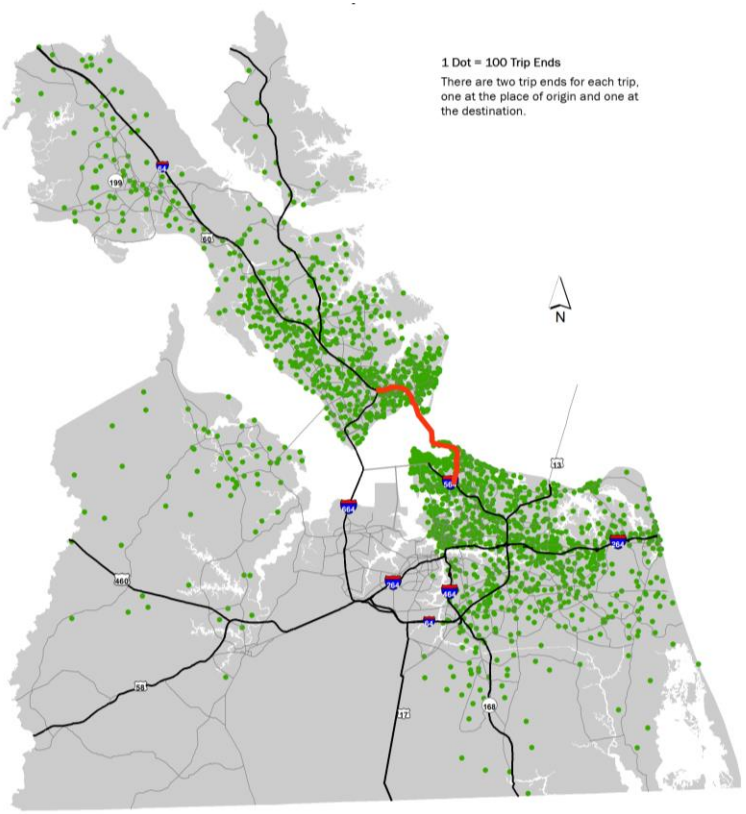
Map 17: I-64/I-264 Interchange (Eastbound Only) 2040 Trip Locations



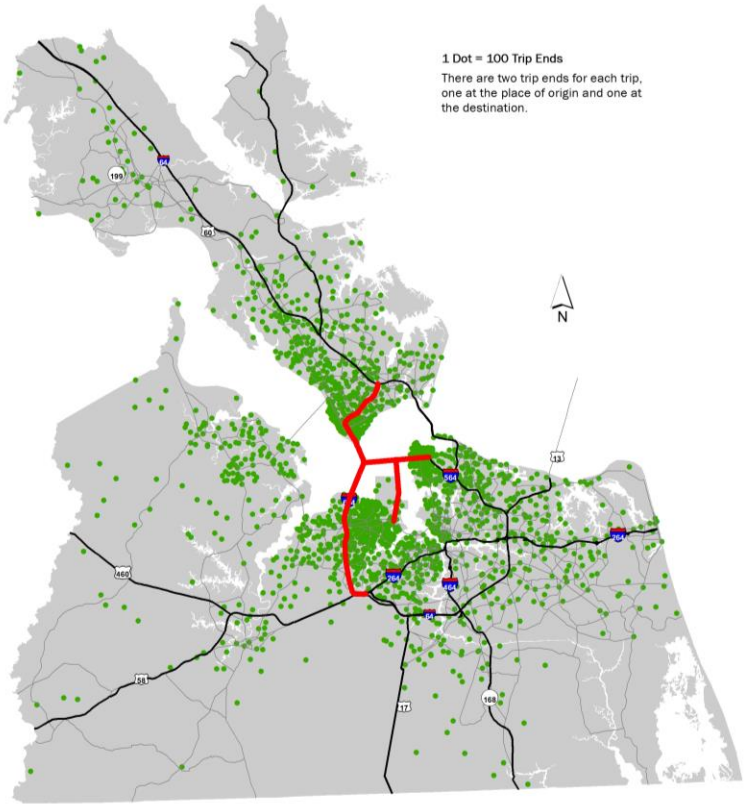
Map 19: I-64 Southside 2040 Trip Locations



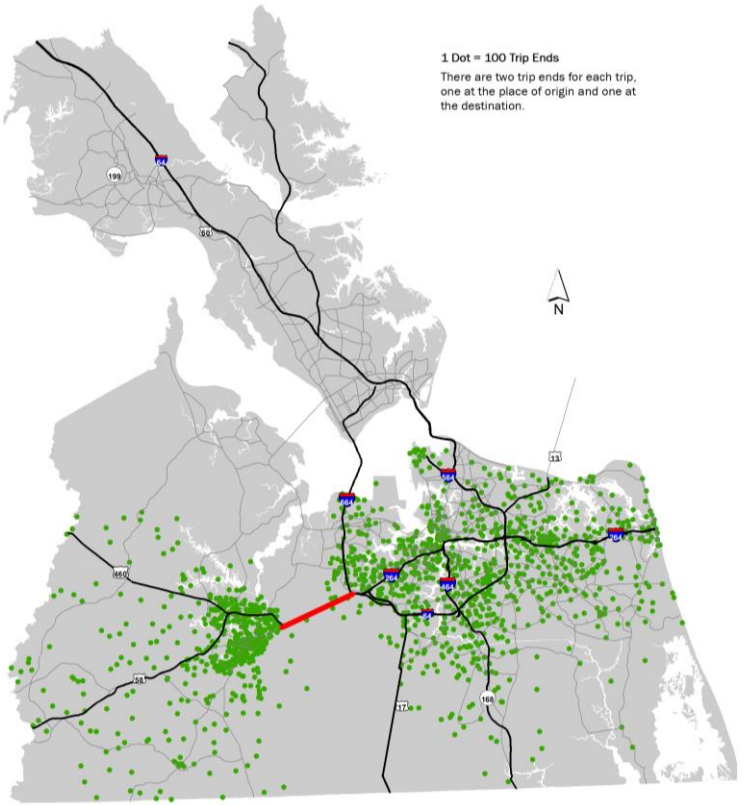
Map 18: Hampton Roads Crossing - HRCS Alternative A 2040 Trip Locations



Map 20: Hampton Roads Crossing – HRCS Alternative C 2040 Trip Locations



Map 21: US Route 460/58/13 Connector 2040 Trip Locations



Title VI/Environmental Justice Analysis

Environmental Justice (EJ), as it relates to transportation planning, combines environmental awareness with racial, ethnic, and social awareness to ensure that transportation projects do not unfairly burden populations that may experience barriers to mobility. Central to the heart of EJ is the right to a safe, healthy, productive, and sustainable environment for all communities.

As part of the Title VI/EJ Analysis for the 2040 LRTP, 9 Title VI/EJ populations were identified:

- Minorities
- Low Income Households
- Elderly
- Disabled
- Households without Vehicles
- Female Heads of Household
- Households Receiving Cash Public Assistance
- Households Receiving Food Stamps
- Limited-English-Proficiency Population

The HRTPO is committed to the principles of Environmental Justice and has taken steps to better inform and include those who traditionally have been left out of the transportation planning process. During the development of the 2040 LRTP, staff applied a Seven-Step methodology to identify, conduct outreach, evaluate, and document EJ considerations.

Seven-Step Environmental Justice Evaluation

The Seven-Step Environmental Justice Evaluation provides a structured approach for preparing an EJ analysis and developing an effective public involvement strategy. The Seven-Step framework sets out to:

- Identify EJ indicators
- Identify geographical areas for analysis
- Identify EJ communities
- Assign impact extent for projects
- Identify affected EJ communities
- Determine the extent of the impact
- Develop and implement Environmental Justice public participation strategies for 2040 LRTP candidate projects

The details of these steps and the overall Title VI/EJ analysis on the 2040 LRTP can be found in the 2040 LRTP *Candidate Project Evaluation: Title VI/Environmental Justice Methodology Report*. The report covers the process used to determine the potential impacts of transportation projects on EJ communities. Impact scores found in that report depict degree of impact and not specific types of impact (since both positive and negative impacts could be associated with each specific project). The report also notes that strategic enhanced public involvement strategies should be implemented in Environmental Justice communities that are highly affected by projects.

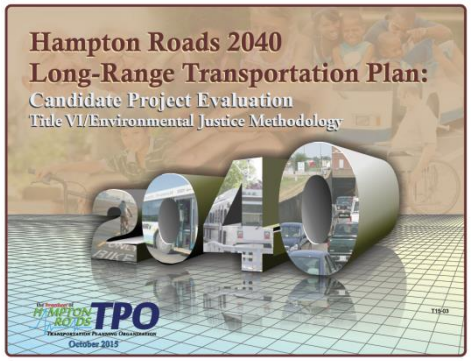
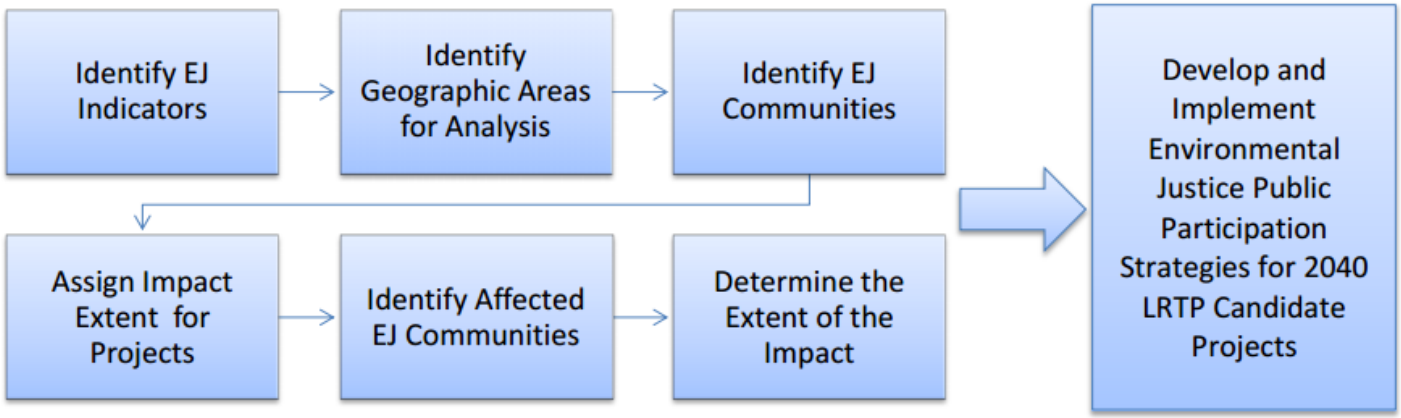


FIGURE 20: ENVIRONMENTAL JUSTICE METHODOLOGY



TITLE VI/ENVIRONMENTAL JUSTICE TOOLKIT

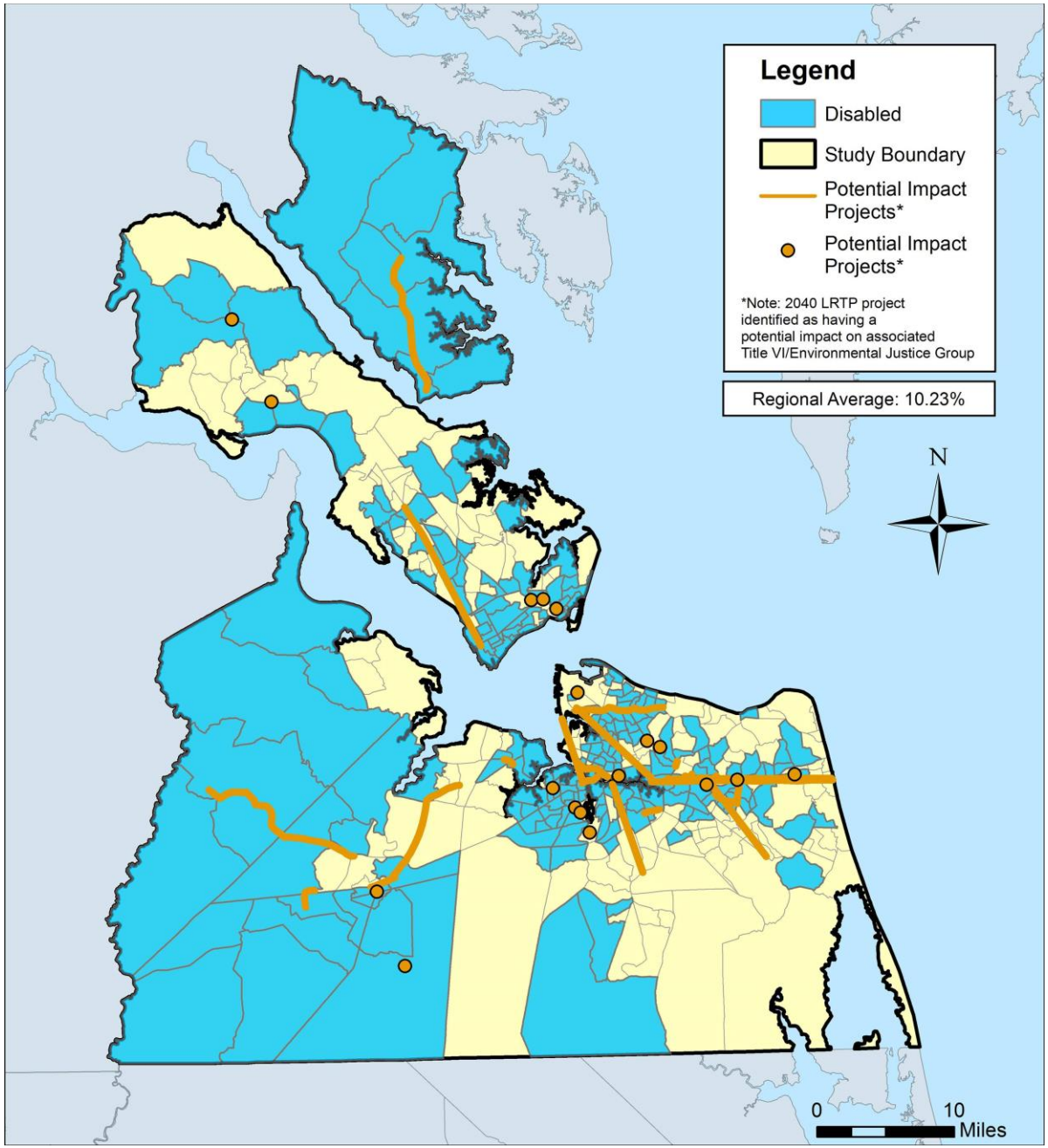
Based on the analysis of the geographic distribution of candidate projects to EJ communities and citizen input, HRTPO staff has developed specific outreach strategies geared towards reaching out to and engaging those who have traditionally been under-considered in the transportation planning process. Efforts are tailored within communities where traditionally underrepresented populations exist. These strategies come in the form of an Environmental Toolkit that contains different approaches for each of the 9 Title VI/EJ communities identified during the 2040 LRTP planning process.

The Toolkit will facilitate the assessment of each project and will include a review of the goals and purposes of public involvement for the project itself. It will also outline the most effective public involvement approach that is most suited to each particular project and Title VI/EJ community that the project may impact. This will be accomplished by analyzing each Title VI/EJ population and outlining the best way to reach and meaningfully involve each population group

TITLE VI/ENVIRONMENTAL JUSTICE IMPACT SCORES MAPS

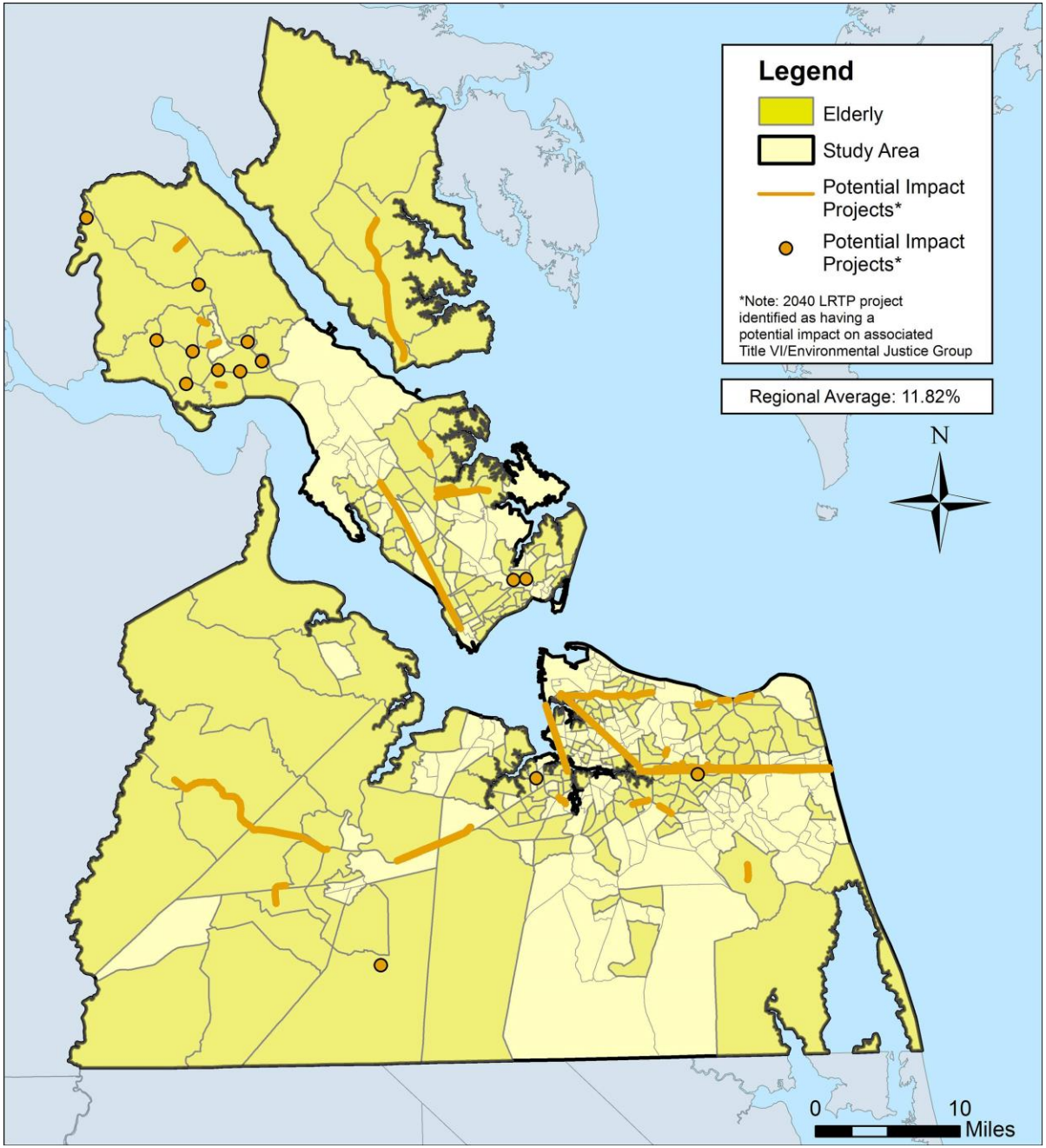
For the 2040 LRTP, the Title VI/EJ impacts scores developed as part of the EJ Methodology were summarized for each project on the fiscally-constrained list. Projects identified as having a potential impact on an associated Title VI/EJ community above the regional map are depicted on Maps XX-XX on the following pages. Additionally, HRTPO staff has also created a story map that is available online. This online resource contains 11 maps visualizing the 2040 LRTP fiscally-constrained projects in relation to affected Title VI/EJ communities.

MAP 22: DISABLED POPULATION ABOVE THE REGIONAL AVERAGE



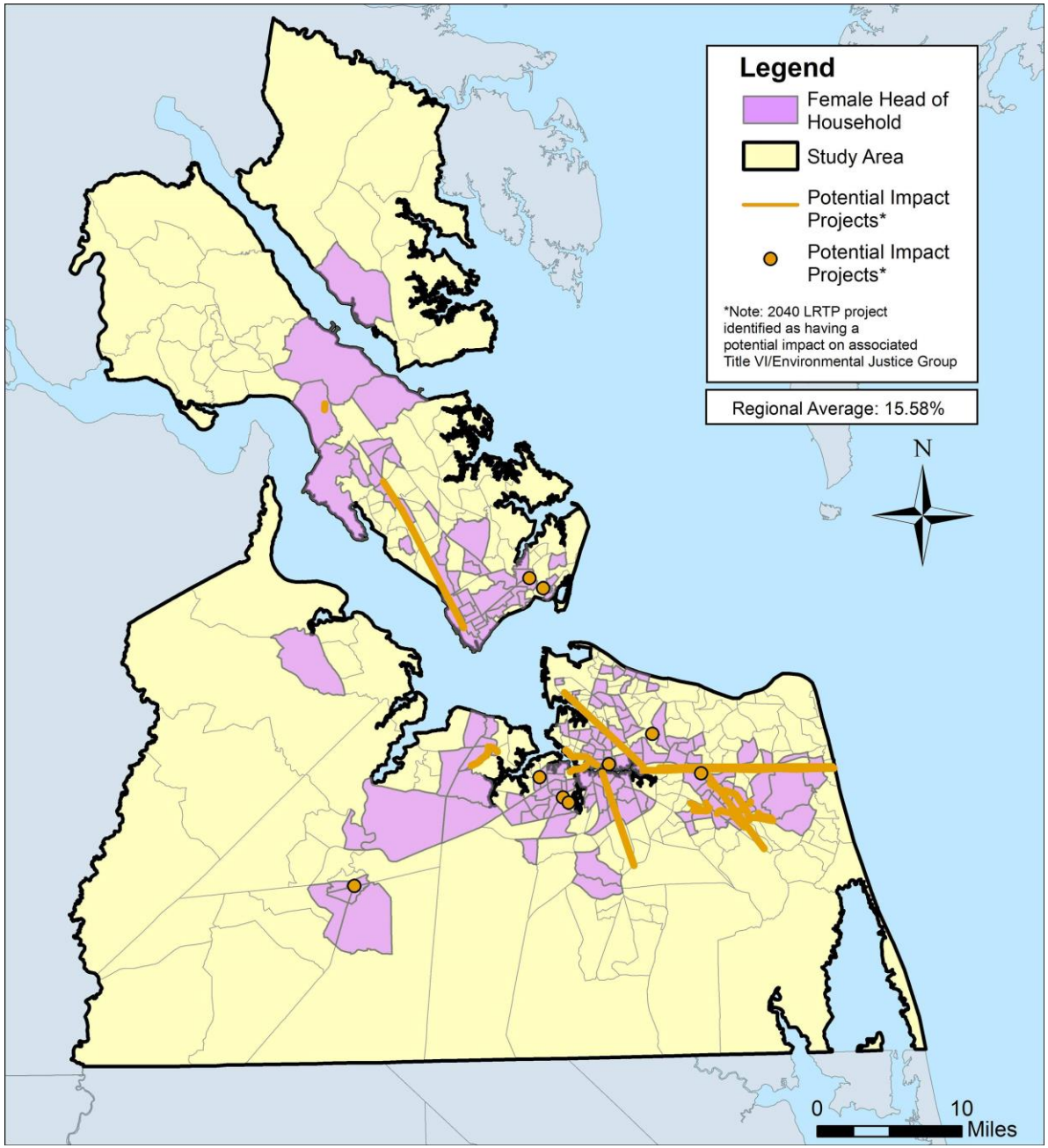
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 23: ELDERLY POPULATION ABOVE THE REGIONAL AVERAGE



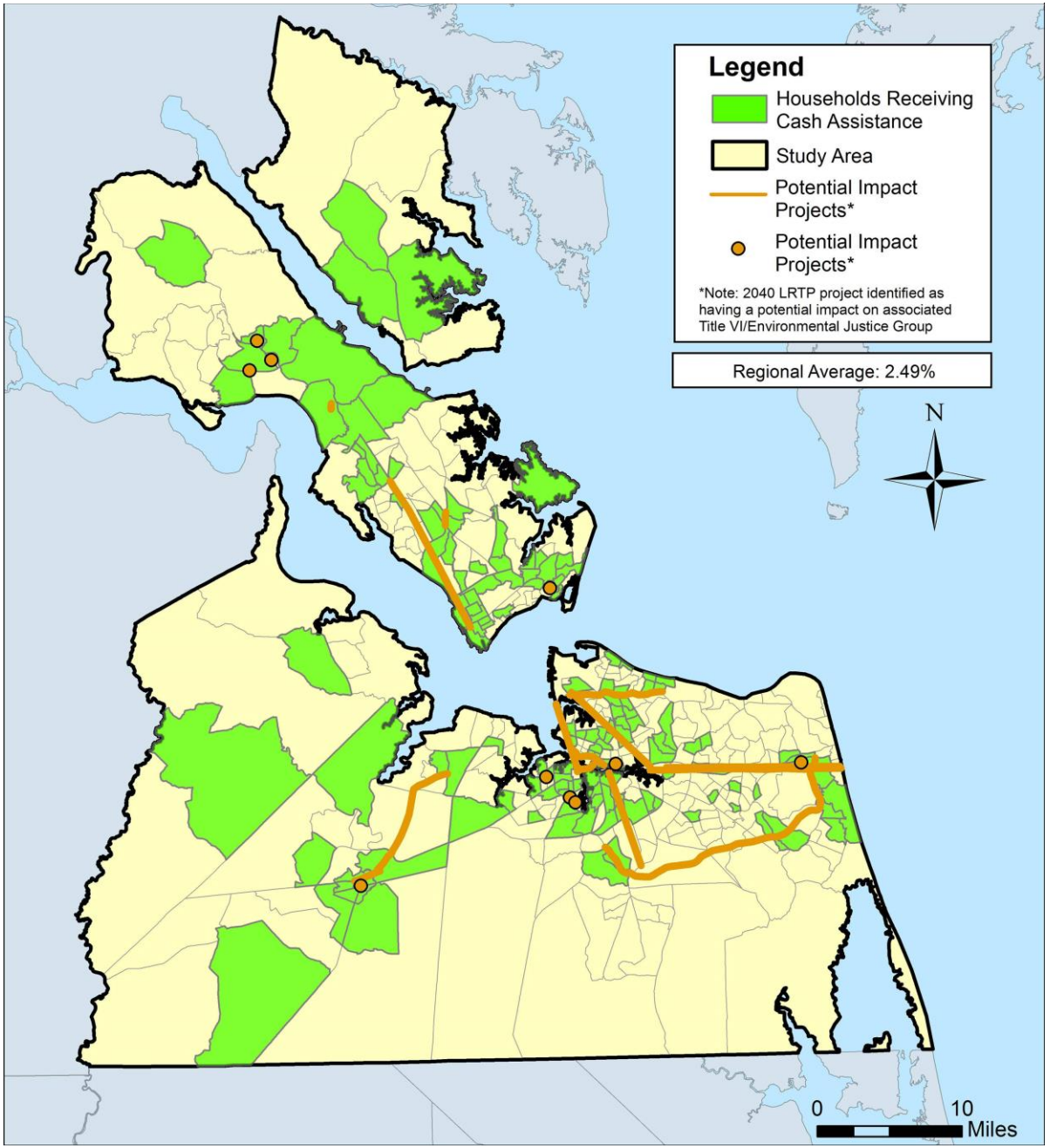
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

Map 24: Female Head of Household Above the Regional Average



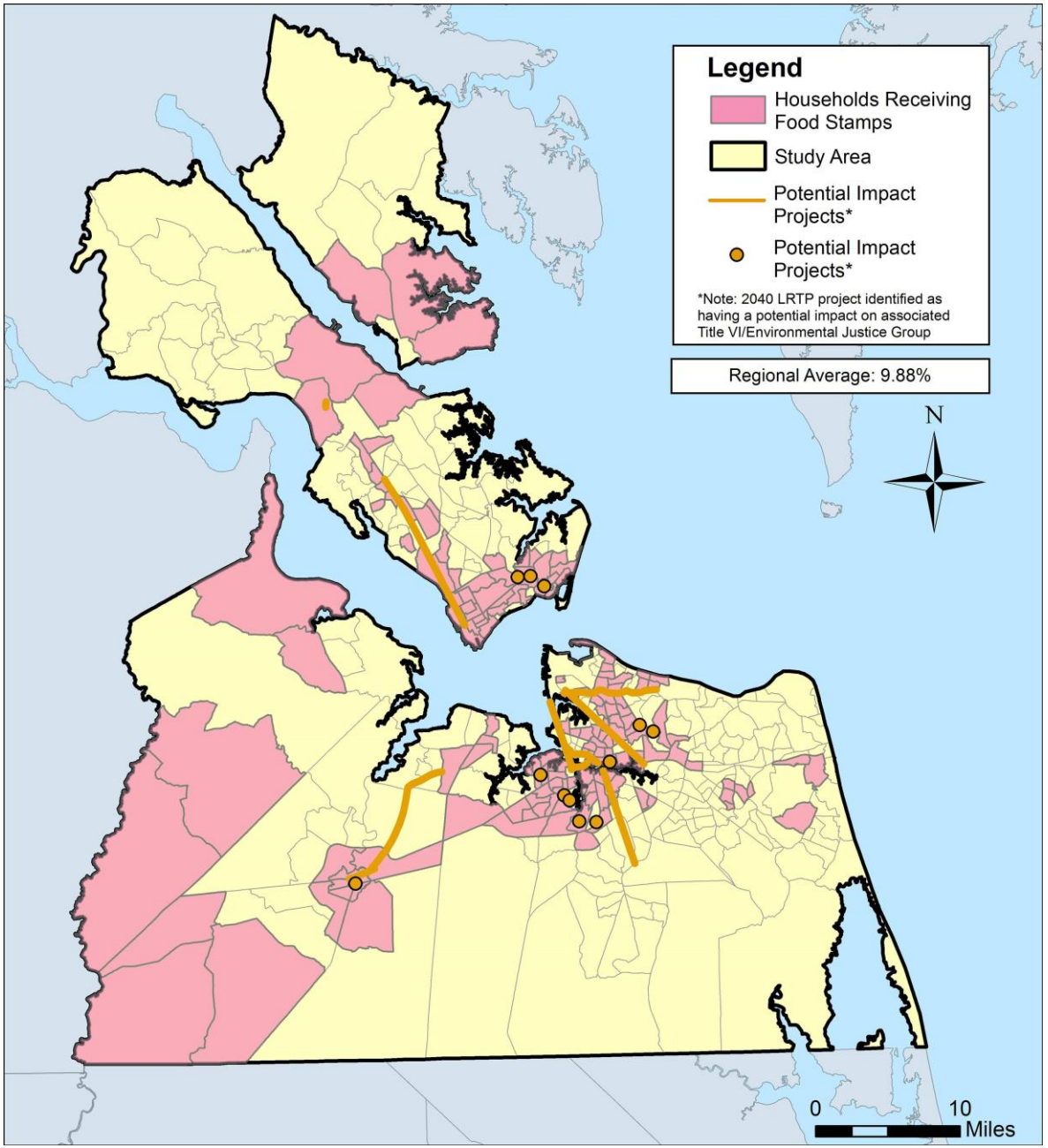
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 25: HOUSEHOLDS RECEIVING CASH ASSISTANCE ABOVE THE REGIONAL AVERAGE



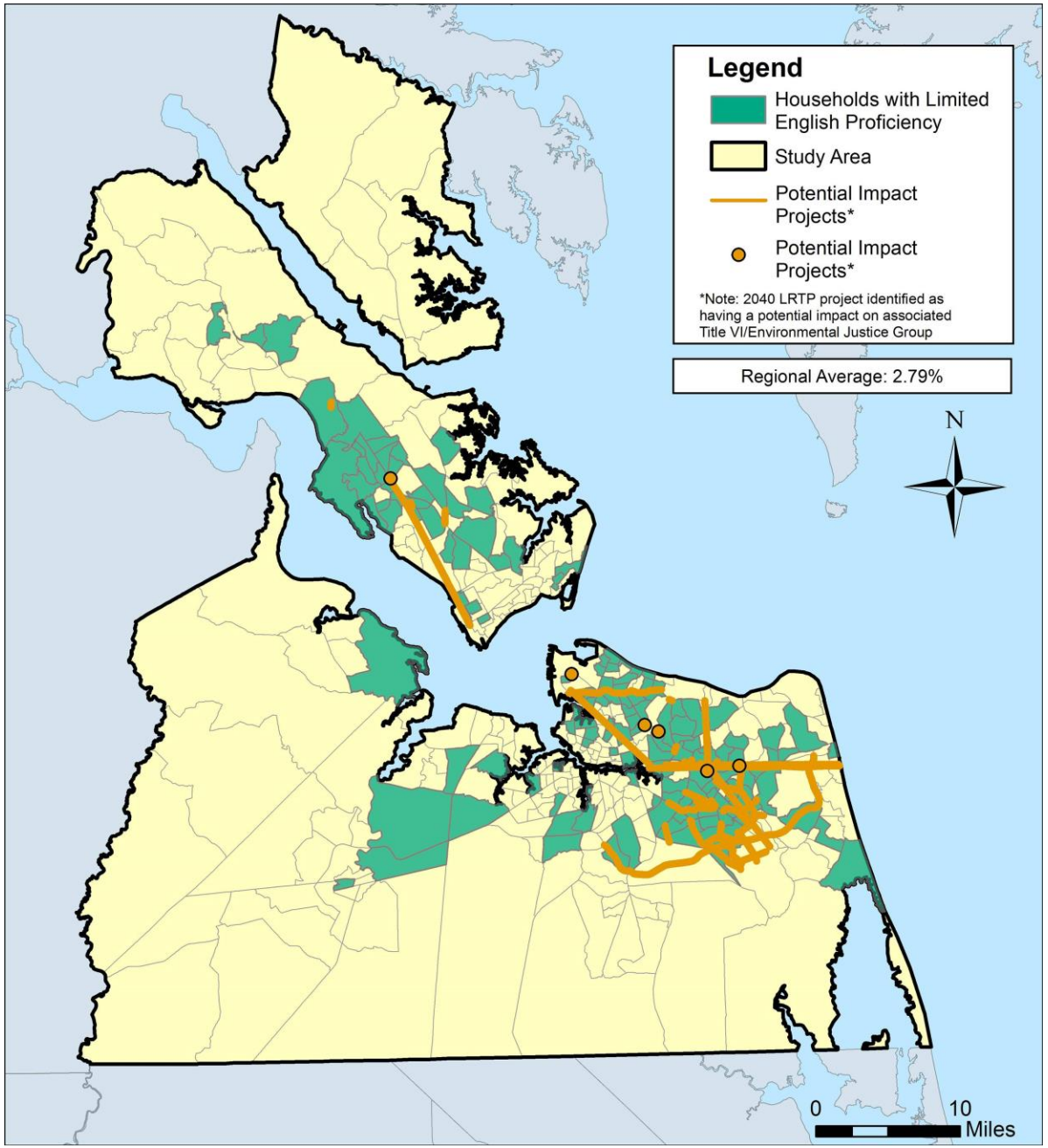
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 26: HOUSEHOLDS RECEIVING FOOD STAMPS ABOVE THE REGIONAL AVERAGE



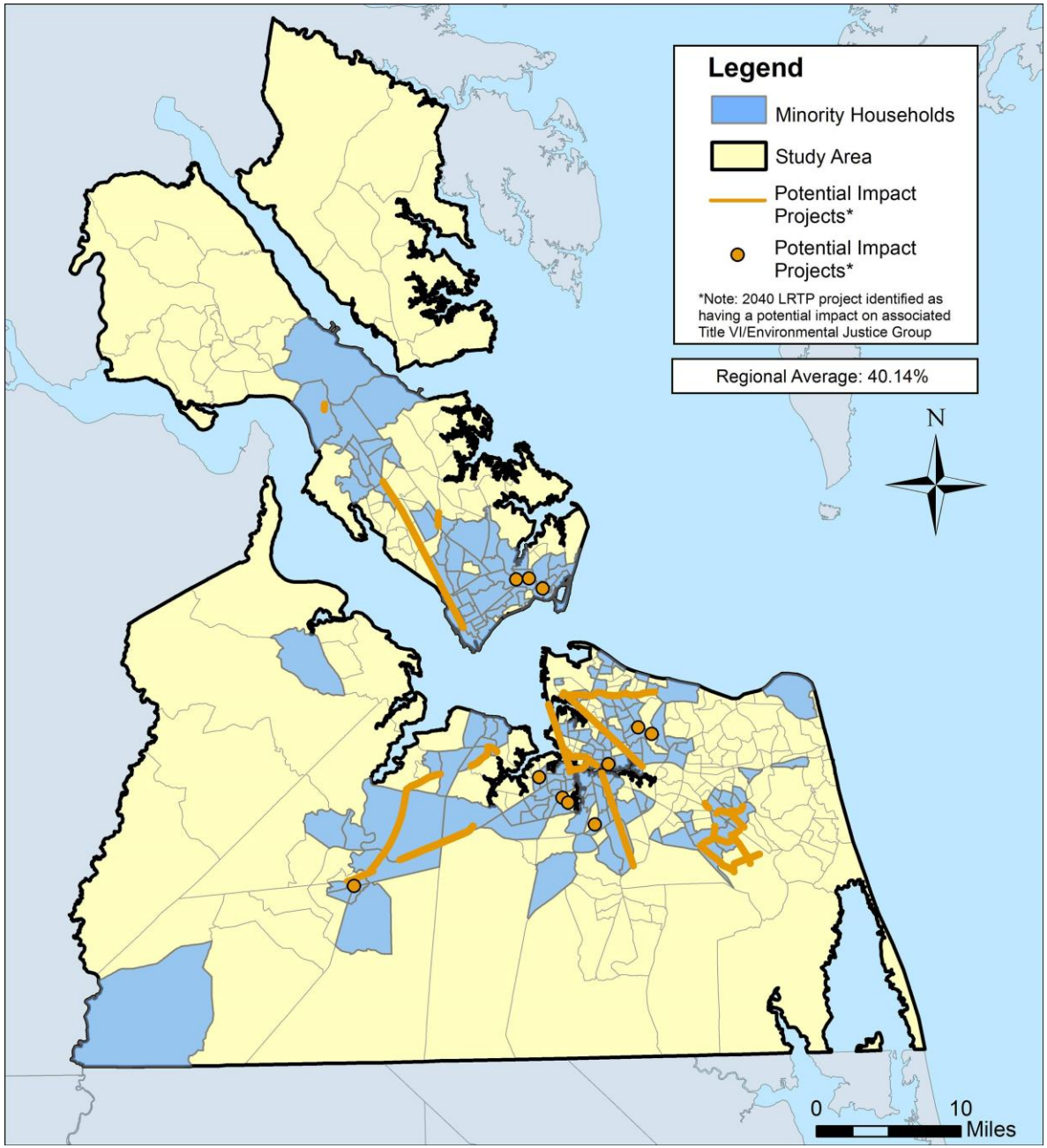
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 27: HOUSEHOLDS WITH LIMITED ENGLISH PROFICIENCY ABOVE THE REGIONAL AVERAGE



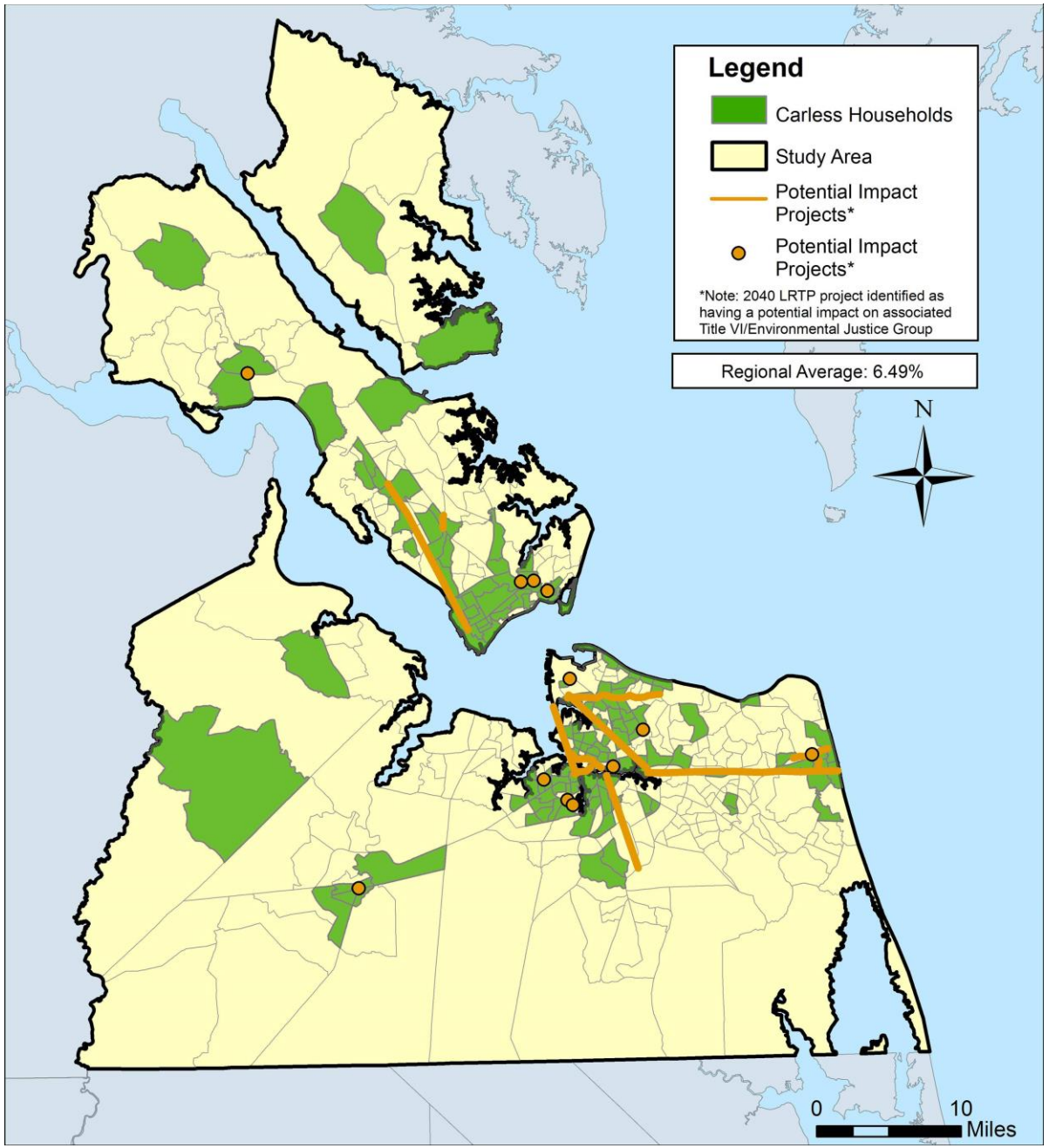
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 28: MINORITY HOUSEHOLDS ABOVE THE REGIONAL AVERAGE



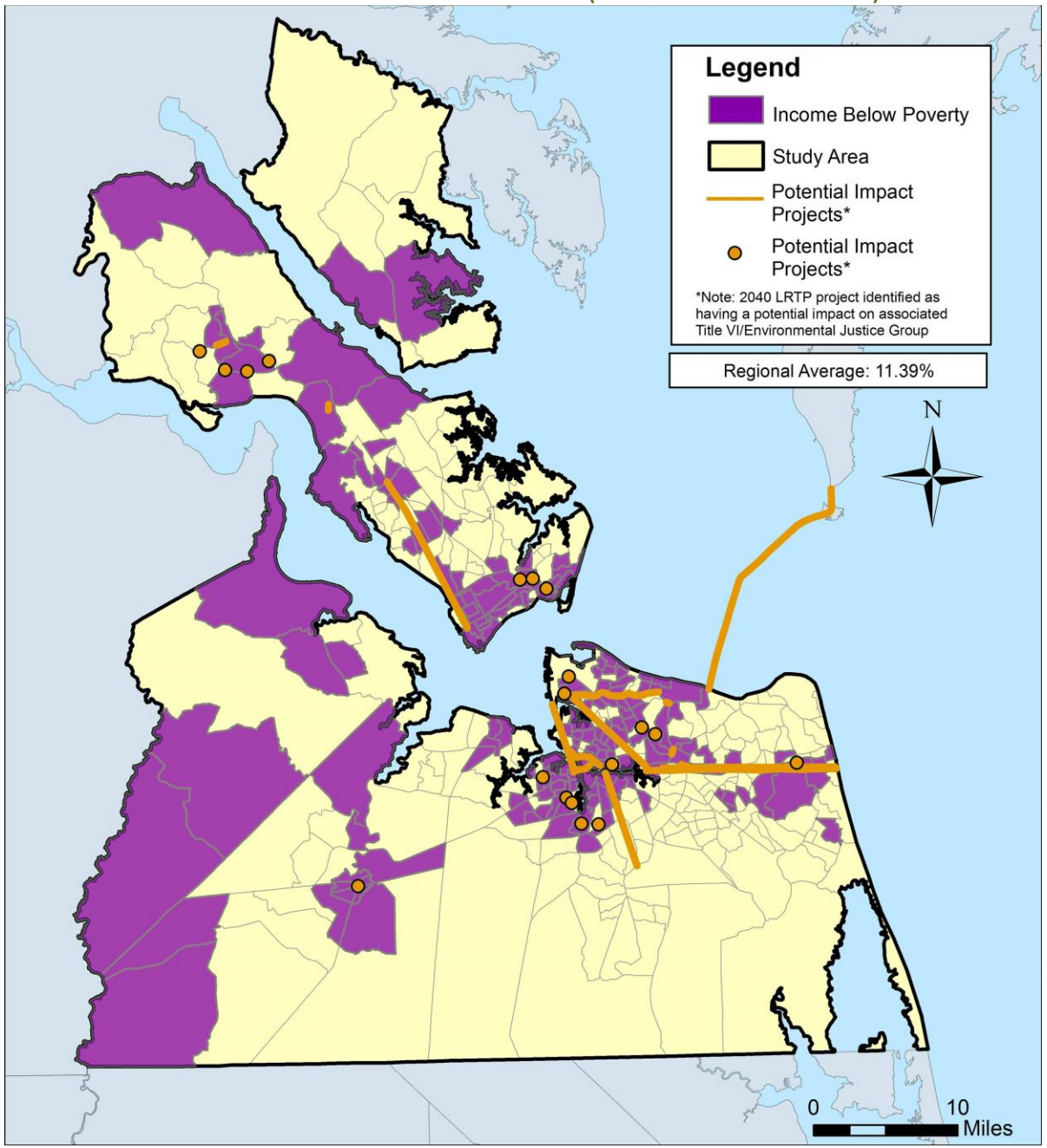
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 29: CARLESS HOUSEHOLDS ABOVE THE REGIONAL AVERAGE



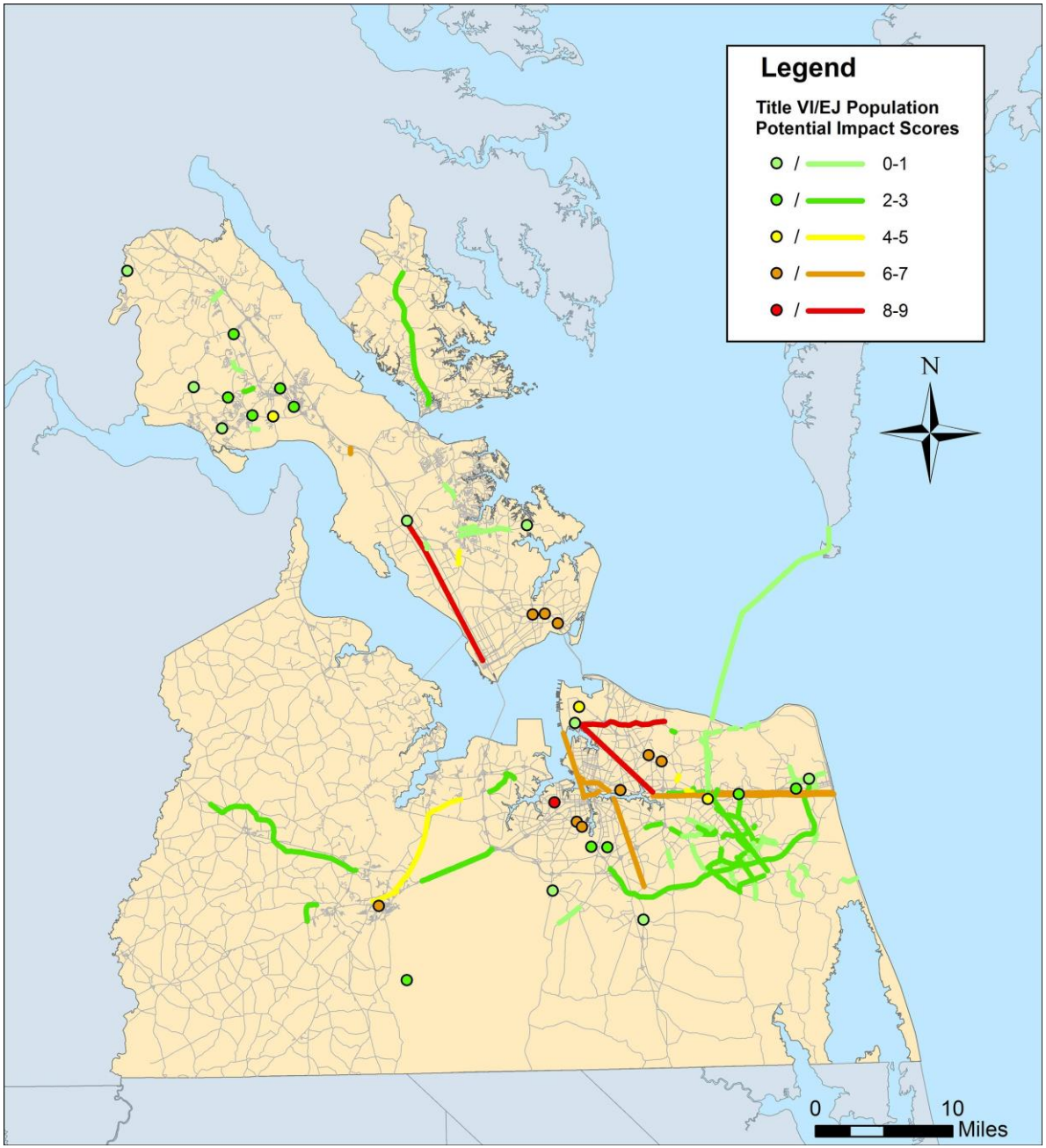
Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 30: HOUSEHOLDS WITH INCOME BELOW POVERTY (ABOVE THE REGIONAL AVERAGE)



Using data from the 2009-2013 American Community Survey (ACS) 5-Year Estimates, the Regional Average is defined as the percentage of the EJ group's population in the Hampton Roads Transportation Planning Organization's (HRTPO) planning area compared to the total population.

MAP 31: SUMMARY OF 2040 LRTP TITLE VI/ENVIRONMENTAL JUSTICE POTENTIAL IMPACT SCORES



Regional Performance Measures

A key feature of MAP-21 (and continued under the FAST Act) is the establishment of national performance goals in the areas of safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. This legislation also requires Metropolitan Planning Organizations (MPOs) to prepare and set targets for the following federally-established performance measures:

- Roadway Safety
- Transit Asset Management
- Bridge Condition
- Pavement Condition
- Roadway Performance
- Freight Movement
- On-road mobile source emissions and traffic congestion for CMAQ Program (for non-attainment areas)

In addition, federal legislation requires that the regional long-range transportation planning process:

- Shall include a description of the federally required performance measures and targets used in assessing the performance of the transportation system.
- Shall include a system performance report evaluating the condition and performance of the transportation system with respect to the targets including progress achieved by the MPO towards meeting the performance targets.
- MPOs that elect to conduct scenario panning shall describe how the preferred scenario has improved performance of the system.

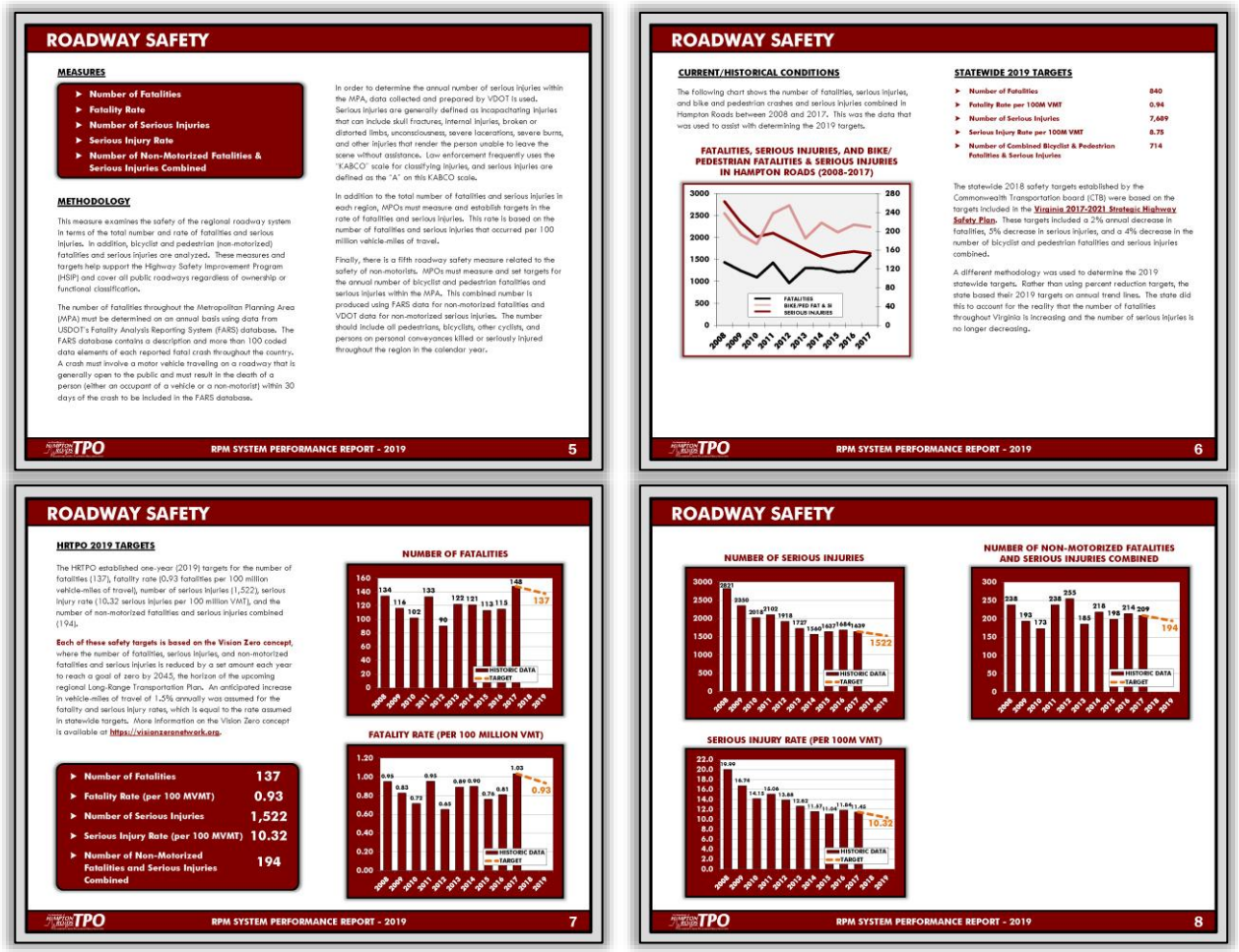
The HRTPO will annually prepare a report on regional performance measures and targets. The initial version of the *HRTPO Regional Performance Measures: System Performance Report* was released in April 2019. This report includes an introduction to the target setting process, a description of the methodology used to calculate each measure, historical data trends for each of the areas, information on statewide targets, a description of the targets that have been established by the HRTPO, and the progress being made towards meeting the established targets.

The HRTPO Regional Performance Measures: System Performance Report will be updated on an annual basis to reflect updated targets as well as progress towards meeting the targets. In addition, HRTPO also maintains a web page (https://www.hrtpo.org/page/regional-performance-measures-and-targets) that provides information on these regional performance measures and targets as well as the most recent version of the System Performance Report.

The HRTPO has established initial performance targets in each of the areas required by federal legislation, which are described both on the following pages and in the System Performance Report. Setting the initial HRTPO targets was a collaborative effort. The Transportation Technical Advisory Committee (TTAC) recommended targets for the HRTPO Board to consider. In order to assist the TTAC, the committee formed a Performance Measure Working Group. This Working Group included staff from localities, transit agencies, VDOT, and subject-matter experts.

The HRTPO Board established initial roadway safety targets on February 15, 2018 and Transit Asset Management targets on August 29, 2018. The remaining initial targets were established by the HRTPO Board on October 18, 2018.

FIGURE 21: HAMPTON ROADS ROADWAY SAFETY



Roadway Safety

The first performance targets that had to be established by MPOs are in the area of roadway safety. There are five safety measures that MPOs are required to establish targets and monitor progress for:

- Fatalities
- Fatality Rate
- Serious Injuries
- Serious Injury Rate
- Bike/Pedestrian Fatalities & Serious Injuries (combined)

Based on the advice of the Performance Measures working group and the TTAC, the HRTPO Board established the following roadway safety targets for 2020 at their January 2020 meeting:

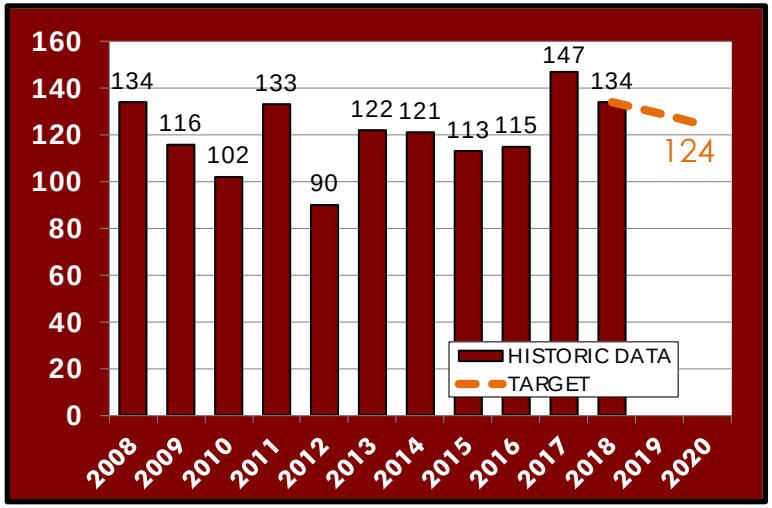
Table 4: 2020 HRTPO Safety Performance Targets

2020 SAFETY PERFORMANCE TARGETS	
Fatalities	**124**
Fatality Rate (per 100 Million VMT)	**0.84**
Serious Injuries	**1,448**
Serious Injury Rate (per 100 Million VMT)	**9.85**
Number of Bike/Pedestrian Fatalities and Serious Injuries Combined	**163**

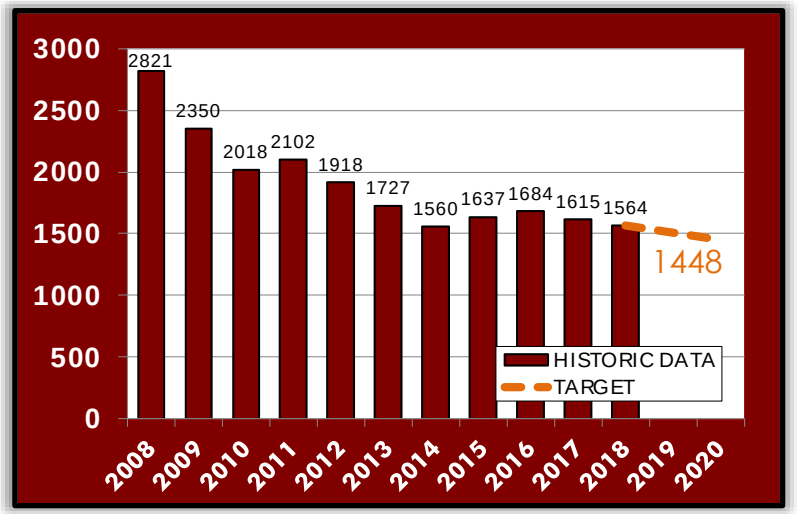
Each of these safety targets is based on the Vision Zero concept, where the number of fatalities, serious injuries, and non-motorized fatalities and serious injuries is reduced by a set amount each year to reach a goal of zero by 2045, the horizon of the upcoming regional Long-Range Transportation Plan. An anticipated increase in vehicle-miles of travel of 1.7% annually was assumed for the fatality and serious injury rates, which is equal to the rate assumed by VDOT for statewide targets.

The following charts show the 2020 targets established by the HRTPO, along with historical data, for the number of roadway fatalities, serious injuries, and bike/pedestrian fatalities and serious injuries in Hampton Roads:

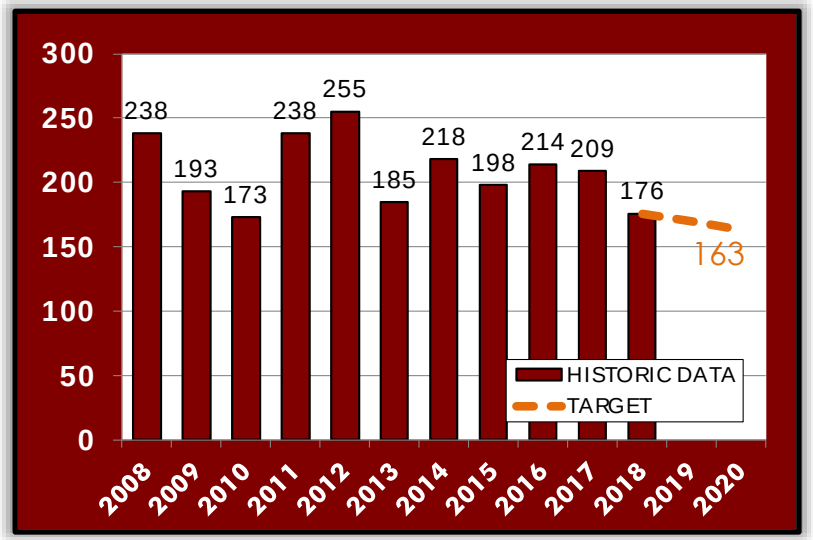
FIGURE 22: HAMPTON ROADS SAFETY TARGETS AND DATA



Hampton Roads Fatalities



Hampton Roads Serious Injuries



Hampton Roads Bike/Pedestrian Fatalities & Serious Injuries

Transit Asset Management

The Federal Transit Administration's (FTA) Performance Based Planning final rule requires transit performance measures in the area of state of good repair, also referred to as transit asset management (TAM). MPOs are required to establish regional targets and monitor progress in the following areas:

Table 5: Transit Asset Management Performance Targets

Asset Type	Performance Measure	Asset Classes
Rolling Stock	% of revenue vehicles within each asset class that have met or exceeded their useful life benchmark	Buses, ferry boats, light rail vehicles, trolley buses, vans.
Equipment/Service Vehicles	% of vehicles that have met or exceeded their useful life benchmark	Non-revenue automobiles, trucks, other rubber tire vehicles
Infrastructure	% of track segments, signals, and systems with performance restrictions	Light rail infrastructure
Facilities	% of facilities in each asset class rated under 3.0 on FTA's TERM scale	Passenger facilities, parking facilities, maintenance facilities, administrative facilities

Three transit agencies operate within the Hampton Roads Metropolitan Planning Area – Hampton Roads Transit (HRT), the Williamsburg Area Transit Authority (WATA), and Suffolk Transit. HRT, as a Tier I transit agency, must develop and carry out their own TAM plans. As Tier II transit agencies, WATA and Suffolk Transit are eligible to participate in group TAM plans. WATA and Suffolk Transit are using the statewide targets that were established by the Virginia Department of Rail and Public Transportation.

The HRTPO established regional transit asset management targets at their January 2020 meeting based on a weighted average of HRT, WATA, and Suffolk Transit Fiscal Year 2020 targets. These targets are:

Table 6: Regional Transit Asset Management Targets

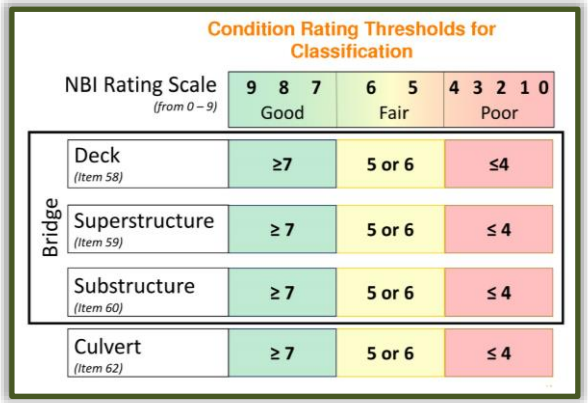
Asset Type	Performance Measure	Asset Classes	2020 HRTPO Target
Rolling Stock	% of revenue vehicles within each asset class that have met or exceeded their useful life benchmark	Bus	< 19%
		Cutaway Buses	< 1%
		Ferry Boat	< 33%
		Light Rail Vehicles	0%
		Minibus	< 20%
		Trolley Buses	< 3%
		Van	< 25%
Equipment/ Service Vehicles	% of vehicles that have met or exceeded their useful life benchmark	Non-Revenue/ Service Vehicles	< 66%
		Trucks & Other Rubber Tire Vehs	< 13%
Infrastructure	% of track segments, signals, and systems with performance restrictions	Light Rail Infrastructure	< 1%
Facilities	% of facilities in each asset class rated under 3.0 on FTA's TERM scale	Passenger/Parking	< 1%
		Maintenance	< 10%
		Administrative	< 10%

Bridge Condition

This measure examines the condition of bridges on the National Highway System (NHS) – including on- and off-ramps connected to the NHS – on a regional basis. In order to be included, the bridge must meet National Bridge Inventory (NBI) standards. These standards include:

- The structure must be located on roadways open to the general public. Bridges located within the security perimeter of military bases and other secure federal facilities are not included.
- The bridge must carry a roadway. Structures that carry only railroad or pedestrian traffic are not included.
- The bridge must be more than 20 feet in length. Culverts are included, as long as the opening in the culvert is more than 20 feet in length.

Bridges are classified as being in good, fair, or poor condition based on the lowest of the condition ratings of the bridge's deck, superstructure, and substructure. For culverts, the classification is based on the culvert condition rating. These classification thresholds are shown in the table below.



For example, if a structure has a deck condition rated as a 7, a superstructure condition rated as a 4, and a substructure condition rated as a 5, then the structure is classified as being in poor condition based on the lowest condition rating of 4.

After each NBI bridge on the NHS is classified as being in good, fair, or poor condition, the deck area of each bridge is calculated by multiplying the full width of the bridge by the bridge's length. The total deck area of each good bridge, fair bridge, and poor bridge throughout the region is summed together, and then divided by the total deck area of all NBI bridges on the NHS in the entire region. This produces a total regional percentage of bridges that are in good condition, fair condition, and poor condition. The regional percentages of NBI bridge deck area in good and poor condition on the NHS are tracked for regional targets.

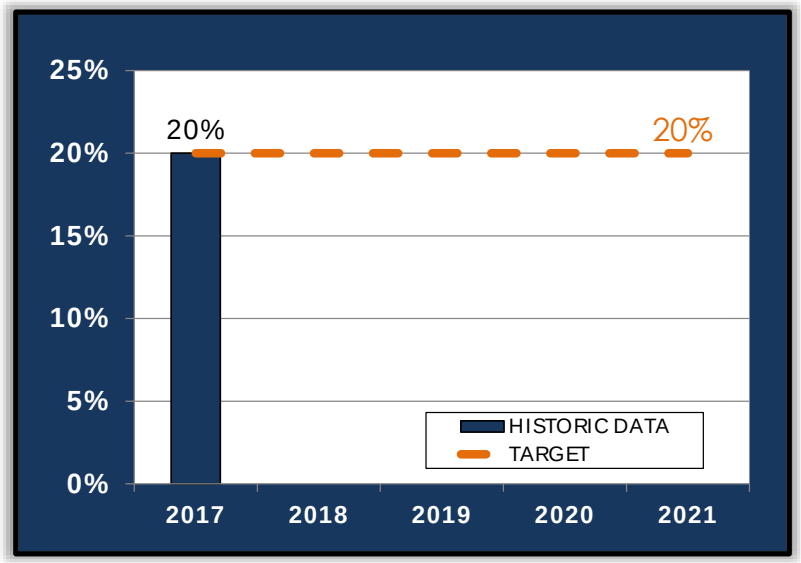
The HRTPO Board established the following bridge condition targets for 2021:

Table 7: Four-Year Bridge Condition Performance Targets

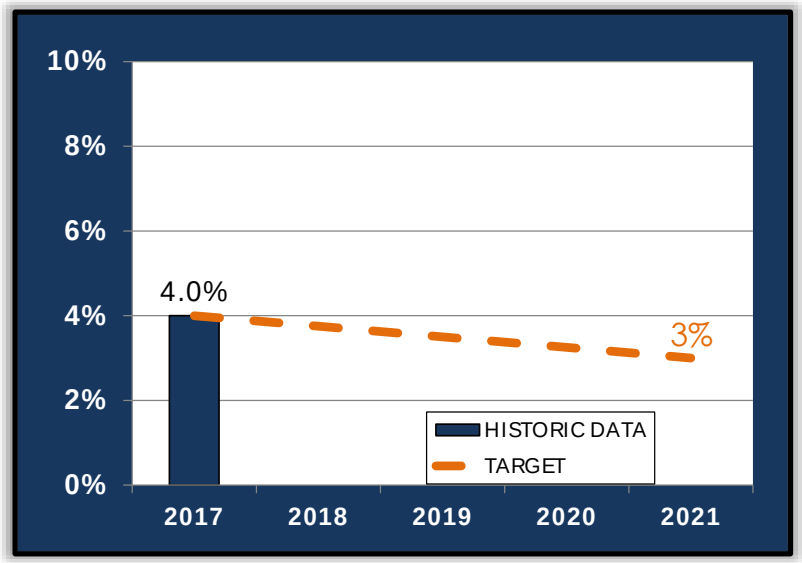
2021 BRIDGE CONDITION TARGETS	
Percentage of NHS Bridge Deck Area in Good Condition	**> 20%**
Percentage of NHS Bridge Deck Area in Poor Condition	**< 3%**

The following charts show the four-year targets established by the HRTPO, along with historical data, for the percentage of NHS bridge deck area in good and poor condition in Hampton Roads:

FIGURE 23: HAMPTON ROADS BRIDGE CONDITION TARGETS AND DATA



Hampton Roads Percentage of NHS Bridge Deck Area in Good Condition



Hampton Roads Percentage of NHS Bridge Deck Area in Poor Condition

Pavement Condition

This measure examines the condition of roadway pavement on the National Highway System (NHS). The percentage of the region's Interstate system pavement in good and poor condition is measured as is the percentage of the region's Non-Interstate NHS pavement. This measure only includes through travel lanes; ramps, shoulders, turn lanes, crossovers, etc. are not included in this analysis.

The following metrics are used in determining the pavement condition of each NHS roadway:

- International Roughness Index (IRI) – IRI is used to determine the ride quality based on the smoothness of pavement. It is measured in inches per mile of roadway.
- Rutting and Faulting – Rutting is a surface depression in the wheel path of asphalt roadways, and faulting is the difference in elevation across joints or cracks in jointed concrete.
- Cracking - Cracking measures the percentage of roadway surface area where cracks are present.
- Present Serviceability Rating (PSR) – If the posted speed limit is less than 40 mph, the PSR can be used in place of the metrics above to determine the condition of the pavement.

Each of these aspects of each NHS roadway segment's pavement is rated as good, fair, or poor. These ratings are assigned based on the table above.

For roadways with a posted speed limit below 40 mph, the PSR can be used for determining the overall condition of the pavement. Otherwise, the overall condition of each section of NHS roadway is determined based on the pavement type and the appropriate

	Good	Fair	Poor
IRI (inches/mile)	<95	95-170	>170
Rutting (inches)	<0.20	0.20-0.40	>0.40
Faulting (inches)	<0.10	0.10-0.15	>0.15
Cracking (%)	<5	5-20 (asphalt) 5-15 (JCP) 5-10 (CRCP)	>20 (asphalt) >15 (JCP) >10 (CRCP)
PSR	PSR ≥ 4.0	2.0 ≤ PSR ≤ 4.0	PSR ≤ 2.0

metrics described previously. As shown in the figure below, for a section to be in good condition, all of the appropriate metrics must be rated as good. Roadway sections are determined to be in poor condition if two of the three metrics (IRI, cracking, and rutting/faulting) are rated poor for asphalt and jointed concrete, or both metrics (IRI and cracking) are rated poor for continuous concrete.

	Pavement Type		
	Asphalt and Jointed Concrete	Continuous Concrete	
Overall Section Condition Rating	3 metric ratings (IRI, cracking and rutting/faulting)	2 metric ratings (IRI and cracking)	Measures
Good	All three metrics rated "Good"	Both metrics rated "Good" →	percentage of lane-miles in "Good" condition
Poor	≥ 2 metrics rated "Poor"	Both metrics rated "Poor" →	percentage of lane-miles in "Poor" condition
Fair	All other combinations	All other combinations	

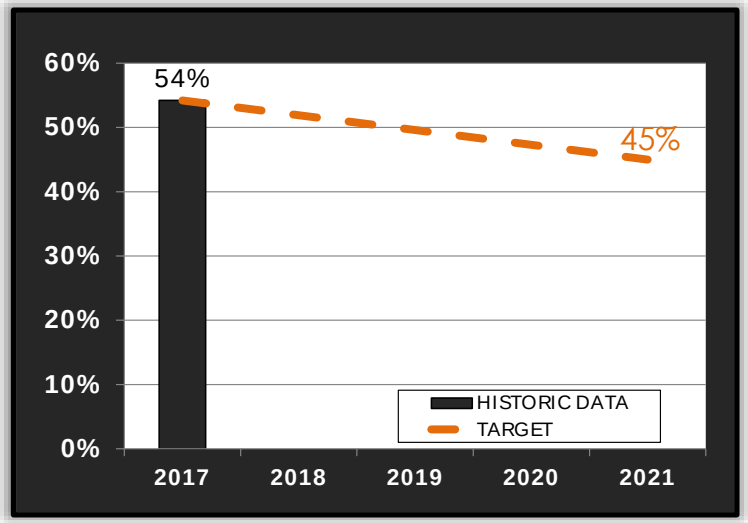
The HRTPO Board established the following pavement condition targets for 2021:

TABLE 8: FOUR-YEAR PAVEMENT CONDITION PERFORMANCE TARGETS

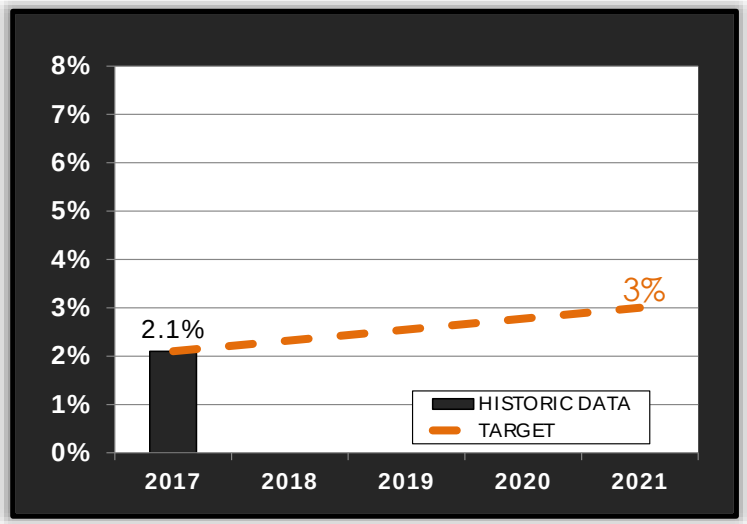
2021 PAVEMENT CONDITION TARGETS	
Percentage of Interstate System pavement in Good Condition	**> 45%**
Percentage of Interstate System pavement in Poor Condition	**< 3%**
Percentage of Non-Interstate NHS pavement in Good Condition	**> 25%**
Percentage of Non-Interstate NHS pavement in Poor Condition	**< 5%**

The following charts show the four-year targets established by the HRTPO, along with historical data, for the percentage of Interstate and Non-Interstate NHS pavement in good and poor condition in Hampton Roads:

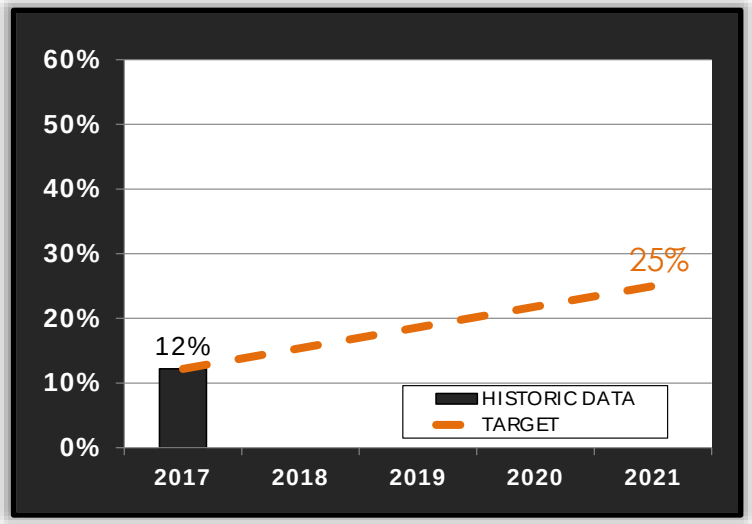
FIGURE 24: HAMPTON ROADS PAVEMENT CONDITION TARGETS AND DATA



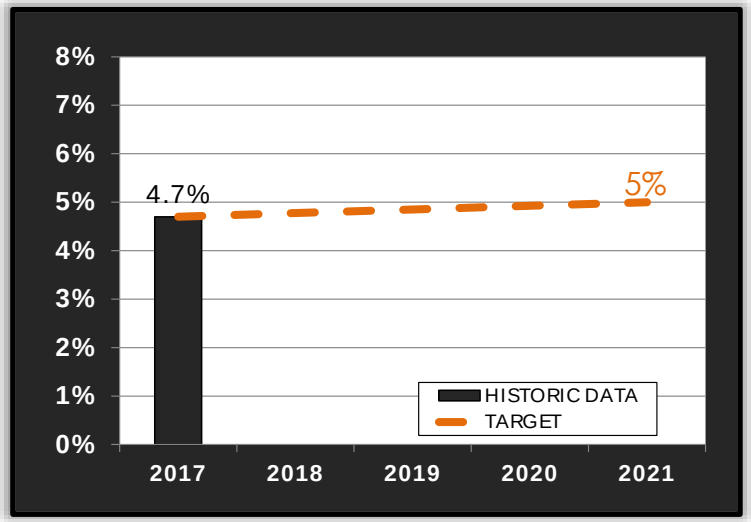
Hampton Roads Percentage of Interstate Pavement in Good Condition



Hampton Roads Percentage of Interstate Pavement in Poor Condition



Hampton Roads Percentage of Non-Interstate NHS Pavement in Good Condition

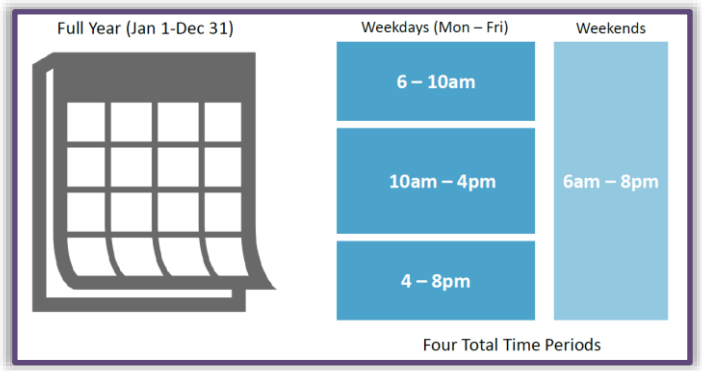


Hampton Roads Percentage of Non-Interstate NHS Pavement in Poor Condition

Roadway Performance

This measure examines the roadway performance of the National Highway System (NHS) based on the person-miles travelled that are classified as reliable. The reliability of the system is calculated using a new metric referred to as the Level of Travel Time Reliability (LOTTR). The LOTTR is defined as the ratio of the 80th percentile travel time to the mean (50th percentile) travel time.

Travel times throughout the year are divided into four reporting periods: Weekday morning peak, weekday midday, weekday afternoon peak, and weekends. The time of day that each period represents is shown below:



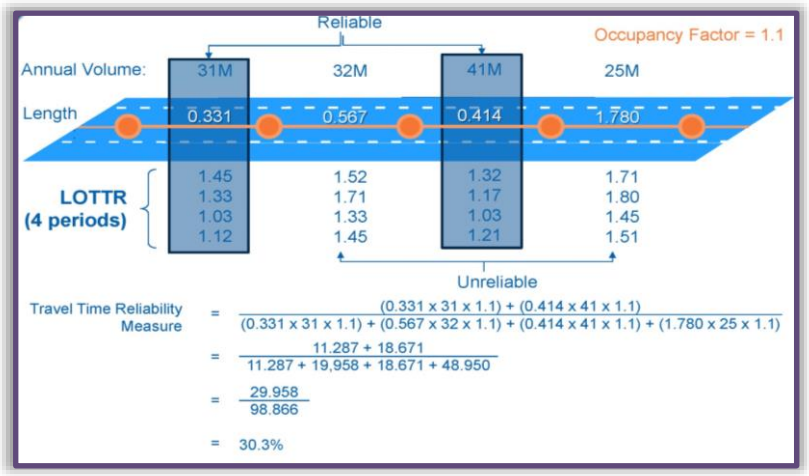
A LOTTR ratio is calculated for each Interstate segment and Non-Interstate NHS segment by direction for each of these time periods over the course of an entire year. This produces a total of four LOTTR ratios for each Interstate and Non-Interstate NHS segment. Segments are considered to be not reliable if any of these four LOTTR ratios are 1.50 or greater. For a segment to be classified as reliable, all four LOTTR ratios must be below 1.50. An example of this calculation is shown below.

Each Interstate and Non-Interstate NHS segment in the region follows this procedure to determine whether the segment is

$$\frac{\text{Longer Travel Time (80th)}}{\text{Normal Travel Time (50th)}} = \frac{\text{\# seconds}}{\text{\# seconds}} = \text{Level of Travel Time Reliability Ratio}$$

Level of Travel Time Reliability (LOTTR) *(Single Segment, Interstate Highway System)*		
Monday – Friday	6am – 10am	LOTTR = $\frac{44 \text{ sec}}{35 \text{ sec}} = 1.26$
	10am – 4pm	LOTTR = 1.39
	4pm – 8pm	LOTTR = 1.54
Weekends	6am – 8pm	LOTTR = 1.31
Must exhibit LOTTR below 1.50 during **all** of the time periods		Segment is not reliable

reliable or not reliable. Each of the reliable individual Interstate and Non-Interstate NHS segments are then multiplied by the length of that particular segment, the annual vehicle volume on that segment, and an occupancy factor based on the average number of persons per vehicle that converts vehicular travel to person travel. These products are added together for the entire Interstate and Non-Interstate NHS network and divided by the same factors for the entire system to produce the regional percentage of reliable person-miles of travel on the Interstate and Non-Interstate NHS systems. An example of this calculation is shown on the next page.



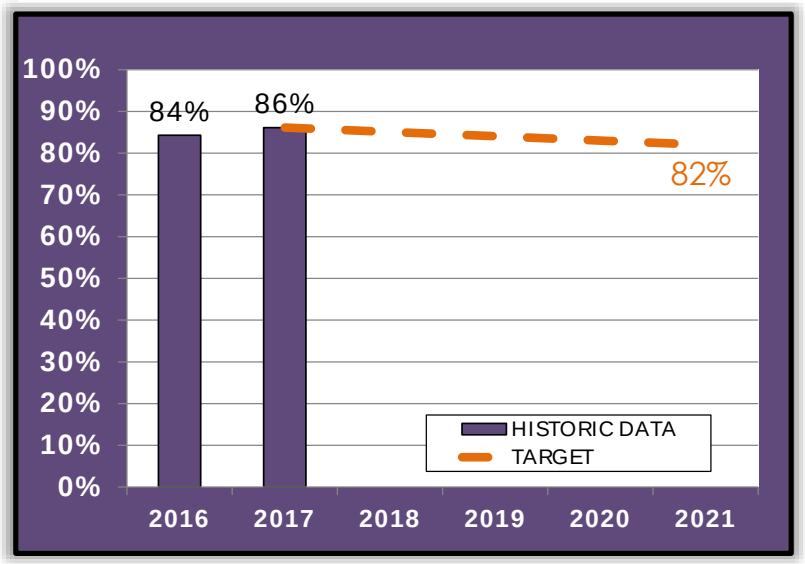
The HRTPO Board established the following roadway performance targets for 2021:

TABLE 9: FOUR-YEAR ROADWAY PERFORMANCE TARGETS

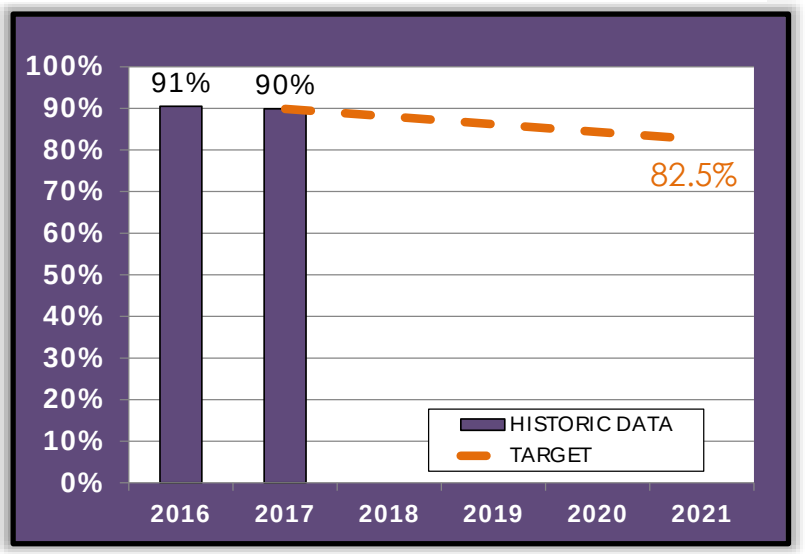
2021 ROADWAY PERFORMANCE TARGETS	
Interstate Travel Time Reliability (% reliable person-miles)	**> 82%**
Non-Interstate NHS Travel Time Reliability (% reliable person-miles)	**> 82.5%**

The following charts show the four-year targets established by the HRTPO, along with historical data, for the percentage of reliable person-miles of travel in Hampton Roads:

FIGURE 25: HAMPTON ROADS ROADWAY PERFORMANCE TARGETS AND DATA



Hampton Roads Percentage of Reliable Interstate Person-Miles of Travel

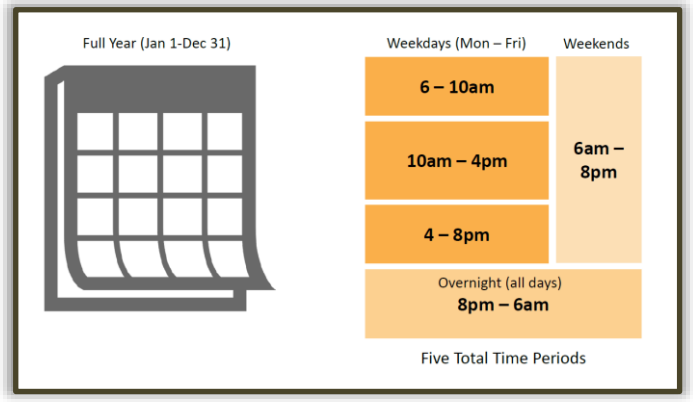


Hampton Roads Percentage of Reliable Non-Interstate NHS Person-Miles of Travel

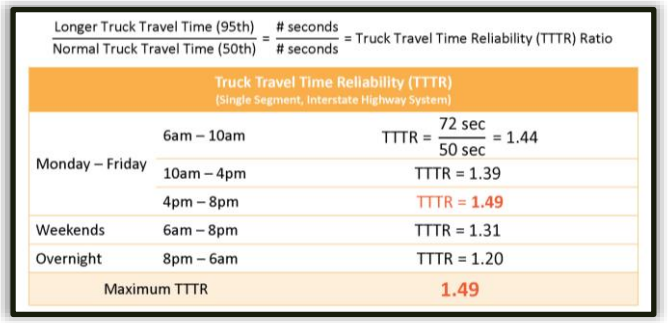
FREIGHT

This measure examines the reliability of moving freight via truck on the regional Interstate system. The reliability of freight movement is calculated using a new metric referred to as the Truck Travel Time Reliability (TTTR) Index. The TTTR ratio is defined as the ratio of the 95th percentile travel time for trucks to the mean (50th percentile) travel time for trucks.

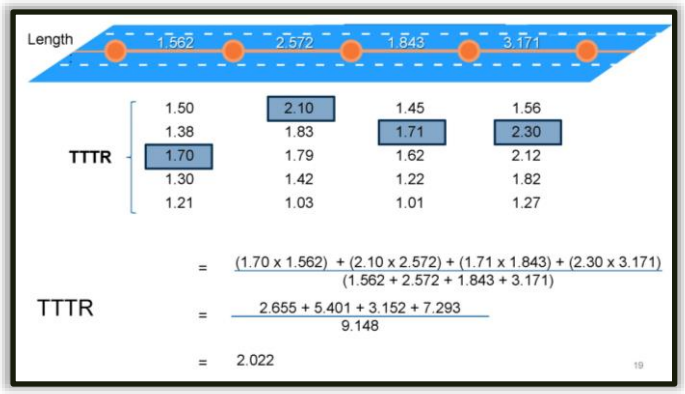
Truck travel times throughout the year are divided into five reporting periods: Weekday morning peak, weekday midday, weekday afternoon peak, weekends, and overnight. The time of day that each period represents is shown below.



A TTTR ratio is calculated for each Interstate segment by direction for each of these time periods over the course of an entire year. This produces a total of five TTTR ratios for each Interstate segment. For each segment, the maximum of these five TTTR ratios is determined and used to calculate the regional index. This calculation is highlighted to the right.



These individual Interstate segment Maximum TTTR ratios are then multiplied by the length of that particular segment. These products are added together for the entire region and divided by the total directional length of the regional Interstate system to produce the regional Truck Travel Time Reliability Index. An example of this calculation is shown below.



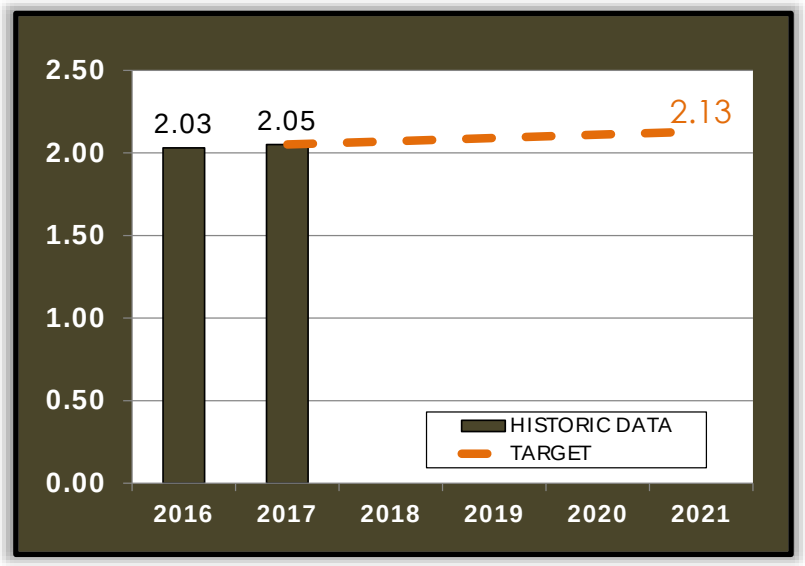
The HRTPO Board established the following roadway performance targets for 2021:

TABLE 10: FOUR-YEAR FREIGHT TARGET

2021 FREIGHT TARGETS	
Truck Travel Time Reliability Index (Interstate System)	**< 2.13**

The following chart shows the four-year target established by the HRTPO, along with historical data, for the percentage of reliable travel for freight in Hampton Roads:

FIGURE 26: HAMPTON ROADS FREIGHT TARGET AND DATA



Hampton Roads Interstate Truck Travel Time Reliability Index

Summary

The 2040 LRTP identifies $12.8 billion in planned transportation projects and studies to help position the Hampton Roads region in achieving its vision of developing a well-balanced transportation system that promotes good quality of life while enhancing the unique character of the region.

In evaluating the plan performance of the 2040 LRTP, congestion is expected to increase in the future largely due to the anticipated increase in regional population and employment. In comparing the 'Build' and 'No Build' scenarios for 2040, travel during severe congestion is anticipated to decrease in terms of distance and time: 5.1% reduction in Vehicle Miles Traveled (VMT) and 26% reduction in Vehicle Hours of Travel (VHT) during severe congestion. Results also indicate that average travel times will decrease slightly and congested speeds on Interstates and Arterials will increase, which are additional indications of reduced congestion. Transit boardings are also anticipated to increase by 2040; as the regional transit system continues to improve and expand, forecasted boardings will likely continue to grow. With the implementation of the Regional Priority Projects, total annual delay along these critical corridors is forecasted to decrease significantly; additionally, safety is expected to improve resulting in fewer fatal and serious injuries.

Although the 2040 LRTP does not solve congestion issues entirely, the plan includes projects that reduce congestion during severe conditions, resulting in improved quality of life and economic vitality. The transit studies in the plan will help identify the best path for expanding the TIDE light rail starter line; and the active transportation projects included for construction further enhance the multimodal aspect of the overall transportation system, providing residents and visitors with transportation options across the region.

Next Steps in the Development of the 2040 LRTP

The next step in the long-range transportation planning process will be the documentation of Public Outreach efforts. The anticipated adoption of the 2040 LRTP is scheduled for the summer of 2016.

Figure 27: 2040 LRTP Reports to Date

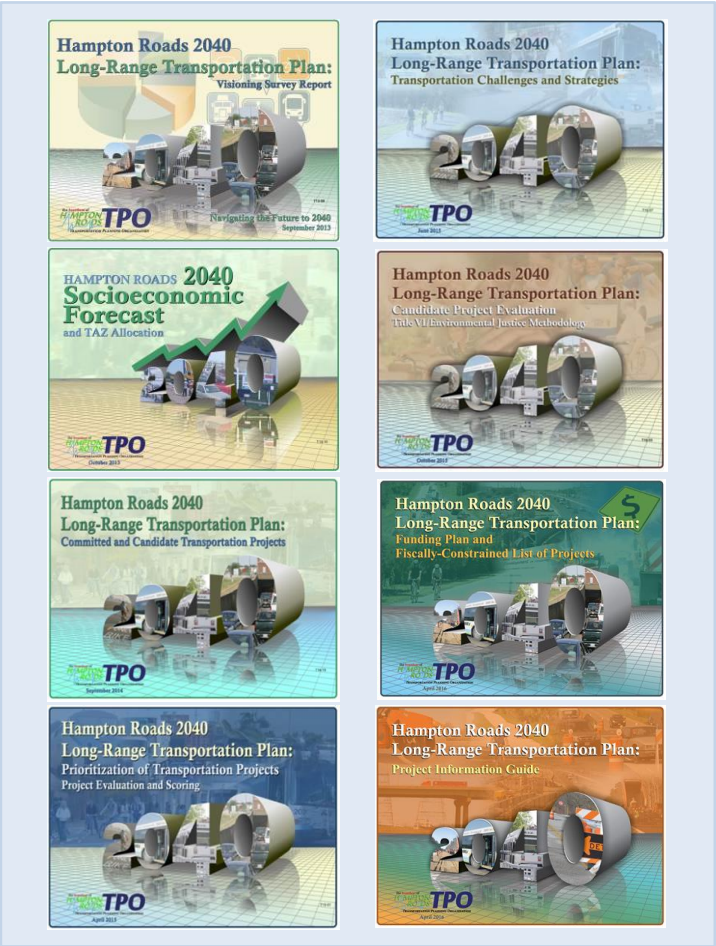


FIGURE 28: 2040 LRTP DEVELOPMENT PLANNING MILESTONES