

**HAMPTON ROADS CONGESTION MANAGEMENT PROCESS:  
*THE STATE OF TRANSPORTATION IN HAMPTON ROADS 2013***

***DRAFT***

**PREPARED BY:**



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## REPORT DOCUMENTATION

### TITLE

The State of Transportation in Hampton Roads 2013

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### ABSTRACT

This report details the current status of all facets of the transportation system in Hampton Roads, including air, rail, water, and highways. Many aspects of the highway system are highlighted, including roadway usage, bridge conditions, costs of congestion, commuting characteristics, roadway safety, truck data, transit usage, bicycle and pedestrian facilities, highway funding, and operations.

This report is produced as part of the region's Congestion Management Process (CMP). The Congestion Management Process is an on-going process that identifies, develops, evaluates, and implements transportation strategies to enhance mobility regionwide. This report is also produced as part of the HRTPO's Regional Performance Measures effort.

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### REPORT DATE

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# TABLE OF CONTENTS

Introduction .....	1
Air Travel.....	3
Port Data .....	8
Rail Travel .....	11
Bridges.....	14
Pavement Condition .....	17
Roadway Usage .....	18
Congestion Data.....	22
Commuting.....	25
Roadway Safety.....	27
Truck Data.....	31
Public Transportation .....	33
Active Transportation.....	36
Transportation Financing .....	39
Fuel Prices .....	43
Roadway Projects .....	45
Transportation Operations .....	47
Air Quality.....	50
National Ranking Summary .....	52
Regional Performance Measures .....	53
Additional Information .....	54

# INTRODUCTION

A number of notable achievements have occurred recently that will impact transportation in Hampton Roads for years to come. First and foremost is the landmark legislation that was recently passed by the Virginia General Assembly. House Bill 2313 is the first comprehensive overhaul of the way Virginia pays for its transportation system that the General Assembly has approved since 1986. This legislation will provide an estimated \$1.6 billion in additional regional revenue over the next five years that can be used for the planning, construction and maintenance of roads, bridges, and tunnels in Hampton Roads.

Many other changes have recently occurred to the Hampton Roads transportation system as well. In October 2012, the new South Norfolk Jordan Bridge opened nearly four years after the previous structure was closed, providing an alternative to the congested Elizabeth River Crossings. In December 2012, Amtrak began serving the Southside with direct intercity passenger rail service for the first time in 35 years. Trains serving the station adjacent to Harbor Park in Norfolk provide direct, single-seat service to the Northeast Corridor, including Washington D.C., New York City, and Boston.

The year 2012 also saw the first full year of operation of the Tide Light Rail Line in Norfolk. Approximately 1.8 million rides were taken on the Tide in 2012, well exceeding projections. In addition, Virginia Beach voters in November 2012 overwhelmingly approved (62%-38%) a non-binding referendum supporting the expansion of light rail transit into Virginia Beach.



A number of roadway projects have been completed since the beginning of 2012, including the widening of Fort Eustis Boulevard in Newport News and York County, the widening of George Washington Highway in Chesapeake, and the opening of a new interchange at I-264 and London Bridge Road in Virginia Beach. Construction also continued on a number of projects in the region, most notably the Gilmerton Bridge replacement.

More big changes are on the horizon. Construction is underway on a parallel Midtown Tunnel tube and the extension of the Martin Luther King freeway, and construction is expected to begin in 2014 on a new grade-separated Route 460 between Hampton Roads and Petersburg.

However, despite all of these accomplishments, there continues to be challenges with the regional transportation system. National studies confirm that Hampton Roads has some of the worst roadway congestion for a region of its size in the country. And, in spite of the recent transportation funding level increase, funding will still be short of meeting all of the needed improvements to the regional transportation system.

This State of Transportation report details the current status of all facets of the transportation system in Hampton Roads, including air, rail, water, and highways. Many aspects of the highway system are highlighted, including roadway usage, pavement condition, bridge conditions, costs of congestion, commuting characteristics, roadway safety, truck data, transit usage, active transportation (which includes biking and walking), highway funding, and operations. New in this year's edition of the State of Transportation report is data regarding volumes at continuous count stations throughout the region and the Planning Time Index, which details the reliability of the regional roadway network.

This report is produced as part of the region's Congestion Management Process (CMP), which is an ongoing program that identifies, develops, evaluates, and implements transportation strategies to enhance mobility regionwide. The Congestion Management Process report includes a comprehensive congestion analysis of the region's highway system, congestion management strategies with an analysis of their impacts, and identification of the most congested corridors and areas of Hampton Roads. Copies of this report and all other CMP documents are available at the Hampton Roads Transportation Planning Organization's website at <http://www.hrtpo.org>.



This report is also produced as part of HRTPO's Regional Performance Measures effort. In 2009, the Virginia General Assembly passed legislation codifying regional transportation performance measurement and in response, HRTPO staff developed a new list of regional performance measures including those it was already producing through State of Transportation reports. More information on HRTPO's Regional Performance Measures effort is available at the end of this report and on HRTPO's website at <http://hrtpo.org/page/performance-measures>.

# AIR TRAVEL

The airline industry has fundamentally changed, with consolidation reducing the number of carriers. This has greatly impacted Hampton Roads, particularly Newport News-Williamsburg International Airport.

The number of passengers using commercial air service in Hampton Roads has decreased in recent years. Based on preliminary data, a total of 2.0 million passengers boarded flights in 2012 at Hampton Roads' two commercial service airports, Norfolk International Airport and Newport News-Williamsburg International Airport. Although the number of passengers at Hampton Roads airports only decreased 5% between 2003 and 2012, passenger levels have decreased 20% since the high of 2.5 million passengers in 2005.



While passenger levels at Hampton Roads airports decreased by 5% over the last decade, national passenger levels increased by 12%. National passenger levels have largely been unchanged since the middle of last decade while regional

## NOTABLE AIR TRAVEL TRENDS



The change in the number of daily flights departing from Hampton Roads airports between 2006 and March 2013.

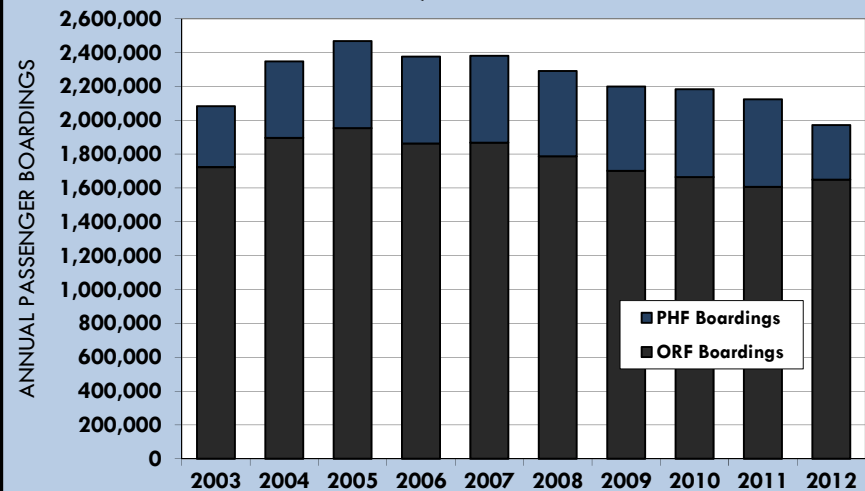


The increase in average airfares at Hampton Roads airports between 2002 and 2011.



The decrease in the number of passengers that used Hampton Roads airports between peak levels in 2005 and 2012.

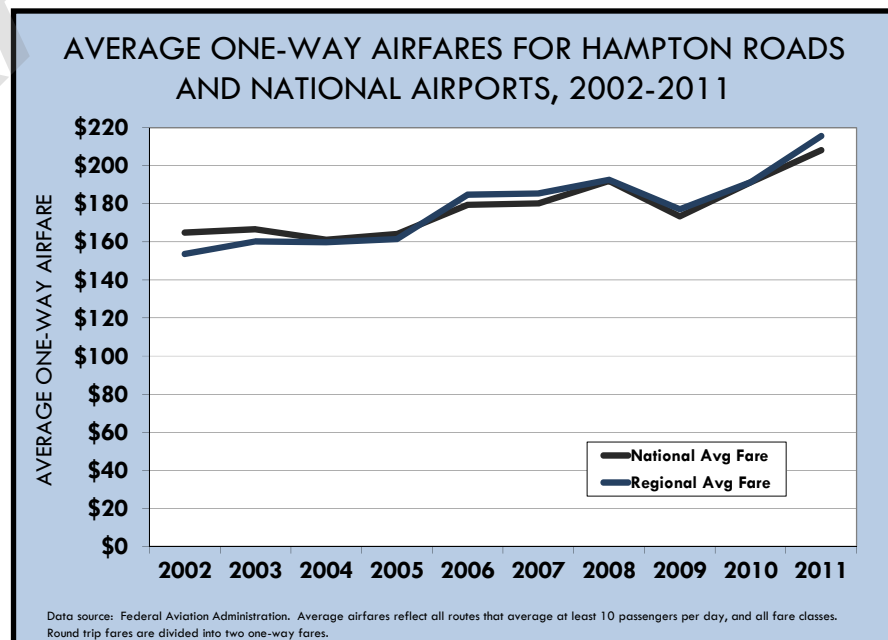
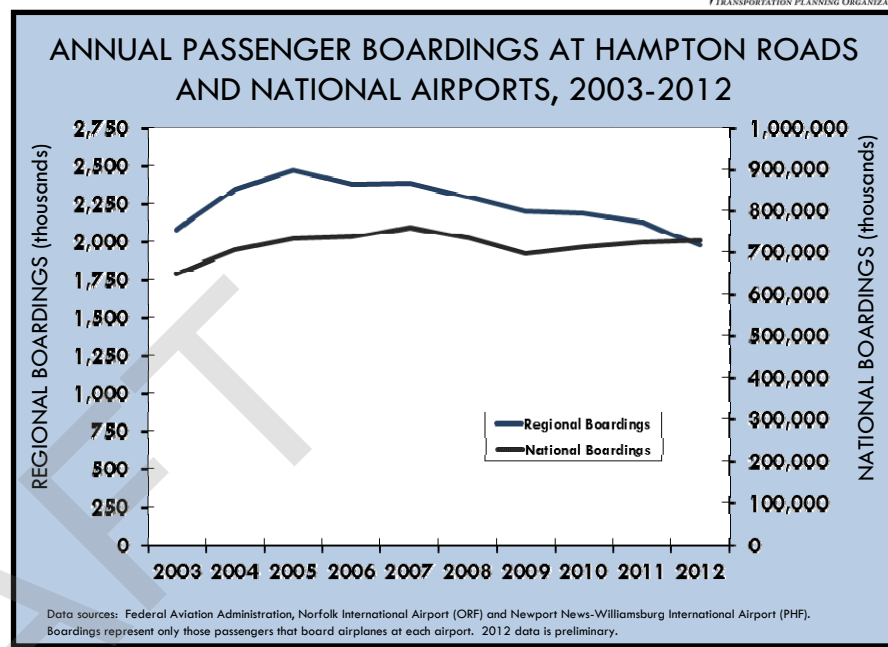
## ANNUAL PASSENGER BOARDINGS AT HAMPTON ROADS AIRPORTS, 2003-2012



Data sources: Federal Aviation Administration, Norfolk International Airport (ORF) and Newport News-Williamsburg International Airport (PHF). Boardings represent only those passengers that board airplanes at each airport. 2012 data is preliminary.

passenger levels have decreased every year since reaching its highest level in 2005.

Much of the growth at Hampton Roads airports in the early 2000s was due to new and increased service from low-cost carriers such as Southwest Airlines and Airtran Airways. This growth in low-cost carrier service from Hampton Roads airports also contributed to lower regional airfares. Prior to 2001, regional airfares were typically higher than the national average. By 2004, however, airfares in Hampton Roads were similar to the national average. All airfares increased as fuel prices rose throughout the latter half of the decade. In 2011, the average one-way airfare from Hampton Roads airports was \$216, which is higher than the national average (\$208) and is 40% higher than the regional airfare seen in 2002. It should be noted that these airfares only reflect the costs associated with ticket fares and do not include additional fees that have expanded in recent years for checked baggage, seat assignments, ticket changes, early check-in, etc.



A total of 96 commercial flights depart Hampton Roads airports each day as of March 2013. The number of flights departing from Hampton Roads airports has decreased in recent years. At the end of 2006, 130 flights departed Hampton Roads airports each day. By the end of 2008, this number had decreased to 115 flights each day, and by the end of 2010 it was down to 110 daily flights.



NORFOLK INTERNATIONAL AIRPORT

Image Source: NIA.

These 96 flights serve a total of 22 airports in 17 markets nonstop from Hampton Roads. Norfolk International Airport has nonstop flights serving 20 airports in 16 markets, while 5 airports in 5 markets are served nonstop from Newport News/Williamsburg International Airport.

Since 2009, a number of markets have lost nonstop service from Hampton Roads airports, including Cincinnati, Cleveland, Las Vegas, Memphis, Minneapolis, and St. Louis. Most of these markets served as hubs for airlines that have reduced

## BEHIND THE NUMBERS

The airline industry continues to undergo many changes. Many mergers and acquisitions have occurred in the industry in recent years, including Delta Air Lines with Northwest Airlines, United Airlines with Continental Airlines, and Southwest Airlines with Airtran Airways. A merger involving American Airlines and U.S. Airways is pending.

These consolidations have greatly impacted air travel in Hampton Roads, especially at Newport News-Williamsburg International Airport. The departure of Airtran Airways contributed to a 38% drop in passenger levels at Newport News-Williamsburg International Airport between 2011 and 2012. Additionally, six fewer markets are served nonstop from Hampton Roads airports and 34 fewer daily flights are offered as compared to the end of 2006, largely due to consolidation.

Hampton Roads is not the only market impacted by these changes to the airline industry. One measure of the capacity of the national airline system, available domestic seat miles, decreased 6% between 2006 and 2012.

The way airlines collect revenues has also changed. In recent years, airlines have started collecting or have increased charges for checked baggage, ticket changes, meals, and premium seats. This has allowed airlines to collect additional revenue on top of increasing ticket prices. The need for additional revenue has largely been driven by higher fuel costs and the condition of the economy, which has dampened the demand for air travel.



service through consolidation in the airline industry. Only one market (Denver) has seen nonstop service added from Hampton Roads airports since 2009.

With the number of flights departing Hampton Roads airports decreasing, the number of available seats has also decreased. About 7,300 seats were available each day on flights departing from Hampton Roads in May 2012 according to data provided to USA Today by Official Airline Guide (OAG). Of these 7,300 seats, 6,200 were on flights departing from Norfolk International Airport and 1,100 were on flights departing from Newport News-Williamsburg International Airport. The number of available seats has decreased 17% from the 8,800 seats available each day on Hampton Roads flights in May 2011, and decreased 25% from a recent high of 9,800 available seats each day in July 2008.

The most popular final destination for passengers using Hampton Roads airports in 2011 was New York City, with a total of 230,080 passengers traveling between Hampton Roads and the three major New York area airports. Atlanta, which had been the most popular final destination

## NEW DEVELOPMENTS

**Airport Improvements** – Many improvements have been made at both Hampton Roads airports in recent years, and plans are in place for additional improvements in the future. In May 2010, the new Concourse A was opened at Newport News-Williamsburg International Airport. At Norfolk International Airport, parking improvements were completed in 2011, and the airport will begin major terminal and passenger screening area renovations in 2013.

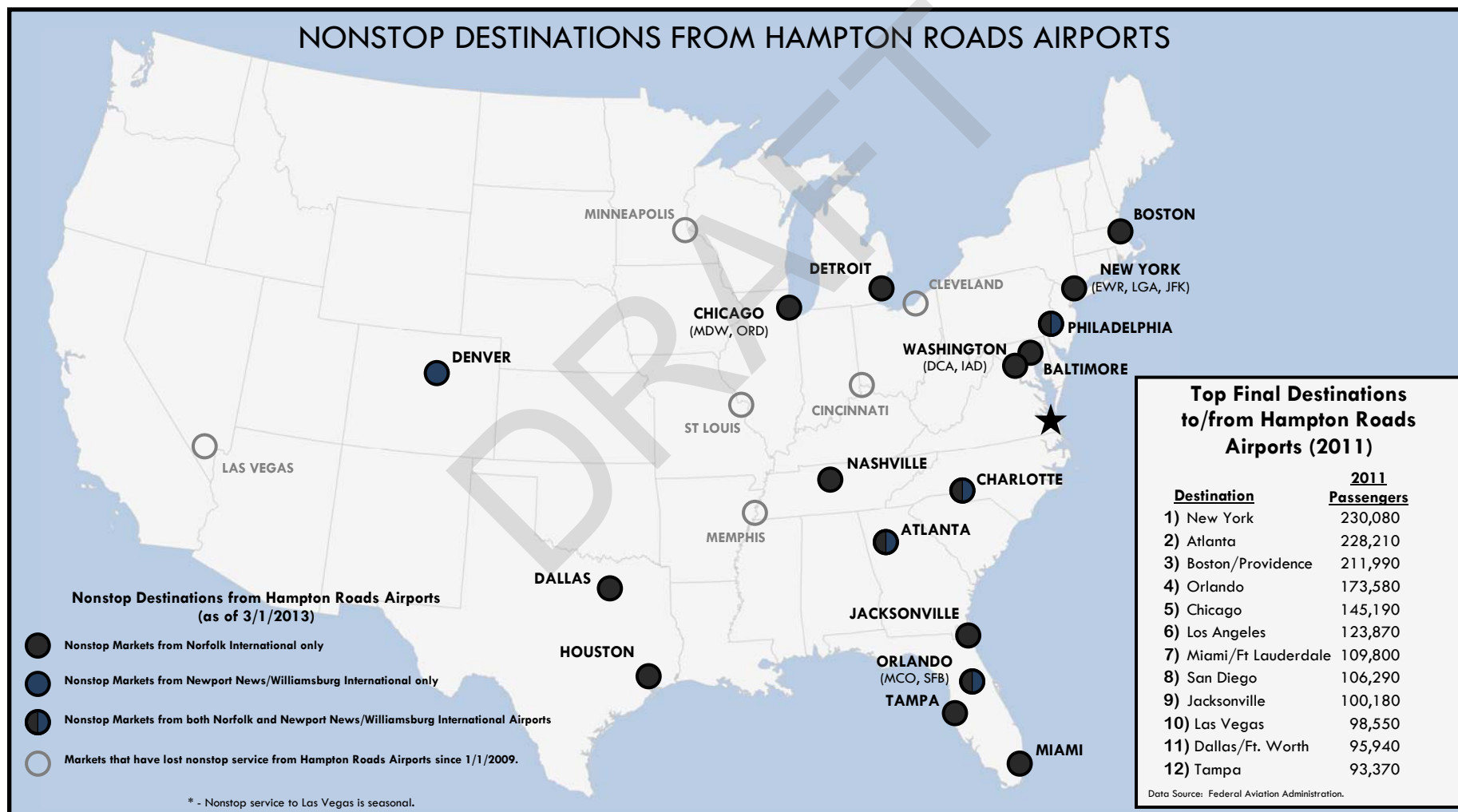


**Decreased Service** – Many airline mergers and acquisitions have occurred in recent years, including Delta Air Lines with Northwest Airlines, United Airlines with Continental Airlines, and Southwest Airlines with Airtran Airways. These consolidations have had an impact on Hampton Roads, leading to fewer carriers, less flights, and a reduction in the number of nonstop markets. The most notable example is the departure of Airtran Airways, which was the largest carrier at Newport News-Williamsburg International Airport.

**PeoplExpress** – Officials announced in February 2012 the intent to start a new airline called PeoplExpress. The airline, which will have its corporate headquarters in Newport News, plans to serve multiple markets with nonstop service from Newport News-Williamsburg International Airport. The airline recently secured a \$500,000 loan from the Peninsula's Regional Air Service Enhancement Committee, and officials are hopeful to begin operations in 2013.

for Hampton Roads travelers throughout most of the 2000s, was the #2 destination in 2011 with 228,210 passengers. The next most popular destinations for passengers traveling to or from Hampton Roads were Boston, Orlando, and Chicago.

Of the top twelve markets for Hampton Roads air travelers, three (Los Angeles, San Diego, and Las Vegas) were not served by nonstop service from Hampton Roads airports as of March 2013.



General cargo levels handled by the Port of Virginia have nearly recovered to the levels seen prior to the start of the economic downturn, a critical metric since the port is one of the drivers of the Hampton Roads and Virginia economies.

The Port of Virginia is comprised of four facilities in Hampton Roads: Norfolk International Terminals, Newport News Marine Terminal, Portsmouth Marine Terminal, and – through a lease agreement – the APM Terminals facility in Portsmouth. The Virginia Port Authority also manages the Port of Richmond and owns an inland port facility near Front Royal. In addition, there are a number of private terminals in the region, such as Lambert’s Point Docks and Elizabeth River Terminals.



More than 50 million tons of coal was shipped through the region in 2012, which makes Hampton Roads the largest exporter of coal in the country. In addition, over 17 million tons of general cargo, primarily transported in containers, was handled by the Port of Virginia in 2012. The amount of general cargo handled by the Port of Virginia increased 25%

## NOTABLE PORT TRENDS

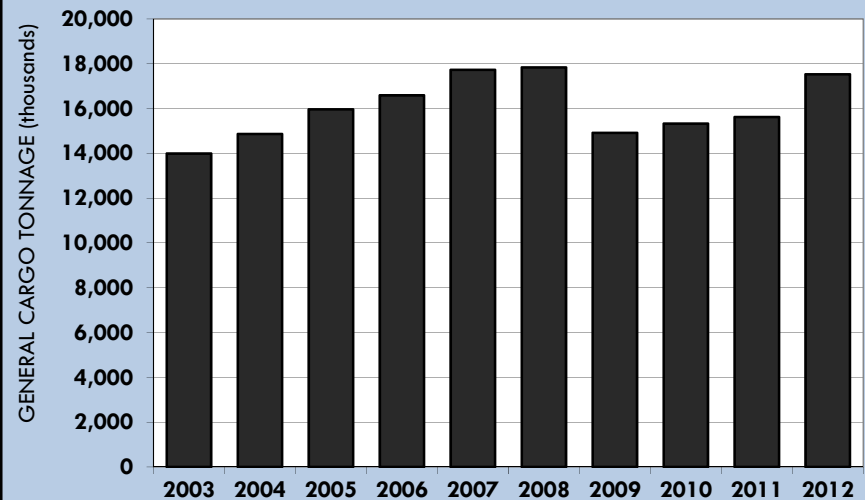


The increase in general cargo handled by the Port of Virginia between 2003 and 2012. This is despite a 16% decrease in general cargo at the height of the recession between 2008 and 2009.



The increase in the rail share of general cargo handled by the Port of Virginia between 2005 and 2012. The majority of general cargo handled by the Port of Virginia is still transported by truck, at 64% in 2012.

## GENERAL CARGO TONNAGE HANDLED BY THE PORT OF VIRGINIA, 2003-2012

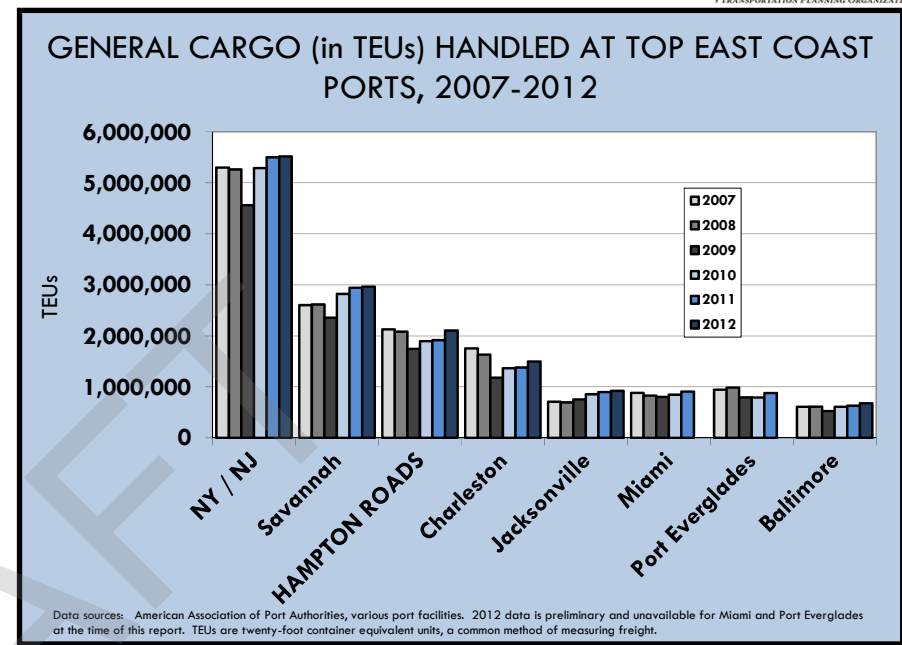


Data source: Virginia Port Authority. Data does not include Virginia Inland Port tonnage.

between 2003 and 2012, with a 12% increase occurring from 2011 to 2012. At the height of the recession, the amount of general cargo handled by the Port of Virginia decreased 16%, but freight levels have nearly recovered to pre-recession levels.

The maritime industry also measures containerized cargo using a standard called “20-foot container equivalent units”, or TEUs. The Port of Virginia handled 2.11 million TEUs in 2012. This is up 28% from 1.65 million TEUs handled in 2003 and just below the record 2.13 million TEUs handled by the Port of Virginia in 2007. The Port of Virginia ranked third highest among East Coast ports in the volume of containerized cargo in 2012, and seventh highest among all U.S. ports in 2011.

In 2012, 64% of the general cargo handled by the Port of Virginia arrived or departed by truck, 32% by rail, and the



## NEW DEVELOPMENTS

**Port of Virginia Privatization** – After considering proposals submitted by APM Terminals and J.P. Morgan to privatize port operations, the Virginia Port Authority board decided at their March 2013 meeting to continue using current operator Virginia International Terminals to run the port. The board also approved reorganizing the corporate structure of the port.



**Craney Island** – Construction continues on a project to create a new marine terminal at Craney Island. The current phase of construction involves using dredged material to create cross dikes to the east of the current Craney Island dredging disposal site. The first phase of the marine terminal is not expected to be operational until after 2025, depending on need.

**Norfolk International Terminals Overpass** – Work started in August 2009 on a railroad overpass crossing Hampton Boulevard into Norfolk International Terminals (NIT). The project, which will greatly reduce the number of conflicts between trains entering and exiting NIT and Hampton Boulevard traffic, is expected to be complete in early 2013.

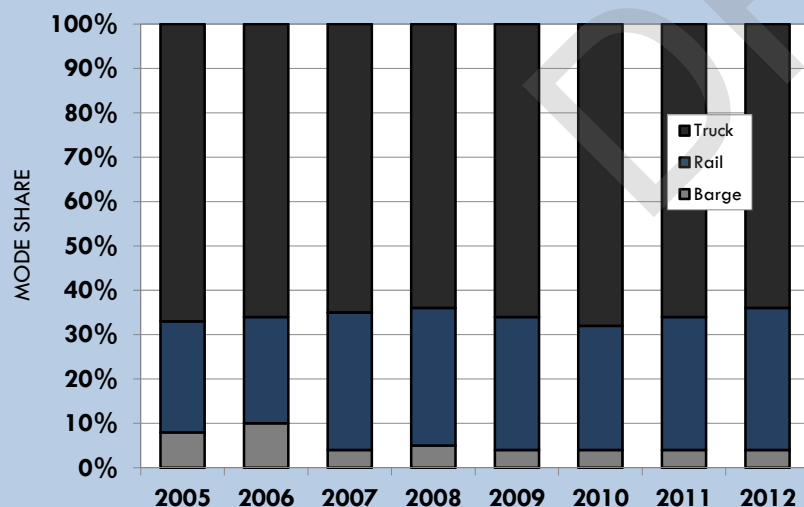


remaining 4% arrived or departed by barge. The share of freight moved by rail through the Port of Virginia has increased, up from 25% in 2005. This has come at the expense of the share handled by both truck, which had a 67% share in 2005, and by barge, which had an 8% share.

The cruise industry also has a presence in Hampton Roads. More than 43,000 passengers on 12 vessels called in Norfolk in 2012. This is up from the 29,000 passengers and 11 vessels that called in Norfolk in 2011 but is down from a high of 105,000 cruise passengers in 2005.

HRTPO conducts a number of freight planning efforts, including the Freight Transportation Advisory Committee (FTAC) and the Regional Freight Study. More information on HRTPO's freight planning efforts is available at <http://www.hrtpo.org/page/freight>.

MODE SPLIT OF GENERAL CARGO HANDLED BY THE PORT OF VIRGINIA, 2005-2012



Data source: Port of Virginia.

## BEHIND THE NUMBERS

The amount of freight handled by the Port of Virginia is impacted by a number of factors. These factors include the condition of the national and global economy, business decisions by global shipping lines, and competition from other East Coast facilities.

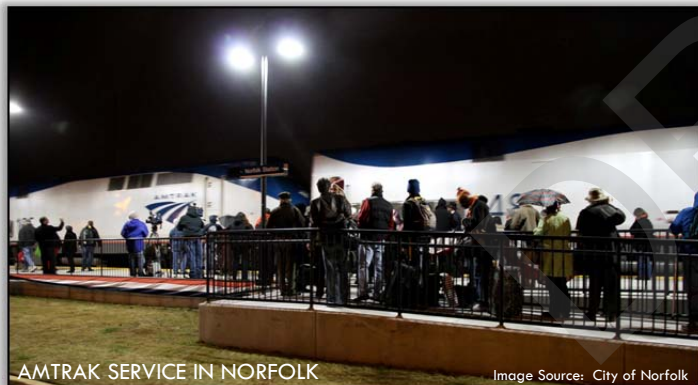
Recent changes in the amount of freight handled at East Coast port facilities have varied greatly between ports. While the amount of TEUs handled by the Port of Virginia increased 28% between 2003 and 2012, the TEUs handled by the Port of Savannah increased 95% during this time, and the TEUs handled by the Port of New York/New Jersey increased 36%. At the other end of the spectrum, TEUs handled by the Port of Charleston decreased 11% between 2003 and 2012. While many ports such as New York/New Jersey and Savannah had returned to the pre-economic downturn freight levels by 2010, the Port of Virginia only recently reached pre-downturn levels.

The Port of Virginia appears to be well-positioned for future growth. Norfolk Southern's Heartland Corridor rail project, which provides a shorter route for double-stacked trains between Hampton Roads and the Midwest, was completed in 2010. CSX's National Gateway project, which will further improve rail connections between the Mid-Atlantic ports and the Midwest, is underway.

Expansion of the Panama Canal also continues, with completion expected in 2015. The Port of Virginia will be among the few East Coast ports that can serve the largest ships that will pass through the widened canal when expansion is completed.

Rail continues to become a more prominent mode of travel in Hampton Roads, with light rail transit recently added to Norfolk, direct Amtrak service resuming on the Southside, and Amtrak passenger levels continuing to increase on the Peninsula.

Rail travel options have increased substantially in Hampton Roads in recent years. On December 12<sup>th</sup>, 2012, Amtrak began providing service to the Southside of Hampton Roads, connecting Norfolk directly with the Northeast Corridor. This came just more than a year after the opening of the Tide, a 7.4 mile light rail system operated by Hampton Roads Transit (HRT) in the city of Norfolk.



A total of 1.8 million passengers used The Tide light rail system in 2012. This comes out to an average of 4,882 daily passengers, or 5,481 passengers on average each weekday. Ridership on the Tide is increasing, with 16% more passengers using the Tide in September through December 2012 as compared to the same months in 2011.

## NOTABLE RAIL TRAVEL TRENDS

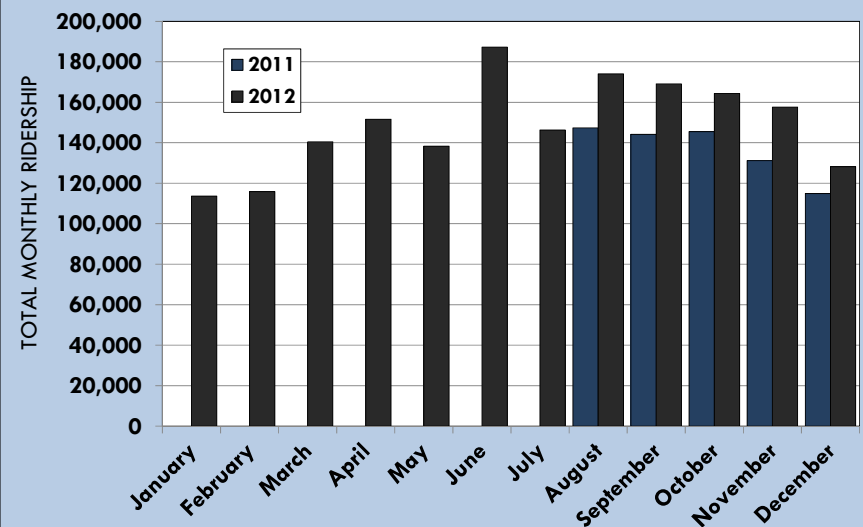


The increase in passengers that boarded or departed Amtrak trains in Hampton Roads between Federal Fiscal Years 2003 and 2012.



The increase in ridership on the Tide Light Rail Line in September through December 2012, versus the same period in 2011.

## MONTHLY RIDERSHIP ON THE TIDE LIGHT RAIL LINE, AUGUST 2011-DECEMBER 2012



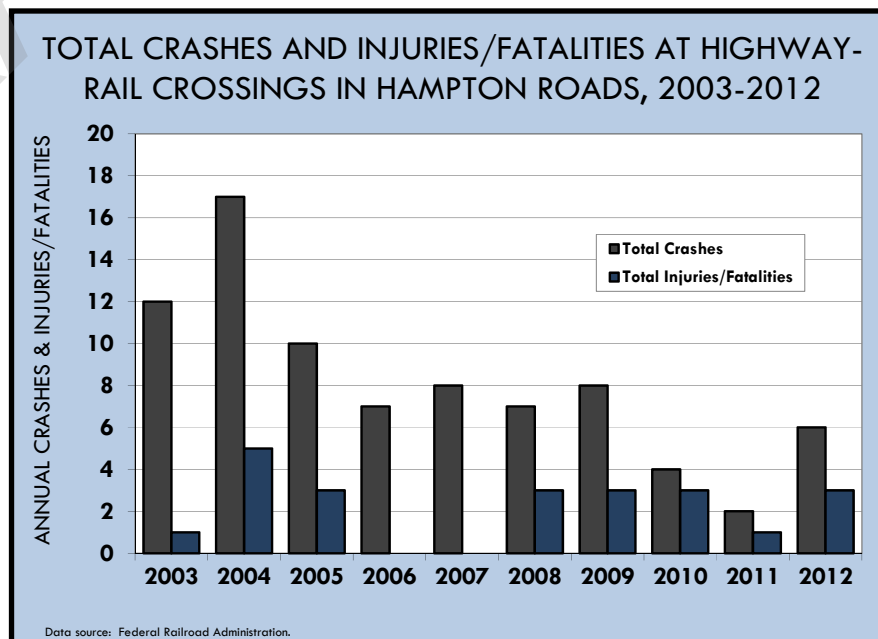
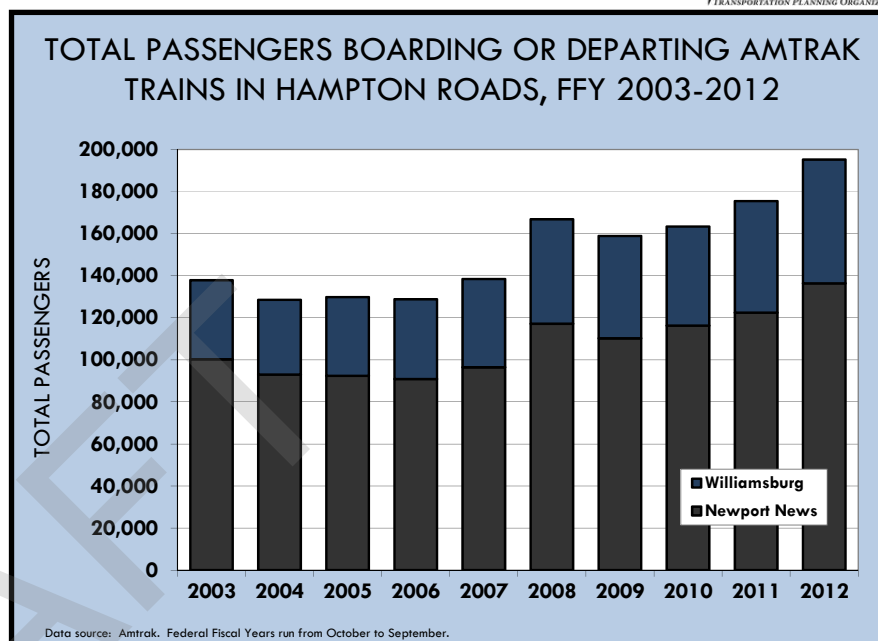
Data source: HRT.

In 2012, passenger levels increased at Amtrak stations in Newport News and Williamsburg. There were a total of 195,300 passengers who boarded or departed Amtrak trains in Hampton Roads in Federal Fiscal Year (FFY) 2012, with 136,400 passengers at the Newport News station and 58,900 passengers at the Williamsburg station. The number of Amtrak passengers boarding or departing trains in Hampton Roads increased 11% between FFY 2011 and 2012, and increased 42% over the last decade.



Rail is also one of the primary methods of transporting goods to and from the Port of Virginia. In 2012, 32% of all general cargo handled by the Port was transported by rail, up from 25% in 2005 (as described in the Port Data section of this report).

With the number of freight and passenger trains crossing the region each day, safety at highway-rail crossings is a concern. There were six crashes between trains and vehicles at highway-rail crossings in Hampton Roads in 2012,



resulting in two fatalities and one injury. Between 2003 and 2012, there were a total of 81 crashes at highway-rail crossings in Hampton Roads, an average of just over 8 crashes each year. These 81 crashes resulted in 5 fatalities and 17 injuries. The number of crashes at highway-rail crossings in Hampton Roads has decreased significantly since the 1990s, when there were a total of 184 crashes that resulted in 9 fatalities and 106 injuries.



AMTRAK SERVICE IN NEWPORT NEWS  
 Image Source: HRTPO

## NEW DEVELOPMENTS



**Light Rail** – Service on The Tide Light Rail began in August 2011. The \$318 million starter line runs 7.4 miles between the Medical Center Complex through Downtown Norfolk to Newtown Road at the Virginia Beach city line. As of the end of 2012, the Tide had carried nearly 2.5 million passengers.

**Amtrak service to Southside Hampton Roads** - After years of planning and \$114 million in rail line improvements, Amtrak provided intercity passenger rail service to the Southside of Hampton Roads on December 12th, 2012, for the first time since 1977. Trains serving the station adjacent to Harbor Park in Norfolk provide direct, single-seat service to the Northeast Corridor, including Richmond, Washington D.C., Philadelphia, New York City, and Boston. Although the Norfolk station is currently served by one train each day, plans include adding two additional trains each day in the near future.

**Multimodal Stations** – Plans are underway to replace the temporary Norfolk Amtrak station with a \$3.7 million multi-modal station, providing connectivity between the Tide, HRT ferry and bus service, and Amtrak. The multi-modal station is currently expected to be complete in Fall 2013. In addition, plans are underway on the Peninsula for a new multi-modal station near Bland Boulevard, replacing the current Amtrak station in Newport News.



**Light Rail Referendum** – In November 2012, voters in Virginia Beach approved by a 62% to 38% margin the following referendum: “Should the City Council adopt an ordinance approving the use of all reasonable efforts to support the financing and development of The Tide light rail into Virginia Beach?”



Hampton Roads unique topography makes bridges a prominent part of the regional landscape. As bridges in Hampton Roads age, however, maintaining these structures has been difficult.

There are 1,226 bridges\* in Hampton Roads, ranging in size from small culverts to some of the longest structures in the world. The median age of bridges in Hampton Roads is 38 years old, and more than one out of every five bridges in Hampton Roads (22%) are at least 50 years old. While many of these older bridges are periodically rehabilitated in order to remain in service, two high profile structures in Hampton Roads — the Kings Highway Bridge and the Jordan Bridge — have been closed in recent years due to their deteriorating condition.

All bridges in Hampton Roads are inspected regularly by qualified inspectors. Depending on the condition and design of each bridge, these inspections occur every one or two years. Based on these inspections, deficient bridges may be classified as “structurally deficient” or “functionally obsolete”.

Structurally deficient bridges are structures with elements that need to be monitored and/or repaired. Structurally deficient bridges typically need to be rehabilitated or replaced to address deficiencies. It must be noted, however, that structurally deficient bridges are not necessarily unsafe, and bridge inspectors will close or impose weight limits on any bridge that is unsafe.

\* - Bridges are defined by the National Bridge Inventory as any structure that carries or spans vehicular traffic on a public roadway and has a length of more than 20 feet. Bridges less than or equal to 20 feet in length are not included in these statistics, nor are bridges on military bases and private property.

## NOTABLE BRIDGE TRENDS

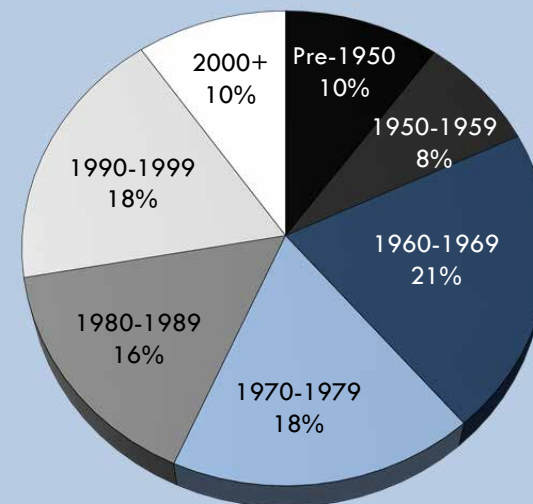


The increase in the number of bridges in Hampton Roads classified as structurally deficient between 2007 and 2013. The number of structurally deficient bridges in Hampton Roads increased from 54 bridges to 75 bridges during this time.



The change in the median age of bridges in Hampton Roads between 2007 and 2013. The median age of bridges increased from 34 years to 38 years.

## BRIDGES IN HAMPTON ROADS BY YEAR BUILT

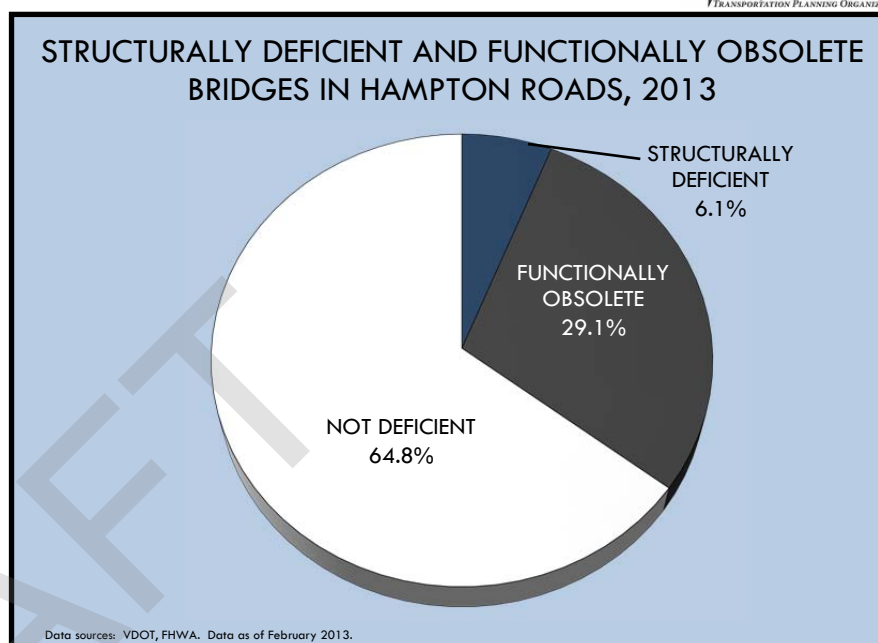


Data sources: VDOT, FHWA. Data as of February 2013.

Functionally obsolete bridges are structures that were built to standards that are no longer used today. These bridges have narrow lanes, no shoulders, low vertical clearances, difficult approaches, or may occasionally be flooded.

It should be noted that bridges cannot be classified as both structurally deficient and functionally obsolete. Structures that qualify as both structurally deficient and functionally obsolete are classified as structurally deficient.

Of the 1,226 bridges in Hampton Roads, 75 bridges (6.1%) are classified as structurally deficient as of February 2013. This is up from 54 bridges (4.4%) that were classified as structurally deficient in Hampton Roads in 2007. Another 357 bridges (29.1%) in Hampton Roads are classified as functionally obsolete. Combining structurally deficient and functionally obsolete bridges, 432 bridges (35.2%) in Hampton Roads are deficient as of February 2013.



### NEW DEVELOPMENTS

**Gilmerton Bridge** – A replacement for the Gilmerton Bridge is currently being constructed. Construction on the replacement bridge began in 2009. In January 2013, the new movable structure was floated into place and opened to traffic. Construction on the new structure is expected to be completed in early 2014.

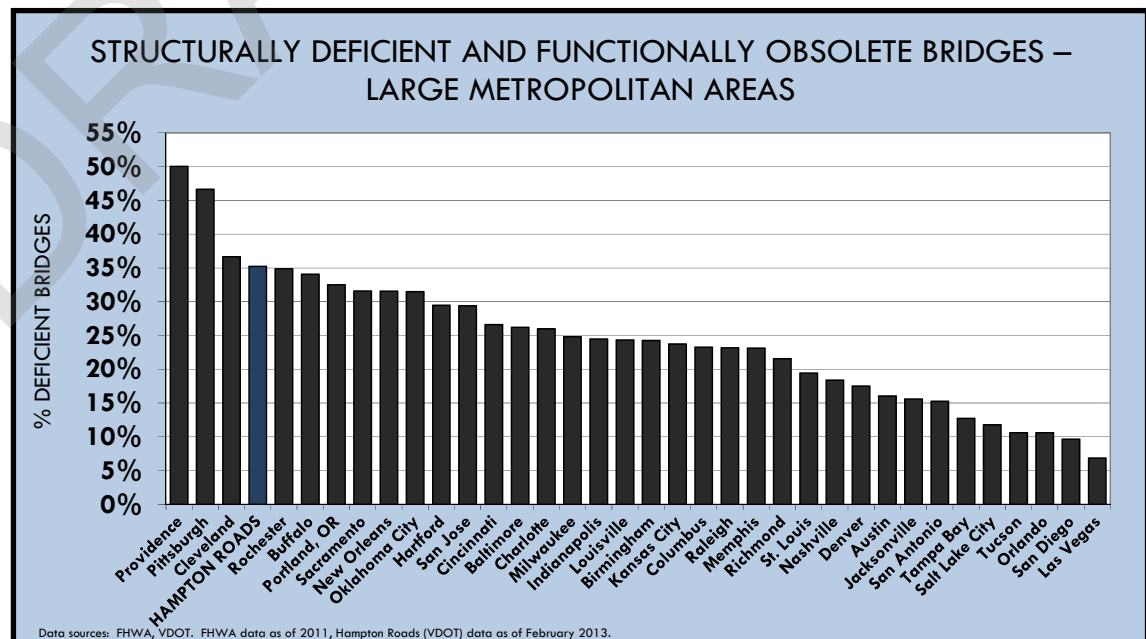
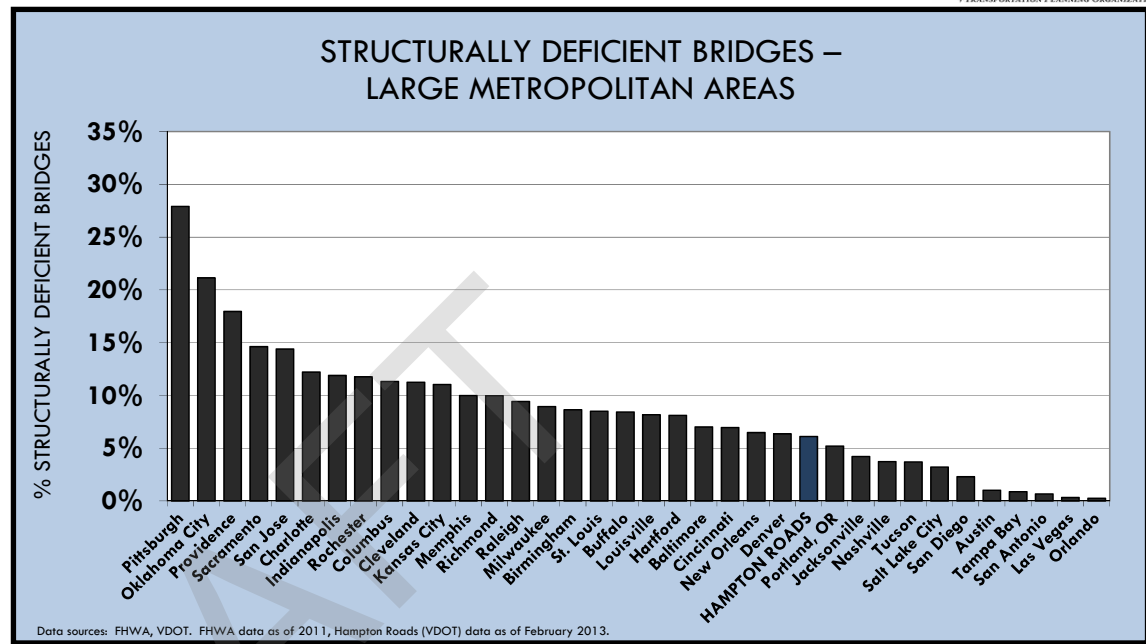


**South Norfolk Jordan Bridge** - The new South Norfolk Jordan Bridge, which crosses the Southern Branch of the Elizabeth River between Chesapeake and Portsmouth, opened to traffic in October 2012. The structure replaces the original Jordan Bridge, which was closed in 2008 after falling into disrepair.

The percentage of bridges that are classified as structurally deficient in Hampton Roads is below the average of other comparable metropolitan areas. Hampton Roads ranks 25<sup>th</sup> highest among 36 large metropolitan areas with populations between one and three million people in terms of the percentage of structurally deficient bridges in each region.

When structurally deficient and functionally obsolete bridges are combined, however, Hampton Roads ranks much higher than other areas. At 35%, Hampton Roads ranks 4<sup>th</sup> highest among the 36 large metropolitan areas between one and three million people in terms of the percentage of deficient bridges.

HRTPO recently released the Hampton Roads Regional Bridge Study, which looks at many aspects of the region's bridges. The Regional Bridge Study is available on HRTPO's website at <http://www.hrtpo.org>.



# PAVEMENT CONDITION

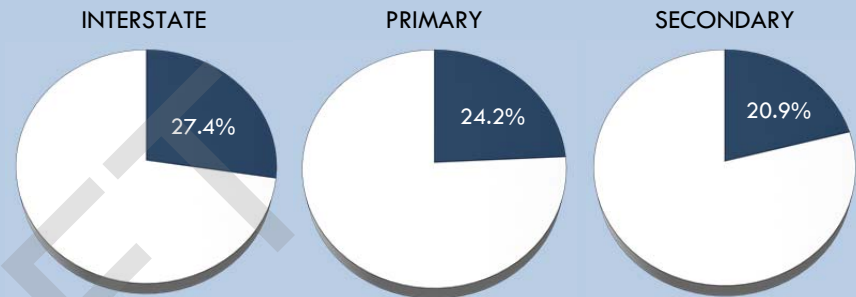
The condition of existing roadways has been a high profile issue in Hampton Roads, especially with the deteriorating condition of I-264 in Norfolk and Virginia Beach making headlines early in 2013.

VDOT annually releases the State of the Pavement report, which details the condition and ride quality of state-maintained roadways. VDOT produces this report using pavement condition data collected annually on each mile of Interstate and Primary roadway throughout the state and on a nearly 20% sample of Secondary roadways. Based on this data collection, VDOT categorizes the pavement condition of each roadway as excellent, good, fair, poor, or very poor.

In Hampton Roads, more than a quarter of all state-maintained roadways are in poor or very poor condition as of 2012. Over 27% of all Interstate pavement in the region is categorized as poor or very poor, and 24% of all primary roadway lane-mileage is also deficient. The combined Interstate and Primary roadways in Hampton Roads that are in poor or very poor condition has actually improved, down from 30% in 2008 and 34% in 2010 according to VDOT.

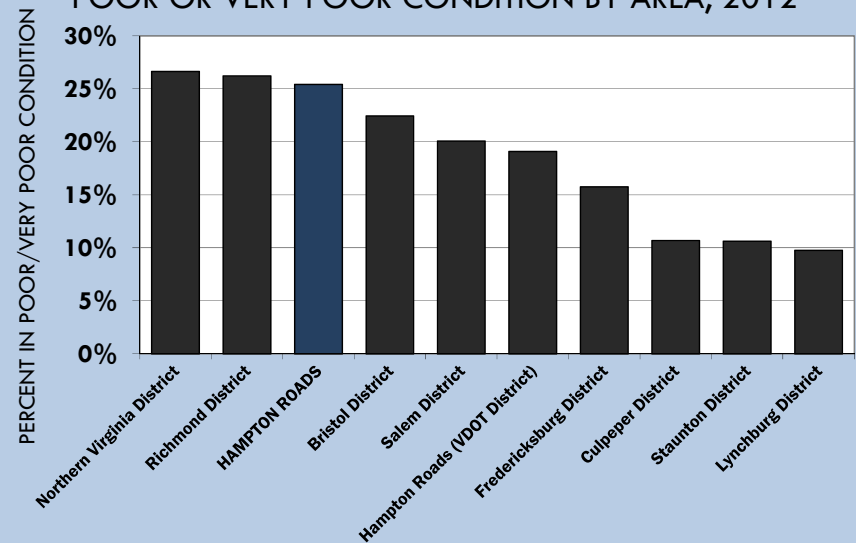
The pavement condition in Hampton Roads is typical of other large metropolitan areas of the state. Looking only at Interstate and Primary roadways, the 25% of lane-miles in Hampton Roads that are in poor or very poor condition is comparable to the Richmond (26%) and Northern Virginia (27%) VDOT Districts, but is higher than the percentage seen in all other VDOT Districts throughout the state.

PERCENT OF VDOT-MAINTAINED PAVEMENT IN POOR OR VERY POOR CONDITION BY ROAD TYPE IN HAMPTON ROADS, 2012



Data source: VDOT. Data only includes roadways maintained by VDOT. The secondary roadway percentage is based on a sample.

% OF VDOT-MAINTAINED ROADWAYS WITH PAVEMENT IN POOR OR VERY POOR CONDITION BY AREA, 2012



Data source: VDOT. Data only includes roadways maintained by VDOT.

# ROADWAY USAGE

There has been little change in the amount of roadway travel in Hampton Roads since 2003, a trend that is similar to the trend seen throughout Virginia and the United States.

The amount of roadway travel is measured in terms of vehicle-miles of travel, which is the total number of miles every vehicle in the region travels over a period of time. VDOT annually estimates jurisdictional roadway travel levels based on traffic counts collected on a regular basis. VDOT estimates that there were just over 40 million vehicle-miles of travel (VMT) on the average day in Hampton Roads in 2011. Over the course of the entire year, this adds up to 15 billion vehicle-miles of travel throughout Hampton Roads.



Over the last decade, the amount of daily roadway travel increased by a total of 5.7%. However, most of this growth in regional roadway travel occurred between 2002 and 2003.

## NOTABLE ROADWAY USAGE TRENDS



The estimated growth in daily roadway travel in Hampton Roads from 2002 to 2011. This growth rate was only 0.2% from 2003 to 2011.

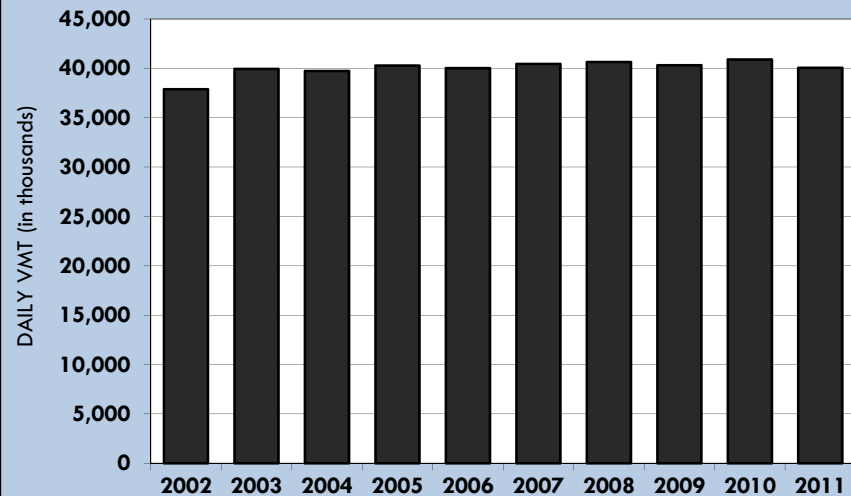


The decrease in the amount of daily roadway travel per capita in Hampton Roads from 2003 to 2011.



The growth in regional roadway capacity, in terms of lane-miles, in Hampton Roads between 2002 and 2011.

## DAILY VEHICLE-MILES OF TRAVEL (VMT) IN HAMPTON ROADS, 2002-2011



Data source: VDOT.

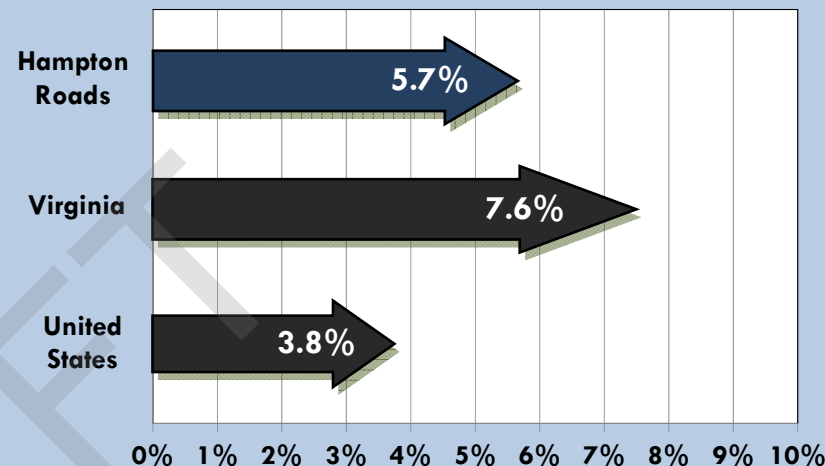
Since 2003, the amount of roadway travel in Hampton Roads has only increased 0.2%.

At 5.7%, the growth in vehicular travel in Hampton Roads between 2002 and 2011 was lower than the growth rate seen throughout Virginia (7.6%), but higher than the United States rate (3.8%). Like Hampton Roads, both Virginia and the United States have seen the amount of roadway travel level off in recent years. Between 2005 and 2011, roadway travel in Virginia only increased 0.8%, while roadway travel throughout the United States actually decreased 0.9%.

This leveling off of roadway travel in Hampton Roads occurred as the regional population continued to increase. While roadway travel only increased 0.2% between 2003 and 2011, the region's population increased 5%. This has resulted in a decrease in the amount of vehicular travel per capita in Hampton Roads. The vehicular travel per capita in Hampton Roads was 23.8 vehicle-miles per person per day in 2011. This is down 5% from the peak of 25.0 daily vehicle-miles per capita in the region in 2003.

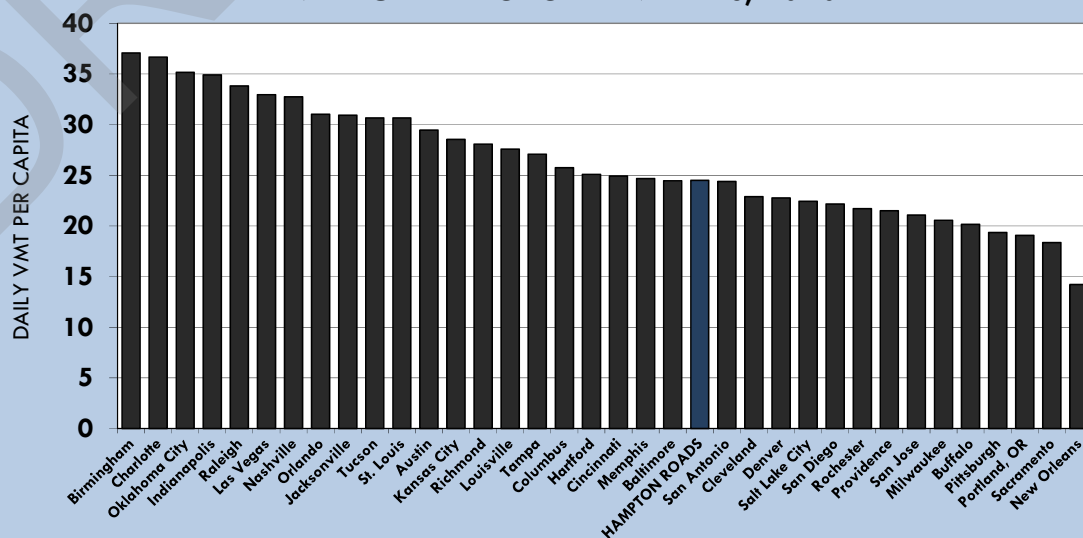
Among 36 large metropolitan areas in the United States with populations between one and three million people, Hampton Roads ranked 22<sup>nd</sup> highest in terms of vehicular travel per capita in 2010 (the most recent data available). Areas such as Birmingham, Charlotte, Oklahoma City and Indianapolis have travel levels of at least 10 more miles per person per day than Hampton Roads.

GROWTH IN VEHICLE-MILES OF TRAVEL IN HAMPTON ROADS, VIRGINIA, AND THE UNITED STATES, 2002 TO 2011



Data sources: VDOT, FHWA Highway Statistics.

DAILY VEHICLE-MILES OF TRAVEL PER CAPITA IN LARGE METROPOLITAN AREAS, 2010

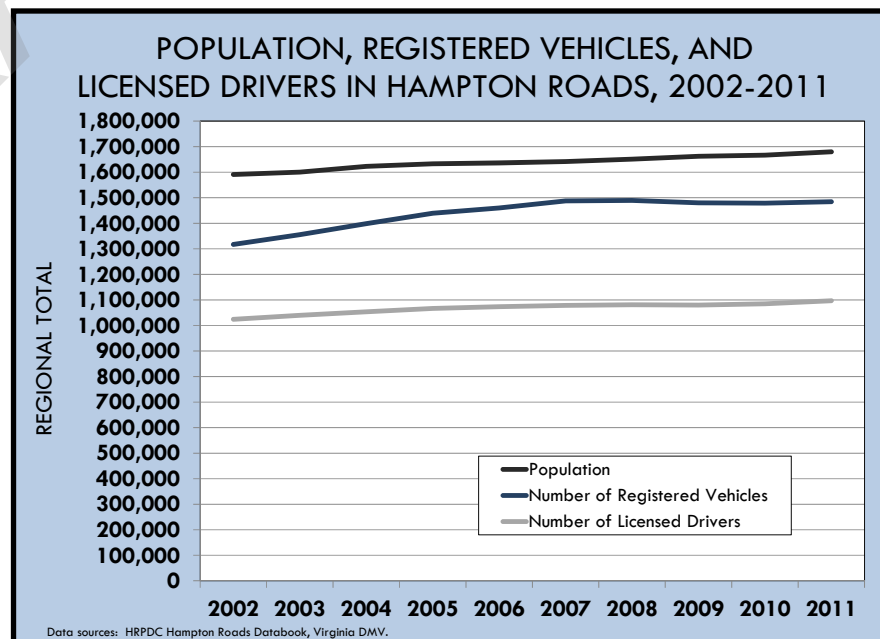
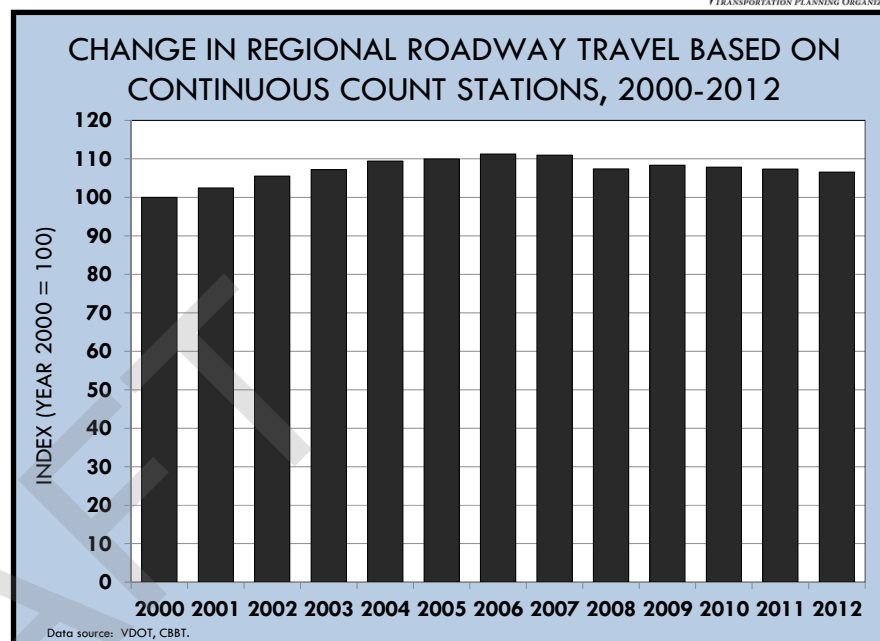


Data source: FHWA Highway Statistics.

Another method of measuring the change in roadway travel is by using count stations that continuously collect traffic volume data throughout the entire year. In Hampton Roads there are approximately 55 locations equipped with continuous count stations, primarily on major roadways such as freeways and principal arterials. Based on the data collected at these locations, regional traffic volumes grew 6.6% between 2000 and 2012. However, all of the growth occurred prior to the start of the economic downturn. Between 2007 and 2012, regional traffic volumes decreased 4.4% at these continuous count station locations, meaning vehicular travel in Hampton Roads has not recovered to pre-economic downturn levels based on this method.

There were 1,484,000 vehicles registered in Hampton Roads in 2011. Although the number of registered vehicles in Hampton Roads increased 12.7% between 2002 and 2011, the number of registered vehicles in the region has actually decreased slightly since 2007. The growth in the number of registered vehicles between 2002 and 2011 outpaced the growth in population, meaning the number of vehicles per resident in the region has increased. There were 0.88 vehicles for every Hampton Roads resident in 2011, compared to 0.83 vehicles for every resident in 2002.

The growth in licensed drivers in Hampton Roads has also outpaced population growth. There were 1,096,000 licensed drivers in Hampton Roads in 2011, up 7.1% from 2002. With the growth in registered vehicles outpacing the growth in licensed drivers, the number of vehicles per licensed driver has increased. There were 1.35 registered vehicles for every licensed driver in Hampton Roads in 2011, up from 1.29 registered vehicles per licensed driver in 2002.

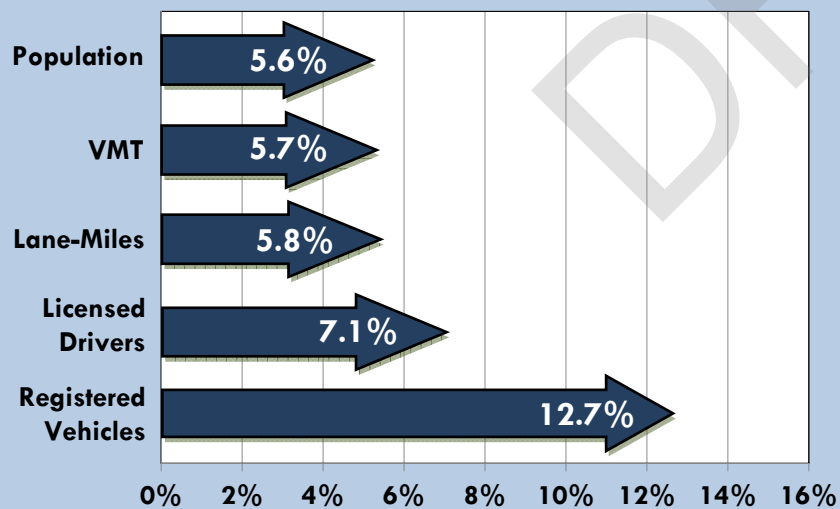


Between 2002 and 2011, the amount of roadway capacity in Hampton Roads in terms of lane mileage\* increased by 5.8%. The growth in population (5.6%) and vehicle-miles traveled (5.7%) in Hampton Roads was nearly equal to the growth in the total roadway capacity during this time period.

It should be noted, however, that of the total growth in regional roadway lane mileage, more than half was in local roadways. These local roadways, which typically serve neighborhoods, carry low traffic volumes. Despite comprising over 60% of the lane mileage of the regional roadway network, local roadways only carried 13% of the total vehicular travel in 2011.

\* - A lane-mile is defined as the length of a roadway times the number of lanes and is commonly used to describe the amount of roadway capacity. A one mile section of a roadway that is 6 lanes wide comprises 6 lane-miles.

### GROWTH IN POPULATION, VMT, LANE-MILES, LICENSED DRIVERS, AND REGISTERED VEHICLES IN HAMPTON ROADS, 2002 TO 2011



Data source: VDOT.

### BEHIND THE NUMBERS

Roadway travel, both in Hampton Roads and throughout the country, has leveled off in recent years. Transportation experts believe this is due to a confluence of many factors, including:

- **The condition of the economy** – The downturn in the economy resulted in fewer commuters on the road due to higher unemployment levels, a decrease in the number of trucks hauling freight, and less leisure and business travel. As the economy has improved, however, volumes have not returned to pre-downturn levels.
- **Higher fuel prices** – Fuel prices were commonly in the \$1 to \$2 per gallon range early in the 2000s, but have not dipped below \$3 per gallon in the region since early 2011.
- **The Internet** – More shopping and business is conducted electronically, and social networking has increased, especially among youth.
- **Land Use Patterns** – Many communities are moving toward more compact development patterns and mixed-use areas such as Virginia Beach Town Center and New Town in James City County. These patterns encourage shorter trips and the use of other travel modes.
- **Transportation Demand Management** – Agencies such as Traffic reduce travel via carpooling, vanpooling, and public transportation.
- **Other factors** – Examples of other factors include the retirement of baby boomers (and the aging of society as a whole), lower youth vehicle ownership, a plateau in the percentage of women in the workforce, and a plateau in the rate of households with vehicles.



# CONGESTION DATA

Congestion is more prevalent in Hampton Roads than in many other comparable metropolitan areas, and this congestion directly and indirectly costs local residents hundreds of millions of dollars.

Two popular studies examine regional congestion levels and compare congestion among metropolitan areas. These studies are prepared by INRIX and the Texas Transportation Institute.

INRIX releases regional congestion data for the 100 largest metropolitan areas as part of their National Traffic Scorecard. This data is collected using millions of probe vehicles, including taxis, delivery vans, trucks, and smartphone users.

INRIX uses the INRIX Index to compare congestion levels among metropolitan areas. The INRIX Index is defined as the percentage of extra travel time the average trip takes during the peak travel period as compared to uncongested conditions. The Hampton Roads INRIX Index was 10.4 in 2012, which is down from 12.6 in 2009 and 13.3 in 2011 but is still higher than many other areas. Hampton Roads had the 22<sup>nd</sup> highest INRIX Index in the country in 2012, and 7<sup>th</sup> highest among the 36 large metropolitan areas with populations between one and three million people.

The Texas Transportation Institute (TTI) at Texas A&M University regularly publishes the Urban Mobility Report. In this study, TTI

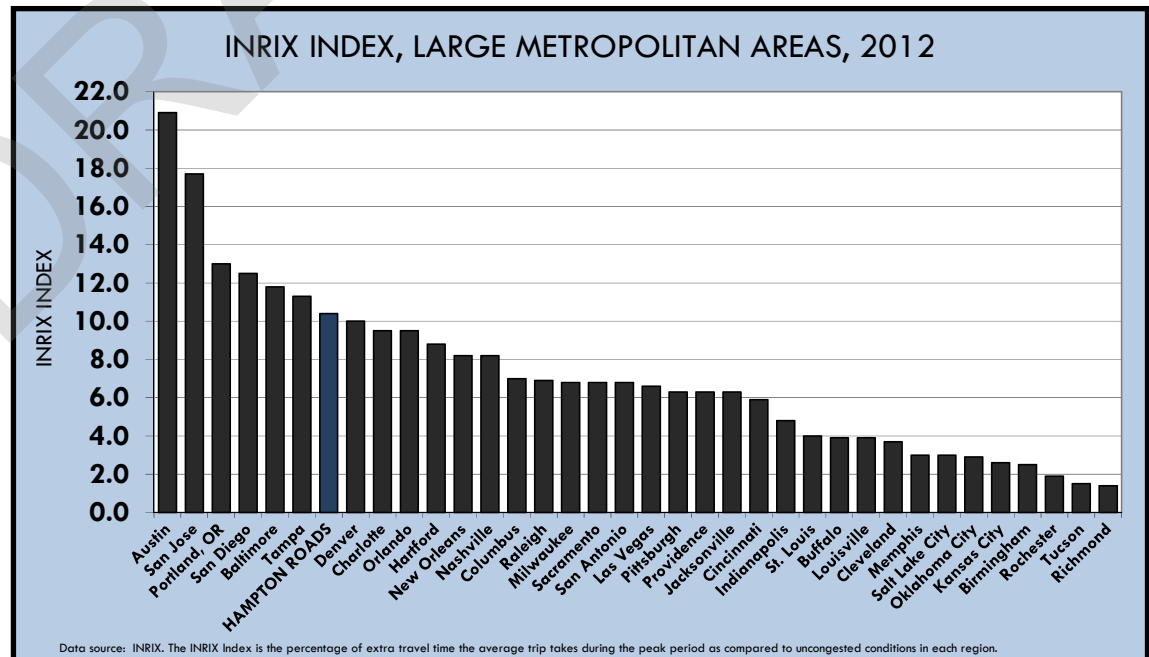
## NOTABLE CONGESTION TRENDS



The change in the INRIX Index in Hampton Roads between 2009 (12.6) and 2012 (10.4). The INRIX Index measures the percentage of extra travel time the average trip takes during the peak travel period as compared to uncongested conditions.



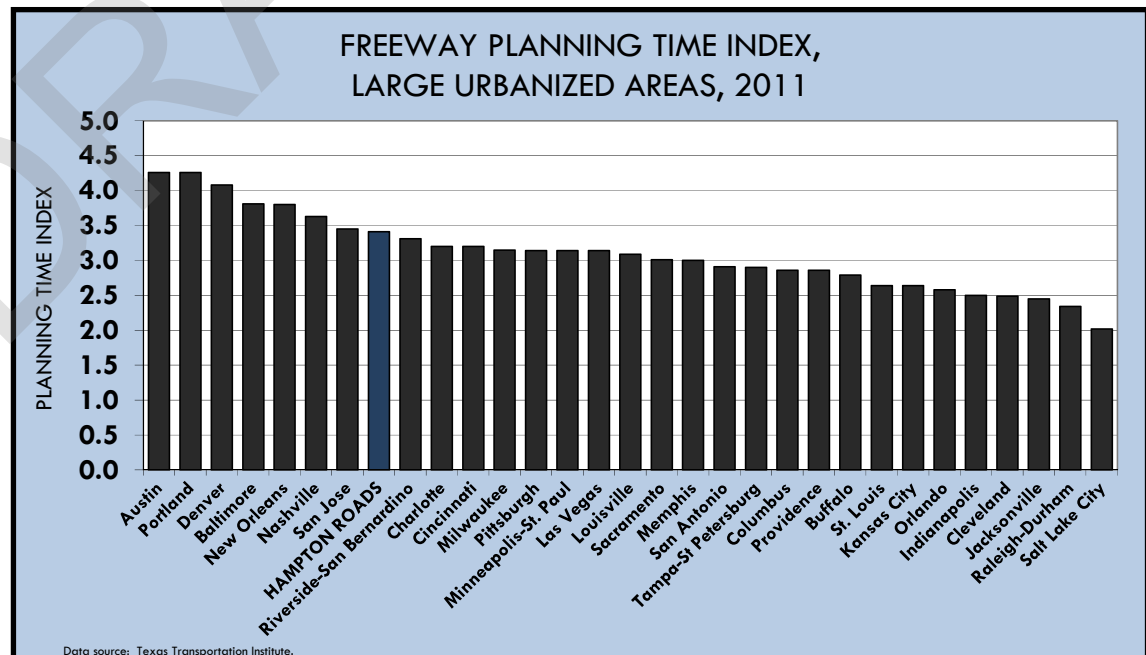
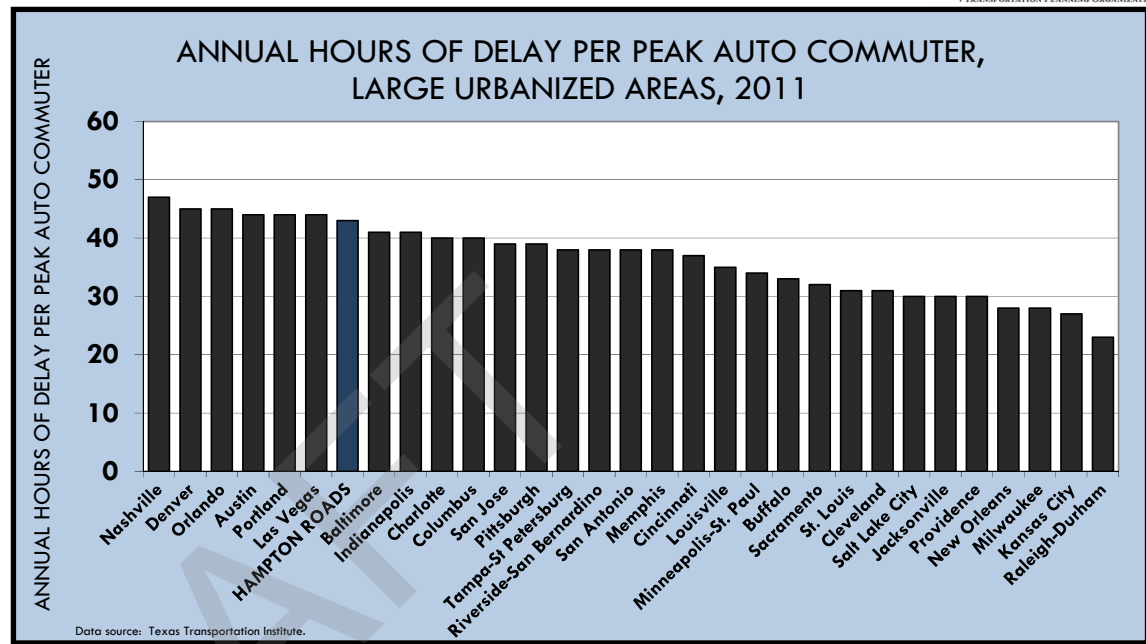
The change in hours of delay per peak period auto commuter in Hampton Roads between 2002 and 2011 according to the Texas Transportation Institute.



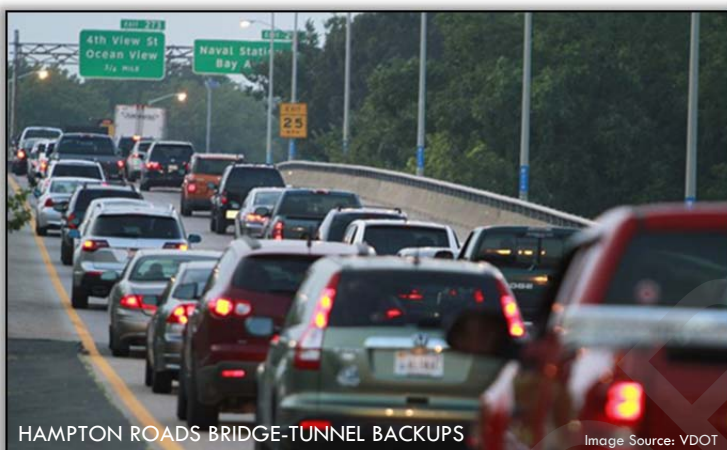
publishes the amount of time that travelers in over 100 urbanized areas spend in congestion, and the costs related to this congestion. TTI divides urbanized areas into four population groups for comparison purposes: very large, large, medium, and small. Hampton Roads is grouped with 30 other urbanized areas in the large group, which are those urbanized areas with between one and three million people.

According to TTI, peak period commuters traveling by automobile spent an average of 43 hours stuck in congestion in Hampton Roads in 2011. This ranked the region 7<sup>th</sup> highest among the 31 large urbanized areas. TTI estimates that the amount of delay in Hampton Roads, and in other large metropolitan areas, decreased between 2002 and 2011. This is likely due to the methodology used by TTI in the study. In the last four years of data, TTI used INRIX speed data and combined it with traffic volumes to produce delay values. Prior to 2008, INRIX speed data was not available, so regional delays were estimated by TTI based on traffic volumes and roadway characteristics. This means that the delay values prior to 2008 are likely less accurate than the recent data.

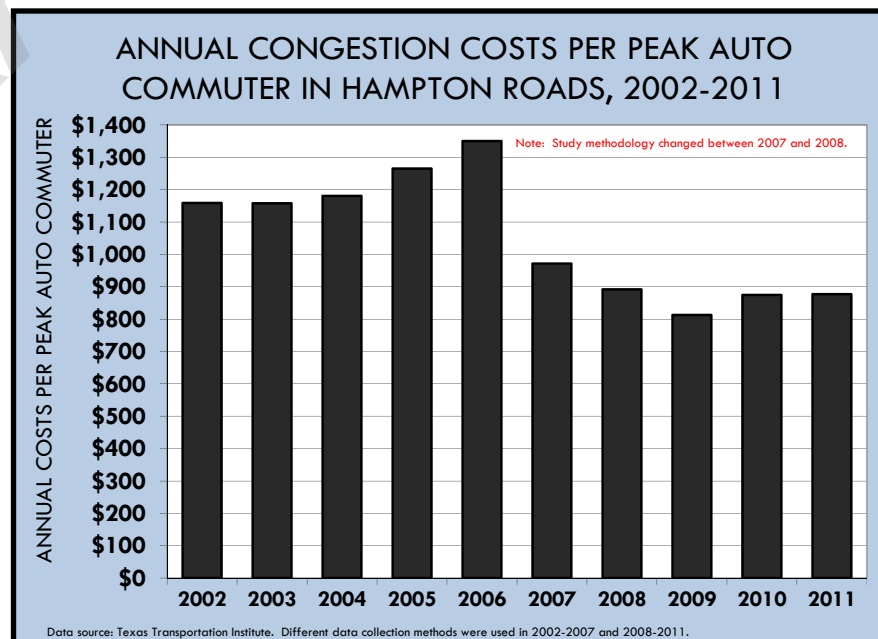
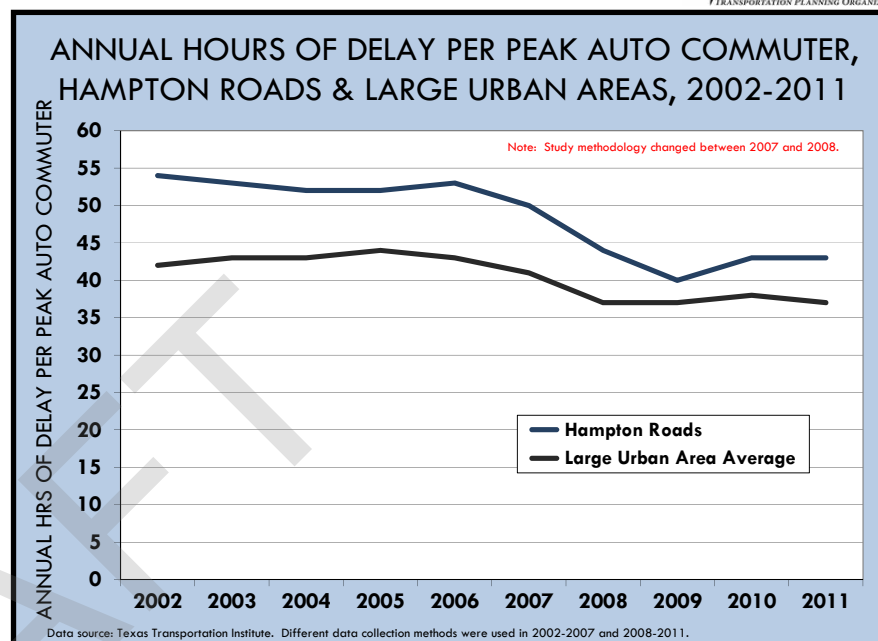
In the recent edition of the Urban Mobility Report, TTI published a measure called the Planning Time Index, which details the travel



time reliability of the freeway network. The Planning Time Index represents the total time that should be planned for a trip so that the driver would only be late 5% of the time. The Freeway Planning Time Index in Hampton Roads in 2011 was 3.41, meaning that for an average uncongested 20-minute trip a total of 68 minutes should be allocated during peak periods to be on time 95% of the time. At 3.41, the Hampton Roads Planning Time Index ranked 8<sup>th</sup> highest among the 31 large urbanized areas in 2011.



TTI also estimates the costs of being stuck in congestion. TTI estimates that being stuck in congestion cost each Hampton Roads peak period auto commuter an average of \$877 in 2011, which amounts to nearly one billion dollars (\$932 million) for all commuters. These values take into account the costs associated with wasted fuel (TTI estimates that over 19 million gallons were wasted in Hampton Roads in 2011), the value of a person's time, and the costs associated with operating commercial vehicles. These congestion costs have decreased according to TTI, but this is likely due to the change in study data collection methods.



Hampton Roads has a lower commuting time compared to other areas, in spite of nearly half of all workers in the region working in a jurisdiction that is different than the one they reside in.

The United States Census Bureau annually collects and releases socioeconomic data through the American Community Survey (ACS). As part of the ACS, information regarding the commuting characteristics of residents, including commuting modes, travel time to work, and where commuters work and live, is collected in each metropolitan area.

According to the ACS, the mean travel time to work in Hampton Roads was 23.3 minutes in 2011. This number has increased from 1990, when the mean travel time to work was 21.8 minutes, but is a decrease from the 24.1 minute travel time to work experienced in Hampton Roads in 2000. Throughout the 2000s, the mean travel time to work in Hampton Roads varied little, mostly remaining between 23 and 24 minutes. Among the 36 large metropolitan areas throughout the United States with a population between one and three million people, Hampton Roads has a relatively low travel time to work, ranking only 29<sup>th</sup> highest in 2011.

## NOTABLE COMMUTING TRENDS



The decrease in mean travel time to work in Hampton Roads from 2000 to 2011.

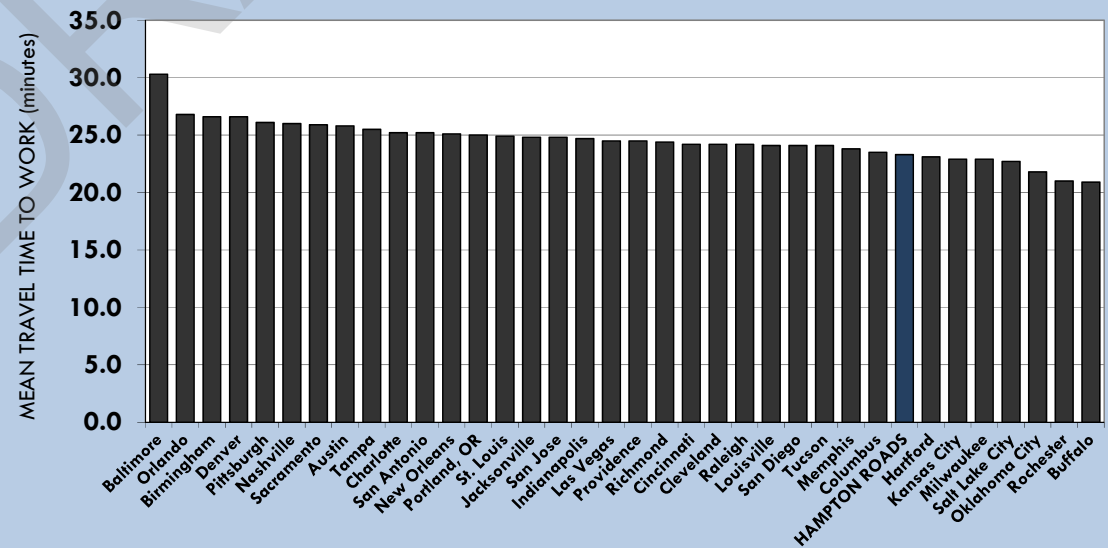


The change in the percentage of commuters that drove alone to work in Hampton Roads between 2000 (79%) and 2011 (81%).



The change in the percentage of Hampton Roads residents who work in a jurisdiction that is different from the one in which they live from 2000 (49%) to 2011 (47%).

MEAN TRAVEL TIME TO WORK IN LARGE METROPOLITAN AREAS, 2011



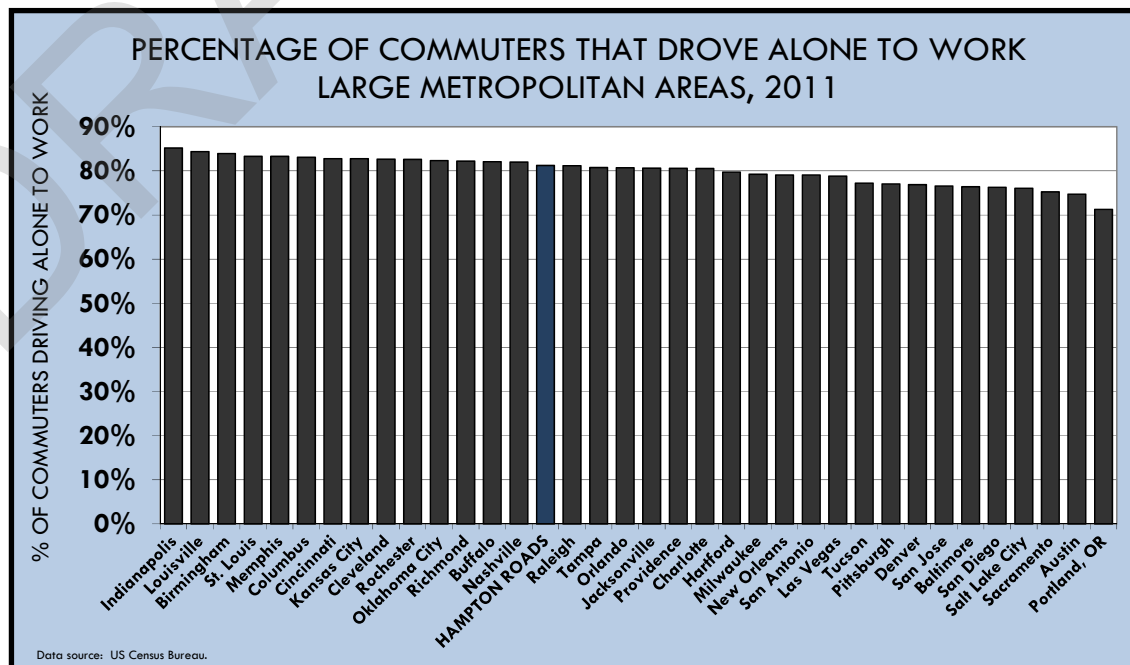
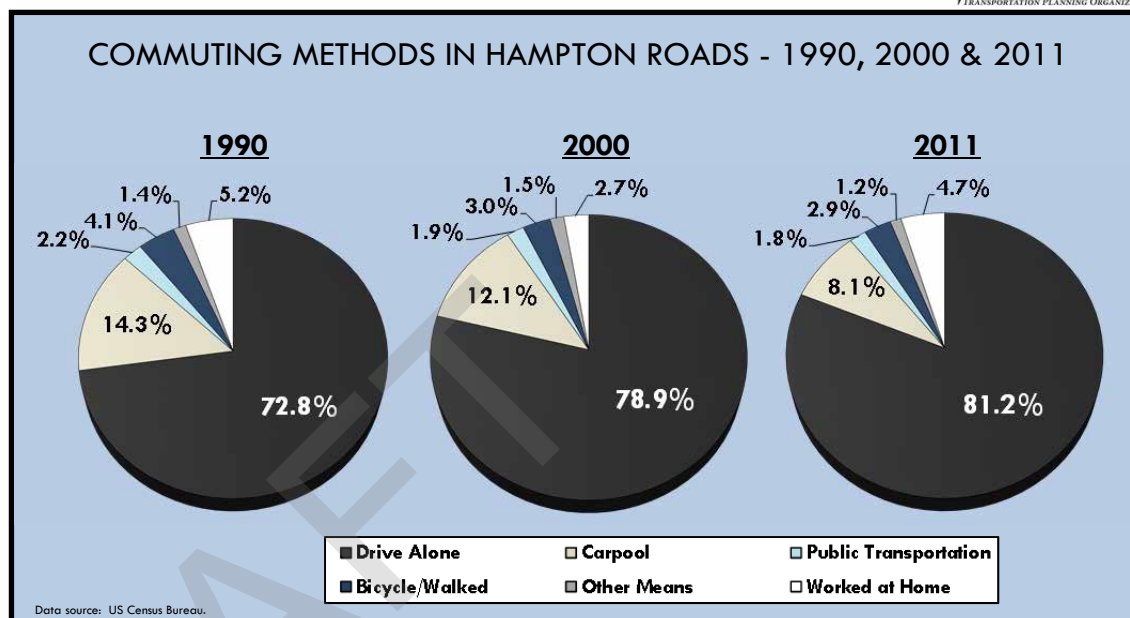
Data source: US Census Bureau.

Many Hampton Roads residents, however, have much longer commutes. In 2011, nearly one out of every three Hampton Roads commuters (32%) traveled 30 minutes or longer to work, and approximately 5% had commutes of an hour or more.

In 2011, 47% of all workers in Hampton Roads worked in a jurisdiction that was different from the one they resided in. Although this percentage is higher than that seen in 1990 (44%), it is lower than the percentage seen in 2000 (49%), and the high that was seen in 2005 (50%).

The percentage of commuters in Hampton Roads who drive alone to work has increased through the years. In 2011, 81% of commuters in Hampton Roads drove alone to work, up from 79% in 2000 and 73% in 1990. All other commuting modes (such as carpooling, public transportation, and biking/walking) experienced a decrease in the percentage of commuters between 2000 and 2011 except for working at home.

In spite of the increase in commuters driving alone to work, this percentage in Hampton Roads is typical of other areas. Hampton Roads ranked 15<sup>th</sup> highest among the 36 large metropolitan areas in terms of the percentage of commuters that drove alone to work in 2011.



# ROADWAY SAFETY

The number of crashes and injuries in Hampton Roads has decreased over the last decade, the result of safer roadways and vehicles. However, the number of fatalities suffered in Hampton Roads is similar to the levels seen a decade ago.

There were a total of 24,115 crashes in Hampton Roads in 2011 according to data provided by the Virginia Department of Motor Vehicles, or one crash every 22 minutes. Although this is much lower than the 33,000 crashes that occurred yearly in the middle of last decade, it is higher than the 23,142 crashes experienced in the region in 2010. Between 2002 and 2011, the number of crashes in Hampton Roads decreased 23%, which is a larger decrease than the statewide 18% decrease.

As the number of crashes in Hampton Roads decreased over the last decade, the number of injuries resulting from traffic crashes decreased as well. There were 14,036 injuries that resulted from traffic crashes in Hampton Roads in 2011, or one injury every 37 minutes. This is much lower than the 18,000 injuries that occurred each year between 2002 and 2004, but is higher than the 13,449 injuries in the region in 2010. Similar to crashes, the decrease in the number of injuries in Hampton Roads over the last decade (21%) is larger than the decrease that was experienced across Virginia (19%) during this time.

In spite of the decrease in the number of crashes and injuries over the last decade, the number of fatalities in Hampton Roads has not decreased. There were 136 fatalities resulting from traffic crashes in Hampton Roads in 2011, or one fatality every 2.7 days. This is equal to the number of fatalities in the

## NOTABLE ROADWAY SAFETY TRENDS



The decrease in the number of crashes in Hampton Roads between 2002 and 2011.

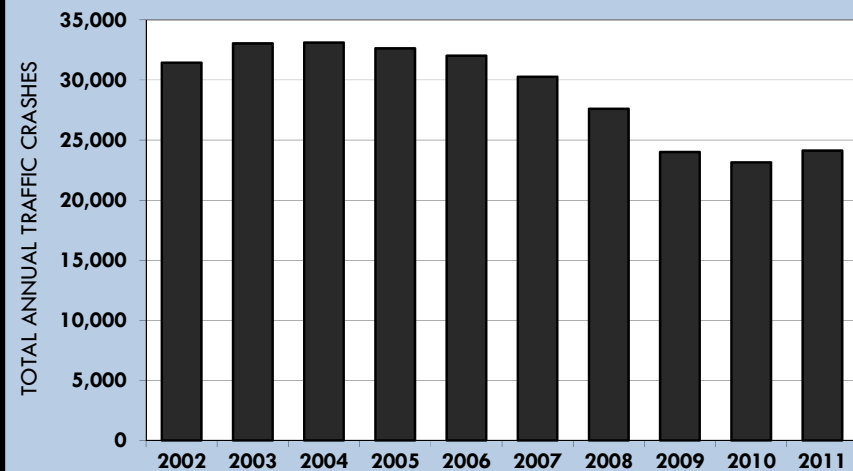


The decrease in the rate of crashes (per amount of travel) in Hampton Roads between 2002 and 2011.



The decrease in the rate of traffic crash fatalities (per amount of travel) in Hampton Roads between the 2000-to-2002 period and the 2009-to-2011 period.

## CRASHES IN HAMPTON ROADS, 2002-2011



Data source: Virginia DMV.

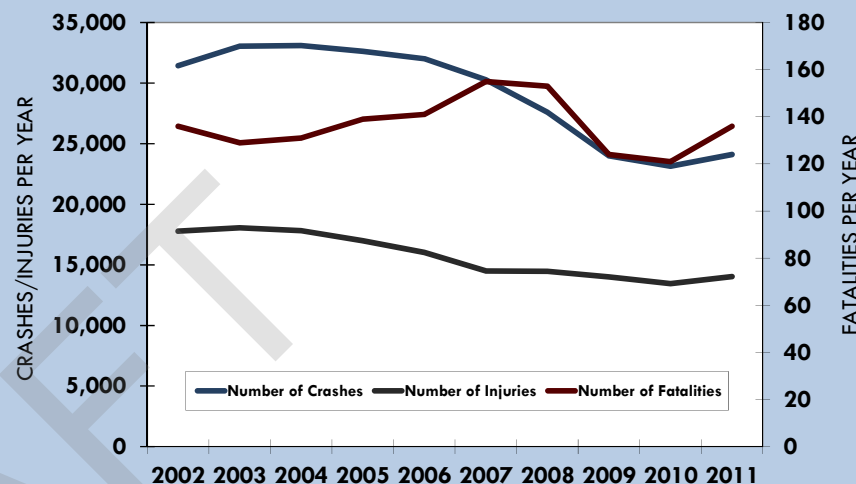
region in 2002. The biggest factor in traffic crash fatalities in Hampton Roads is alcohol use, with 67 of the 136 fatalities (49%) in 2011 resulting from crashes involving alcohol.

With the number of crashes decreasing in Hampton Roads over the last decade, the rate of crashes relative to the amount of travel has decreased as well. The crash rate in Hampton Roads decreased from 2.27 crashes per million vehicle-miles of travel (VMT) in 2002 to 1.65 crashes per million VMT in 2011, a 27% decrease. This decrease in the crash rate is higher than the decrease seen both across Virginia (24% decrease) and the United States (18% decrease) during this time.



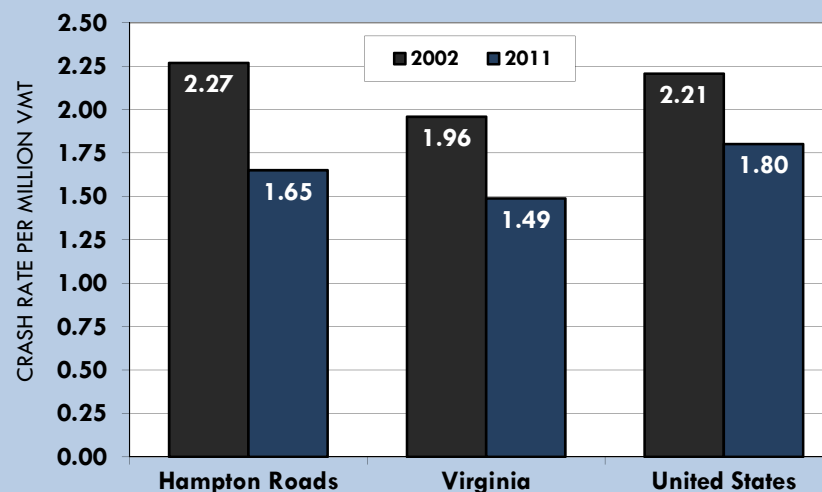
Despite the decrease, the crash rate in Hampton Roads was higher than the statewide rate in 2011, and was higher than the crash rate experienced in the Northern Virginia area (1.57 crashes per million VMT). The Hampton Roads crash rate, however, was lower than the rate experienced in the Richmond metropolitan area (1.69), and equal to the rate in the Roanoke area.

### CRASHES, INJURIES, AND FATALITIES IN HAMPTON ROADS, 2002-2011



Data source: Virginia DMV.

### TRAFFIC CRASH RATES IN HAMPTON ROADS, VIRGINIA, AND THE UNITED STATES, 2002 and 2011

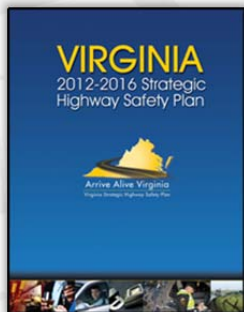


Data sources: VDOT, Virginia DMV, NHTSA.

Although the number of fatalities has not decreased, the fatality rate in Hampton Roads has decreased over the last decade. The Hampton Roads fatality rate was 0.86 fatalities per 100 million VMT in the three-year period from 2009 to

## NEW DEVELOPMENTS

In 2012, the State of Virginia produced an update to the statewide Strategic Highway Safety Plan (SHSP) document. The SHSP provides a comprehensive approach for reducing fatalities and severe injuries resulting from traffic crashes on Virginia's public roads.

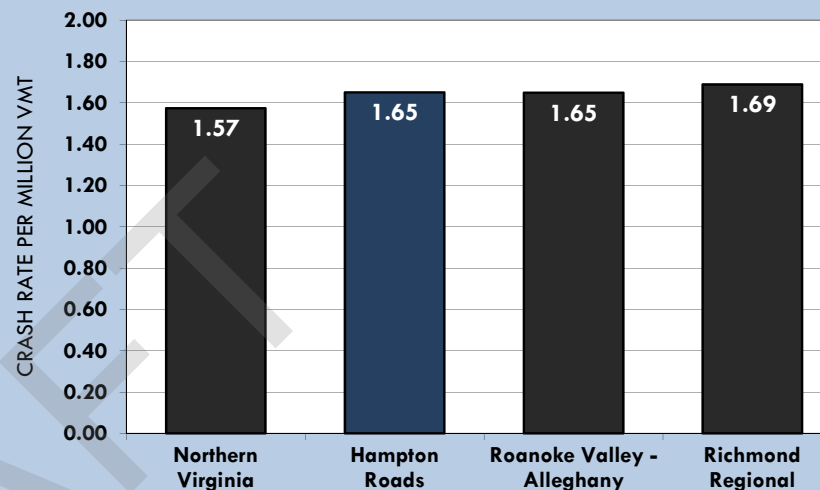


The SHSP includes the goal of reducing the number of fatalities and severe injuries by half by the year 2030. This would be done through various strategies, such as focusing on young drivers, aggressive drivers, impaired drivers, and unrestrained occupants. The SHSP also identifies high payoff strategies and related actions to target resources.

The updated SHSP was produced through a collaborative effort that included staff from a variety of agencies including VDOT, DMV, State Police, Virginia Departments of Health, Education, and Fire Programs, Virginia Association of Chiefs of Police, and HRTPO staff. Workshops were also held throughout the state to gather input and feedback from stakeholders for the update.

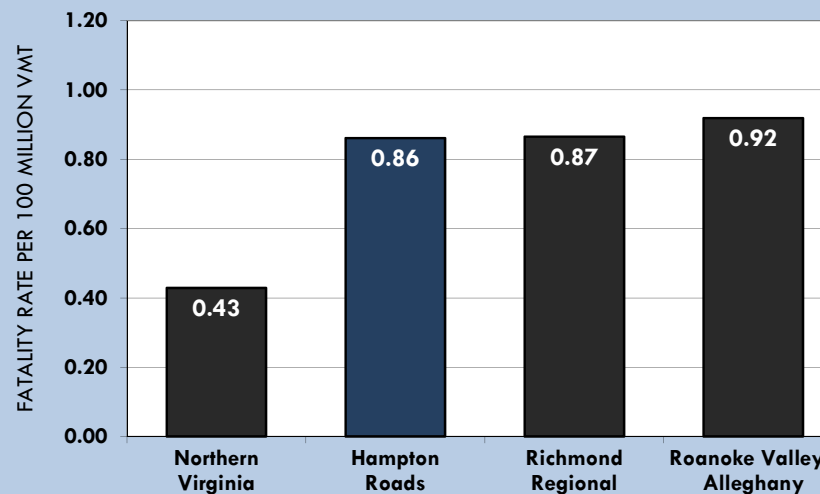
Information regarding the SHSP is available at:  
<http://www.virginiadot.org/info/hwysafetyplan.asp>.

TRAFFIC CRASH RATES IN VIRGINIA METROPOLITAN AREAS, 2011



Data sources: VDOT, Virginia DMV.

TRAFFIC CRASH FATALITY RATES IN VIRGINIA METROPOLITAN AREAS, 2009-2011



Data sources: VDOT, Virginia DMV.

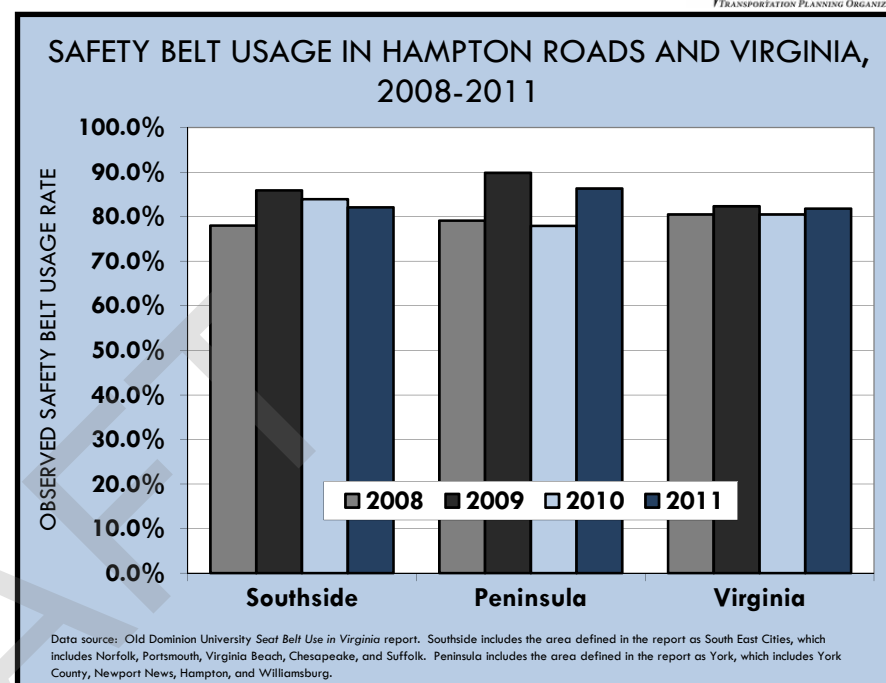


2011, down from 1.04 fatalities per 100 million VMT in the 2000 to 2002 time period (fatalities are often analyzed using three year periods due to the number that occur in any given year). The fatality rate in Hampton Roads from 2009 to 2011, however, was twice the rate experienced in Northern Virginia (0.43 fatalities per 100 million VMT), and comparable to the rate in the Richmond area (0.87).

Safety belt use has an impact on the number of injuries and fatalities resulting from crashes. In 2011, Virginia had an observed safety belt usage rate of 81.8% according to a study done by Old Dominion University. Hampton Roads usage rates were higher than the statewide rate, with the Southside having an observed safety belt usage rate of 82.1% in 2011 and the Peninsula having a usage rate of 86.3%. Both the Southside and Peninsula usage levels were higher in 2011 than the levels seen in 2008.

Virginia's safety belt usage rate (81.8%) is lower than the national rate of 84%, and Virginia only had the 39<sup>th</sup> highest statewide usage rate in the country in 2011. This is primarily due to the fact that Virginia does not have a primary enforcement safety belt law, which allows law enforcement officers to ticket a driver for not wearing a safety belt without any other traffic offense occurring. Of the 33 states/districts that had primary enforcement safety belt laws in 2011, 28 had higher safety belt usage rates than Virginia.

The HRTPO regularly produces safety reports as part of the Hampton Roads Regional Safety Study. In 2013, HRTPO will release the "Crash Trends and Locations" and "Crash Analysis and Countermeasures" reports. Information regarding HRTPO's safety planning efforts is available at <http://www.hrtpo.org/page/roadway-safety>.



# TRUCK DATA

More than 16,000 trucks enter and exit Hampton Roads each weekday, serving not only the third busiest port on the east coast but also serving the commerce and economic vitality of the region.

Freight movement is a critical component of the Hampton Roads economy. Trucks are the primary mode for moving freight to and from the Port of Virginia. They also supply the goods used by each resident and business in the region.

In 2012, 16,500 trucks entered or exited Hampton Roads through major gateways each weekday. This is much lower than the levels seen before the economic downturn started. About 19,100 trucks passed through major gateways each weekday in 2005, and this number increased to over 20,000 trucks in 2007. By 2009, the number of trucks passing through regional gateways had dropped to 17,000 each weekday.

The primary gateway for trucks entering or exiting Hampton Roads is I-64. An average of 6,323 trucks used I-64 to enter or exit the region each weekday in 2012, which accounted for 38% of the trucks passing through the region's major gateways. The next most used gateways to the region are Route 58 and Route 460. An average of 3,209 trucks used the Route 58 gateway each weekday in 2012, and 1,927 trucks used the Route 460 gateway. Combined, I-64, Route 58, and Route 460 accounted for 70% of all trucks passing through the region's major gateways in 2012.

## NOTABLE TRUCK DATA TRENDS

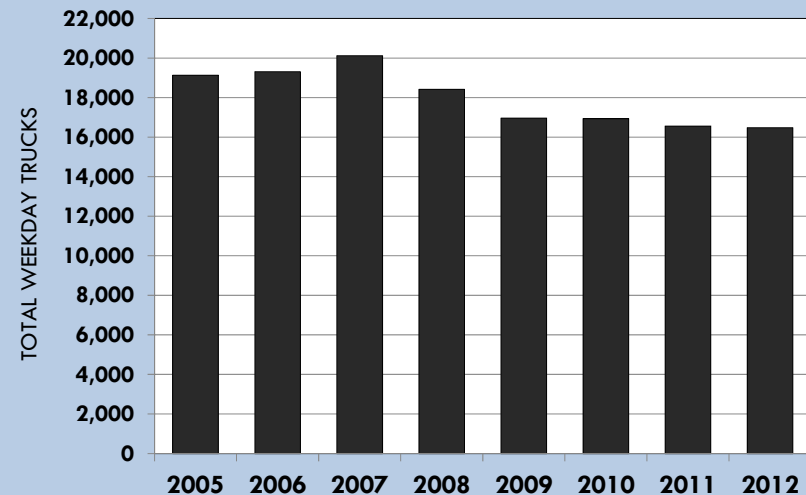


The decrease in the number of trucks that entered or exited Hampton Roads each weekday at major gateways between 2005 and 2012. Most of this decrease occurred between 2007 and 2009 due to the impacts of the recession.



The decrease in the amount of truck travel each day in Hampton Roads between 2007, just before the downturn in the economy began, and 2011.

NUMBER OF TRUCKS PASSING THROUGH HAMPTON ROADS GATEWAYS EACH WEEKDAY, 2005-2012



Data sources: VDOT, CBBT.

There was a total of 1.14 million miles of truck travel each day in Hampton Roads in 2011 according to VDOT estimates, which accounted for 2.8% of the 40 million vehicle-miles of travel experienced each day throughout the region. Regional truck travel levels are 14% lower than the levels seen in 2005, and more than 20% below the highs seen in 2007.

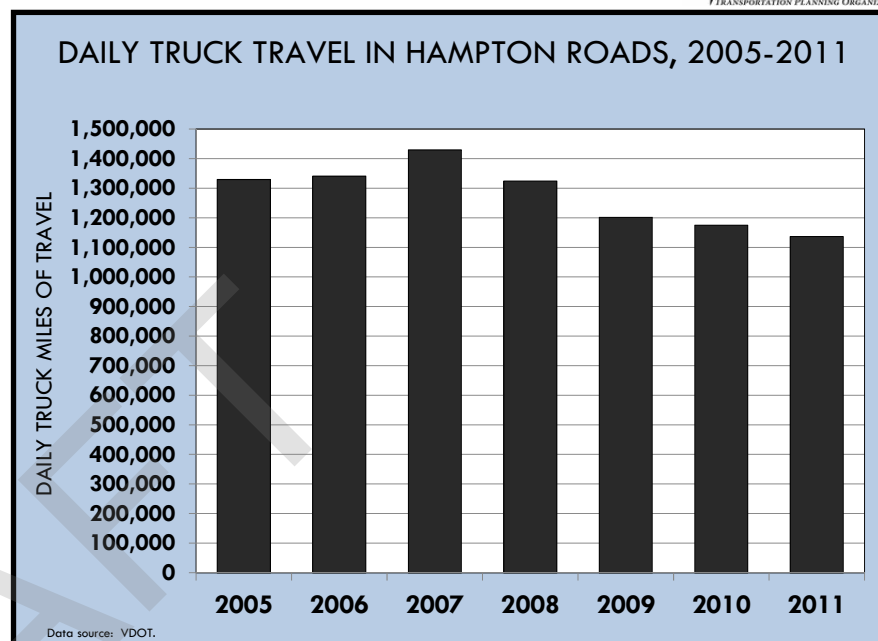
A major issue involving truck travel in Hampton Roads is overheight trucks at the tunnels. This is especially an issue at the westbound Hampton Roads Bridge-Tunnel, which is an older tunnel with a lower vertical clearance than other tunnels in the area.

A total of 11,792 trucks were stopped, measured, and turned around at tunnels in Hampton Roads in 2012, 5,072 of which occurred at the westbound Hampton Roads Bridge-Tunnel. A total of 706 of these turnarounds occurred at the tunnel entrance on the south island, which greatly impacts congestion and safety since traffic has to be stopped in both directions to complete the turnaround. This is down from 956 turnarounds in 2011 but is higher than the 528 turnarounds in 2008.



TRUCKS ON ROUTE 460

Image Source: VDOT.



### BEHIND THE NUMBERS

Although the amount of freight handled by the Port of Virginia has rebounded to the levels prior to the economic downturn, the amount of truck travel both in Hampton Roads and at the gateways to the region continues to decrease. One reason is that port trucks only represent a small percentage of all regional truck travel. Another reason for this discrepancy is that the mode of transporting freight through the Port is changing. In 2005, 67% of all freight handled by the Port was transported by truck while 25% was transported by rail. In 2012, freight transported by truck decreased to 64% of freight handled by the Port, with rail's share increasing to 32%. Port officials anticipate that the share of freight transported by truck at the Port of Virginia will continue to decrease in the future, and that up to half of all general cargo handled by the Port may eventually be transported by rail.



Image Source: HRTPO

# PUBLIC TRANSPORTATION

Public transportation usage continues to increase in Hampton Roads, fueled by increased options such as The Tide light rail and the Go Pass 365 ridership payment option.

Public transportation services in Hampton Roads are primarily provided by two agencies. The Williamsburg Area Transit Authority (WATA) provides transit service in James City County, Williamsburg, and northern York County, while Hampton Roads Transit (HRT) provides service in urbanized areas on the Peninsula and Southside. Other transit agencies also provide service in the area, such as Virginia Regional Transit in Suffolk.

A variety of public transportation options are available in Hampton Roads. These options include:

**Conventional Bus** – Conventional bus service is provided on an extensive regional network by both WATA and HRT.



**Express Bus** – Regional express bus service, known as the MAX, is provided by Hampton Roads Transit between various locations on the Peninsula and Southside.



**Tourist Oriented Services** – Special tourist-oriented public transportation service is provided at various locations around Hampton Roads, including the VB WAVE service at the Va. Beach Oceanfront, shuttle services around Colonial Williamsburg, and the Williamsburg and Yorktown Trolleys.



## NOTABLE PUBLIC TRANSPORTATION TRENDS



The increase in the number of passenger trips taken on public transportation in Hampton Roads between 2003 and 2012. Most of this growth has occurred since 2007.



The increase in public transportation use in Hampton Roads, on a passenger trips per capita basis, between 2003 and 2012.

**Light Rail** – HRT began operating light rail service on a 7.4 mile starter line in Norfolk in 2011. More information is included in the Rail Travel section of this report.



**Ferries** – Passenger ferry service is provided by HRT between Downtown Norfolk and Portsmouth, and vehicular ferry service is provided by VDOT across the James River between Surry County and Jamestown.



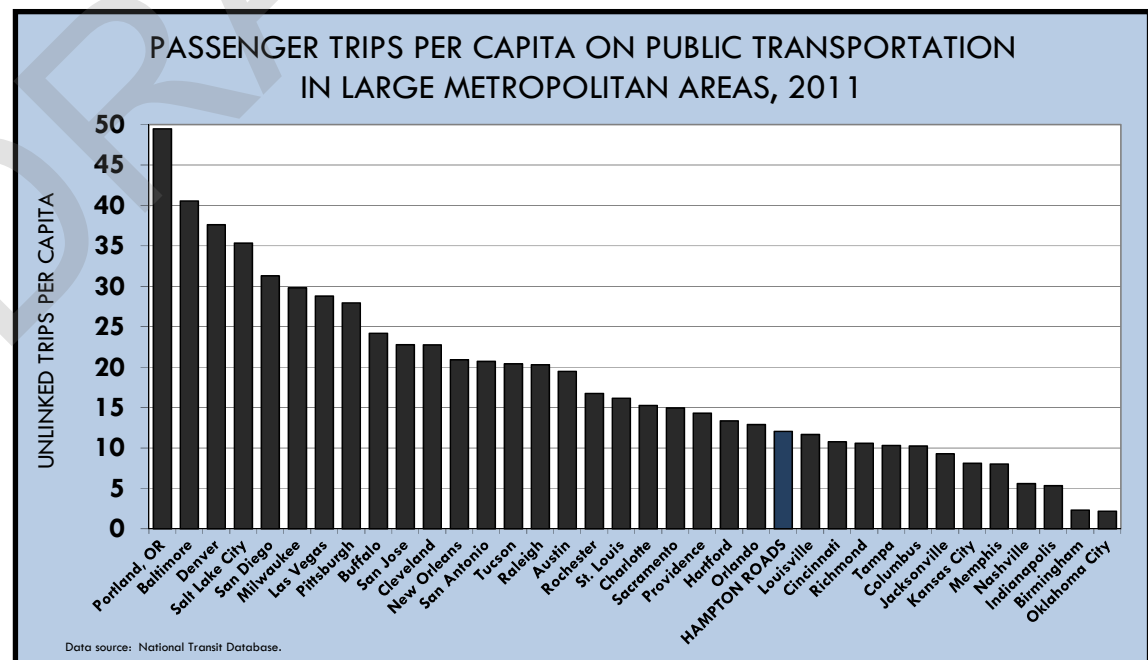
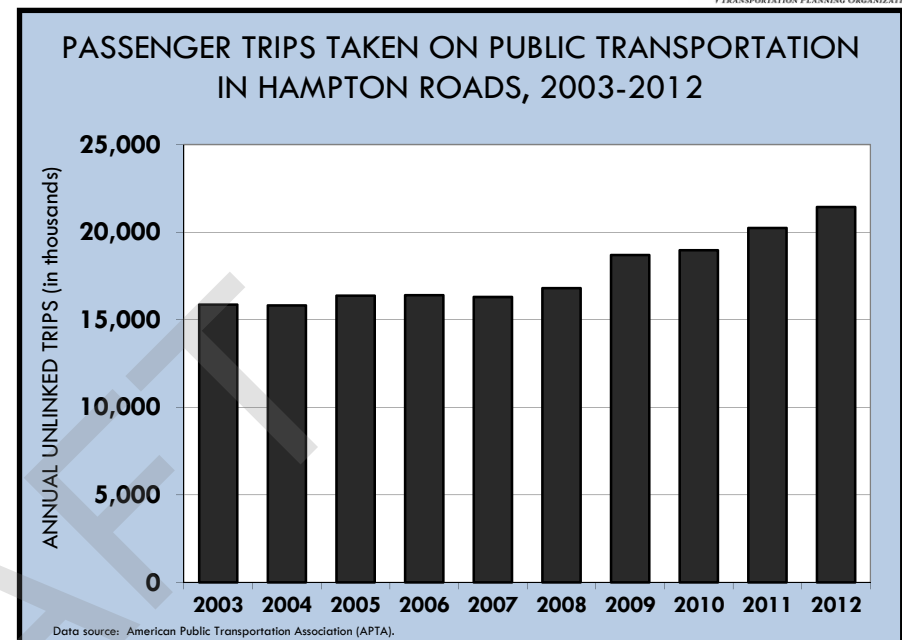
**Commuting Alternatives** – Commuting alternatives in Hampton Roads are provided by Traffix. These commuting alternatives include ridesharing, telecommuting, van leasing, and guaranteed ride programs.



There were over 21 million unlinked trips\* taken on public transportation in Hampton Roads in 2012. This number includes HRT and WATA ridership on regular and express buses, tourist oriented services, light rail, vanpools, and the passenger ferry. The number of trips on public transportation in Hampton Roads has increased significantly, with a 35% increase in ridership between 2003 and 2012. During the same time period, national transit ridership levels increased by 12%.

Most of this growth in transit usage in Hampton Roads has occurred since 2007, apparently due to new mode and payment options and the impacts of the economic downturn. Since 2007, regional transit ridership has increased 32%.

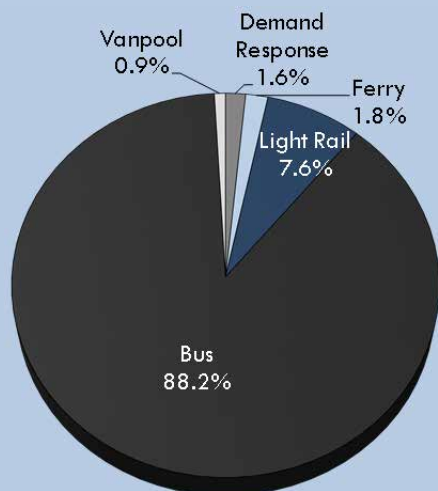
Most public transportation trips in Hampton Roads are taken on regular or express bus service. In 2012, 88% of the public transportation trips in Hampton Roads were taken on regular or express bus service. Light rail comprised 8% of all regional transit trips, with all other modes comprising the remaining 4%.



\* - An unlinked trip is 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 unlinked trips.

In spite of the recent growth, public transportation usage in Hampton Roads has lagged behind the usage in other comparable metropolitan areas. At just over 12 trips on public transportation per capita in 2011, Hampton Roads ranked 24<sup>th</sup> highest among the 36 large metropolitan areas with populations between one and three million people. The Hampton Roads ranking has improved in recent years, up from 27<sup>th</sup> highest usage per capita in 2003. This ranking will likely continue to improve in the future as the full impacts of the Tide Light Rail system and innovative payment options such as GoPass 365 are reflected in the passenger levels.

TRANSIT USAGE BY MODE IN HAMPTON ROADS, 2012



Data source: APTA.

## NEW DEVELOPMENTS

**Light Rail** – The year 2012 saw the first full year of operation of the Tide Light Rail Line in Norfolk. The \$318 million starter line runs 7.4 miles between the Medical Center Complex through Downtown Norfolk to Newtown Road at the Virginia Beach city line. Approximately 1.8 million rides were taken on the Tide in 2012.



**GoPass 365** – In 2011, HRT instituted a new, innovative program called GoPass 365. Employers and schools can purchase passes that allow all of their employees or students to use HRT transit services at no additional charge. Costs to participate in the program are charged to the employer/school annually on a per employee or per student basis and vary by the size of employer or school. In October 2012, over 275,000 rides were taken using the GoPass 365.

**Virginia Regional Transit** – On January 3, 2012, Virginia Regional Transit began providing public transportation service in the city of Suffolk. The system, which is provided through a contract with the city, primarily serves the downtown area with three bus routes.



# ACTIVE TRANSPORTATION

Active Transportation Planning, which aims to improve the user safety and mobility of all types of non-motorized transportation options, has expanded both in Hampton Roads and across the country.

The term Active Transportation refers to transportation such as walking or using a bicycle, tricycle, wheelchair, scooter, skates, skateboard, push scooter, or similar devices. Bicycle lanes, multi-use paths, sidewalks, crosswalks, and trails are all non-motorized transportation facilities designed to improve the mobility and safety of active transportation users.



There are currently thousands of miles of sidewalks and over 450 miles of bicycle facilities in Hampton Roads. These non-motorized facilities vary greatly in type and length, from secluded paths in city and state parks to dedicated lanes along major

## NON-MOTORIZED FACILITIES IN HAMPTON ROADS

There are various types of non-motorized facilities in place in Hampton Roads. These non-motorized facilities include:

### Bike Lanes

A portion of the right side of the roadway is designated by signs and pavement markings for the preferential use of bicycles.



### Shared Use Paths

A facility physically separated from the roadway intended for the use of bicycles, pedestrians, and other active transportation users.



### Wide Paved Shoulders

A paved portion of a highway to the right of the edge stripe on which bicyclists may ride and, to a lesser extent, pedestrians may walk.



### Wide Outside Lanes

An outside travel lane wider than standard width that is shared by motor vehicles and bicycles.



### Sidewalks

Non-motorized facilities designed primarily for foot traffic and users with smaller wheeled devices.



### Shared Lanes

A travel lane of standard width that is shared by motor vehicles and bicycles. These should only be designated on low volume roadways.



### Grade Separated Crossing

Facilities that are designed to continue non-motorized facilities through high volume roadways, railroads, or natural barriers.



thoroughfares to facilities at the Virginia Beach Oceanfront. There are many different types of non-motorized facilities in Hampton Roads, as shown in the figure on the previous page.

In recent years, several major non-motorized facilities have been added in Hampton Roads. Examples of these facilities include the conversion of the old section of Route 17 in Chesapeake into the Great Dismal Swamp Trail, the addition of bike lanes along a hazardous section of Shore Drive in Virginia Beach, and the construction of portions of the Virginia Capital Trail which, upon completion, will connect Williamsburg and Downtown Richmond with a 54-mile facility. In addition, many new roadway projects and developments across the region incorporate sidewalks and multi-use trails, following local policies and incentives.



BOARDWALK TRAIL

Image Source: HRTPO.

## NEW DEVELOPMENTS

**Virginia Capital Trail** – Construction continues on the Virginia Capital Trail, which when complete will connect Williamsburg with Downtown Richmond. Construction is expected to be complete in 2014.



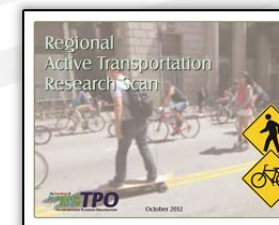
**Local and State Active Transportation Planning** – A number of state and local planning efforts have recently been completed, including:

- VDOT recently developed the State Bicycle Policy Plan, which includes bicycle policy recommendations that will guide the planning, design, construction, operation and maintenance of bicycle accommodations.
- Officials in James City County, Williamsburg, and York County joined together to form a bicycle advisory committee and prepare a Regional Bicycle Facilities Plan and Bikeway Map.
- The city of Virginia Beach produced an update to the *Virginia Beach Bikeways and Trails Plan* in 2011, and Isle of Wight County produced the *Pedestrian and Bicycle Facilities Master Plan* in 2009.



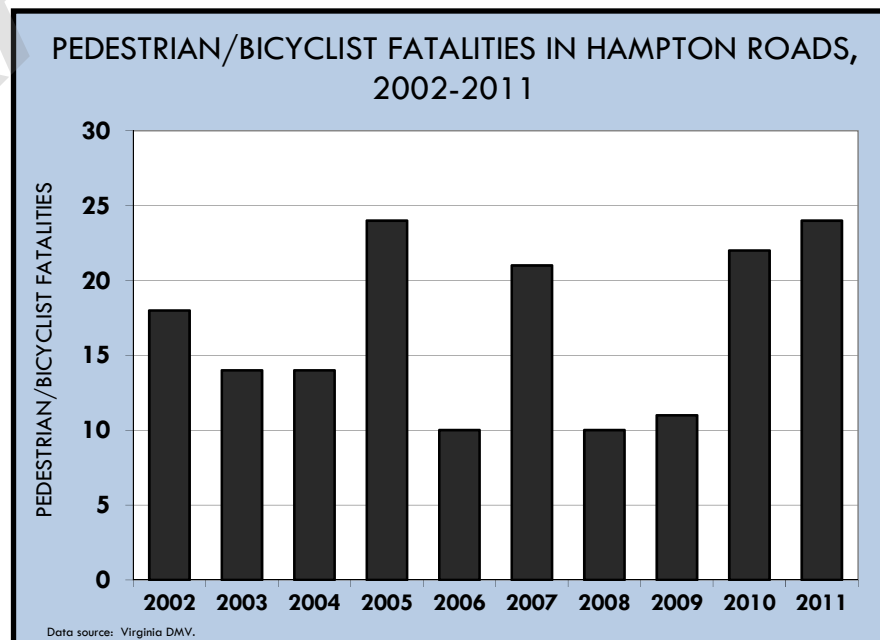
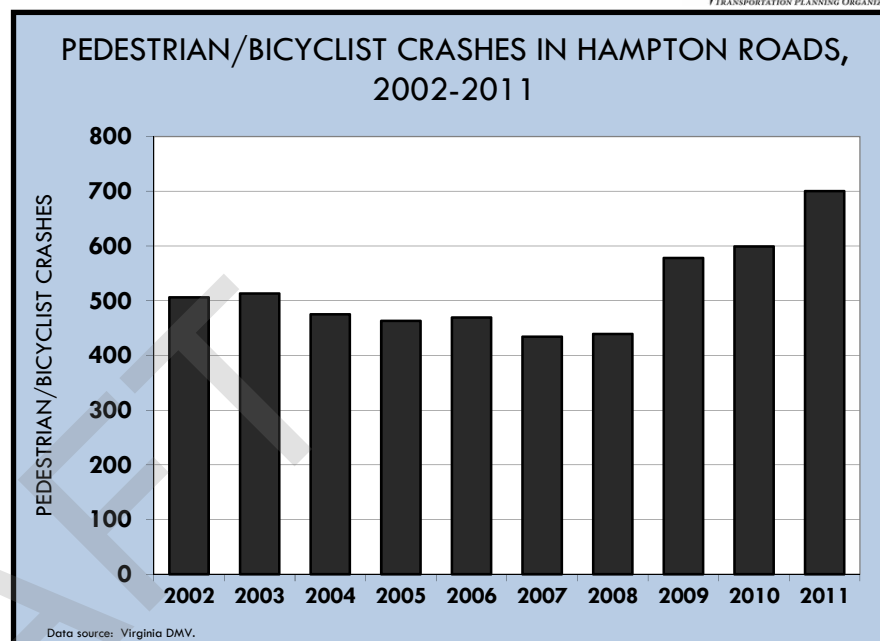
**Regional Active Transportation Planning** – HRTPO released the Regional Active Transportation Research Scan in 2012. This report documents the state of the practice in Active Transportation Planning, highlights best practices in regions throughout the country and internationally, and outlines a proposed methodology to develop a Regional Active Transportation Plan.

HRTPO staff plans to collaborate with stakeholders to create a Non-Motorized Facility Inventory in 2013. This document, which will inventory existing facilities throughout the region, will be used by regional and local stakeholders to identify potential improvements to the non-motorized transportation network as part of a Regional Active Transportation Plan.





With the emphasis on providing facilities for active transportation users, improving the safety of pedestrians and bicyclists is critical. There were 700 crashes involving pedestrians or bicyclists in Hampton Roads in 2011, resulting in a total of 24 fatalities. The number of crashes in Hampton Roads involving pedestrians or bicyclists was higher in 2011 than in any other year in the last decade, and the number of fatalities matches the high seen in 2005. Although pedestrian and bicyclist crashes comprised less than 2% of the total crashes in Hampton Roads between 2002 and 2011, over 12% of all fatalities in Hampton Roads during this time resulted from pedestrian and bicyclist crashes.



# TRANSPORTATION FINANCING

Landmark legislation was passed in 2013 by the Virginia General Assembly that comprehensively reforms transportation funding and increases future funding levels.

Funding for many aspects of the statewide transportation system is allocated by the Commonwealth Transportation Board (CTB), including the construction and maintenance of Virginia's highway system, transportation operations, debt payments, administration, and support for the ports, aviation, public transportation, and rail. In Fiscal Year (FY) 2013, the CTB approved a \$4.7 billion transportation budget for the State of Virginia. This is higher than the funding levels in most previous years due to an infusion of funding from newly issued bonds.

With statewide transportation funding levels not keeping up with all of the needs in recent years, the Virginia General Assembly passed legislation in 2013 that comprehensively reforms transportation funding and increases future funding levels. Under House Bill (HB) 2313, a total of \$29.9 billion is projected to be available in the statewide transportation budget in FY 2014-2019, which is 13% higher than the budgets from Fiscal Years 2008-2013.

In addition to these statewide funds, HB 2313 also has regional components for Hampton Roads and Northern Virginia. In Hampton Roads, HB 2313 increases sales taxes and fuel wholesale taxes, which are projected to produce an additional \$1.0 billion in Fiscal Years 2014-2018 for use on regional roadway, bridge, or tunnel projects.

## NOTABLE TRANSPORTATION FINANCING TRENDS



The projected increase in Virginia's statewide transportation budget from FY 2008-2013 to FY 2014-2019 (excluding regional revenues). For new highway construction, this increase is 3%.

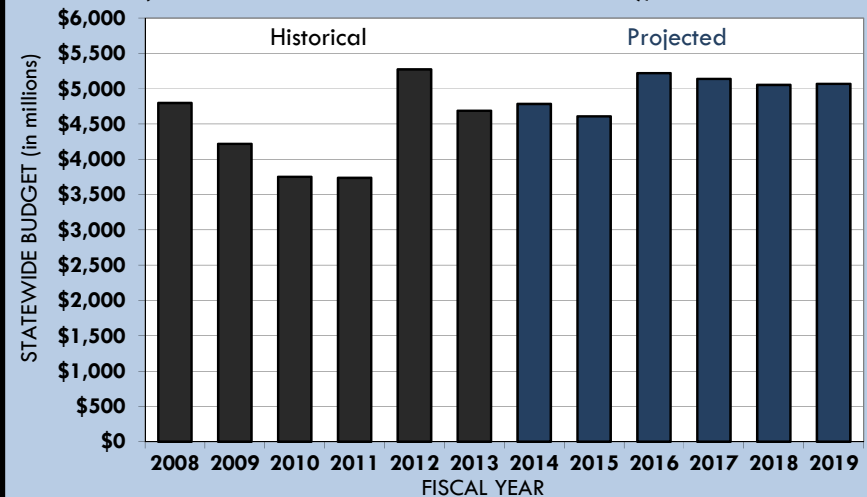


The increase in statewide transportation funding (excluding regional revenues) under HB 2313 in FY 2014-2019 over previous funding projections.



The increase in funding (excluding regional revenues) that will be available for statewide highway construction under HB 2313 in the FY 2014-2019 period over previous funding projections for that period.

## HISTORICAL AND PROJECTED STATE TRANSPORTATION BUDGET (EXCLUDING REGIONAL REVENUES), FY 2008-2019

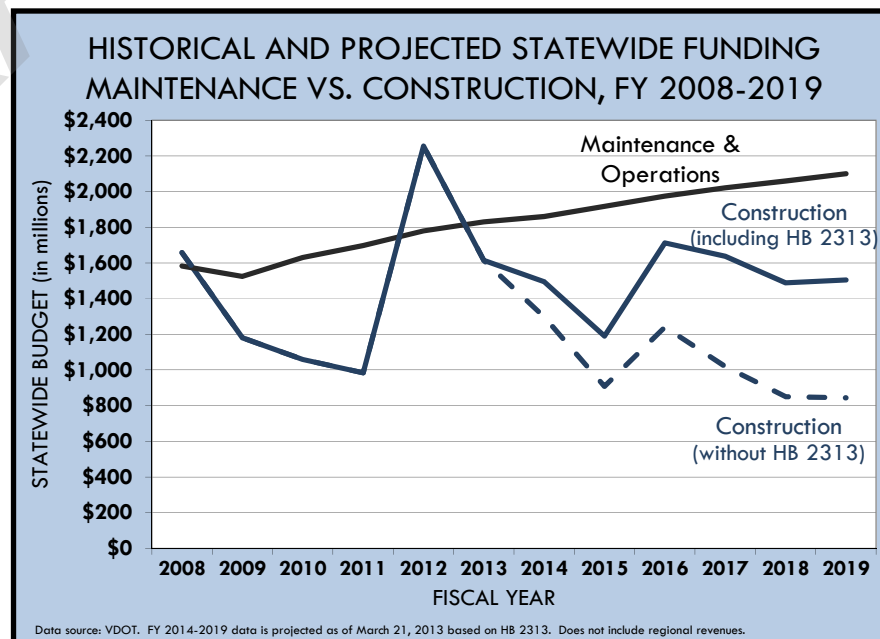
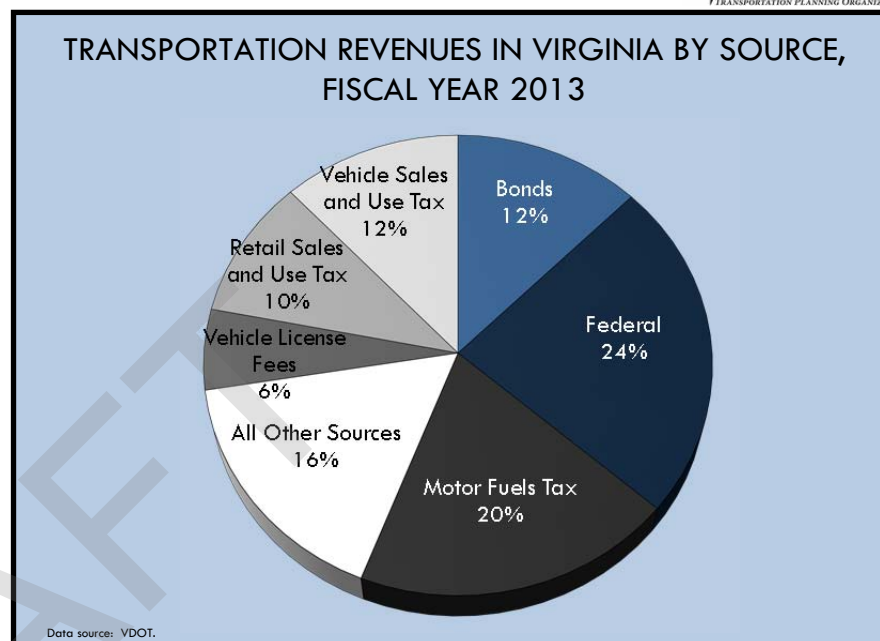


Data source: VDOT. State fiscal year runs from July 1 to June 30 of the listed year. Projected budgets as of March 21, 2013. Includes statewide revenues from HB2313, but does not include regional revenues.

Revenues for Virginia's transportation budget come from a variety of sources. In FY 2013, the largest source of revenue for transportation comes from federal funding programs at nearly \$1 billion, or 24% of the total statewide transportation budget in FY 2013. The next largest source of transportation funding is the state motor fuels excise tax (20%). Other major sources of transportation revenues include bonds, the vehicle sales and use tax, retail sales and use tax, and vehicle license fees.

In recent years, the amount of money required to operate and maintain Virginia's aging roadways and bridges has increased. This requirement resulted in less money available for new roadway construction. Under HB 2313, the amount of money available for roadway construction will increase. Between FY 2014-2019, \$9.0 billion from statewide revenue sources is projected to be available for new roadway construction in Virginia. This is only a 3% increase over the funding that was allocated to construction in FY 2008-2013 (largely due to the infusion of construction funding from bonds in FY 2012), and is still below the funding levels that will be allocated to statewide roadway maintenance and operations. However, at \$9.0 billion this is 47% higher than the money that was projected to be available for statewide roadway construction for FY 2014-2019 before HB 2313 was passed.

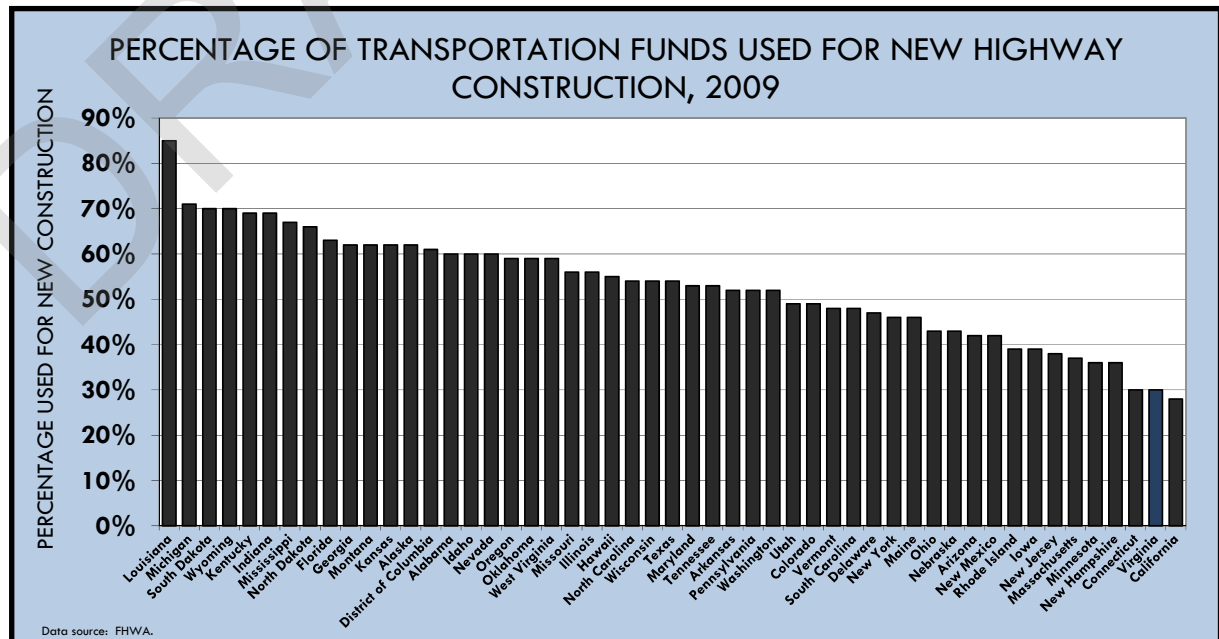
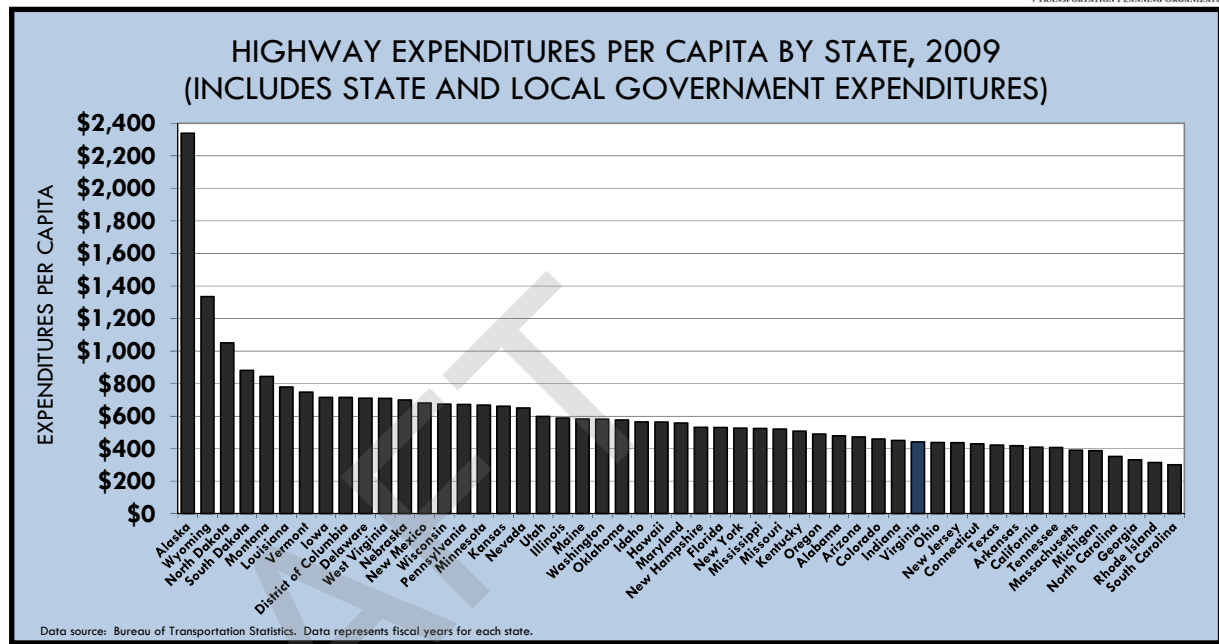
Historically, the amount of funding allocated to roadways in Virginia has lagged behind other states. Using the most recent data available from the Bureau of Transportation Statistics, Virginia ranked 38<sup>th</sup> highest among the 50 states and the District of Columbia in highway expenditures per capita in 2009. Between 2005 and 2009, Virginia ranked no higher than 33<sup>rd</sup> and ranked as low as 42<sup>nd</sup> in terms of



highway expenditures per capita.

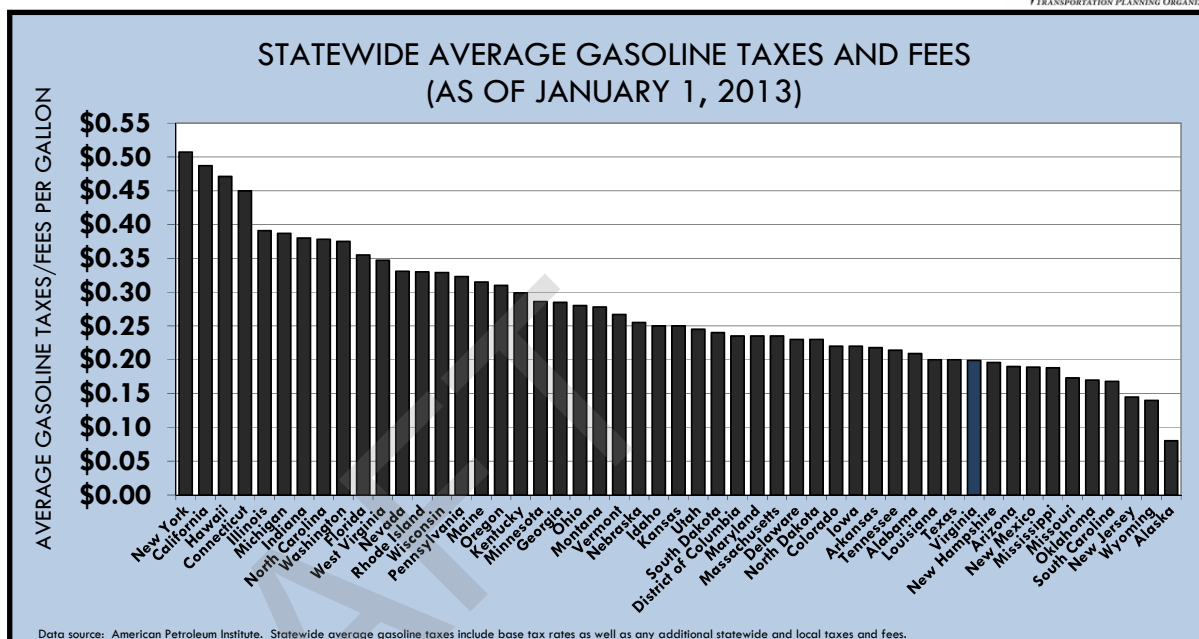
Virginia ranks even lower when only transportation funds used for new highway construction are considered. Virginia ranked 50<sup>th</sup> among the 50 states and District of Columbia in the percentage of transportation funds used for new highway construction in 2009 according to FHWA statistics. Virginia ranked 51<sup>st</sup> in 2006, and 48<sup>th</sup> in 2008 (2007 data was not available).

The primary reason that Virginia has historically spent less on highway expenditures per capita than most other states is the level of gasoline taxes and fees collected in the state. As shown previously, only 20% of Virginia's transportation revenue in FY 2013 comes from the statewide motor fuels tax. Currently the statewide tax on each gallon of unleaded gasoline is 17.5 cents, a level that was last changed in 1986. In addition to the excise tax, 0.6 cents per gallon is collected statewide for the petroleum underground storage tank fund. An additional 2% sales tax is also collected on gasoline sold in Northern Virginia for public transportation improvements, a tax that is not collected in Hampton Roads.



Virginia had the 41<sup>st</sup> highest statewide average taxes and fees collected on each gallon of unleaded gasoline among the 50 states and the District of Columbia as of January 1, 2013. Every state and district that borders Virginia has a higher fuel tax, and the state of North Carolina has a fuel tax that is 18 cents per gallon higher.

Under HB 2313, the statewide gasoline tax will be replaced by a number of tax changes. These changes include a new fuel wholesale tax and an increase in the statewide sales tax as shown below.



## NEW DEVELOPMENTS – HOUSE BILL 2313

The Virginia General Assembly passed a comprehensive long-term transportation funding and reform package in 2013. House Bill (HB) 2313 is expected to raise an additional \$4.3 billion in statewide revenue between FY 2014 and 2019 over previous funding projections. HB 2313 also includes a regional component that is expected to increase funding for roads, bridges, and tunnels in Hampton Roads by an additional \$1.0 billion between FY 2014 and 2018. Key components of HB 2313 include:

### Statewide

- Eliminating the 17.5 cents per gallon gasoline tax.
- Implementing a 3.5% tax on motor fuel at the wholesale level.
- Implementing a 6% tax on diesel at the wholesale level.
- Increasing the share of the sales and use tax that is dedicated to transportation from 0.5% to 0.675%.
- Providing a dedicated funding source for the Mass Transit and Intercity Passenger Rail Fund.
- Increasing the statewide sales and use tax from 5% to 5.3%.
- Increasing the motor vehicle titling tax from 3% to 4.15%.
- Implementing a \$64 fee on alternative fuel vehicles.

### Regional (Hampton Roads)

- Implementing a 2.1% regional tax on the gasoline wholesale price.
- Providing for a 0.7% regional sales tax increase.

# FUEL PRICES

Fuel prices have fluctuated both in Hampton Roads and throughout the country in recent years due to a variety of economic and geopolitical reasons, but, as of early 2013, they are at record highs for that time of year.

As of March 1, 2013, the average cost of a gallon of regular unleaded fuel in Hampton Roads was \$3.62. This is the highest cost for fuel in Hampton Roads on March 1, topping the average cost of \$3.58 one year earlier. Although fuel costs have fluctuated through the years between highs of \$4.00 per gallon in summer 2008 and lows of \$1.50 per gallon in winter 2009, average fuel prices have been above \$3 per gallon in Hampton Roads since February 2011.



FUEL PRICES

Image Source: HRTPO

Fuel prices are slightly lower in Hampton Roads than in other metropolitan areas in Virginia. As of March 1, 2013, fuel prices were five cents per gallon higher in Charlottesville (\$3.67), two cents per gallon higher in Richmond (\$3.64), and the same

## NOTABLE FUEL PRICE TRENDS

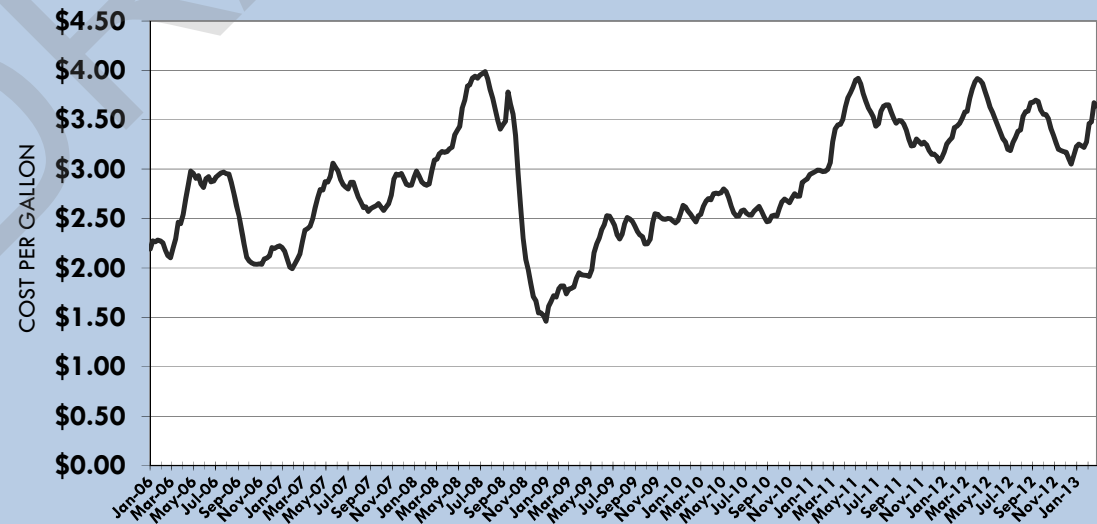


The increase in the cost of a gallon of unleaded fuel in Hampton Roads between March 1, 2006, and March 1, 2013.



The increase in fuel prices in the United States between March 1, 2006, and March 1, 2013, slightly lower than the increase seen in Hampton Roads.

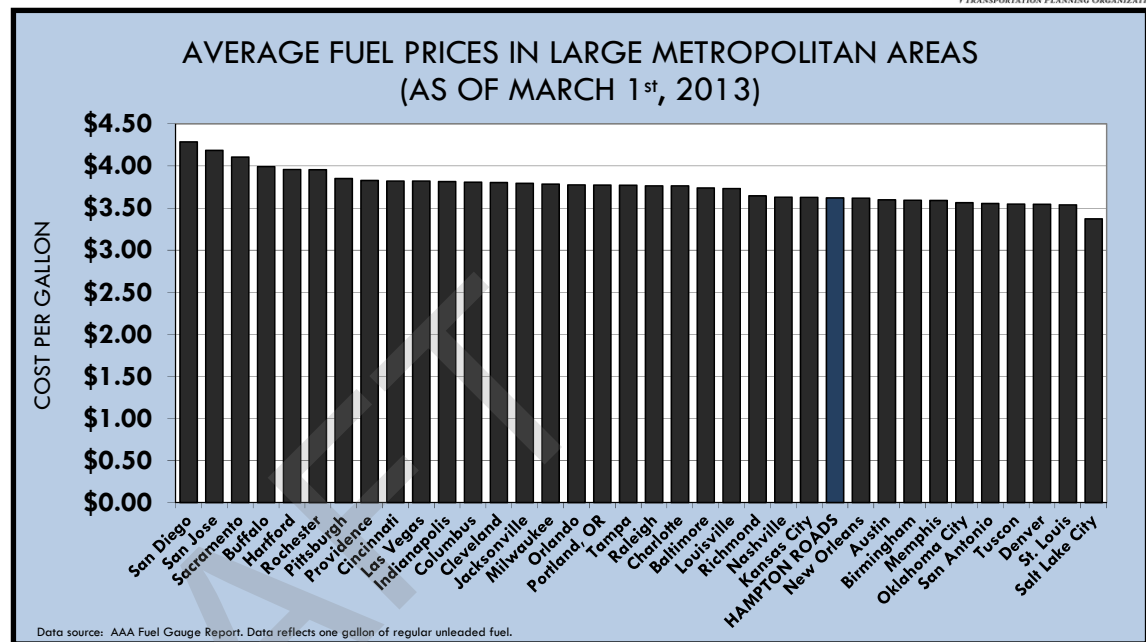
## AVERAGE FUEL PRICES IN HAMPTON ROADS, JANUARY 2006-MARCH 2013



Data source: AAA Fuel Gauge Report. Data reflects one gallon of regular unleaded fuel.

(\$3.62) in Roanoke. Statewide, the average cost of fuel was \$3.67 per gallon on March 1, 2013, five cents higher than in Hampton Roads.

Among the 36 metropolitan areas with a population of one to three million people, Hampton Roads ranked 26<sup>th</sup> highest in terms of average fuel prices as of March 1, 2013. Typically Hampton Roads has lower fuel prices than most comparable large metropolitan areas. On January 1, 2012, Hampton Roads ranked 24<sup>th</sup> highest among large metropolitan areas, and last summer the region also ranked 24<sup>th</sup> highest.

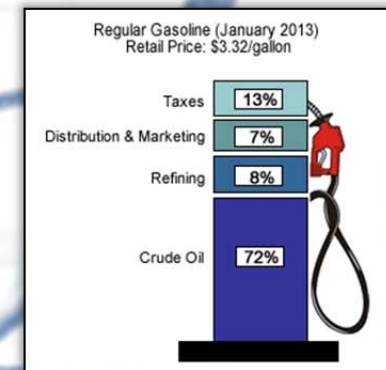


## BEHIND THE NUMBERS

Fuel prices are impacted by a variety of factors. These factors include the costs of crude oil, refining, distribution, marketing, profit, and taxes. As a publicly traded commodity, crude oil prices are driven by market forces. In the case of crude oil, this includes supply and demand (which increases as other nations become more developed), geopolitical influences, speculation, the value of the U.S. dollar, etc.

The blend of gasoline used also impacts the price, and over a dozen different blends of fuel are used throughout the United States. A special reformulated gas is used in Hampton Roads, Richmond, and Northern Virginia to produce lower emissions, while the rest of Virginia uses a cheaper, conventional gas blend.

Taxes are another factor, although higher fuel taxes do not directly correlate to higher fuel costs. For example, North Carolina's fuel tax rate was 18 cents per gallon higher than the rate in Virginia as of March 1, 2013, but the statewide average cost of gas in North Carolina was only 10 cents higher than Virginia on that date.



Source: U.S. Energy Information Administration

# ROADWAY PROJECTS

Despite falling funding levels for roadway construction in recent years, a number of roadway projects have been completed throughout Hampton Roads, and a number of projects are projected to begin construction in the next few years.

These recently completed roadway projects vary greatly in size and type, including constructing new roadways, widening existing roadways, replacing bridges, and smaller projects such as constructing turn lanes or adding traffic signals.

A total of 22 major roadway projects have been completed throughout Hampton Roads since the beginning of 2007. These projects include widening I-64 in Chesapeake, constructing a new interchange at I-264 and London Bridge Road, constructing the new South Norfolk Jordan Bridge, and widening many roadways including sections of Fort Eustis Boulevard, Jefferson Avenue, Lynnhaven Parkway, Virginia Beach Boulevard, Warwick Boulevard, and Witchduck Road.

A few major roadway projects are also currently underway throughout the region. These projects include building a replacement for the Gilmerton Bridge, constructing a new railroad overpass over Hampton Boulevard into Norfolk International Terminals, improving the I-64 ramp at Norview Avenue, widening sections of Princess Anne Road and Wesleyan



## MAJOR ROADWAY PROJECTS COMPLETED IN HAMPTON ROADS, JANUARY 2007-MARCH 2013

Facility	Location	Improvement Type	Completion Date
Birdneck Road	General Booth Blvd to Norfolk Ave	Widen to 4 lanes	2010
Buckner Boulevard	Rosemont Rd and Holland Rd	New 2 lane facility	2010
Commander Shepard Boulevard	North Campus Pkwy to Magruder Blvd	New 4 lane facility	2010
Constitution Drive	Bonney Rd to Columbus St	New 4 lane facility	2010
Convention Center Boulevard	Coliseum Dr to Armistead Ave	New 5 lane facility	2007
Fort Eustis Boulevard	Jefferson Ave to Route 17	Widen to 4 lanes	2012
George Washington Highway	Mill Creek Pkwy to Willowood Dr	Widen to 4 lanes	2012
Greenbrier Pkwy	Volvo Pkwy to Eden Way	Widen to 6 lanes	2009
I-64	Greenbrier Pkwy to I-464	Widen to 8 lanes	2009
I-264	London Bridge Rd	New Interchange	2012
Ironbound Road	Strawberry Plains Rd to Longhill Connector Rd	Widen to 4 lanes	2013
Jefferson Avenue	Buchanan Dr to Green Grove Ln	Widen to 6 lanes	2010
Lynnhaven Pkwy	Holland Rd to South Lynnhaven Rd	Widen to 6 lanes	2010
Nimmo Parkway	Princess Anne Rd to Holland Rd	New 4 lane facility	2012
Princess Anne Road	Witchduck Rd	Intersection Relocation	2012
Route 5	Dresser Bridge over Chickahominy River	Bridge Replacement	2009
South Norfolk Jordan Bridge	Between Portsmouth and Chesapeake	Replace Bridge	2012
Treyburn Drive	Monticello Ave to Ironbound Rd	New 2 lane facility	2007
Virginia Beach Boulevard	Jett St to Military Hwy	Widen to 6 lanes	2010
Volvo/Lynnhaven Parkway	Kempsville Rd to Centerville Tpke	New 4 lane facility	2007
Warwick Boulevard	J Clyde Morris Blvd to Nettles Dr	Widen to 6 lanes	2010
Witchduck Road	Princess Anne Rd to I-264	Widen to 6 lanes	2012

Data obtained from various sources. Includes projects completed as of March 2013.



Drive, and constructing extensions to Commander Shepard Boulevard, Middle Ground Boulevard, and Nimmo Parkway.

A number of roadway projects are programmed for Hampton Roads in upcoming years. These roadway projects are included in VDOT's Six-Year Improvement Program (SYIP) and HRTPO's Transportation Improvement Program (TIP). Examples of major roadway projects that are expected to begin construction in 2013 include the addition of another tube at the Midtown Tunnel, the extension of the MLK Freeway, and the widening of Dominion Boulevard. Examples of major projects expected to begin construction in future years include a new limited-access Route 460, the Intermodal Connector, a replacement for the Lesner Bridge, new sections of Lynnhaven Parkway and Atkinson Boulevard, and widening sections of George Washington Highway, Military Highway, and Witchduck Road.

More information on programmed roadway improvement projects are included in the SYIP and TIP. VDOT's SYIP can be accessed at <http://syip.virginia-dot.org>. HRTPO has developed a website devoted to the TIP (<http://www.hrtpotip.org>) that includes the TIP document, details on every programmed roadway project, an overview of the TIP development process, and an Interactive Project Map.

### PROGRAMMED MAJOR ROADWAY PROJECTS IN HAMPTON ROADS

Facility	Location	Improvement Type	Projected Completion Date
Atkinson Boulevard	Warwick Blvd to Jefferson Ave	New 4 lane facility	2018
Commander Shepard Boulevard	Big Bethel Rd to North Campus Pkwy	New 4 lane facility	2013
Croaker Road	Route 60 to Library	Widen to 4 lanes	2019
Dominion Blvd	Cedar Rd to Great Bridge Blvd	Widen to 4 lanes	2016
George Washington Hwy	Hampton Hwy to Wolf Trap Rd	Widen to 6 lanes	2015
Hampton Boulevard	Railroad into Norfolk International Terminals	New overpass	2013
Holland Road	Nimmo Pkwy to Dam Neck Rd	Widen to 4 lanes	2017
I-64	Norview Ave	Ramp improvement	2013
Indian River Road	Kempsville Rd	Intersection Redesign	2015
Intermodal Connector	I-564 to Naval Station Norfolk/NIT	New 4 lane facility	2018
Lynnhaven Pkwy	Centerville Tpke to Indian River Rd	New 4 lane facility	2016
Middle Ground Boulevard	Jefferson Ave to Warwick Blvd	New 4 lane facility	2014
Midtown Tunnel	Between Portsmouth and Norfolk	Widen to 4 lanes	2018
Military Highway	Gilmerton Bridge	Replace Bridge	2013
Military Highway	Lowery Rd to Northampton Blvd	Widen to 8 lanes	2015
Military Highway	Northampton Blvd/Princess Anne Rd	Intersection Redesign	2018
Military Highway	Northampton Blvd to Robin Hood Rd	Widen to 6 lanes	2015
MLK Freeway	I-264 to High St	New 4 lane facility	2016
Nansemond Parkway	Shoulders Hill Rd to Chesapeake CL	Widen to 4 lanes	2018
Nimmo Parkway	Holland Rd to General Booth Blvd	New 4 lane facility	2014
Portsmouth Blvd	Suffolk CL to Jolliff Rd	Widen to 4 lanes	2018
Princess Anne Road	Dam Neck Rd to Nimmo Pkwy	Widen to 4 lanes	2014
Route 58	Business Route 58 East of Courtland	New interchange	2016
Route 460	I-295 to Suffolk Bypass	New 4 lane facility	2018
Saunders Road	Newport News CL to Big Bethel Rd	Widen to 4 lanes	2015
Seaboard Road	North Landing Rd to Nimmo Pkwy	New 4 lane facility	2014
Shore Drive	Lesner Bridge	Replace Bridge	2016
Skiffes Creek Connector	Pocahontas Trail to Merrimac Trail	New facility	2019
Turnpike Road	Frederick Blvd to County St	Widen to 4 lanes	2017
Wesleyan Drive	Northampton Blvd to Baker Rd	Widen to 4 lanes	2013
Witchduck Road	I-264 to Virginia Beach Blvd	Widen to 6 lanes	2016

Data source: VDOT. Includes major projects expected to begin construction by the end of Fiscal Year 2018.

# TRANSPORTATION OPERATIONS

Managing transportation infrastructure through Transportation Operations is a cost-effective method of maximizing the safety and capacity of the existing roadway network.

The safety, security, and mobility of roadway users in Hampton Roads are enhanced by the active management of the regional transportation system through transportation operations. Transportation operations become more important as funding for new roadway construction decreases and constructing major roadway projects becomes more challenging. Managing the system is done with trained and coordinated manpower and the use of Intelligent Transportation Systems (ITS) technologies. Examples of transportation operations include incident management, coordinating traffic signals, electronic toll collection, and providing traveler information.

Regional transportation operations are led by the VDOT Hampton Roads Transportation Operations Center (TOC). The Hampton Roads TOC monitors traffic conditions throughout the region, maintains and operates ITS infrastructure on the regional Interstate system, manages the Safety Service Patrol which responds to and clears crashes and other types of incidents,



## BEHIND THE NUMBERS

The VDOT Hampton Roads Transportation Operations Center serves as the backbone for transportation operations in the region. Some facts about the regional Transportation Operations Center:

- The Hampton Roads Transportation Operations Center covers 113 miles, nearly the entire regional Interstate system.
- The system includes 276 closed-circuit cameras, 196 dynamic message signs, 6 highway advisory radio transmitters, 5 reversible roadway gate entrances, and hundreds of vehicle detection devices, all linked together by 552 miles of fiber optic cable.
- The Safety Service Patrol drove over 3 million miles, responded to 53,677 incidents, and assisted 11,750 motorists in 2012.
- In 2012, the average time for the Safety Service Patrol to respond to an incident was 8 minutes, and the average clearance time for incidents responded to by the Safety Service Patrol was 23 minutes.



and distributes traveler information via changeable message signs, highway advisory radio, and the 511 Virginia phone and internet services.

Many Hampton Roads jurisdictions also have their own transportation operations centers, including the Cities of Chesapeake, Hampton, Newport News, Norfolk, and Virginia Beach. These centers manage and operate local traffic signal systems, changeable message signs, and CCTV cameras. In some cases, these centers are connected with the Hampton Roads Transportation Operations Center, allowing for data and video sharing and instant communication.



Another service provided to improve roadway mobility is 511 Virginia. Launched in 2005, 511 Virginia provides traveler information via mobile or landline phones, email, text message, smartphone application, and <http://511virginia.org>. The 511

## ITS TECHNOLOGIES USED IN HAMPTON ROADS

Hampton Roads has been a national leader in the use of Intelligent Transportation Systems (ITS). Nearly every mile of Interstate in the region is instrumented with ITS technologies, and various cities throughout the region maintain ITS infrastructure as well. The following are examples of ITS technologies in use throughout Hampton Roads:



### Transportation Operations Centers

Centers that incorporate various ITS technologies to assist staff with traffic monitoring, incident response, and information dissemination.

### Vehicle Detection Devices

Records traffic volumes and speeds. Also notifies transportation operations center staff of congestion and incidents.



### Reversible Roadway Gates

Allows traffic on limited access roadways to be reversed based on commuting patterns, maximizing the use of the existing roadway.

### Emergency Vehicle Signal Preemption

Changes the traffic signal when emergency vehicles approach, improving the safety and response time of emergency vehicles.



### Advanced Signal Systems

Improves the coordination and timing of traffic signals in a corridor or throughout an entire city, reducing the number of stops and delays.



### CCTV Cameras

Provides roadway images to transportation operations centers and the public.

### Electronic Toll Collection

Allows travelers to pass quickly through special lanes, avoiding backups and delays due to paying tolls.



### 511 Virginia

Provides up-to-date traveler information via telephone, the internet, and other methods.

### Transit Automatic Vehicle Location (AVL)

Provides the location of transit vehicles, aiding on-time performance.



### Changeable Message Signs

Provides up-to-date information to the traveling public.

### Highway Advisory Radio

Provides up-to-date traveler information through radio broadcasts on 1680 AM.



Virginia service allows users to receive real-time traffic and roadway condition information for specific locations both in Hampton Roads and throughout the state.

Regional transportation operations planning and coordination is conducted through multiple committees including the Hampton Roads Transportation Operations (HRTO) Subcommittee. The HRTO Subcommittee meets bimonthly to facilitate peer-to-peer information sharing and to advise the HRTPO Transportation Technical Advisory Committee on transportation operations issues. The subcommittee is comprised of transportation professionals from Hampton Roads jurisdictions, VDOT, local transit agencies, the Virginia Port Authority, and other invited participants, such as local police and fire/EMS personnel. More information on this subcommittee and regional transportation operations efforts is available at <http://hrtpo.org/page/operations-and-its>.



SAFETY SERVICE PATROL

Image Source: VDOT

## NEW DEVELOPMENTS

**Reach the Beach** – In May 2012, VDOT began displaying travel times on six informational signs in Hampton Roads that notify motorists of the quickest route to the Virginia Beach Oceanfront or the North Carolina Outer Banks. Travel times on these signs are updated in real-time based on data collected from roadway sensors and GPS data analyzed by Inrix.



**511 Virginia App** – VDOT introduced the 511 Virginia smartphone application in May 2012. The app, which works on Android and iPhone platforms, is designed to provide the same real time traffic information concerning incidents and construction that is provided on the website on mobile devices. Real-time traffic camera images are also provided on the app.

**Integrating Transportation Operations Centers** – In July 2012, VDOT issued a Request for Proposals seeking private sector competition to operate, integrate, and innovate the five TOCs throughout the state. This effort is expected to improve the interoperability of each center, develop a new software platform that is flexible for future enhancements, develop consistent standard operating procedures, and provide performance-based management of the TOCs. VDOT plans to award a contract for this effort in Spring 2013.

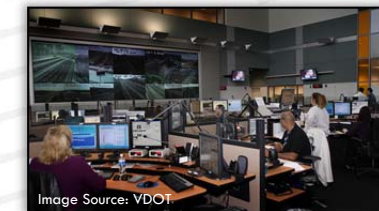


Image Source: VDOT

Air quality in Hampton Roads is impacted by the automobiles, trucks, trains, and ships that travel around the region. Although the air quality of Hampton Roads has improved, the impact of transportation on regional air quality must be accounted for in the planning process.

The Environmental Protection Agency (EPA) regulates the amount of airborne pollutants in each region. These airborne pollutants come from a variety of stationary sources such as factories and power plants, and mobile sources such as passenger cars, trucks, trains, and ships.

Since mobile sources contribute to these airborne pollutant levels, meeting mandates included in the Clean Air Act is required in the metropolitan transportation planning process. Regional plans such as the Hampton Roads Transportation Improvement Program (TIP) and the Long Range Transportation Plan (LRTP) must be tested to insure that they conform with emissions budgets.

Ground-level ozone and other pollutants are measured in Hampton Roads at three ambient air quality stations maintained and monitored by the Virginia Department of Environmental Quality (DEQ). These stations are located in Downtown Hampton, the Holland community in Suffolk, and the Tidewater Community College campus site in Northern Suffolk.

Each metropolitan area is designated as being in attainment or non-attainment of federal ozone air quality standards based on the amount of ground-level ozone recorded at monitoring stations. EPA determines these designations based on an eight-

## NOTABLE AIR QUALITY TRENDS

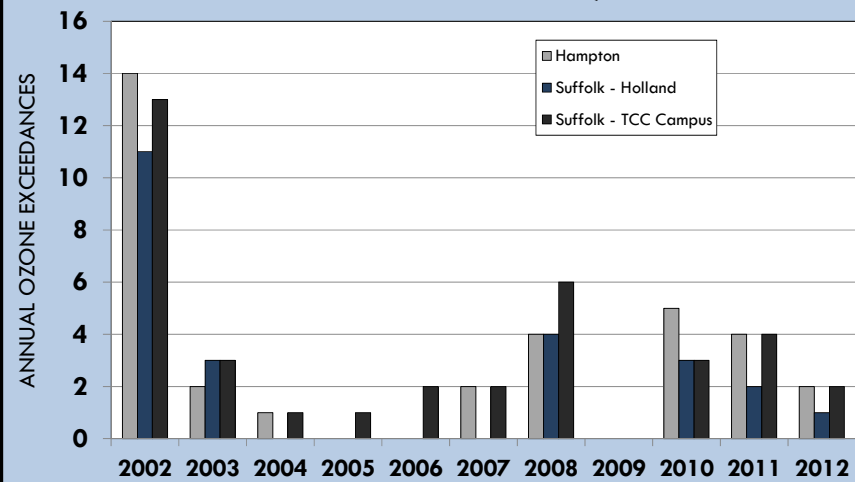


The decrease in the percentage of days with Air Quality Index (AQI) values above 100 in Hampton Roads between the start of last decade (2000-2002) and the most recent data (2008-2010).



The average decrease in the fourth-highest daily maximum 8-hour ozone levels at Hampton Roads three ambient air quality monitoring stations between 2002 and 2011.

## EIGHT HOUR OZONE EXCEEDANCES AT REGIONAL AIR QUALITY MONITORING STATIONS, 2002-2012



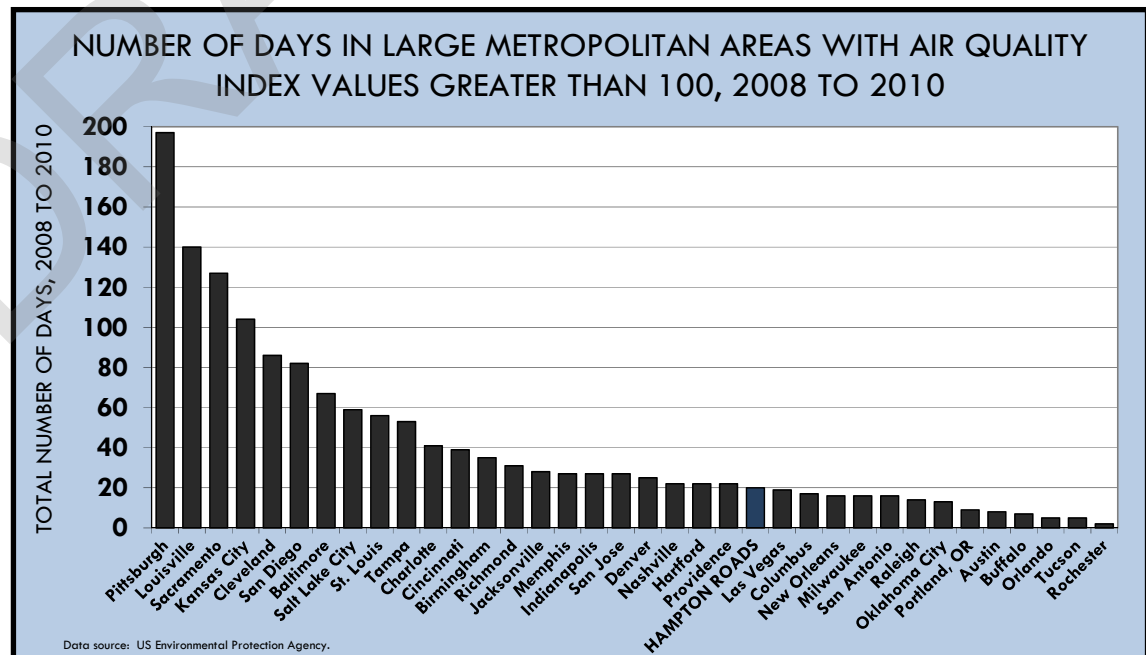
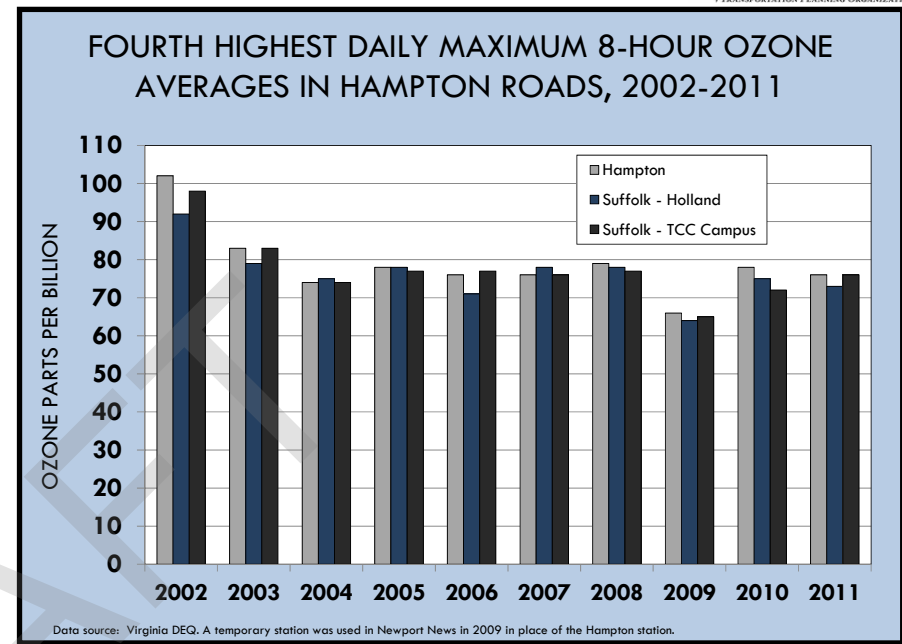
Data source: Virginia DEQ. 2012 data is unofficial. In 2008, the ozone exceedance standard was reduced from greater than 84 parts per billion to greater than 75 parts per billion.

hour standard, under which violations are determined using the fourth-highest daily maximum eight-hour average ozone concentration over the course of the year, averaged over a three-year period.

Through the years Hampton Roads has alternated between being designated as “in attainment” and “non-attainment”. On July 1, 2007, the region was redesignated as an ozone attainment area based on the eight-hour standard, a designation it continues to maintain.

Prior to 2008, regions were classified as non-attainment if the fourth-highest eight-hour ozone averages were greater than 84 parts per billion (ppb) at any of the regional monitoring stations over a three-year period. This standard was lowered to 75 ppb in 2008. In Hampton Roads, the 2009-2011 three-year ozone averages at the three monitoring stations were between 70 and 73 ppb, all below the 75 ppb threshold.

The air quality in Hampton Roads is better than the air quality in many other comparable metropolitan areas according to EPA data. Hampton Roads had a total of 20 days between 2008 and 2010 with Air Quality Index (AQI) values greater than 100, the level at which people in sensitive groups may begin experiencing impacts to their health. This ranked Hampton Roads 23<sup>rd</sup> highest among the 36 large metropolitan areas. By comparison, Hampton Roads experienced 72 such days between 2000 and 2002.

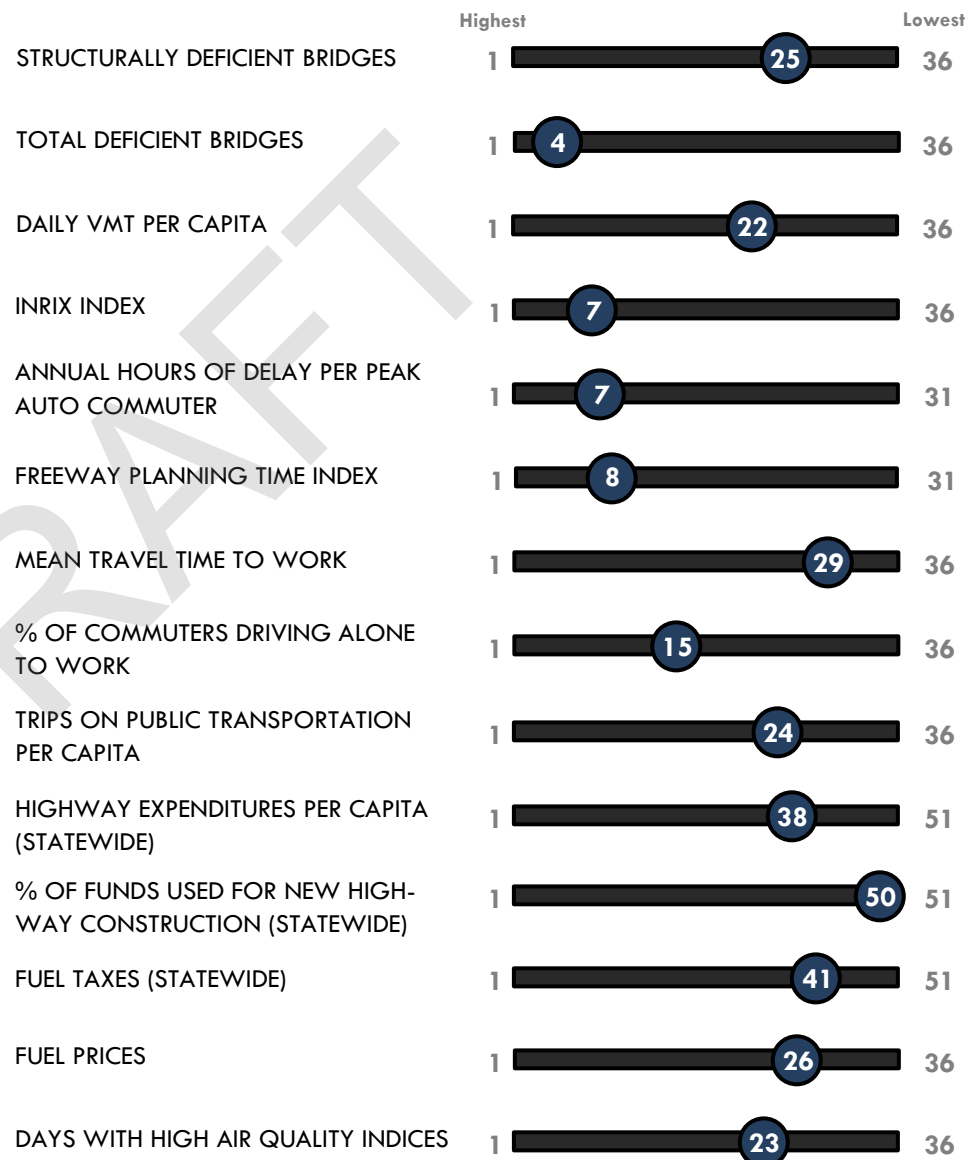


# NATIONAL RANKING SUMMARY

In many sections of this report, Hampton Roads is compared to other large metropolitan areas throughout the United States with populations between one and three million people. Many of these 35 other metropolitan areas have similar transportation issues to the Hampton Roads area, from congestion to funding shortfalls.

The figure to the right summarizes where Hampton Roads ranks in various transportation measures compared to the other large metropolitan areas, or in some cases where Virginia ranks compared to other states, based on the most recent data available.

## HAMPTON ROADS CURRENT RANK AMONG LARGE METROPOLITAN AREAS



# REGIONAL PERFORMANCE MEASURES

Hampton Roads has entered a new chapter in performance measurement for transportation. Although the HRTPO has been measuring the performance of the regional transportation system for years via the State of Transportation reports, the HRTPO now also prepares a standard set of regional performance measures according to a process led by the state.

In 2009, the General Assembly of Virginia passed legislation codifying regional transportation performance measurement. In response to the legislation, the HRTPO staff, in cooperation with other Virginia metropolitan areas and Virginia's Office of Intermodal Planning and Investment (OIPI), developed a list of regional performance measures (RPM). The HRTPO Board approved this list on January 20, 2011 and the Commonwealth Transportation Board (CTB) approved it (along with lists from other large Virginia areas) in June 2011.

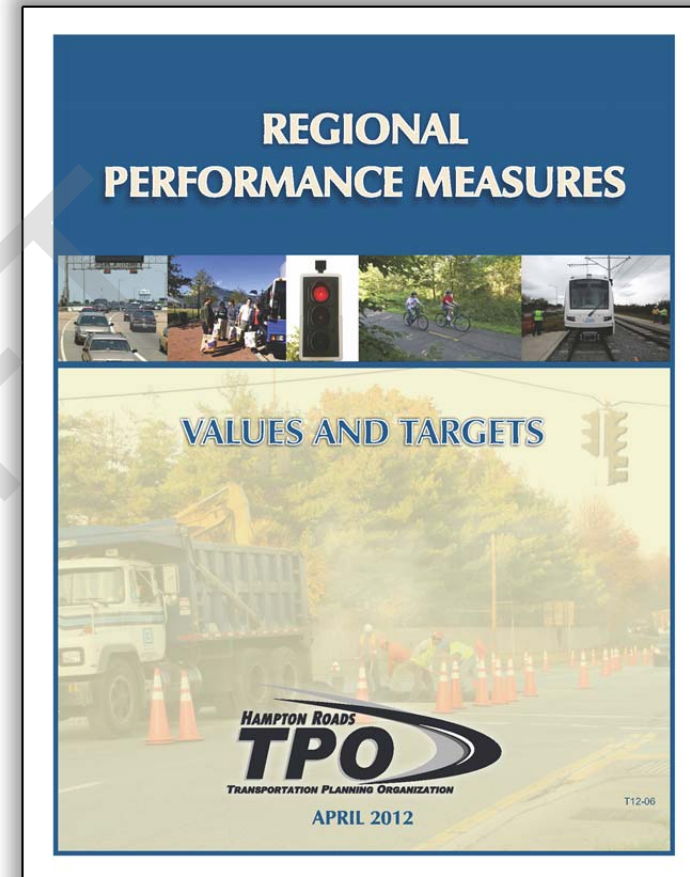
The HRTPO list contains the following categories of measures:

- Congestion reduction
- Safety
- Transit usage
- HOV usage
- Jobs-to-housing balance
- Access to transit
- Access to pedestrian facilities
- Air quality
- Movement of freight
- Vehicle Miles of Travel (VMT)
- Maintenance
- Financial system

In April 2012, the HRTPO Board approved a set of targets for its Regional Performance Measures. Lacking a basis for setting numerical targets, the HRTPO, with the approval of the Transportation Technical Advisory Committee's RPM Task Force, decided to set trend targets, based on the following options:

- ➔ goal: maintain value
- ➔ goal: increase value
- ➔ goal: decrease value

The Regional Performance Measures – Values and Targets report is available at <http://hrtpo.org/page/technical-reports-and-data>.





# ADDITIONAL INFORMATION

The information provided in this report was compiled from a variety of sources, most of which are easily accessible via the internet. Data from the following sources were included in this report and can be accessed for additional information:

**Air Travel** – The Federal Aviation Administration (FAA) updates air passenger data for both the nation and individual airports at <http://www.faa.gov>. Passenger data is also provided by each of the Hampton Roads airports at <http://www.norfolkairport.com> and <http://www.nnwairport.com>.

**Port Data** – The Virginia Port Authority maintains up-to-date statistics regarding the Port of Virginia on their website <http://www.portofvirginia.com>. The Virginia Maritime Association also releases the Port of Hampton Roads Annual Report, which contains extensive information regarding all aspects of the port. Their website is <http://www.vamaritime.com>.

**Rail Travel** – Amtrak maintains a list of passenger volumes by station at their website <http://www.amtrak.com>. Hampton Roads Transit publishes light rail passenger levels on their website <http://www.gohrt.com>. Information regarding high speed rail and other rail improvements throughout Virginia is available at <http://www.drpt.virginia.gov>.

**Bridges** – VDOT maintains information on their website regarding most bridges throughout Virginia. This information is available at <http://www.virginiadot.org/info/Bridge.asp>.

**Pavement Condition** – VDOT releases pavement condition data on an annual basis as part of the State of the Pavement report. This report is available at [http://virginiadot.org/info/state\\_of\\_the\\_pavement.asp](http://virginiadot.org/info/state_of_the_pavement.asp).

**Roadway Usage** – The Highway Statistics Series contains data on motor fuel, motor vehicles, driver licensing, highway finance, highway mileage, and federal aid for highways. The reports are released annually by the Federal Highway Administration and are located at <http://www.fhwa.dot.gov/policyinformation/index.cfm>.

VDOT also releases roadway usage data on an annual basis for every Virginia jurisdiction. This data is available at <http://www.virginiadot.org/info/ct-TrafficCounts.asp>.

**Congestion** – Inrix, Inc. collects congestion data for the 100 largest metropolitan areas across the country. This congestion data is available at <http://scorecard.inrix.com/scorecard>.

The Texas Transportation Institute (TTI) at Texas A&M University releases the Urban Mobility Report, a study of mobility and traffic congestion on freeways and major streets in urbanized areas. The report is located at <http://mobility.tamu.edu>.

**Commuting** – The Bureau of the Census annually collects and distributes socioeconomic data via the American Community Survey (ACS). The ACS includes commuting characteristics data for each city and region. Data from the American Community Survey is available at <http://www.census.gov/acs>.

**Roadway Safety** – The Virginia Department of Motor Vehicles (DMV) annually releases the Virginia Traffic Crash Facts document, which is a comprehensive overview of traffic crashes occurring throughout Virginia. The DMV also maintains a crash query tool on their website. The document and crash query tool are located at [http://dmvnow.com/webdoc/safety/crash\\_data/index.asp](http://dmvnow.com/webdoc/safety/crash_data/index.asp).

**Public Transportation** – The Federal Transit Administration collects and disseminates data on public transportation via the National Transit Database (NTD) program. The National Transit Database is located at <http://www.ntdprogram.gov>. The American Public Transportation Association also includes transit data on their website at <http://www.apta.com>.

**Bike and Pedestrian Facilities** – A wide variety of information regarding bicycling and walking in Virginia is provided on VDOT's website at <http://www.virginiadot.org/programs/bk-default.asp>. The DMV also maintains bicyclist and pedestrian crash data at [http://dmvnow.com/webdoc/safety/crash\\_data/index.asp](http://dmvnow.com/webdoc/safety/crash_data/index.asp).

**Transportation Financing** – Information regarding transportation financing in Virginia is available at <http://www.virginiadot.org> and <http://www.ctb.virginia.gov>. A list of fuel taxes and fees by state is available on the American Petroleum Institute website <http://www.api.org>.

**Fuel Prices** – National, statewide, and regional fuel prices are available via the AAA's Fuel Gauge Report website <http://www.fuelgagereport.com>.

**Roadway Projects** – Information regarding transportation projects in Virginia's Six-Year Improvement Program is available at <http://syip.virginiadot.org>. HRTPO maintains the regional Transportation Improvement Program, which can be accessed at <http://www.hrtpotip.org>.

**Transportation Operations** – VDOT maintains ITS infrastructure and manages traffic on the regional freeway system. More information is available at <http://www.virginiadot.org>. Information detailing HRTPO's Transportation Operations planning efforts, including the Hampton Roads Transportation Operations Committee, is located at <http://hrtpo.org/page/operations-and-its>.

**Air Quality** – Virginia's Department of Environmental Quality maintains information regarding national air quality standards and regional air quality data. Their website is <http://www.deq.state.va.us>. Air Quality Index information is available from the Environmental Protection Agency's website at [http://www.epa.gov/airtrends/air\\_info.html](http://www.epa.gov/airtrends/air_info.html).

For additional information regarding this report, previous Congestion Management Process studies, or other transportation questions or concerns, please contact the Hampton Roads Transportation Planning Organization (TPO):

Hampton Roads Transportation Planning Organization  
723 Woodlake Drive  
Chesapeake, Virginia 23320  
757.420.8300  
<http://www.hrtpo.org>