

The State of Transportation in Hampton Roads 2017



T17-15

OCTOBER 2017

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THE STATE OF TRANSPORTATION IN HAMPTON ROADS 2017

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ABSTRACT

This annual 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 Performance Management effort.

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

ACKNOWLEDGMENTS

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

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I-64 CONSTRUCTION AT ROUTE 199

Image Source: VDOT.



Largely due to the advent of the Hampton Roads Transportation Fund, a number of major improvements to the Hampton Roads roadway network are underway, with more landmark projects coming in the near future.

Everywhere you look in Hampton Roads, it seems like there is roadway construction underway. This is largely due to landmark legislation passed by the Virginia General Assembly that comprehensively overhauled the way Virginia funds its transportation system. In addition to many statewide changes, House Bill 2313 created a regional transportation funding mechanism – the Hampton Roads Transportation Fund (HRTF) – for the construction of major roadway and bridge projects.

The Virginia General Assembly created the Hampton Roads Transportation Accountability Commission (HRTAC) to manage HRTF funds. Construction is underway on two [Regional Priority Projects](#) that are being at least partially funded by HRTAC with HRTF funds – Phases I & II of I-64 widening on the Peninsula and Phase I of improving the I-64/I-264 interchange in Norfolk and Virginia Beach. By 2024 it is expected that widening of the Hampton Roads Bridge-Tunnel, widening I-64 in Chesapeake (including the High Rise Bridge) to six lanes, constructing all three phases of I-64 on the Peninsula up to Route 199 in Lightfoot, and constructing Phases I & II of the I-64/I-264 interchange will all be complete. Additional projects will be funded via the HRTF in future years, including further widening of I-64 in Chesapeake, upgrading Route 460/58/13 to interstate standards, and improvements in the Bowers Hill area.



There are many other major roadway projects that have recently been completed. The MLK Extension and the new westbound Midtown Tunnel tube opened to traffic in 2016. Upgrades to the Dominion Boulevard corridor in Chesapeake, including the new fixed-span Veterans Bridge, also opened in late 2016. Other major projects are also underway such as the Intermodal Connector in Norfolk, the replacement of the Lesner Bridge in Virginia Beach, Military Highway widening and intersection improvements in Norfolk, and the addition of a parallel tube at the Chesapeake Bay Bridge-Tunnel.

Changes are not limited to the highway network. There are millions of dollars of improvements underway at the region's airports, port terminals, and multi-modal stations.



However, even with all of this roadway construction in Hampton Roads, there continue to be challenges. Funding levels – particularly HRTF funds – have been lower than anticipated in recent years due to lower fuel prices. In spite of the HRTF funds, many important transportation projects have no funding identified. The 2040 Hampton Roads Long-Range Transportation Plan identified \$40 billion in candidate projects, but less than \$13 billion is projected to be available. Funding for maintenance will need to increase as transportation infrastructure continues to age. And roadway congestion will continue to be prevalent in many areas of the region.

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, congestion, commuting characteristics, roadway safety, truck data, transit usage, active transportation, transportation financing, transportation operations, and air quality.

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 Hampton Roads Congestion Management Process report includes a comprehensive congestion analysis of the region's highway system, identification of the most congested corridors and areas of Hampton Roads, and congestion management strategies. This report and all other CMP documents are



available on HRTPO's website at

<http://www.hrtpo.org/page/congestion-management>.

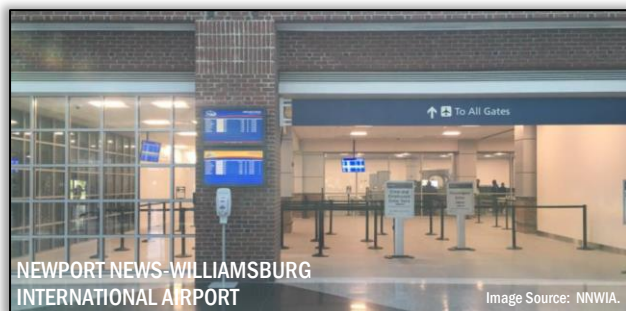
This report is also produced as part of HRTPO's Performance Management effort. In 2009, the Virginia General Assembly passed legislation codifying regional transportation performance measurement and in response, HRTPO staff developed a list of regional performance measures. For the first time these regional performance measures are included in this State of Transportation report. New federal requirements also mandate that states and metropolitan areas use performance measures and set targets in areas such as pavement and bridge condition, congestion levels, and safety. More information on HRTPO's Performance Management effort is available at the end of this report and on HRTPO's website at

<http://www.hrtpo.org/page/performance-management>.



After a decade of decreases, passenger levels and airline capacity began to increase at Hampton Roads airports in 2016. This growth is expected to continue as service to the region increases in 2017.

The number of passengers using commercial air service in Hampton Roads has decreased since reaching a peak in 2005, but passenger levels increased at Hampton Roads airports in 2016 for the first time in a decade. A total of 1.8 million passengers boarded flights at the two commercial service airports in Hampton Roads, Norfolk International Airport and Newport News-Williamsburg International Airport, in 2016. The number of passengers using the region's airports increased by 4% in 2016 but is down by 590,000 passengers (-25%) over the last decade.



The decrease in passenger levels over the last decade was much larger at Newport News-Williamsburg International Airport (-61%) than at Norfolk International (-14%). This is primarily due to the departure of the dominant carrier, AirTran Airways, from the airport in 2012. In addition, Allegiant Air, Frontier Airlines, and People Express have discontinued service from Newport News-Williamsburg in recent years.

NOTABLE AIR TRAVEL NUMBERS

25%

The decrease in the number of passengers that used Hampton Roads airports between 2007 and 2016.

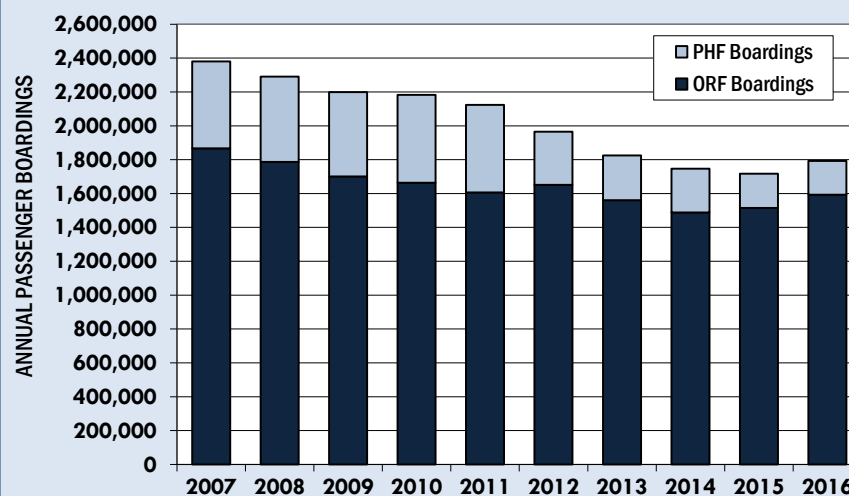
40%

The decrease in capacity (in terms of available seat-miles) at Hampton Roads airports between 2007 and 2016.

39%

The increase in average airfare at Norfolk International Airport between 2007 and 2016. At Newport News-Williamsburg International Airport, the average airfare increase was 89%.

ANNUAL PASSENGER BOARDINGS AT HAMPTON ROADS AIRPORTS, 2007-2016



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.



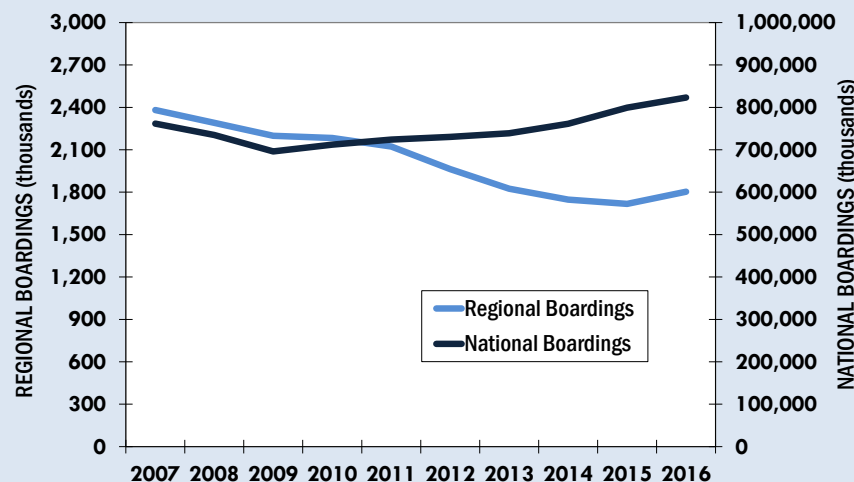
While passenger levels at Hampton Roads airports decreased by 25% over the last decade, passenger levels at Richmond International Airport were nearly flat, and nationally, passenger levels increased by 9% between 2007 and 2016.



Airfares at Hampton Roads airports have largely followed an inverse pattern to passenger levels, with increases over most of the last decade before decreasing in recent years. In 2007, average airfares at Norfolk International Airport were \$345, which was about \$30 higher than the national average. At Newport News-Williamsburg International Airport, airfares (\$273) were well below the national average, driven by low-cost carrier service. By the end of 2016, the average airfare at Norfolk International Airport had increased 39% to \$423, and 89% at Newport News-Williamsburg International Airport to \$475. Both were well above the national average airfare of \$347. However, average airfares decreased by \$40 at Norfolk International between the end of 2014 and 2016 and were largely flat at Newport News-Williamsburg.

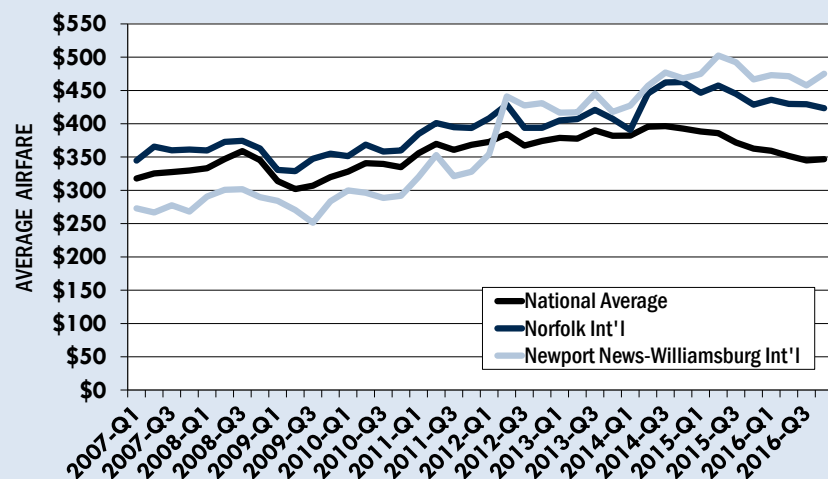
It should be noted that these airfares only reflect the costs associated with ticket fares and do not include additional fees

ANNUAL PASSENGER BOARDINGS AT HAMPTON ROADS AND NATIONAL AIRPORTS, 2007-2016



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.

AVERAGE AIRFARES FOR HAMPTON ROADS AND NATIONAL AIRPORTS, 2007-2016



Data source: Bureau of Transportation Statistics. Average fares are based on domestic itinerary fares consisting of round-trip fares unless the customer does not purchase a return trip, in which case the one-way fare is included. Fares are based on the total ticket value (including any additional taxes and fees) and do not include other fees (such as baggage fees) paid at the airport or onboard the aircraft.

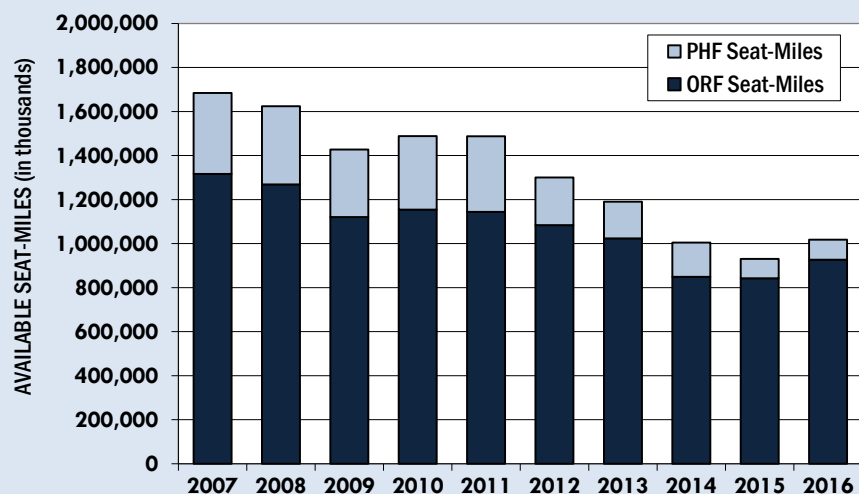


that have expanded in recent years for checked baggage, seat assignments, ticket changes, early check-in, etc.

The number of flights departing from Hampton Roads airports has greatly decreased. As of March 2017, a total of 75 commercial flights depart from Hampton Roads airports each day. This compares to 83 flights each day in March 2014, 110 flights each day in 2010, and 130 each day in 2006.

This decrease in the number of flights from Hampton Roads airports over the last decade has resulted in a decrease in the number of available seat-miles, a common method of measuring an airport's person-carrying capacity. There were just over one billion seat-miles available on flights departing Hampton Roads in 2016, down 40% from 1.7 billion in 2007. However, the load factors (which are passenger-miles as a

ANNUAL AVAILABLE SEAT-MILES AT HAMPTON ROADS AIRPORTS, 2007-2016



Data source: Bureau of Transportation Statistics. Available seat-miles is a common method of measuring an airport's person-carrying capacity and is equal to the number of seats available multiplied by the number of miles flown.

BEHIND THE NUMBERS

Although passenger levels began to rebound in 2016, the decrease in passengers at Hampton Roads airports over the last decade have been caused by a number of factors. While some causes such as government sequestration are region-specific, most are a symptom of the state of the airline industry, particularly resulting from consolidation. Ten years ago there were nine airlines that controlled about 70% of the market share throughout the country. By 2016, four airlines controlled the same share of the market. These consolidations have greatly impacted air travel in Hampton Roads, as shown by the decrease in flights, nonstop markets, and available seat-miles.

However, the issues impacting passenger and service levels in Hampton Roads are not unique to the area. Passenger levels decreased by over 4% at the 102 airports classified as "small" or "medium" by the FAA (which includes Norfolk International) between 2007 and 2016, whereas levels at "large" airports increased by 14%. Twenty-nine of these 102 airports had a larger percentage decrease in passengers than Norfolk International.

Capacity has also decreased at non-hub airports. While the number of available domestic seat-miles increased 8% at "large" hub airports between 2007 and 2016, capacity at "small" and "medium" airports decreased by 5%.

Fortunately, the increases in Hampton Roads over the last year have outpaced similar airports. Of the 102 "small" and "medium" airports, Norfolk International had the 37th largest passenger growth percentage and 28th largest capacity growth percentage between 2015 and 2016.



proportion of available seat-miles) at both Norfolk International (80.6% in 2016) and Newport News-Williamsburg International (79.1%), while below 2015 levels, are still much higher than the load factors seen a decade before.

The 75 flights that depart Hampton Roads airports each day serve a total of 17 airports in 13 markets. Norfolk International Airport has nonstop flights serving those 17 airports in 13 markets, while 3 airports/markets are served nonstop from Newport News-Williamsburg International Airport.

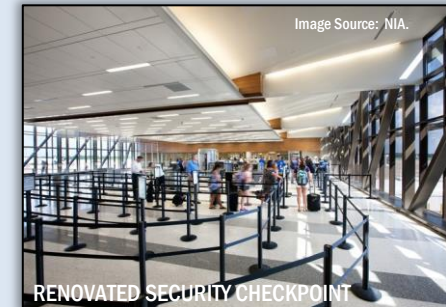
Since 2010, a number of markets have lost nonstop service from Hampton Roads airports. These markets include Cincinnati, Cleveland, Jacksonville, Las Vegas, Nashville, and Tampa. Many of these markets served as hubs for airlines that have reduced service through consolidation in the airline industry.

The most popular final destination for passengers using Hampton Roads airports in 2016 was Atlanta, with a total of 156,800 passengers traveling either to or from Atlanta. There was a large increase in the numbers of passengers on this route, with 23,000 more passengers traveling between Hampton Roads and Atlanta in

NEW DEVELOPMENTS

Airport Improvements – Major terminal renovations continue at Norfolk International Airport. Recently completed renovations include the lobby atrium area, concourses, restrooms, and security checkpoints.

Renovations that are currently underway include expanding additional restrooms, relocating ticketing areas, upgrading and refreshing branding for retail storefronts, and replacing many of the dining options with more emphasis on healthy and local selections. These renovations should be completed throughout 2017.



At Newport News-Williamsburg International Airport, a new security checkpoint area was recently completed. The new security area consolidates the original two security checkpoints (which each only had one lane) into one centralized checkpoint with three lanes.

New Service – Allegiant Air announced that they will begin providing service between Norfolk and destinations in Florida. Twice-a-week service will begin to Tampa/St. Petersburg on October 4th, 2017, and to Orlando/Sanford and Fort Lauderdale on November 17th, 2017.

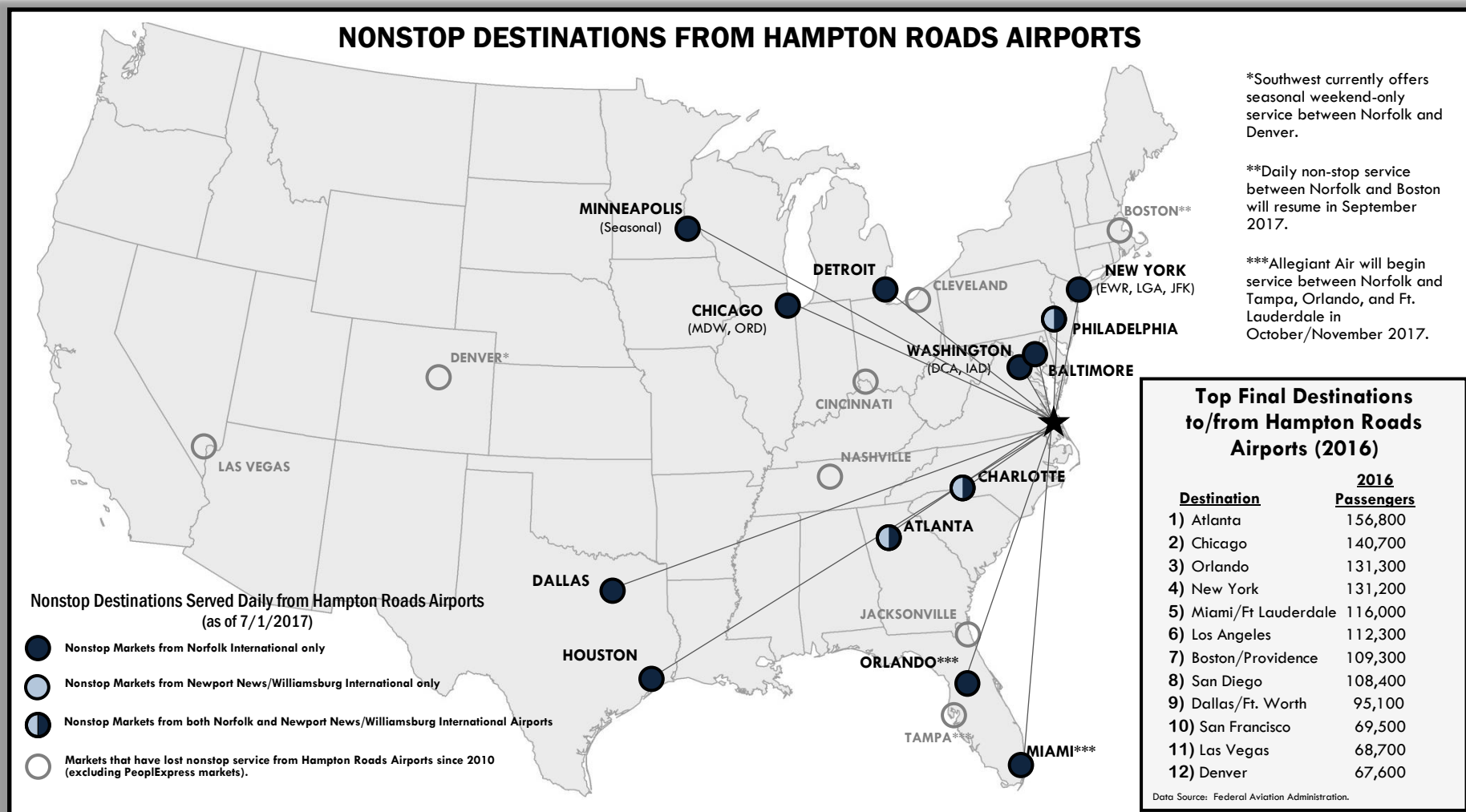
In addition, Delta announced new daily nonstop service between Norfolk and Boston. This service will begin on September 10th, 2017.





2016 than in 2015. The second most popular final destination from Hampton Roads airports in 2016 was Chicago with 140,700 passengers, and the third most popular final destination was Orlando with 131,300 passengers.

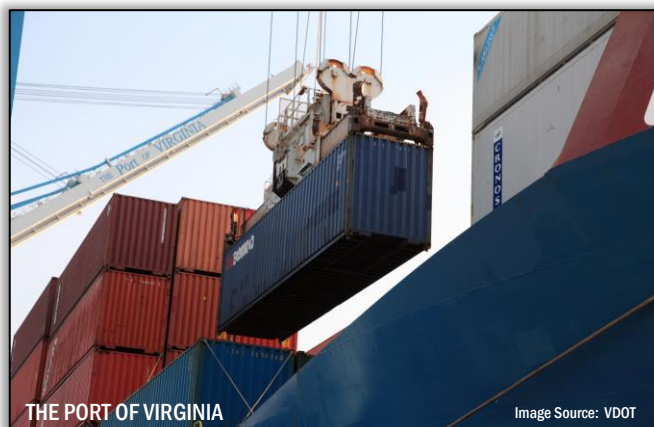
Of the top twelve markets for Hampton Roads air travelers, five (Los Angeles, Boston, San Diego, San Francisco, and Las Vegas) were not served by any nonstop service from Hampton Roads airports as of July 2017, although daily service will resume to Boston in September 2017.





Cargo levels handled by the Port of Virginia reached record levels again in 2016, with larger ships calling at the port. This growth provides a boost to both the regional and statewide economies.

The Port of Virginia is comprised of four facilities in Hampton Roads: Norfolk International Terminals (NIT), Newport News Marine Terminal (NNMT), Portsmouth Marine Terminal (PMT), and the Virginia International Gateway (VIG) facility. The Virginia Port Authority also manages the Port of Richmond and operates 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.



Over 22 million tons of coal was shipped through the region in 2016. Although this makes Hampton Roads the largest exporter of coal in the country, the amount of coal shipped through Hampton Roads has greatly decreased in recent years, down from 42 million tons in 2014 and 51 million tons in 2013. The amount of coal handled in the region, however, has shown increases throughout 2017.

NOTABLE PORT DATA NUMBERS

▲
18%

The increase in general cargo tonnage handled by the Port of Virginia between 2007 and 2016.

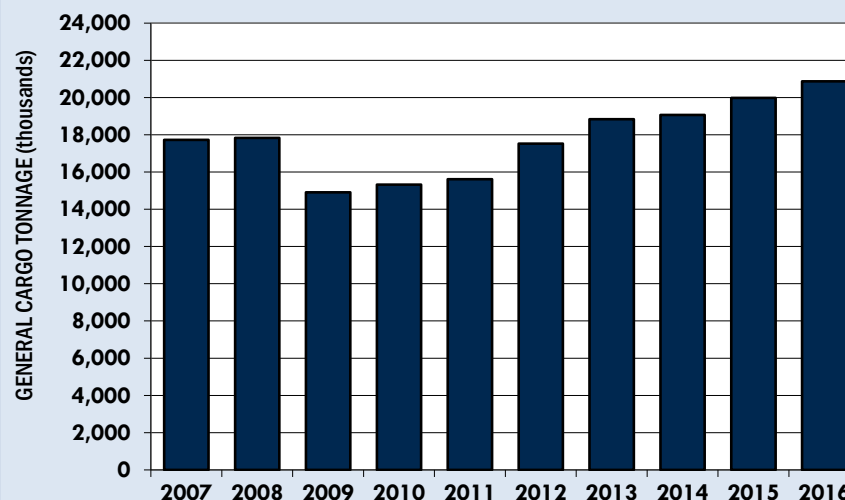
▼
56%

The decrease in the amount of coal shipped through Hampton Roads from 2013 to 2016.

3rd

The rank of the Port of Virginia among East Coast ports in the volume of containerized cargo handled in 2016. Nationally, the Port of Virginia ranked 6th highest.

GENERAL CARGO TONNAGE HANDLED BY THE PORT OF VIRGINIA, 2007-2016



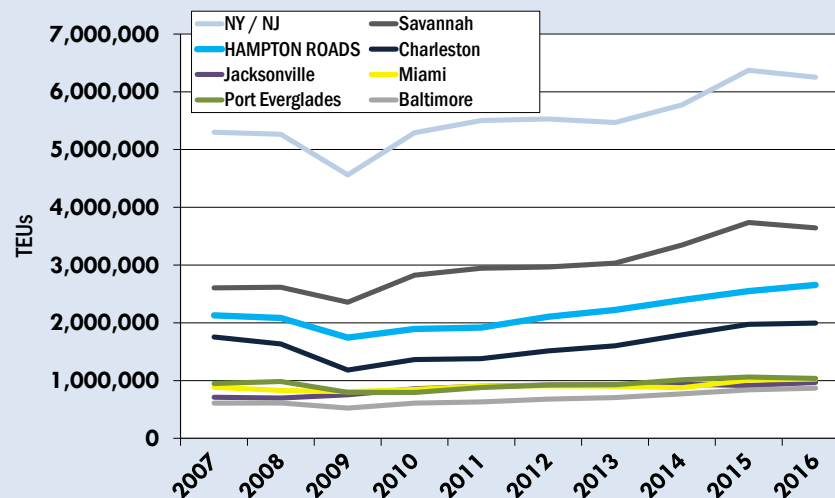
Data source: Virginia Port Authority. Data does not include Virginia Inland Port tonnage.



Nearly 21 million tons of general cargo, primarily transported in containers, was handled by the Port of Virginia in 2016, a record for the Port. The amount of general cargo handled by the Port of Virginia increased 18% between 2007 and 2016, with a 40% increase occurring from the levels seen during the peak of the recession in 2009.

The maritime industry also measures containerized cargo using a standard called “20-foot container equivalent units”, or TEUs. The Port of Virginia handled 2.65 million TEUs in 2016. This is up 25% from 2.13 million TEUs handled in 2007. The Port of Virginia ranked third highest among East Coast ports in the volume (in terms of TEUs) of containerized cargo handled in 2016, and sixth highest among all U.S. ports.

GENERAL CARGO (in TEUs) HANDLED AT TOP EAST COAST PORTS, 2007-2016



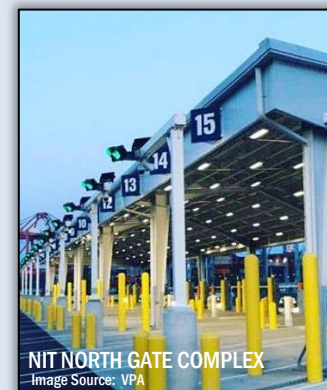
Data sources: American Association of Port Authorities, various port facilities. TEUs are twenty-foot container equivalent units, a common method of measuring freight.

NEW DEVELOPMENTS

Larger Ships – The Port of Virginia has seen much larger ships arrive in recent years, largely due to the expansion of the Panama Canal. In July 2016 the first ship with a capacity of 10,000 TEUs arrived at the port. A few months later in May 2017, the Cosco Development – with a capacity of 13,000 TEUs – arrived at the Port of Virginia. These larger ships lead to more surges in freight, which must be handled both at the Port and throughout the regional transportation system.

Capital Improvements – A number of major projects are underway at the Port of Virginia facilities. These improvements include:

- **NIT North Gate** – In June 2017, the new NIT North Gate complex opened. The new 26-lane semi-automated gate complex will ultimately connect with the Intermodal Connector, which is currently under construction.
- Multiple improvements at NIT that will allow the facility to handle 700,000 more TEUs annually.
- Phase II Expansion of the Virginia International Gateway complex, which will allow it to handle over one million more TEUs annually.



NIT NORTH GATE COMPLEX
Image Source: VPA

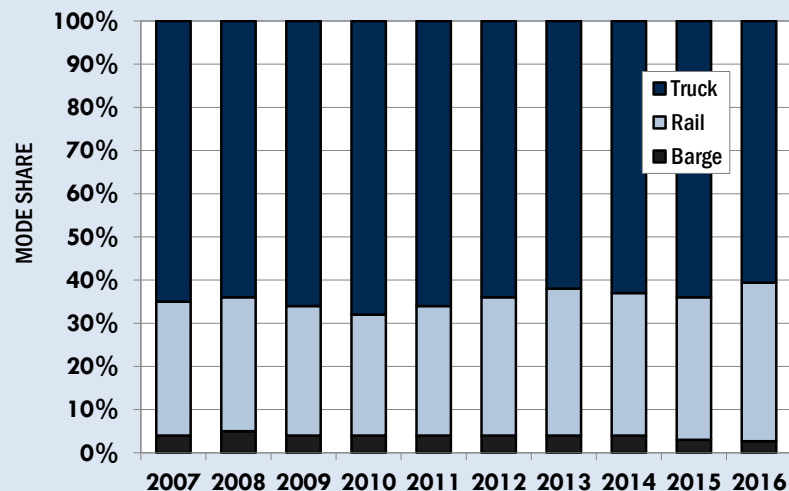


In 2016, 61% of the general cargo handled by the Port of Virginia arrived or departed by truck, 37% by rail, and 3% by barge. The share of freight moved by rail through the Port of Virginia has increased, up from 31% in 2007.

The cruise industry also has a presence in the region, with cruises calling at the Decker Half Moone Cruise Center in Norfolk. Over 50,000 passengers on 19 vessels called in Norfolk in 2015, with Carnival Cruise Lines resuming service to the region. Carnival continues to provide cruises out of Norfolk throughout 2017, with a number of other cruise lines providing scheduled stops.

HRTPO conducts a number of freight planning efforts, such as the Freight Transportation Advisory Committee (FTAC) and the Regional Freight Study, which was updated in 2017. More information is available at <http://www.hrtpo.org/page/freight>.

MODE SPLIT OF GENERAL CARGO HANDLED BY THE PORT OF VIRGINIA, 2007-2016



Data source: Port of Virginia.

BEHIND THE NUMBERS

With the opening of the widened Panama Canal in 2016, the size of ships visiting the Port of Virginia are getting larger. In July 2016 the first ship with a capacity of 10,000 TEUs arrived at the port, and in May 2017 the 13,000



TEU Cosco Development called at the Port. Ships as large as 14,000 TEUs are expected to use the widened Panama Canal in the near future.

Hampton Roads and the Port of Virginia are well-positioned among East Coast ports to handle these larger ships. Shipping channels in the Hampton Roads harbor are currently dredged to a depth of 50 feet, which, along with no overhead restrictions, currently allows for the largest ships in the world to use the Port of Virginia. The Army Corps of Engineers has authorized a depth of 55 feet for the Hampton Roads harbor, which is deeper than any other East Coast port.

The ongoing improvements to Norfolk International Terminals and the Virginia International Gateway complex will also help the Port of Virginia handle this expected growth. Once complete, both NIT and VIG will each be able to handle over 2 million TEUs, which is well above the 2.65 million TEUs that were handled by the Port of Virginia in 2016.



There are multiple passenger rail travel options in Hampton Roads, with Amtrak service provided on both the Peninsula and Southside and the Tide light rail line in Norfolk.

A number of passenger rail options are available in Hampton Roads. Amtrak service is available on the Peninsula, and in December 2012 Amtrak began providing service to the Southside of Hampton Roads. A year earlier the Tide, a 7.4-mile light rail starter line operated by Hampton Roads Transit (HRT), began operation in the City of Norfolk (the Tide is addressed in the Public Transportation section of this report.)



The number of passengers using Amtrak service in Hampton Roads has greatly increased over the last decade, led by the new service to the Southside. There were a total of 211,900 passengers who boarded or departed Amtrak trains in Hampton Roads in Federal Fiscal Year (FFY) 2016, with 107,900 passengers at the Newport News station, 59,700

NOTABLE RAIL TRAVEL NUMBERS

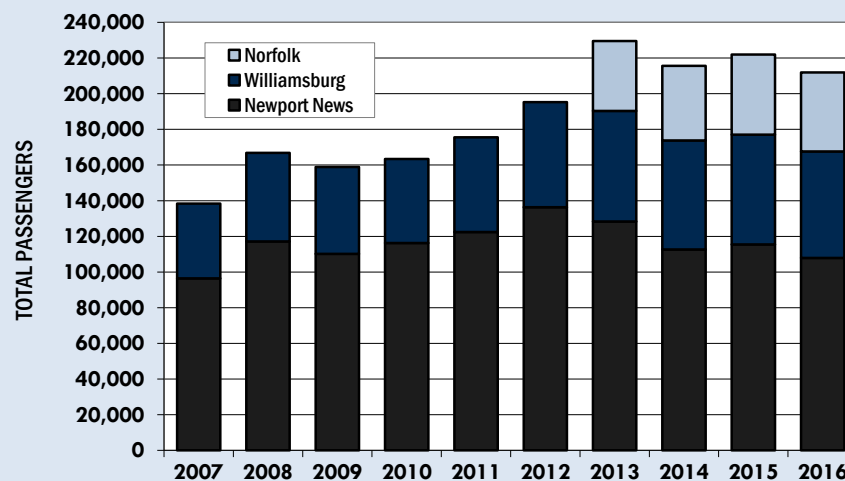
▲
53%

The increase in the number of passengers that boarded or departed Amtrak trains in Hampton Roads between Federal Fiscal Years 2007 and 2016.

▼
47%

The decrease in the number of crashes at highway-rail crossings in Hampton Roads from the 1997-2006 time period to 2007-2016.

TOTAL PASSENGERS BOARDING OR DEPARTING AMTRAK TRAINS IN HAMPTON ROADS, FFY 2007-2016



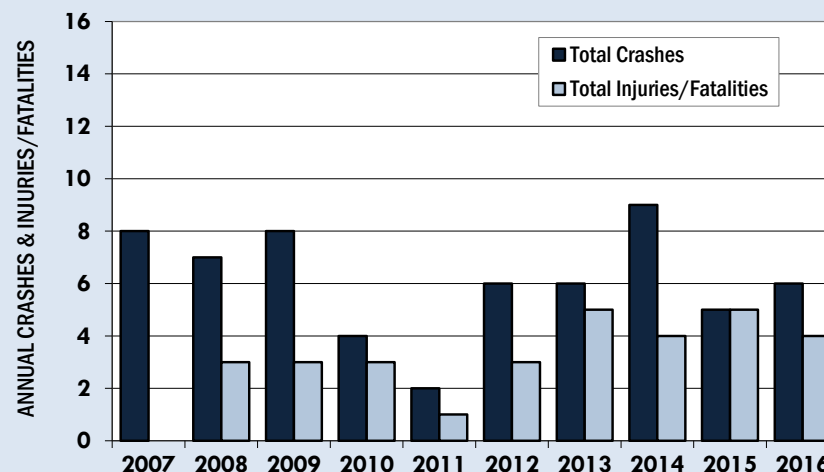
Data source: Amtrak. Federal Fiscal Years run from October to September.



passengers at the Williamsburg station, and 44,300 passengers at the Norfolk station. The number of passengers boarding or departing Amtrak trains in Hampton Roads increased 53% between FFY 2007 and 2016, and increased 9% since service resumed to the Southside in late 2012.

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 2016, resulting in four injuries but no fatalities. Between 2007 and 2016, there were 61 crashes at highway-rail crossings in Hampton Roads, resulting in 6 fatalities and 25 injuries. The number of crashes at Hampton Roads highway-rail crossings has decreased, down from 184 crashes in the 1990s and 102 crashes in the 2000s.

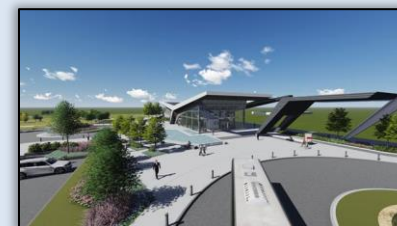
TOTAL CRASHES AND INJURIES/FATALITIES AT HIGHWAY-RAIL CROSSINGS IN HAMPTON ROADS, 2007-2016



Data source: Federal Railroad Administration.

NEW DEVELOPMENTS

Newport News Multimodal Station – Construction will soon be underway on a new multi-modal station near Bland Boulevard in Newport News. The station would replace the current Amtrak station near Mercury Boulevard and include new inter-city bus service, additional parking, and improved connections including HRT, shuttles to the Newport-News Williamsburg airport, and taxi service. Construction on the \$41 million facility is expected to be complete in late 2018.



Funding for Passenger Rail Improvements – More than \$816 million has been made available for passenger rail projects in the Virginia Department of Rail and Public Transportation's Fiscal Year 2018-2023 Six-Year Improvement Program. In Hampton Roads, \$20 million in DRPT funding is allocated to building the Newport News Multimodal Station and \$15 million is allocated to expand Amtrak service in Norfolk to a second and third train each day. Funds are also allocated to existing Amtrak service on the Peninsula and Southside.



The large number of bays, rivers, and streams makes bridges a prominent part of the Hampton Roads landscape. As bridges in Hampton Roads age, however, securing funding to maintain all of these structures will be difficult.

Bridges are a vital part of the Hampton Roads transportation system. Major spans such as the Hampton Roads Bridge-Tunnel, Monitor-Merrimac Memorial Bridge-Tunnel, Coleman Bridge, James River Bridge, and High Rise Bridge provide a connection between distinct areas of the region. Bridges on the Interstate system create a limited access network designed to improve mobility throughout the region. And smaller structures such as culverts span the myriad of creeks, swamps, and waterways in the region.

There are 1,244 bridges* in Hampton Roads. These important components of the roadway network, however, are aging. The median age of bridges in Hampton Roads is currently 41 years old, and over 400 bridges (32%) are at least 50 years old.

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

* - 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 NUMBERS

5.1%

The percentage of bridges in Hampton Roads that were classified as structurally deficient as of February 2017.

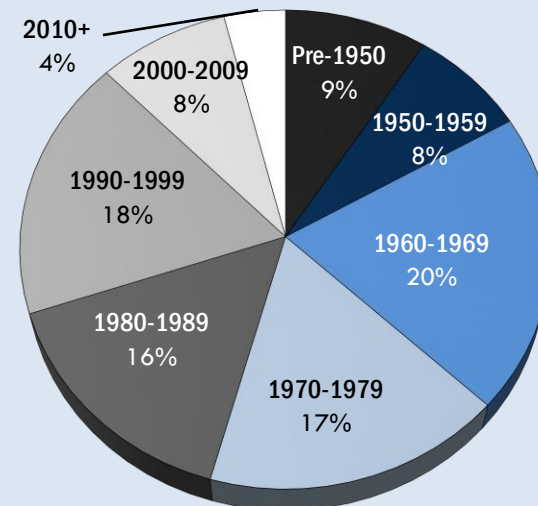
32%

The percentage of bridges in Hampton Roads that are at least 50 years old.

24th

Hampton Roads rank among 37 large metropolitan areas with populations between one and three million people in terms of the percentage of structurally deficient bridges.

BRIDGES IN HAMPTON ROADS BY YEAR BUILT



Data sources: VDOT, FHWA. Data as of February 2017.



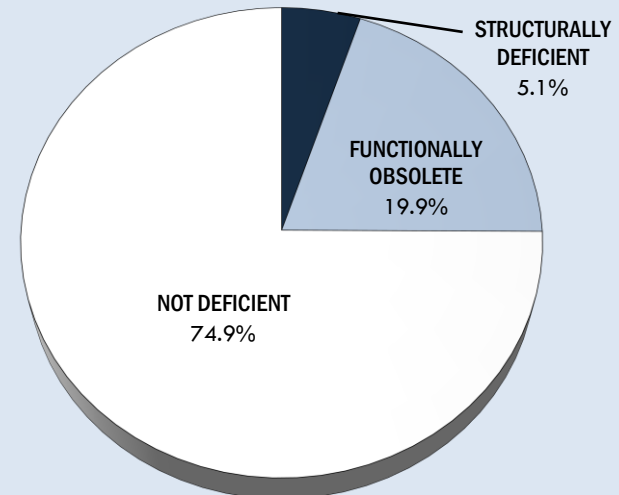
structurally deficient bridges are not necessarily unsafe, and bridge inspectors will close or impose weight limits on any bridge that is judged to be unsafe.

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 would qualify as both are classified as structurally deficient.

Of the 1,244 bridges in Hampton Roads, 64 bridges (5.1%) were classified as structurally deficient as of February 2017. This is up from 54 bridges (4.4%) that were classified as structurally deficient in Hampton Roads in 2007, but down

STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS, 2017



Data sources: VDOT, FHWA. Data as of February 2017.

NEW DEVELOPMENTS

Veterans Bridge – Construction was completed on the Veterans Bridge (Dominion Boulevard) in Chesapeake in November 2016. The new parallel 95-foot high fixed spans replace the original Steel Bridge drawbridge that was opened in 1962. With the completion of the project, Dominion Boulevard is now a tolled, 4-lane limited access facility between the Chesapeake Expressway and Grassfield Parkway.



Lesner Bridge – Construction continues on a replacement for the Lesner Bridge, which spans Shore Drive across Lynnhaven Inlet in Virginia Beach. The new facility is being built to accommodate the possibility of 6 lanes in the future, provide an increased vertical clearance from 35 feet to 45 feet, provide a wider distance between bridge piers, and include new multi-use paths in both directions for pedestrians and cyclists. The \$119 million structure is expected to be complete by Spring 2018.



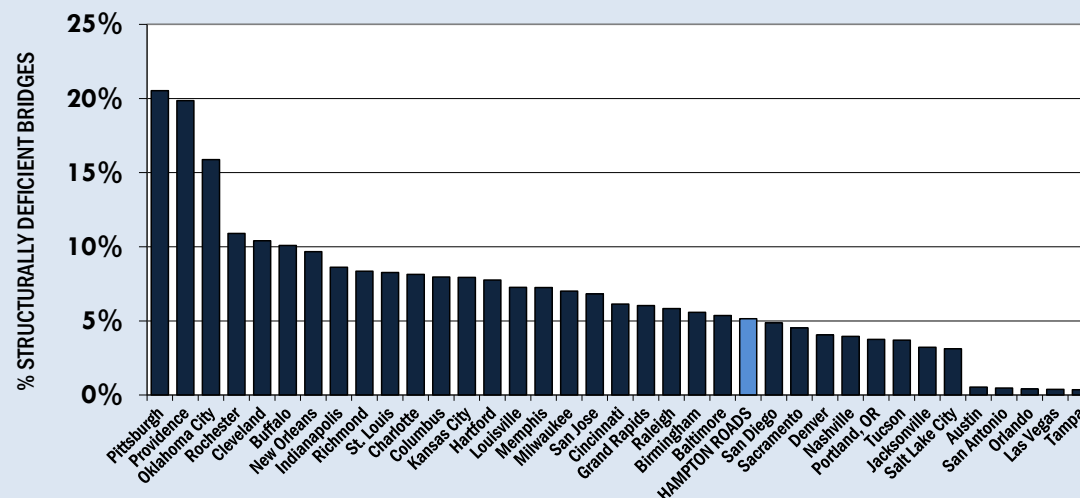
from a high of 81 bridges (6.6%) in February 2015. Another 248 bridges (19.9%) in Hampton Roads were classified as functionally obsolete. Combining structurally deficient and functionally obsolete bridges, 312 bridges (25.1%) in Hampton Roads were deficient as of February 2017.

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 24th highest among 37 large metropolitan areas with populations between one and three million people in the percentage of structurally deficient bridges in each region.

When structurally deficient and functionally obsolete bridges are combined, however, Hampton Roads ranks higher. At 25.1%, Hampton Roads ranks 15th highest among the 37 comparable metropolitan areas between one and three million people in terms of the percentage of deficient bridges.

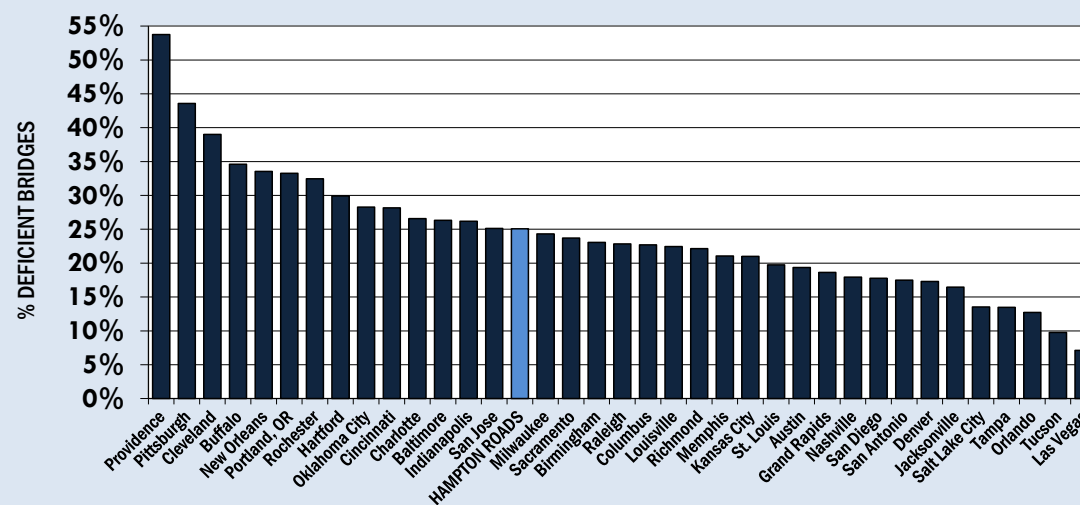
HRTPO will prepare an update to the *Hampton Roads Regional Bridge Study* – which looks at various aspects of the region's bridges – in 2018. Previous versions of the Regional Bridge Study, which were released in 2008 and 2012, are available on HRTPO's website at <http://www.hrtpo.org>.

STRUCTURALLY DEFICIENT BRIDGES – LARGE METROPOLITAN AREAS



Data sources: FHWA, VDOT. FHWA data as of 2016, Hampton Roads (VDOT) data as of February 2017.

STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES – LARGE METROPOLITAN AREAS



Data sources: FHWA, VDOT. FHWA data as of 2016, Hampton Roads (VDOT) data as of February 2017.



VDOT's recent pavement rehabilitation efforts have greatly improved the condition of state-maintained roadways in Hampton Roads, and pavement in Hampton Roads is generally in better condition than in other metropolitan areas.

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 data collected annually on each mile of Interstate and Primary roadway throughout the state and a sample of Secondary roadways. Based on this data, VDOT categorizes both the pavement condition and ride quality of roadways.

Pavement condition describes the amount of pavement distresses – such as cracking, patching, and rutting – on each roadway. The Critical Condition Index (CCI) is a measure that is determined based on these distresses, and pavement condition is rated as excellent, good, fair, poor, or very poor based on the CCI. Roadways that are in poor or very poor condition are considered to be deficient, and VDOT has a goal that no more than 18% of Interstate and Primary roadways be classified as deficient.

The percentage of state-maintained roadways in deficient condition in Hampton Roads has greatly improved in recent years. As recently as 2010, more than a third of state-maintained Interstate and Primary roadways in Hampton Roads had a deficient pavement condition. After extensive repaving efforts throughout the region, only 7% of state-maintained Interstate and Primary roadways in Hampton

NOTABLE PAVEMENT CONDITION NUMBERS

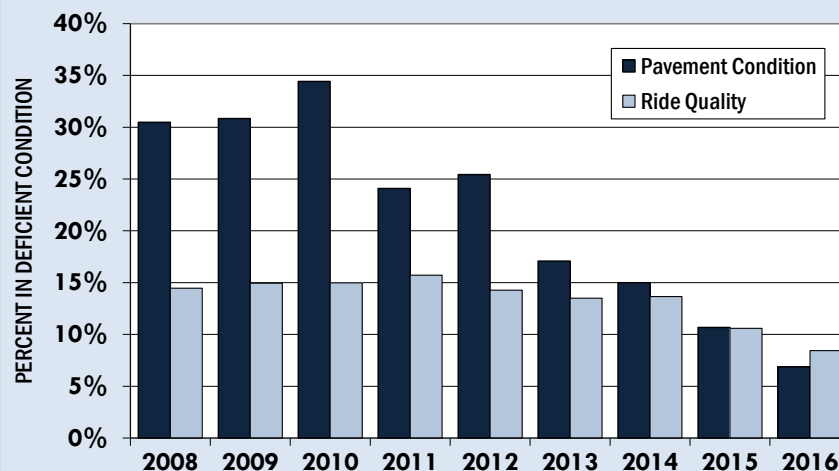
7%

Percent of state-maintained Interstate and Primary roadway lane-miles in Hampton Roads that had a deficient pavement condition in 2016. This is down from 34% as recently as 2010.

18th

Hampton Roads rank among 37 large metropolitan areas with populations between one and three million people in terms of the percentage of roadways with pavement in poor condition in 2014.

PERCENT OF VDOT-MAINTAINED INTERSTATE AND PRIMARY ROADWAY PAVEMENT IN DEFICIENT CONDITION IN HAMPTON ROADS, 2008-2016



Data source: VDOT. Pavement with poor or very poor pavement condition or ride quality is considered deficient.



Roads had a deficient pavement condition in 2016. Interstates in Hampton Roads have particularly improved, with less than 3% having a deficient pavement condition in 2016.

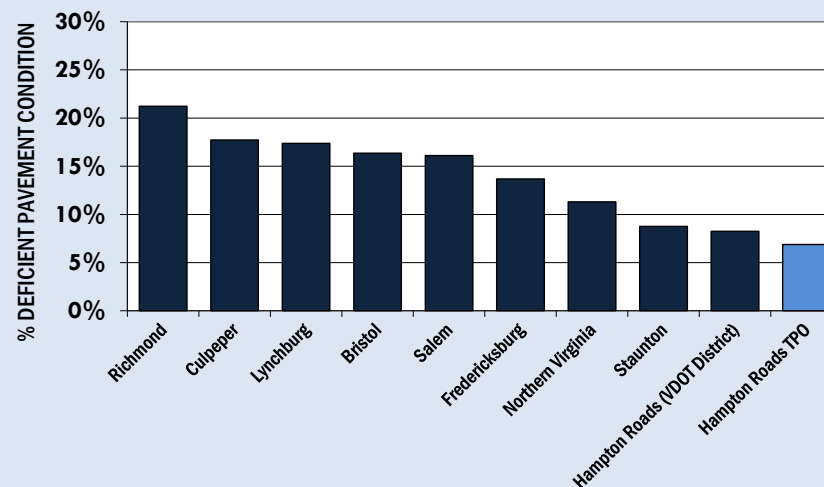
The pavement condition is now better in Hampton Roads than in every other area of the state. Looking only at state-maintained Interstate and Primary roadways, the 7% of lane-miles in Hampton Roads that have a deficient pavement condition is better than all of the other VDOT Districts, and is three times better than the percentage in the Richmond VDOT District (21%).

VDOT also collects data regarding the ride quality of roadway pavement. Ride quality describes the roughness of pavement based on a sum of the irregularities in the pavement surface. The International Roughness Index (IRI) is a measure that describes these irregularities, and ride quality is rated as excellent, good, fair, poor, or very poor based on the IRI. Roadways with a poor or very poor ride quality are considered to be deficient, and VDOT has a goal that no more than 15% of Interstate and Primary roadways be classified as deficient in terms of ride quality.

The ride quality of pavement in Hampton Roads has also improved in recent years. In 2016, 8% of state-maintained Interstate and Primary roadways in Hampton Roads had a deficient ride quality, down from 14% in 2014 and 16% in 2011.

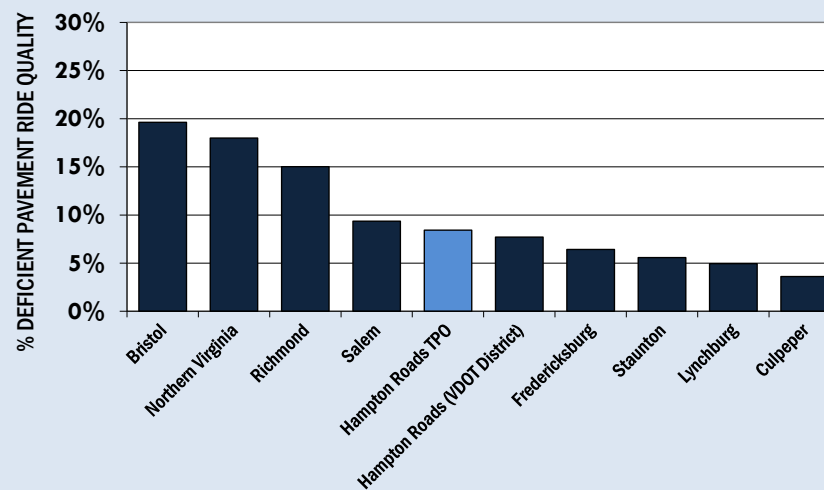
The pavement ride quality is better in Hampton Roads than in the other large metropolitan areas of the state. The 8% of state-maintained Interstate and Primary lane-miles in Hampton Roads that have a deficient pavement ride quality ranks in the

PERCENT OF VDOT-MAINTAINED ROADWAYS WITH DEFICIENT PAVEMENT CONDITION, 2016



Data source: VDOT. Pavement in poor or very poor condition is considered deficient.

PERCENT OF VDOT-MAINTAINED ROADWAYS WITH DEFICIENT RIDE QUALITY, 2016



Data source: VDOT. Pavement with poor or very poor ride quality is considered deficient.



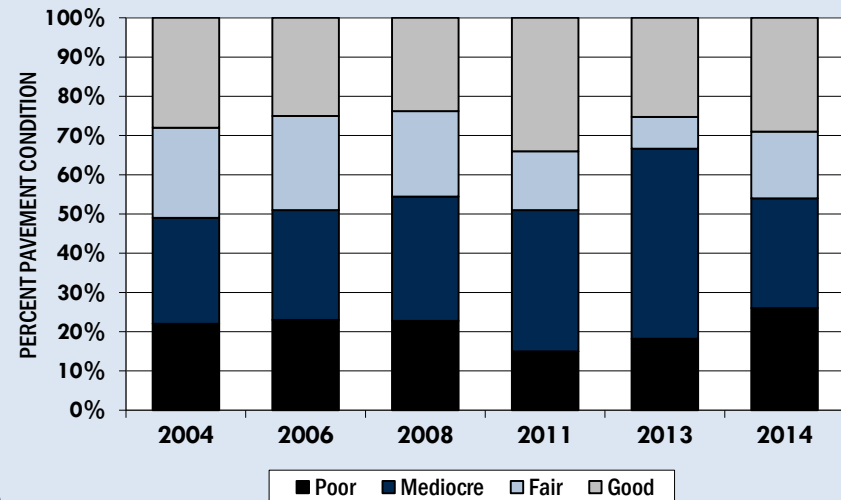
middle compared to VDOT Districts throughout the state but is better than the Northern Virginia (18%) and Richmond (15%) VDOT Districts.

Another source of pavement condition data is produced by TRIP, which is an organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP regularly releases an analysis of the condition of major roadways in metropolitan areas and the costs that deteriorating roadways have on the public.

According to the most recent data from TRIP, 26% of the major roadways in Hampton Roads had pavement that was in poor condition in 2014. Another 28% of Hampton Roads roadways were rated as mediocre, 17% were rated as fair, and only 29% were rated as good. The percent of pavement in poor condition has varied throughout the last decade according to TRIP, ranging between 15% and 26%.

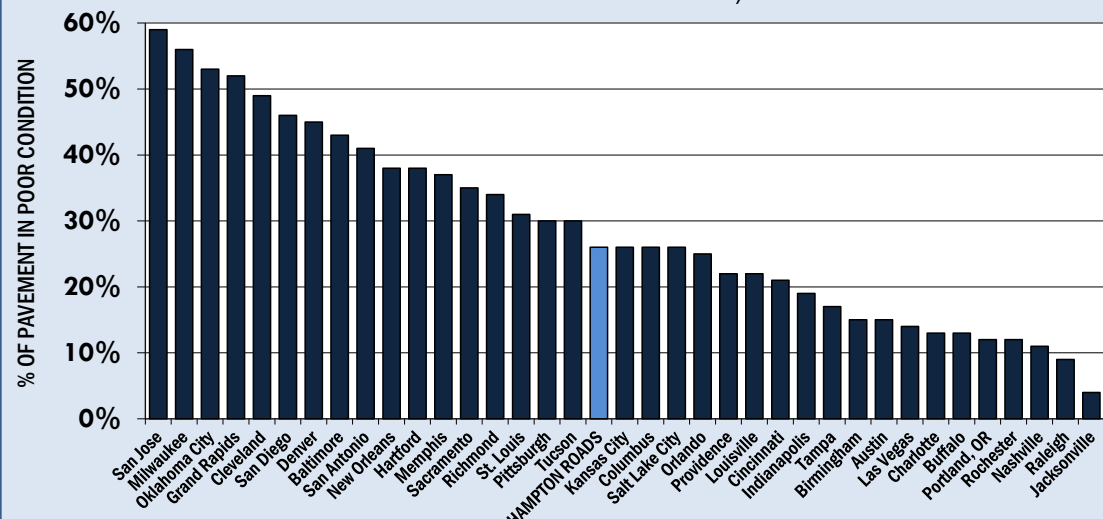
Among the 37 large metropolitan areas with populations between one and three million people, Hampton Roads ranked 18th best in terms of the percentage of roadways with pavement in poor condition in 2014. Some metropolitan areas such as San Jose, Milwaukee, and Oklahoma City had more than twice the percentage of major roadways in poor condition than Hampton Roads.

PAVEMENT CONDITION IN HAMPTON ROADS, 2004-2014



Data source: TRIP. Data only includes Interstates, freeways, and other principal arterials.

PERCENT OF ROADWAYS WITH PAVEMENT IN POOR CONDITION, LARGE METROPOLITAN AREAS, 2014



Data source: TRIP. Data only includes Interstates, freeways, and other principal arterials.



After years of flat or decreasing roadway travel levels in Hampton Roads, regional traffic volumes started growing again in 2015, and have reached the levels seen prior to the economic downturn.

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 releases estimates of jurisdictional roadway travel levels based on traffic counts collected on a regular basis. VDOT estimates that there were nearly 40 million vehicle-miles of travel (VMT) on the typical day in Hampton Roads in 2015.



The amount of roadway travel in Hampton Roads has decreased over the last decade according to VDOT estimates. Between 2006 and 2015, there was a 1.0% decline in vehicular travel in Hampton Roads. However, roadway travel

NOTABLE ROADWAY USAGE NUMBERS

1%



The decline in daily roadway travel in Hampton Roads between 2006 and 2015 according to VDOT estimates.

5%

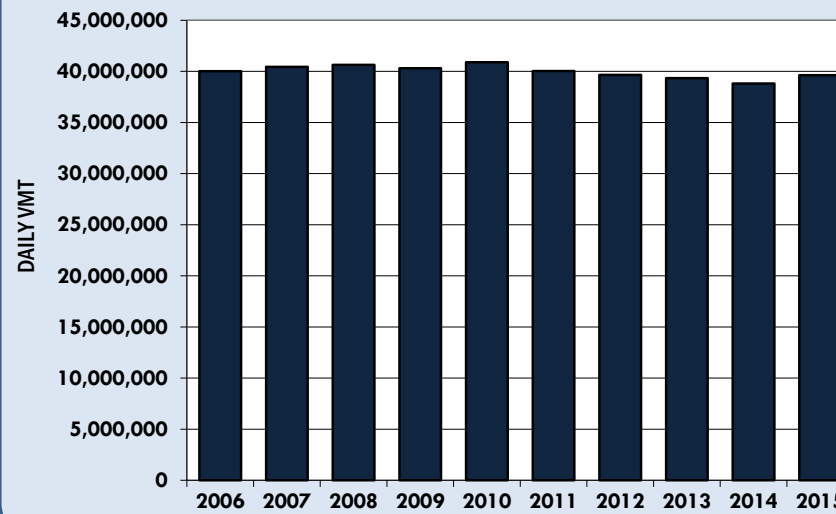


The increase in the amount of daily roadway travel in Hampton Roads between 2014 and 2016 based on regional continuous count stations.

27th

Hampton Roads rank among 37 large metropolitan areas with populations between one and three million people in terms of vehicular travel per capita in 2015.

DAILY VEHICLE-MILES OF TRAVEL (VMT) IN HAMPTON ROADS, 2006-2015



Data source: VDOT.



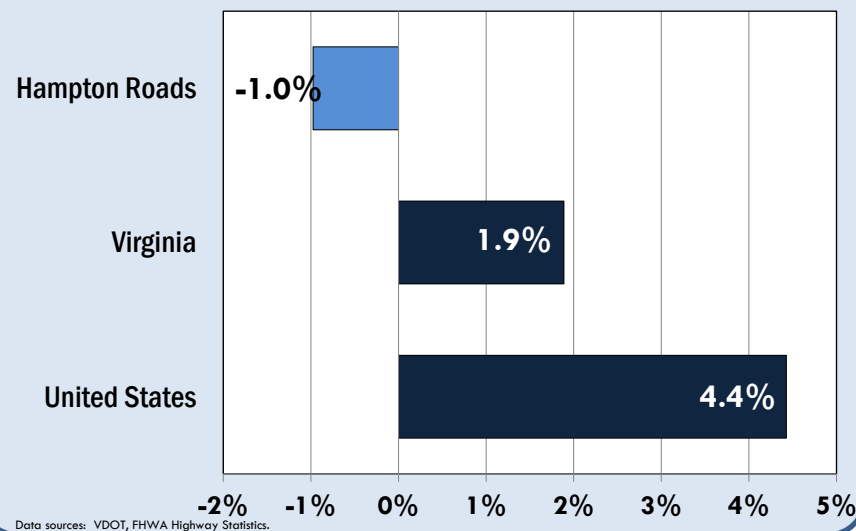
in the region increased by 2.1% between 2014 and 2015, the largest year over year increase in regional travel since 2002.

Similar to Hampton Roads, both Virginia and the United States experienced a decrease in roadway travel throughout the economic downturn at the end of the last decade, but have seen increases in recent years. Between 2006 and 2015, roadway travel only grew by 1.9% in the Commonwealth and 4.4% across the country. However, roadway travel increased by 3.5% in the United States between 2014 and 2015 – reaching record high levels – and 2.0% in Virginia.

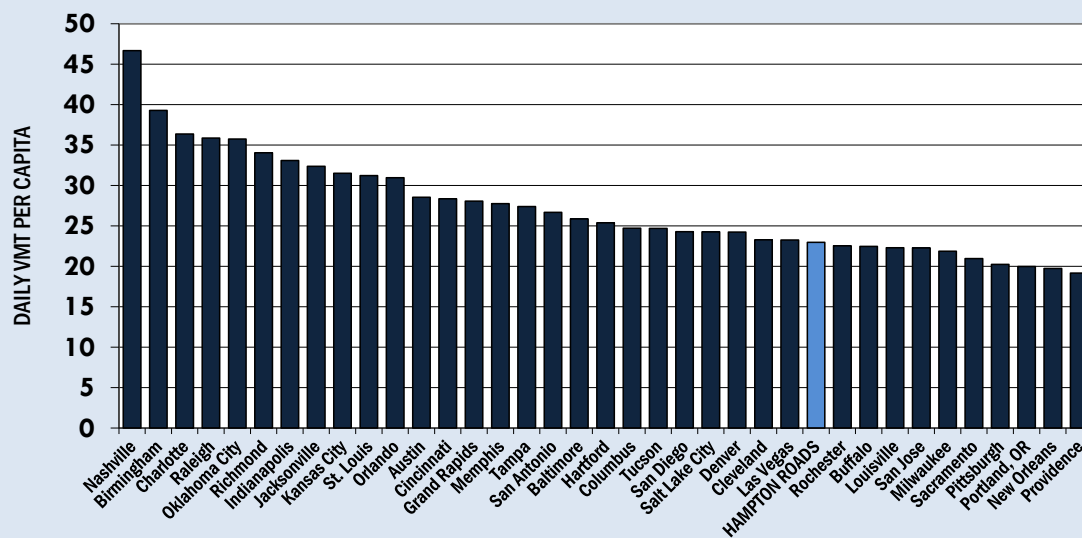
The decrease in roadway travel in Hampton Roads over the last decade occurred as the regional population increased. This combination produced a decrease in vehicular travel per capita. The vehicular travel per capita in Hampton Roads was 23.0 vehicle-miles per person per day in 2015, down 6.1% from 24.5 daily vehicle-miles per capita in 2006.

Among 37 large metropolitan areas in the United States with populations between one and three million people, Hampton Roads ranked 27th highest in vehicular travel per capita in 2015. Nashville experienced roadway travel levels that were more than twice the levels seen in Hampton Roads, and Richmond had 10 more miles of travel daily per capita than Hampton Roads.

CHANGE IN VEHICLE-MILES OF TRAVEL IN HAMPTON ROADS, VIRGINIA, AND THE UNITED STATES, 2006 TO 2015



DAILY VEHICLE-MILES OF TRAVEL PER CAPITA IN LARGE METROPOLITAN AREAS, 2015



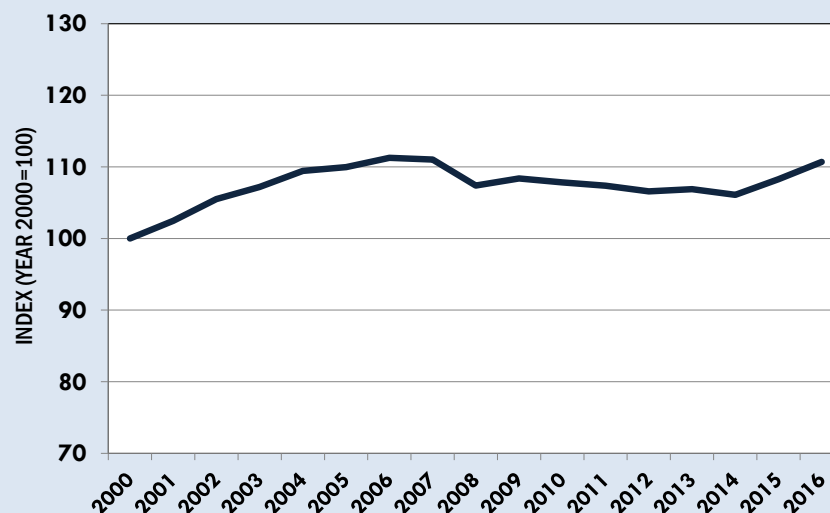


Another method of measuring the change in roadway travel is by using count stations that continuously collect traffic volume data throughout the entire year. In Hampton Roads there are approximately 65 locations equipped with continuous count stations, primarily on major roadways such as freeways and principal arterials. Based on the data collected at these locations, regional traffic volumes grew 10.7% between 2000 and 2016. However, after falling throughout the economic downturn and remaining largely flat earlier in this decade, regional traffic volumes increased 4.6% from 2014 to 2016. The increase in traffic volumes from 2015 to 2016 is the largest year-to-year increase in regional roadway travel since 2002.



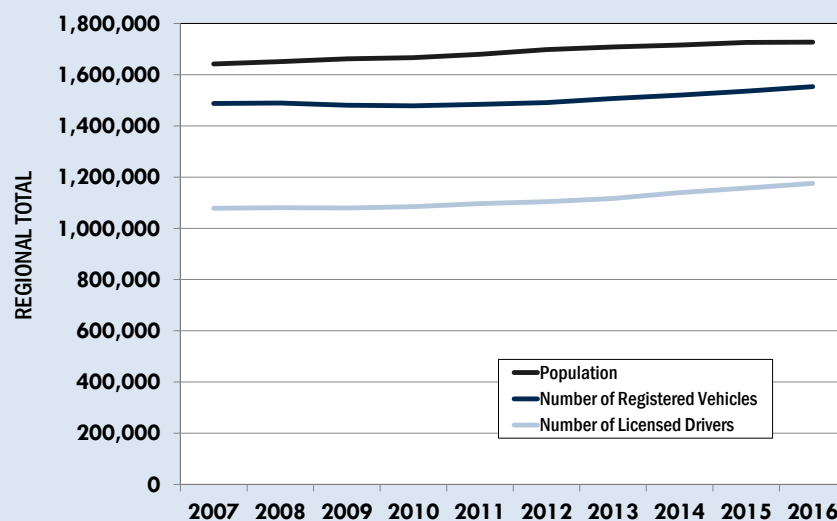
There were 1,553,000 vehicles registered in Hampton Roads in 2016. This equates to 0.90 vehicles for every Hampton Roads resident. The growth in the number of registered vehicles between 2007 and 2016 (+4.4%) was slightly lower than the growth in population (+5.2%) over this period.

CHANGE IN REGIONAL ROADWAY TRAVEL BASED ON CONTINUOUS COUNT STATIONS, 2000-2016



Data sources: VDOT, CBST, various localities.

POPULATION, REGISTERED VEHICLES, AND LICENSED DRIVERS IN HAMPTON ROADS, 2007-2016



Data sources: HRPDC Hampton Roads Databook, Virginia DMV.



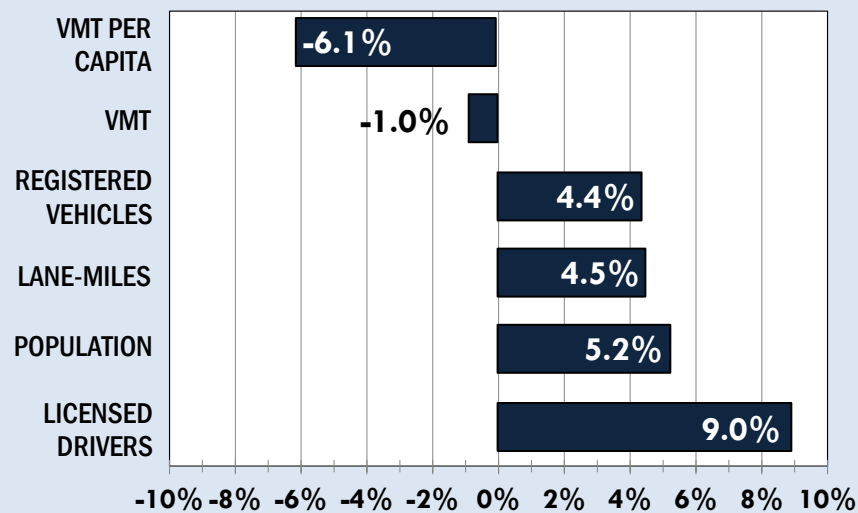
The growth in the number of licensed drivers in Hampton Roads, however, outpaced population growth. There were 1,175,000 licensed drivers in Hampton Roads in 2016, up 9.0% from 2007. With the growth in licensed drivers outpacing the growth in registered vehicles, the number of vehicles per licensed driver has decreased. There were 1.32 registered vehicles for every licensed driver in Hampton Roads in 2016, down from 1.38 registered vehicles per licensed driver in 2007.

Between 2006 and 2015, the amount of roadway capacity in Hampton Roads in terms of lane mileage* increased by 4.5%. This is lower than the growth in regional population (+5.2%) but is much higher than the change in regional vehicle-miles traveled (-1.0%).

However, the majority of the growth in regional roadway lane mileage was in local roadways. These local roadways typically serve neighborhoods and carry low traffic volumes. Despite comprising around 63% of the lane mileage of the regional roadway network, local roadways only carried 12% of the total vehicular travel in Hampton Roads in 2015.

* - 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.

CHANGE IN VMT PER CAPITA, VMT, REGISTERED VEHICLES, LANE-MILES, POPULATION, AND LICENSED DRIVERS IN HAMPTON ROADS OVER THE LAST DECADE



Data sources: HRPDC Hampton Roads Databook, Virginia DMV, VDOT.



Roadway congestion continues to be higher and travel time reliability lower in Hampton Roads than in many comparable metropolitan areas throughout the country.

FHWA publishes the Urban Congestion Report – which provides an analysis of traffic congestion and reliability in 52 metropolitan areas throughout the United States – on a quarterly basis. This analysis is performed by the Texas A&M Transportation Institute for FHWA using vehicle-probe-based travel times from FHWA's National Performance Management Research Data Set (NPMRDS). The NPMRDS includes data for the entire National Highway System (NHS), which includes Interstates, principal arterials, and other roadways critical to strategic defense and intermodal transport.

As part of the Urban Congestion Report, FHWA reports the amount of congestion in each metropolitan area using a measure called the travel time index. The travel time index is the ratio of the travel time the average trip takes during the peak period in each region as compared to uncongested conditions.

The Hampton Roads travel time index was 1.21 in the fourth quarter of 2016, and averaged 1.23 throughout 2016, according to the Urban Congestion Report. The travel time index has been consistent in the region over the last three years, only varying between a low of 1.20 and a high of 1.25.

NOTABLE CONGESTION NUMBERS

1.23

The travel time index in Hampton Roads in 2016, which means the average trip takes 23% longer during the peak travel period as compared to uncongested conditions.

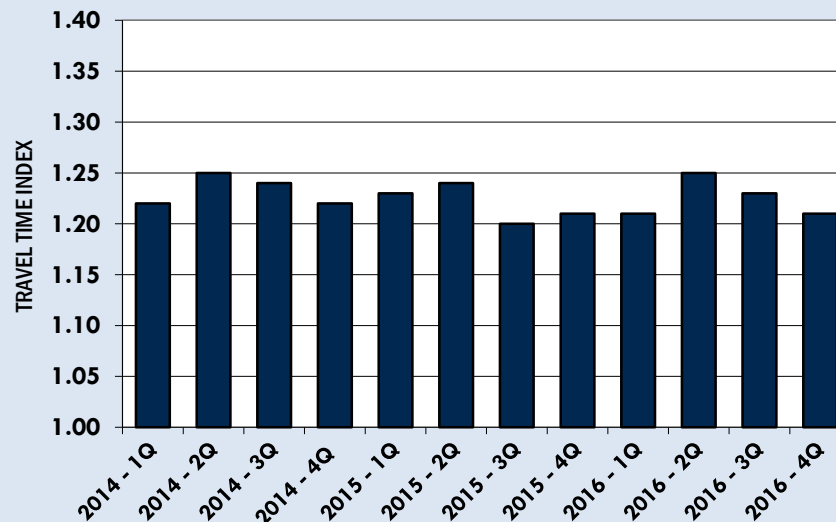
9th

Hampton Roads rank among large areas with populations between one and three million people in terms of the regional travel time index in 2016.

6th

Hampton Roads rank among large metropolitan areas in terms of the regional planning time index in 2016.

TRAVEL TIME INDEX IN HAMPTON ROADS, 2014-2016



Data source: FHWA.



The travel time index in Hampton Roads is higher than the index in many other large metropolitan areas. Among 35 metropolitan areas with populations between one and three million people (Grand Rapids and Tucson are not included in FHWA's data), Hampton Roads had the 9th highest travel time index in 2016.

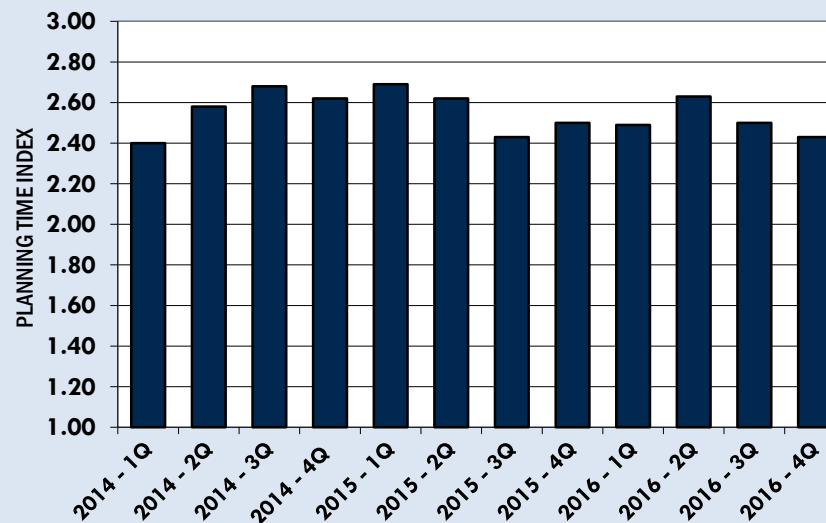
Another measure included in the Urban Congestion Report is the planning time index. The planning time index is a measure that describes the reliability of the roadway network. It represents the total time that should be planned for a trip so that the driver would only be late 5% of the time.

The planning time index in Hampton Roads was 2.43 in the fourth quarter of 2016, and averaged 2.51 throughout 2016, according to the Urban Congestion Report.

This means that for an average uncongested 20-minute trip, just over 50 minutes should be allocated during peak periods to be on time 95% of the time.

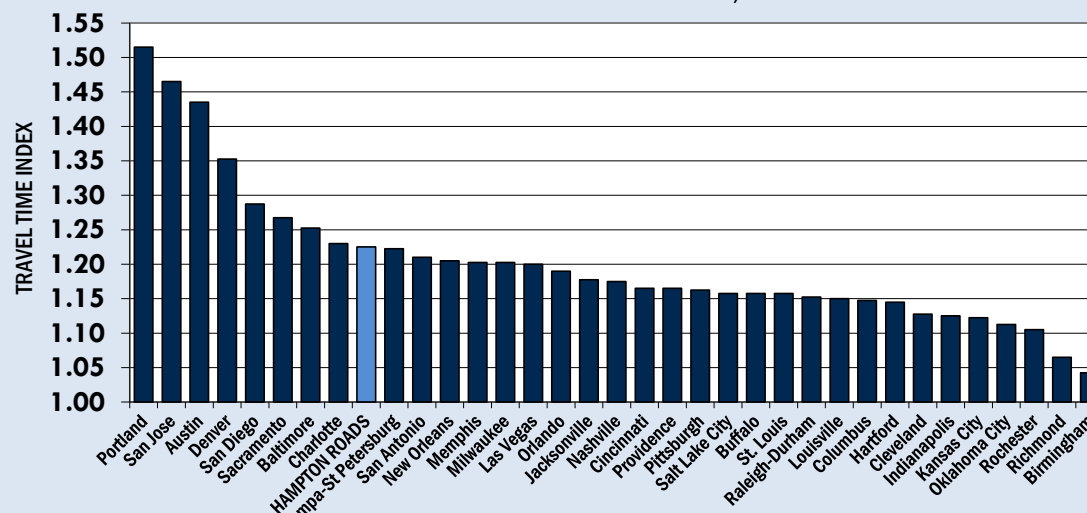
The planning time index is higher in Hampton Roads than in most other comparable metropolitan areas. Among the 35 metropolitan areas included in the Urban Congestion Report with populations between one and three million people, Hampton Roads had the 6th highest planning time index in 2016.

PLANNING TIME INDEX IN HAMPTON ROADS, 2014-2016



Data source: FHWA.

TRAVEL TIME INDEX, LARGE METROPOLITAN AREAS, 2016



Data source: FHWA. Grand Rapids and Tucson are not included in FHWA's data.

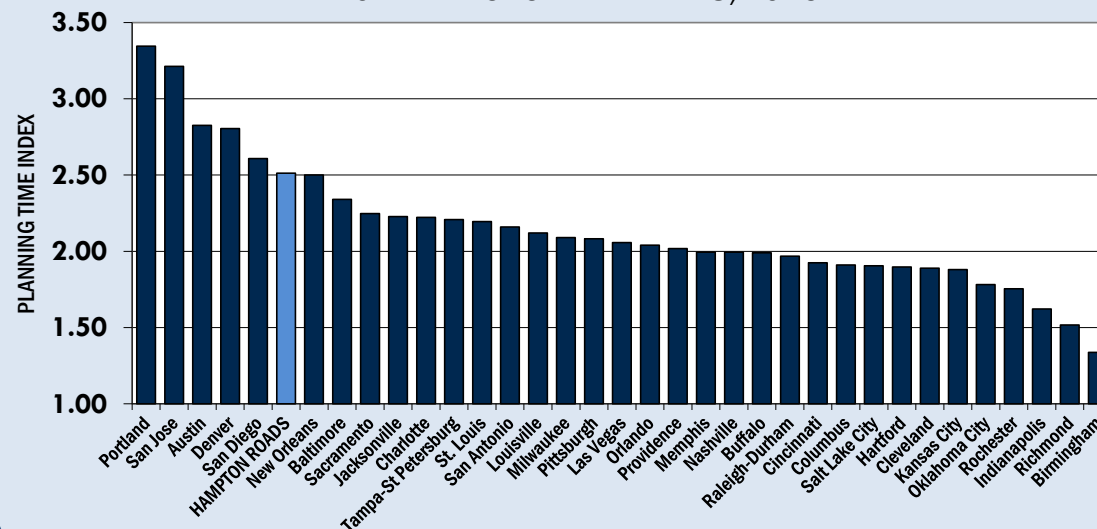


FHWA also includes a measure of the length of time of congested conditions in the Urban Congestion Report. “Congested Hours” is defined in the report as the average number of hours during specified time periods each weekday in which road sections are congested. According to FHWA, Hampton Roads experienced 5 hours and 51 minutes with congested conditions each weekday in 2016. This ranked Hampton Roads 5th highest among the 35 metropolitan areas included in the Urban Congestion Report with populations between one and three million people.

Other agencies also produce reports on congestion levels in metropolitan areas. TomTom produces the TomTom Traffic Index, which is similar to the travel time index. According to TomTom, the TomTom Traffic Index in Hampton Roads was 18% in 2016. Among the 37 large metropolitan areas, Hampton Roads tied for the 17th highest congestion level based on the TomTom Traffic Index.

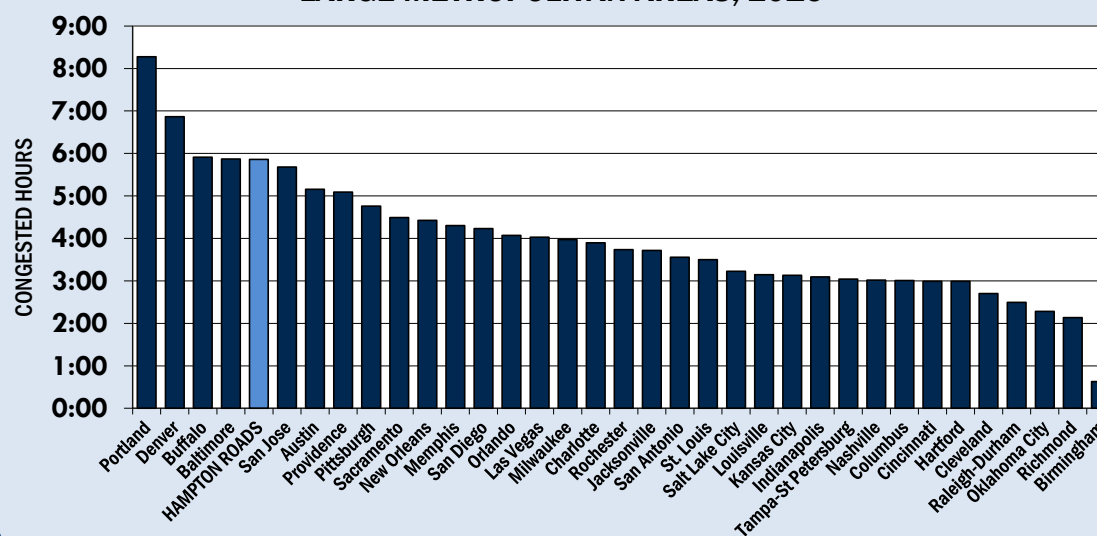
The Texas A&M Transportation Institute (TTI) also publishes the Urban Mobility Scorecard. However, no Urban Mobility Scorecard reports have been released recently.

**PLANNING TIME INDEX,
LARGE METROPOLITAN AREAS, 2016**



Data source: FHWA. Grand Rapids and Tucson are not included in FHWA's data.

**CONGESTED HOURS
LARGE METROPOLITAN AREAS, 2016**



Data source: FHWA. Grand Rapids and Tucson are not included in FHWA's data.



Hampton Roads has one of the highest percentages of commuters driving alone to work each day, and nearly half of all workers in the region work 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 the localities where commuters work and live, is collected for each metropolitan area.

According to the ACS, the mean travel time to work in Hampton Roads was 24.8 minutes in 2015. This is the longest that the mean travel time to work has ever been in Hampton Roads, and is up from 24.1 minutes in 2014. The regional travel time to work largely remained unchanged throughout the 2000s at between 23 and 24 minutes.

Among the 37 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 23rd highest in 2015. Since 2005, Hampton Roads has ranked between 23rd highest and 29th highest in terms of travel time to work among the 37 large metropolitan areas.

NOTABLE COMMUTING NUMBERS

82%

The percentage of commuters in Hampton Roads that drove alone to work in 2015.

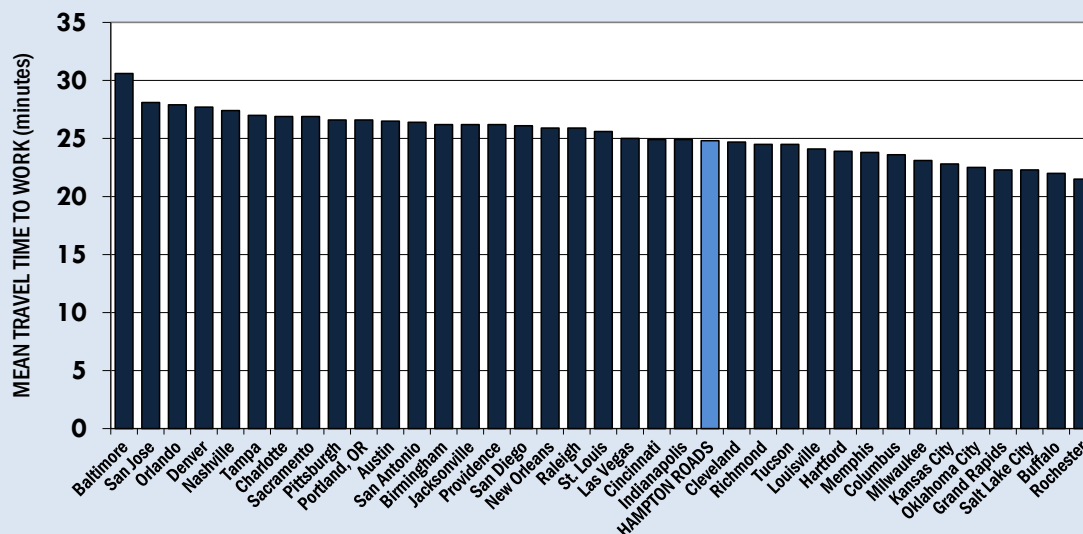
49%

The percentage of all workers in Hampton Roads that worked in a jurisdiction that was different from the one they resided in in 2015.

24.8

The mean travel time to work in minutes in Hampton Roads in 2015.

MEAN TRAVEL TIME TO WORK IN LARGE METROPOLITAN AREAS, 2015



Data source: US Census Bureau.

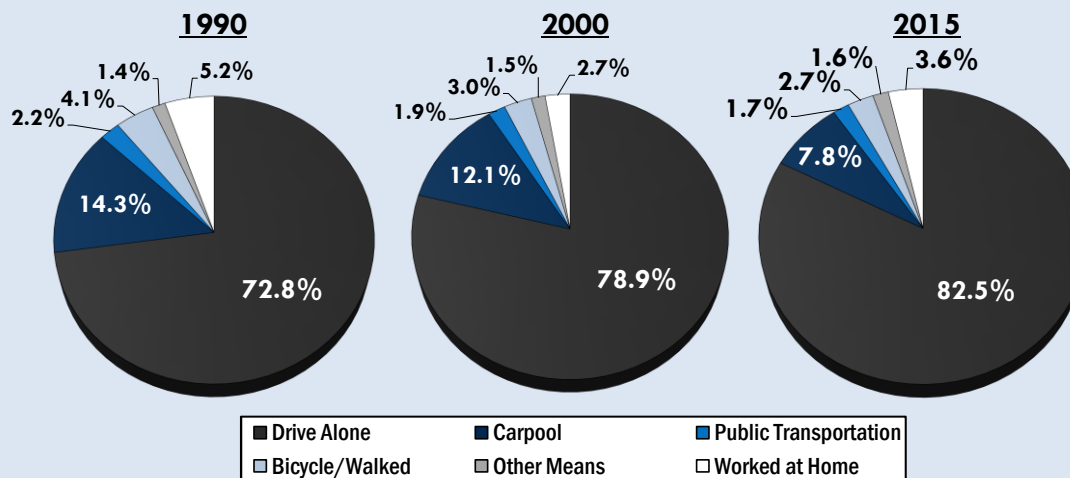


Many Hampton Roads residents, however, have much longer commutes. In 2015, more than one out of every three Hampton Roads commuters (35%) traveled 30 minutes or longer to work, and 6% had commutes of an hour or more.



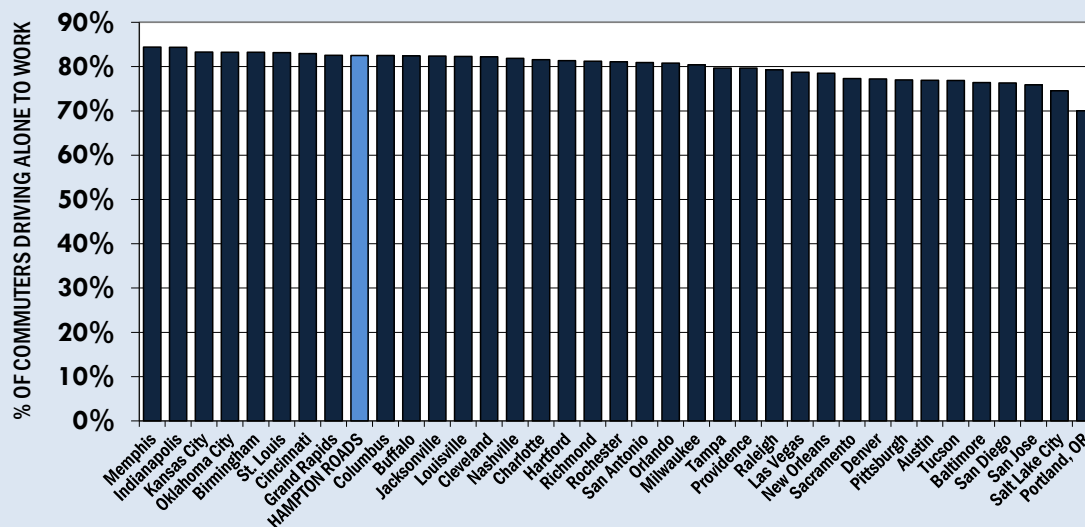
The percentage of commuters in Hampton Roads who drive alone to work has increased through the years. In 2015, over 82% of commuters in Hampton Roads drove alone to work. This is up from 73% in 1990 and 79% in 2000, but has varied between 79% and 83% since 2000. In turn, the percentage of commuters in Hampton Roads carpooling to work decreased from 14% in 1990 to 12% in 2000 and to 8% in 2015. The percentage of commuters in Hampton Roads using public transportation and bicycling/walking has also decreased.

COMMUTING METHODS IN HAMPTON ROADS - 1990, 2000 & 2015



Data source: US Census Bureau.

PERCENTAGE OF COMMUTERS THAT DROVE ALONE TO WORK LARGE METROPOLITAN AREAS, 2015



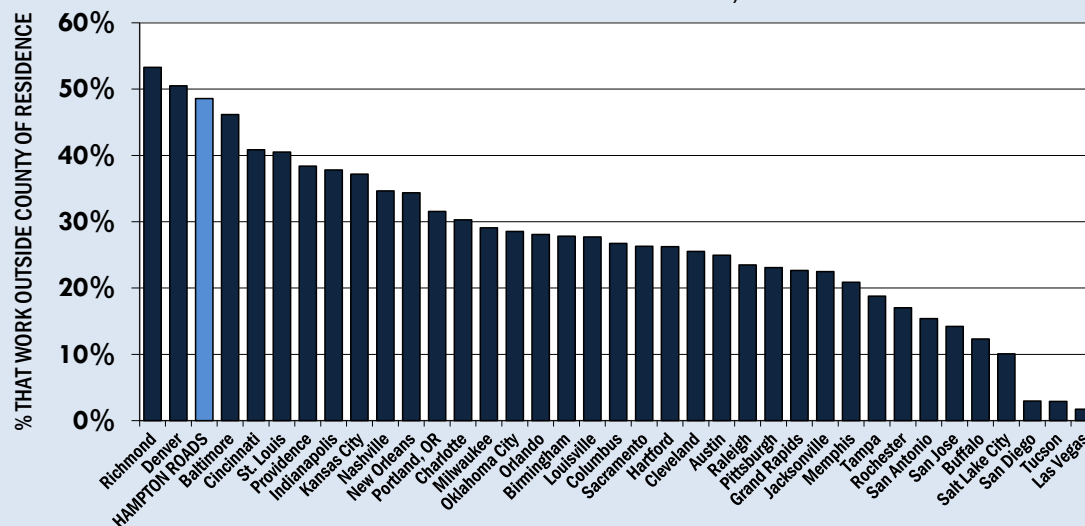
Data source: US Census Bureau.



The percentage of commuters driving alone to work in Hampton Roads is higher than in other comparable areas. Hampton Roads ranked 9th highest among the 37 large metropolitan areas in terms of the percentage of commuters that drove alone to work in 2015, although it is only slightly above the median of 31.1%.

An area where Hampton Roads ranks particularly high is in the percentage of workers that work outside of their locality of residence. In 2015, 49% of all workers in Hampton Roads worked in a jurisdiction that was different than the one they resided in. This percentage is higher than that seen in 1990 (44%), similar to the percentage seen in 2000 (49%), and lower than the high that was experienced in 2005 (50%). It is higher than the percentage seen in most other areas, ranking 3rd highest among the 37 large metropolitan areas with populations between one and three million people.

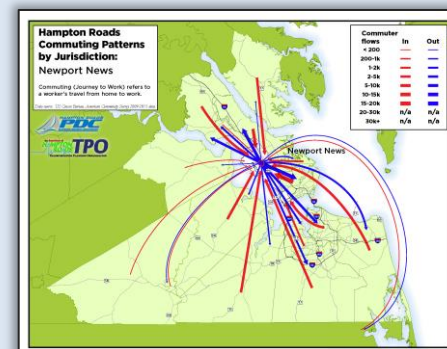
PERCENTAGE OF WORKERS THAT WORKED OUTSIDE COUNTY OF RESIDENCE, LARGE METROPOLITAN AREAS, 2015



Data source: US Census Bureau. Virginia cities are regarded as counties in Census data.

COMMUTING MAPS

Nearly half of all Hampton Roads commuters work in a jurisdiction that is different than the one they reside in. Because of this interconnectedness between the localities that constitute Hampton Roads, HRTPO staff – in conjunction with Hampton Roads Planning District Commission (HRPDC) staff – prepared individual jurisdiction maps showing these commuting patterns that illustrate the journeys residents take each day to their place of work.



These maps are available at

<http://www.hrtpo.org/page/hampton-roads-journey-to-work-maps>.



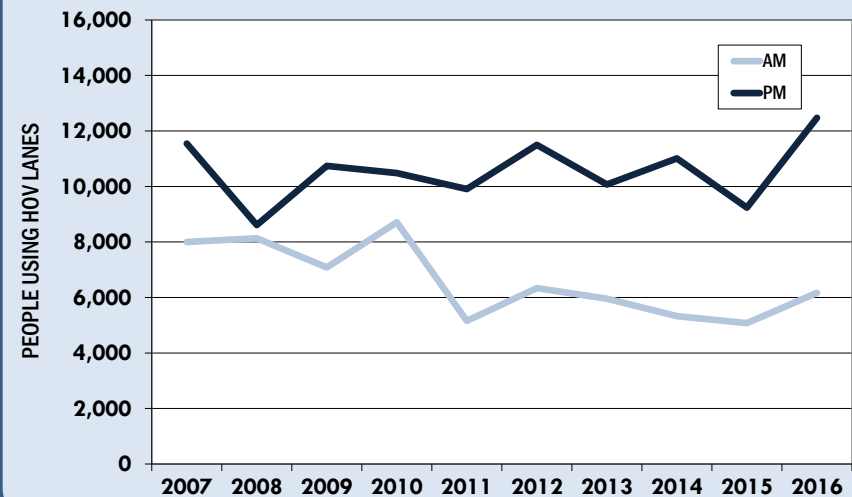
In order to encourage commuting to work via carpool, Hampton Roads has a 34-mile network of High Occupancy Vehicle (HOV) lanes. The lanes – which are restricted to vehicles with at least two occupants from 6:00 am – 8:00 am and 4:00 pm – 6:00 pm on weekdays – include:

- I-64 - Barrier-separated reversible lanes between I-564 and I-264 in Norfolk
- I-64 - Concurrent lanes between Battlefield Boulevard and I-264 on the Southside
- I-64 - Concurrent lanes between Bland Boulevard and I-664 on the Peninsula
- I-264 - Concurrent lanes between Downtown Norfolk and Rosemont Road in Virginia Beach
- I-564 - Concurrent lanes between I-64 and the Naval Base

Usage of the HOV lanes has varied from year to year over the last decade. Nearly 6,200 people used the regional HOV lanes during the AM restricted hours each weekday in 2016, and 12,500 people used the lanes during the PM restricted hours. The PM HOV volumes are much higher than the volumes from the previous year, while the AM volumes are down from about 8,000 people late in the last decade.

The HOV lanes, however, have many users that do so illegally. The average vehicle occupancy in regional HOV lanes during restricted hours was 1.45 in 2016, indicating that many users only have one occupant.

AVERAGE USAGE OF HOV LANES EACH WEEKDAY IN HAMPTON ROADS, 2007-2016



Data source: VDOT.

NEW DEVELOPMENTS

HOT Lanes – In October 2016 the Commonwealth Transportation Board authorized VDOT to convert the I-64 barrier-separated reversible HOV lanes to High Occupancy Toll (HOT) or Express Lanes. This conversion will allow people driving alone to use the HOT lanes during restricted periods by paying a toll that varies based on congestion levels. Vehicles with two or more people will continue to be able to use the lanes for free.

VDOT is currently developing plans and installing equipment for the conversion to HOT Lanes, with operation expected to begin in Fall 2017.





The number of motor vehicle crashes in Hampton Roads decreased significantly at the end of the last decade. However, the trend has reversed with the number of crashes and injuries suffered in the region increasing throughout this decade.

There were a total of 26,853 crashes in Hampton Roads in 2016 according to data provided by the Virginia Department of Motor Vehicles. This is much lower than the 32,000 crashes that occurred yearly in the middle of last decade, and between 2007 and 2016 the number of crashes in Hampton Roads decreased 11%. However, the number of crashes experienced in the region annually has increased throughout this decade, increasing by 16% since 2010.

The number of injuries resulting from traffic crashes has followed a similar trend to the number of crashes, especially since 2010. There were 16,628 injuries that resulted from traffic crashes in Hampton Roads in 2016. This is up 15% from the 14,494 injuries that occurred in 2007, but is 24% higher than the 13,449 injuries in the region in 2010. The increase in the number of injuries in Hampton Roads over the last decade compares to a 2% decrease that was experienced across the Commonwealth during this time.

The number of fatalities in Hampton Roads has fluctuated – but overall decreased – over the last decade. There were 125 fatalities resulting from traffic crashes in Hampton Roads in 2016, or one fatality about every three days. This is down 19% from 155 fatalities in 2007, but slightly increased from 121 fatalities in 2015. However, the decrease in the number

NOTABLE ROADWAY SAFETY NUMBERS

11%
▼

The decrease in the number of crashes in Hampton Roads between 2007 and 2016.

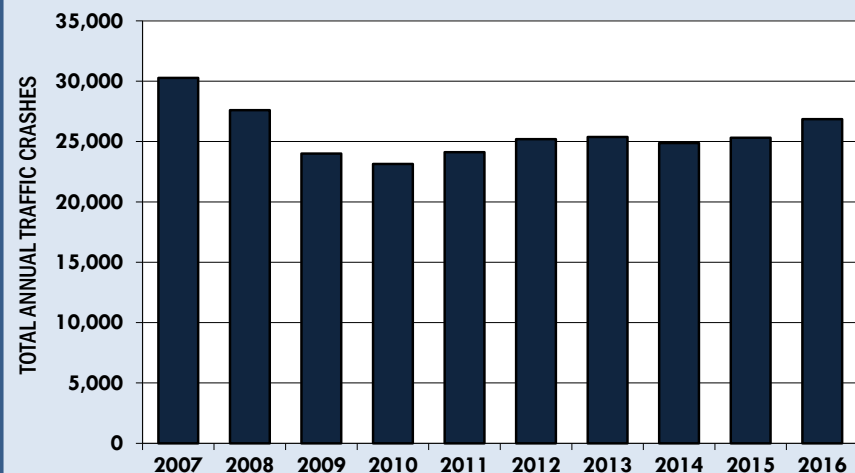
15%
▲

The increase in the number of injuries in Hampton Roads between 2007 and 2016.

19%
▼

The decrease in the number of fatalities in Hampton Roads between 2007 and 2016.

CRASHES IN HAMPTON ROADS, 2007-2016



Data source: Virginia DMV.



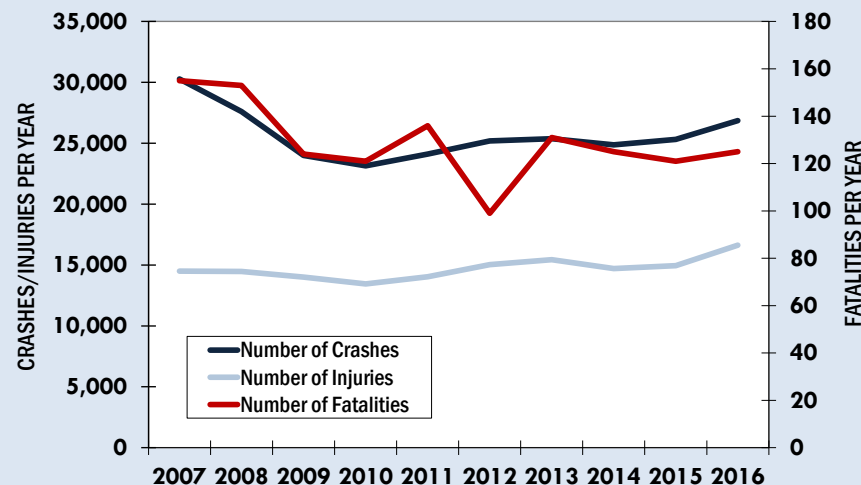
of fatalities in Hampton Roads over the last decade was less than the decrease seen across the state (-28%), but is similar to the decrease seen throughout the country (-17%).

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 2.19 crashes per million vehicle-miles of travel (VMT) in 2006 to 1.75 crashes per million VMT in 2015, a 20% decrease. This decrease in the crash rate is similar to the decrease seen across Virginia (-19%), and is much better than the change seen across the United States (+1%) during this period.



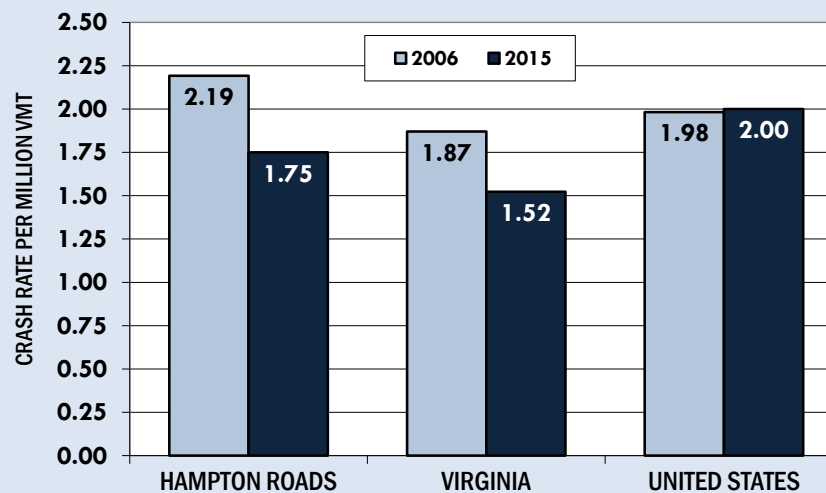
Despite the decrease, the crash rate in Hampton Roads was higher than the statewide rate in 2015, and was higher than the crash rate experienced in other metropolitan areas of Virginia including Northern Virginia (1.64 crashes per million VMT), Roanoke (1.69) and Richmond (1.70).

CRASHES, INJURIES, AND FATALITIES IN HAMPTON ROADS, 2007-2016



Data source: Virginia DMV.

TRAFFIC CRASH RATES IN HAMPTON ROADS, VIRGINIA, AND THE UNITED STATES, 2006 and 2015



Data sources: VDOT, Virginia DMV, NHTSA.

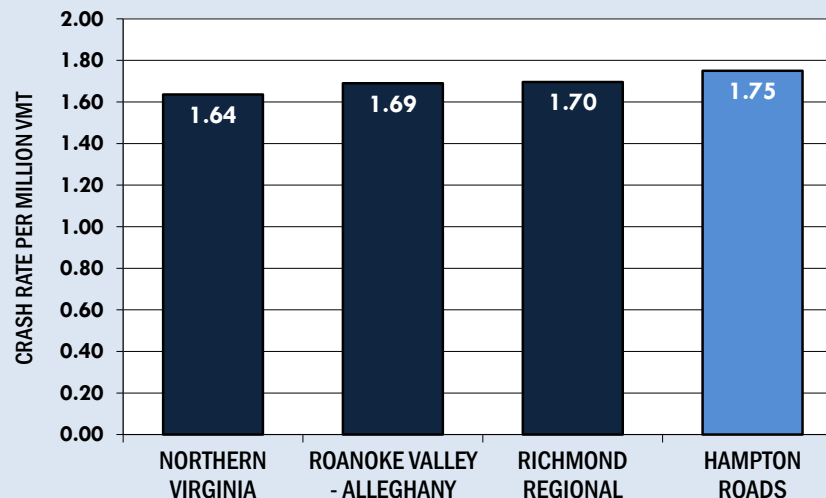


The fatality rate in Hampton Roads has also decreased over the last decade. The Hampton Roads crash fatality rate was 0.88 fatalities per 100 million VMT in the three-year period from 2013 to 2015, down 6% from 0.94 fatalities per 100 million VMT in the 2004 to 2006 time period (fatality rates are often reported over three year periods due to the number of fatalities that occur in any given year). The fatality rate in Hampton Roads from 2013 to 2015 was more than twice the rate experienced in the Northern Virginia area (0.38 fatalities per 100 million VMT). The fatality rate was also higher than the rate in the Richmond area (0.80), but was much lower than the fatality rate in the Roanoke area (1.02).



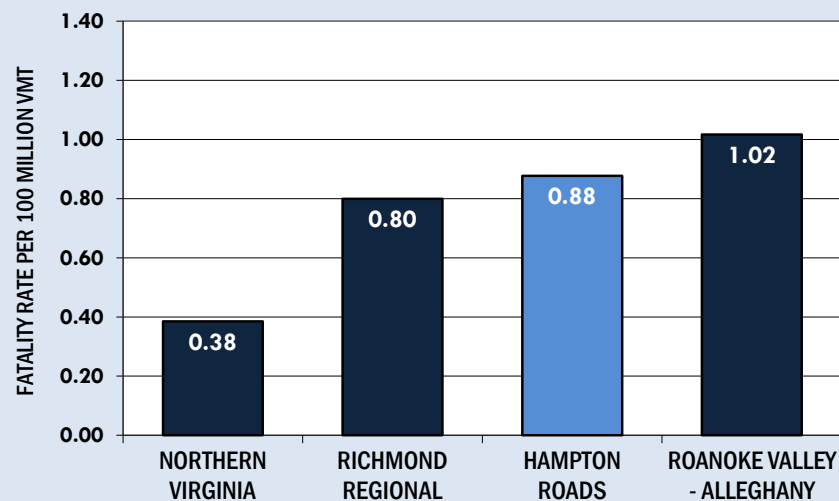
Safety belt use has an impact on the number of injuries and fatalities resulting from crashes. In 2015, Virginia had an observed safety belt usage rate of 80.9% according to a study done for the DMV by Old Dominion University. Hampton Roads usage rates were higher than the statewide rate, with the cities on the Southside having an observed safety belt usage rate of 82.4% in 2015. This rate is lower than the

TRAFFIC CRASH RATES IN VIRGINIA METROPOLITAN AREAS, 2015



Data sources: VDOT, Virginia DMV.

TRAFFIC CRASH FATALITY RATES IN VIRGINIA METROPOLITAN AREAS, 2013-2015



Data sources: VDOT, Virginia DMV.



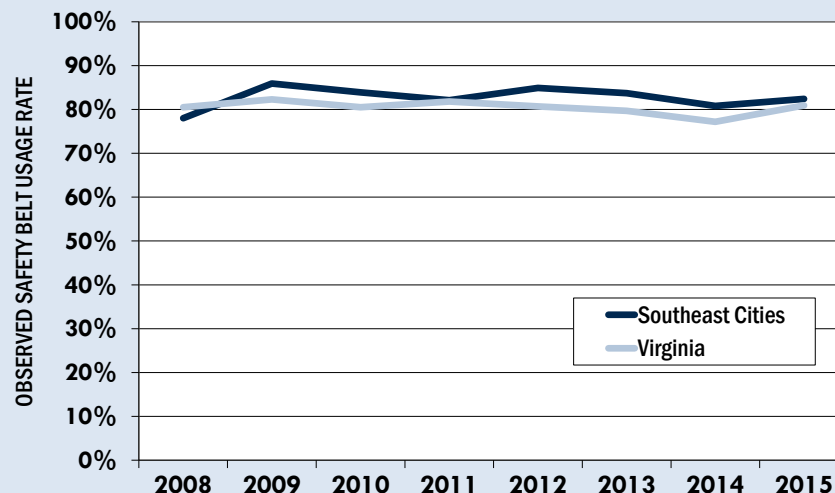
85.9% rate seen in 2009 but higher than the 78.0% usage rate seen on the Southside in 2008.

Virginia's safety belt usage rate in 2015 (80.9%) was lower than the national rate of 88.5%, and only ten states had a lower statewide usage rate than Virginia. This is largely due to Virginia not having 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 35 states/districts that had primary enforcement safety belt laws in 2015, only two (Arkansas and Mississippi) had a lower safety belt usage rate than Virginia.



HRTPO prepares an analysis of regional roadway safety through the Hampton Roads Regional Safety Study. This study examines regional crash trends, the location of crashes throughout the region, and countermeasures to improve roadway safety. More information on the Hampton Roads Regional Safety Study is available at <http://www.hrtpo.org/page/roadway-safety>.

SAFETY BELT USAGE RATE IN SOUTHSIDE HAMPTON ROADS AND VIRGINIA, 2008-2015



Data source: Old Dominion University Seat Belt Use in Virginia report. Southside includes the area defined in the report as South East Cities, which includes Norfolk, Portsmouth, Virginia Beach, Chesapeake, and Suffolk. The sampling methodology was updated in 2012 to match NHTSA standards, so caution should be exercised for comparisons with data prior to 2012 according to the study's authors.



Over 18,000 trucks enter and exit Hampton Roads each weekday, serving not only the third busiest port on the East Coast but also supporting the commerce and economic vitality of the region.

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

In 2016, over 18,000 trucks entered or exited Hampton Roads through major gateways each weekday. The number of trucks passing through Hampton Roads gateways has increased each year since 2012. However, the number of trucks is still lower than the 20,000 trucks that passed through major regional gateways each weekday in 2007, prior to the start of the economic downturn.

The primary gateway for trucks entering or exiting Hampton Roads is I-64. An average of 6,200 trucks used I-64 to enter or exit the region each weekday in 2016, which accounted for 34% of the trucks passing through the region's major gateways. The share of trucks using I-64, however, has decreased, down from 37% in 2007. The next most heavily-used gateways to the region are Route 58 (4,300 trucks each weekday in 2016) and Route 460 (2,400 trucks). Both Route 58 and Route 460 have seen an increasing share of trucks entering and exiting the region over the last decade. Combined, I-64, Route 58, and Route 460 accounted for 71% of all trucks passing through the region's major gateways in 2016.

NOTABLE TRUCK TRAVEL NUMBERS

16%

The decrease in the amount of truck travel each day in Hampton Roads between 2007, before the downturn in the economy began, and 2015.

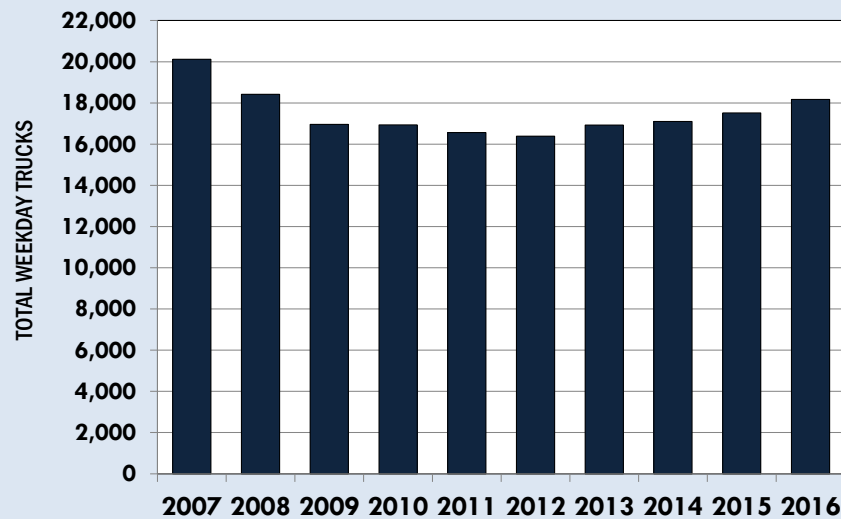
10%

The decrease in the number of trucks that entered or exited Hampton Roads each weekday at major gateways between 2007 and 2016.

61%

The percentage of all freight handled by the Port of Virginia that was transported by truck in 2016.

NUMBER OF TRUCKS PASSING THROUGH HAMPTON ROADS GATEWAYS EACH WEEKDAY, 2007-2016



Data sources: VDOT, CB&T.



There was a total of 1.2 million miles of truck travel each day in Hampton Roads in 2015 according to VDOT, which accounted for 3.0% of the 40 million vehicle-miles of travel experienced each day throughout the region. Although regional truck travel levels have increased from the lows seen in 2012, it is still 16% lower than the level seen in 2007.

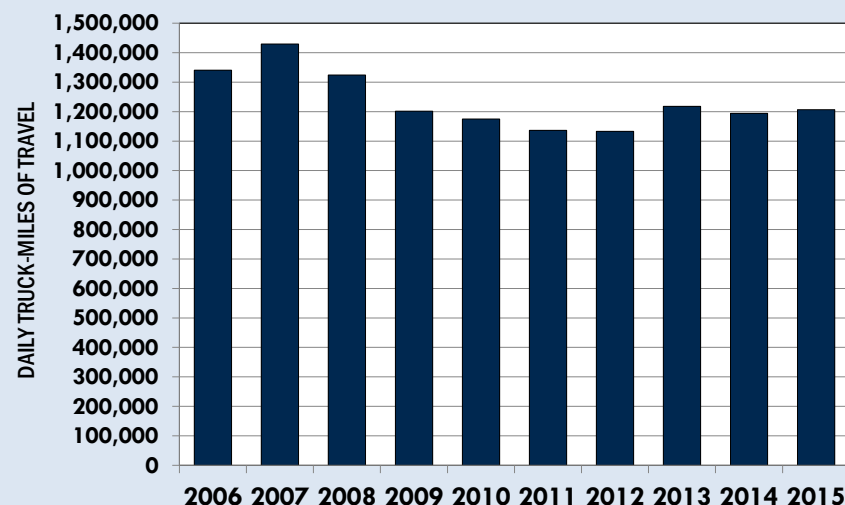
A major issue involving truck travel in Hampton Roads is overheight trucks at the tunnels. This is especially an issue at the Downtown Tunnel and at the westbound Hampton Roads Bridge-Tunnel (HRBT), which has a lower vertical clearance than other tunnels in the area. A total of 15,400 trucks were stopped, measured, and turned around at tunnels in Hampton Roads in 2016, 7,400 of which occurred at the Downtown Tunnel and 7,100 of which occurred at the westbound Hampton Roads Bridge-Tunnel. A total of 1,437 of these HRBT 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.



TRUCK AT NIT

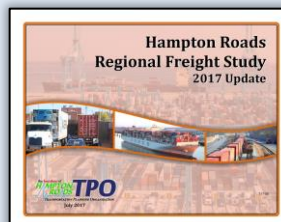
Image Source: VDOT.

DAILY TRUCK TRAVEL IN HAMPTON ROADS, 2006-2015



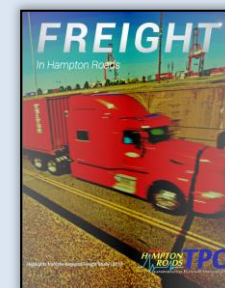
Data source: VDOT.

HRTPO REGIONAL FREIGHT STUDY



For the past two decades, the HRTPO has engaged in numerous freight planning activities, including the development of the **Hampton Roads Regional Freight Study**, which serves as a comprehensive resource document on the multimodal transportation system. This report details the movement of goods across all freight facilities—highways, ports, railways, and airports. Special emphasis is placed on freight moving by trucks across highways as they serve as the predominant mover of freight.

As part of this effort, HRTPO also produced a **freight brochure**. The brochure details why freight is important to Hampton Roads, how freight arrives in the region, the impacts of congestion on the trucking industry, and many key freight-related facts.





Public transportation usage increased sharply in Hampton Roads throughout the economic downturn, fueled by new travel modes and payment options. Transit ridership levels, however, have decreased in the region since peaking in 2012.

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. In addition, smaller transit agencies also provide service in the area, such as Suffolk Transit.

There were 17.5 million unlinked trips* taken on HRT, WATA, and Suffolk Transit public transportation services in Hampton Roads in 2016. This number includes ridership on regular and express buses, tourist oriented services, light rail, demand response/paratransit, vanpools, and the passenger ferry. These public transportation trips help reduce congestion in the region, resulting in 45 million fewer vehicle-miles traveled and \$13.5 million saved in vehicle operating costs in 2015 according to estimates from a study prepared by the Economic Development Research Group.

The number of trips on public transportation in Hampton Roads increased significantly during the economic downturn, with a 32% increase in annual ridership levels from 2007 to 2012. However, ridership levels peaked in 2012 and have decreased each year since then. Ridership levels in 2016, while 18%

NOTABLE PUBLIC TRANSPORTATION NUMBERS

▲
8%

The increase in the annual number of passenger trips taken on public transportation in Hampton Roads from 2007 to 2016.

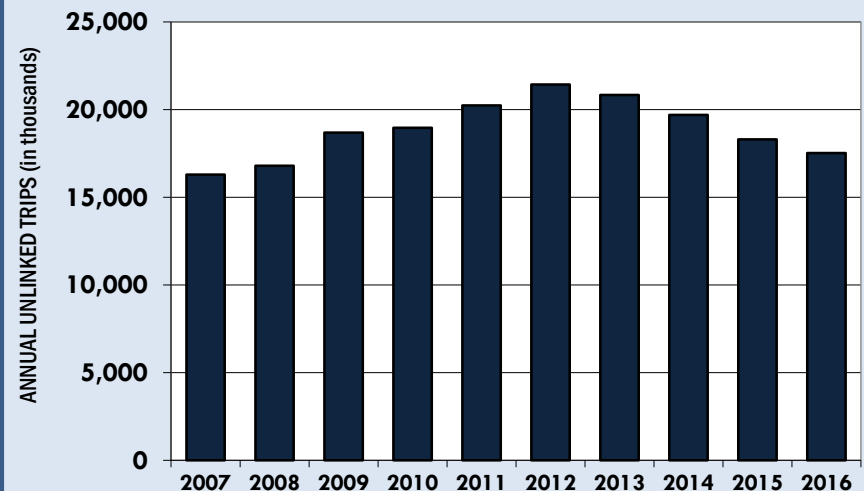
25th

Hampton Roads rank among the 37 large metropolitan areas with populations between one and three million people in terms of public transportation use per capita in 2016.

27th

Hampton Roads rank among the 37 large metropolitan areas in terms of transit operating and capital expenses per capita in the most recent National Transit Database data.

PASSENGER TRIPS TAKEN ON PUBLIC TRANSPORTATION IN HAMPTON ROADS, 2007-2016



Data sources: HRT, WATA, American Public Transportation Association (APTA).

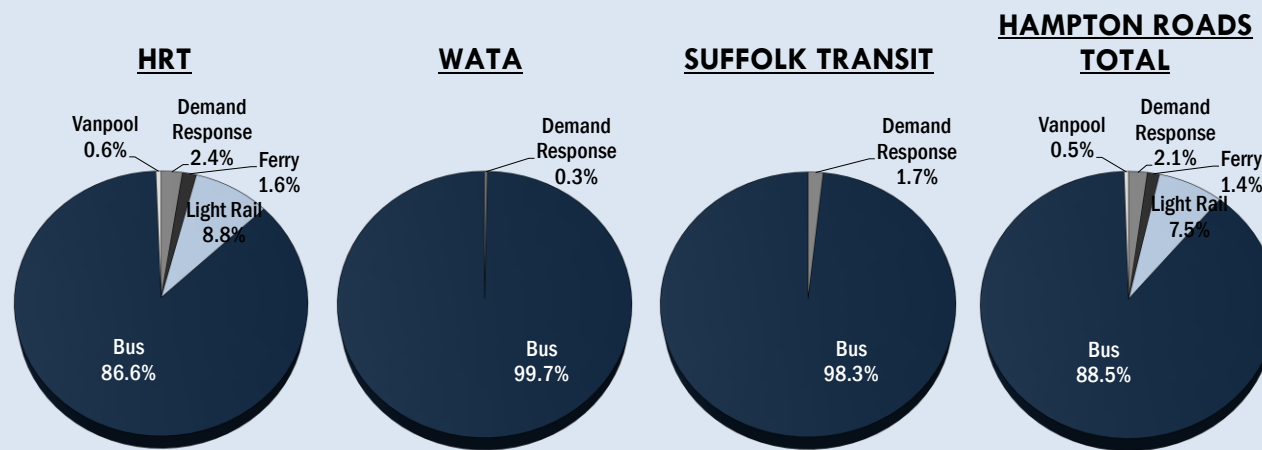
* - An unlinked trip is a passenger trip made on one transit vehicle. If a passenger boards two buses to get from origin to destination that is considered to be two unlinked trips.



below the peak seen in 2012, were still 8% above the levels seen in 2007.

The vast majority of public transportation trips in Hampton Roads – 89% in 2016 – are taken on regular or express bus service. Light rail comprised 9% of all HRT transit trips and 7% of all regional transit trips, and all other modes (including ferry, demand response/paratransit services, and vanpools) comprised the remaining 4%.

TRANSIT USAGE BY MODE AND AGENCY IN HAMPTON ROADS, 2016



Data sources: HRT, WATA, Suffolk, and APTA.

PUBLIC TRANSPORTATION OPTIONS IN HAMPTON ROADS

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 HRT, WATA and Suffolk Transit.



Express Bus

Regional express bus service, known as the MAX, is provided by HRT between various locations on the Peninsula and Southside.



Tourist Oriented Services

Tourist-oriented service in Hampton Roads includes the VB WAVE at the Oceanfront, Colonial Williamsburg shuttle services, and the Williamsburg and Yorktown Trolleys.



Light Rail

HRT began operating light rail service on a 7.4-mile starter line in Norfolk in 2011.



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 Co. and Jamestown.



Commuting Alternatives

Commuting alternatives are provided by Traffic. These alternatives include ridesharing, telecommuting, van leasing, and guaranteed ride programs.



Paratransit

HRT, WATA, and Suffolk Transit offer demand response/paratransit services using a variety of vehicles, including lift-equipped vans.

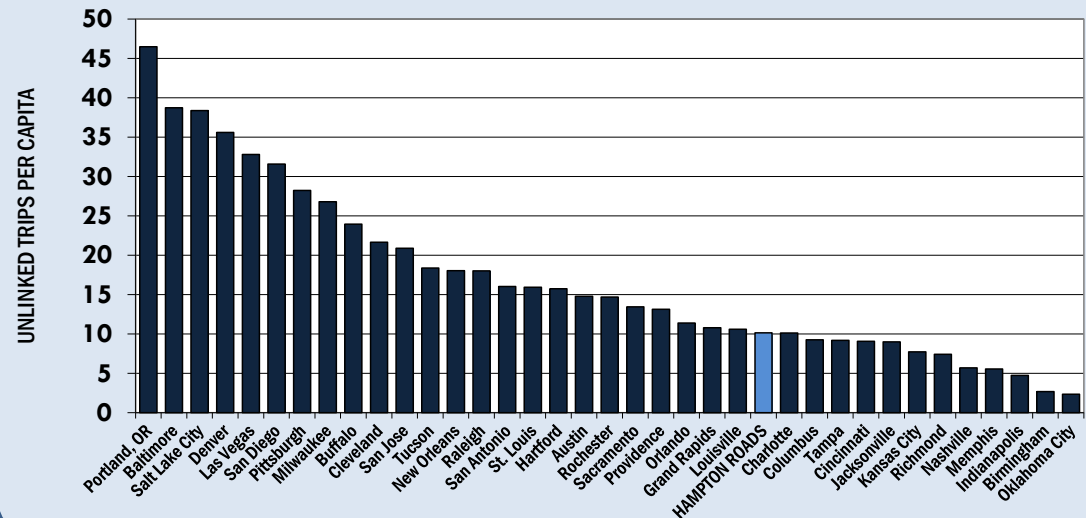


Public transportation usage in Hampton Roads continues to lag behind other metropolitan areas. At 10.1 passenger trips on public transportation per capita in 2016, Hampton Roads ranked 25th highest among the 37 large metropolitan areas with populations between one and three million people. Metropolitan areas such as Portland, Baltimore, Salt Lake City, and Denver have transit usage rates per capita from three to more than four times higher than Hampton Roads.



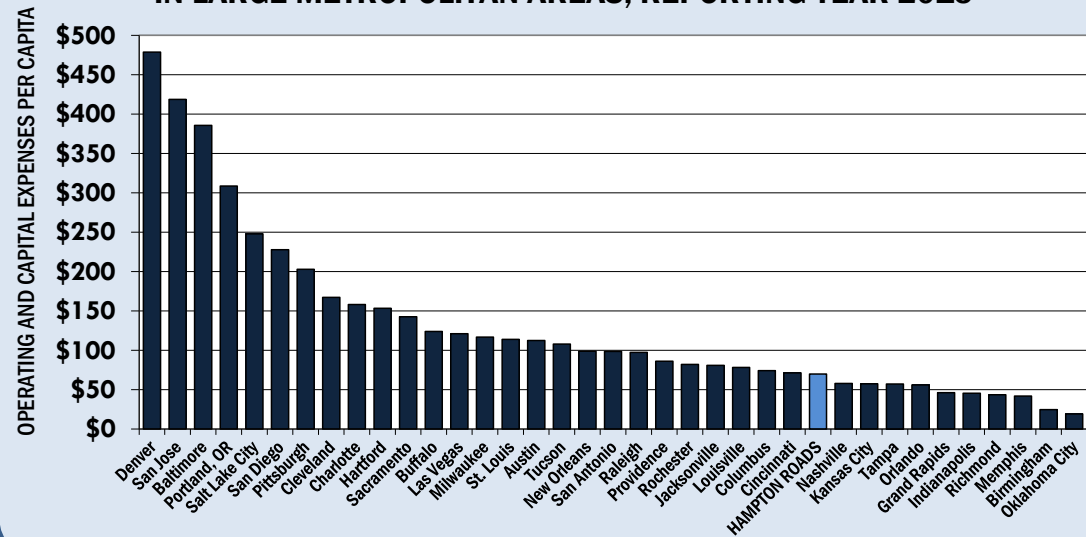
Hampton Roads spends less on public transportation on a per capita basis than many other comparable metropolitan areas. According to an analysis of the National Transit Database, \$70 was spent per capita on transit operating and capital expenses in Hampton Roads in Reporting Year 2015. This ranked the region 27th highest among the 37 large metropolitan areas. Areas such as Denver and San

PASSENGER TRIPS PER CAPITA ON PUBLIC TRANSPORTATION IN LARGE METROPOLITAN AREAS, 2016



Data sources: HRT, WATA, American Public Transportation Association (APTA), Census Bureau.

TRANSIT OPERATING AND CAPITAL EXPENSES PER CAPITA IN LARGE METROPOLITAN AREAS, REPORTING YEAR 2015



Data source: National Transit Database, Census Bureau.



Jose spent six times more per capita on public transportation than was spent in Hampton Roads.

This level of spending on public transportation in Hampton Roads contributes to an aging vehicle fleet. The average age of HRT buses was 9.3 years as of January 2017, which is more than three years beyond FTA's recommended average fleet age. Nearly 60 buses – 18% of HRT's fleet – are at least 15 years old, and only 26% of the fleet is six years old or younger. On average, HRT buses have traveled over 400,000 miles.

Much of WATA's fleet has been replaced in recent years, which decreased the average age of WATA buses from 10 years in 2015 down to just under 6 years in 2017.

Transit buses are much older in Hampton Roads than in other comparable metropolitan areas. Among large metropolitan areas throughout the country with populations between one and three million people, the median age of transit buses was 7.3 years in Reporting Year 2015 according to the National Transit Database. Only two metropolitan areas – San Antonio and

NEW DEVELOPMENTS



Downtown Norfolk Transit Center – HRT's new Downtown Norfolk Transit Center opened in January 2016. The new center – which serves 14 routes – has interior waiting spaces, restrooms, improved security, and a customer service desk.

Virginia Beach Light Rail – The City of Virginia Beach held a referendum on light rail in November 2016. The ballot question “Should City Council of Virginia Beach spend local funds to extend Light Rail from Norfolk to Town Center in Virginia Beach” was rejected with 57% of the vote. Based on the results of the referendum, the City of Virginia Beach terminated all work on the project.

Transit Extension Studies – HRT currently has two transit extension studies underway. The Norfolk Westside Transit Study – a joint effort between HRT and the City of Norfolk – was initiated in April 2017. The study will explore a potential connection from the existing Tide light rail system along the western side of Norfolk.

The Peninsula Corridor study was initiated in March 2016 by HRT in partnership with Hampton and Newport News. This study will define potential alignments, preferred transit technologies, potential funding, and implementation phasing for high capacity transit on the Peninsula.



HRT has also initiated work on its Transit Development Plan (TDP), which is a fiscally-constrained, ten-year plan for improving transit service. WATA completed its most recent TDP in 2016.

Student Freedom Pass – In August 2016 HRT launched the Student Freedom Pass, which allows youths ages 13-17 years old to use Hampton Roads Transit's service for free. Students must apply for and use the Pass in order to ride for free.



Indianapolis – had an average transit bus age of 10 years or greater in Reporting Year 2015.

AllTransit, which is a joint project of the Center for Neighborhood Technology and TransitCenter, has produced an analysis of transit in each area based on data assembled from 800 transit agencies. One measure produced by Alltransit – the AllTransit Performance Score – is an overall transit score that looks at connectivity, access to land area and jobs, and frequency of service. Examples of factors included in the score are connections to other routes, the number of workers using transit to travel, jobs accessible in a 30-minute transit ride, and jobs, workers, and households within ½ mile of transit.

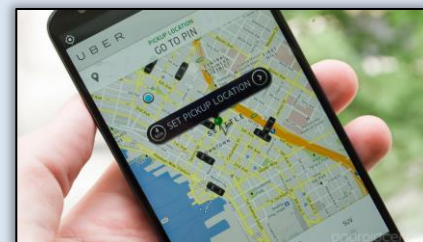


Areas are given a score from 1 to 10, with higher scores indicating better performance according to AllTransit's analysis. Hampton Roads, with a score of 3.2, ranks 21st highest among the 37 metropolitan areas with a population between one and three million people.

BEHIND THE NUMBERS

As shown previously in this section, transit usage in Hampton Roads continued to decrease in 2016. However, this is not unique. Transit ridership decreased in most metropolitan areas throughout the United States in 2016, and nationwide transit usage was down 2.3% from 2015 to 2016 according to the American Public Transportation Association. There are a number of reasons that are contributing to this decrease in transit usage, including:

- Ridehailing services – On-demand transportation services such as Uber and Lyft have greatly expanded in recent years, at the expense of traditional services such as transit and taxi.
- Lower driving costs - Gas prices cost half as much as they did in 2011, making driving costs more economical.
- System Reliability – Many older systems, such as those in New York and Washington D.C., have had high profile reliability issues. These issues have led to service disruptions for maintenance, such as Washington's SafeTrack program.
- The Economy – Ridership increased late in the last decade and earlier this decade through the economic downturn. With the economy improving in recent years, transit levels are returning to previous levels.
- Active Transportation – Many areas are seeing increases in bicycling and walking, and have added infrastructure and amenities to improve these modes.





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

Active transportation is defined as including all forms of human-powered transportation. The most common forms of active transportation are bicycling and walking, but it also includes using a wheelchair and activities such as in-line skating or skateboarding. 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.



SUFFOLK SEABOARD COASTLINE TRAIL

Image Source: Clark Nexsen

There are currently over 1,300 miles of shared use paths, bike lanes, paved shoulders, wide sidewalks, signed shared roadways, and trails

TYPES OF ACTIVE TRANSPORTATION FACILITIES

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

Bike Lanes

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



Shared Use Paths

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



Paved Shoulders

A paved portion of a roadway to the right of the edge stripe on which bicyclists may ride. These areas are not to be marked as bike lanes.



Wide Outside Lanes

An outside travel lane with a width of at least 14 feet.



Signed Shared Roadway

A roadway designated by bike route signs that serve to provide continuity to other bicycle facilities.



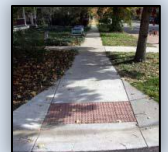
Grade Separated Crossing

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



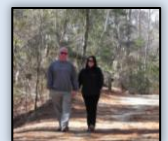
Sidewalks

Non-motorized facilities between the curb line and adjacent property line that are designed primarily for foot traffic and users with smaller wheeled devices.



Trails

Routes developed primarily for outdoor recreational purposes.





that comprise the bicycle and pedestrian network across Hampton Roads. These non-motorized facilities vary greatly in type and length, from secluded paths in parks to dedicated lanes along major thoroughfares to popular facilities at the Virginia Beach Oceanfront.



SHORE DRIVE BIKE LANE

Image Source: HRTPO

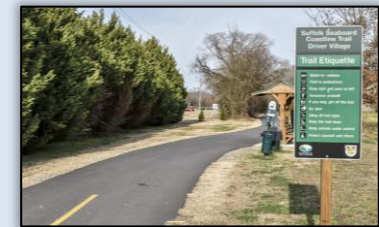
In recent years, several major non-motorized facilities have been added in Hampton Roads. Examples of these facilities include the conversion of the old section of Route 17 in Chesapeake into the Great Dismal Swamp Trail, sections of the Suffolk Seaboard Coastline Trail, the addition of bike lanes along a hazardous section of Shore Drive in Virginia Beach, and the completion of the Virginia Capital

NEW DEVELOPMENTS



Virginia Capital Trail – Construction on the Virginia Capital Trail was completed in October 2015. The 52-mile off-road, multi-use path connects Jamestown with Downtown Richmond. The Hampton Roads portion of the trail in James City County was completed in 2007.

Suffolk Seaboard Coastline Trail – The Suffolk Seaboard Coastline Trail is envisioned as an 11 mile trail that will connect Downtown Suffolk with the City of Chesapeake. The first portion of the trail, a 2.3-mile section near the village of Driver, opened in October 2015. Another 1.1-mile section of the trail was completed between Shoulders Hill Road and the Chesapeake City Line in early 2017. The next phase will likely extend the trail another 1.3 miles to Nansemond River High School.



Regional Trails – Planning is underway on a number of facilities. The South Hampton Roads Trail is planned as a 41 mile trail connecting Suffolk with the Virginia Beach Oceanfront. Over three miles of the trail, overlapping the Suffolk Seaboard Coastline Trail, is complete. Planning is also underway on the Birthplace of America Trail, which is described later in this section.

The East Coast Greenway is anticipated to be a 3,000 mile trail network, of which 81 miles is slated to run through Hampton Roads on the complementary Historic Coastal Route. The Hampton Roads alignment includes sections of the Virginia Capital Trail and Dismal Swamp Canal Trail. As of 2017, 30% of the East Coast Greenway is complete.





Trail, which connects Jamestown and Downtown Richmond with a 52-mile facility.



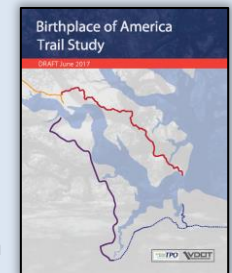
Most jurisdictions in Hampton Roads incorporate active transportation in their planning efforts. Examples include a [bicycle advisory committee](#) that helped prepare a Regional Bicycle Facilities Plan and Bikeway Map in the Historic Triangle, Virginia Beach produced an update to their [Bikeways and Trails Plan](#), Norfolk produced a [Bicycle and Pedestrian Strategic Plan](#), Hampton produced the [Bike Walk Hampton](#) Strategic Bicycle and Pedestrian Plan, and Isle of Wight County produced a [Pedestrian and Bicycle Facilities Master Plan](#). Other localities are also in the process of producing or updating their own plans.

HRTPO ACTIVE TRANSPORTATION EFFORTS

HRTPO has expanded incorporating active transportation into its planning process in recent years. Recent HRTPO active transportation efforts have included:

Long-Range Planning – HRTPO evaluated active transportation projects in the 2040 Long-Range Transportation Plan for the first time. A total of 29 candidate active transportation projects were evaluated, with 13 projects being included in the approved plan.

Signature Paths Study – The purpose of [this study](#) – which was completed in 2016 – was to locate inactive railroad right-of-ways in the region and analyze the costs and benefits of converting them to multi-use bike/pedestrian paths.



Birthplace of America Trail – The HRTPO has developed a proposed route for an off-road paved multi-use path connecting the Hampton Roads region to the Virginia Capital Trail. This is described in detail later in this section.

HRTPO Active Transportation Subcommittee – In 2016, HRTPO created a subcommittee to discuss extending the Virginia Capital Trail southeastward from its current Jamestown terminus to Fort Monroe and the western terminus of the proposed South Hampton Roads Trail in Suffolk. Based on the success of the Birthplace of America Trail effort, HRTPO formed an Active Transportation Subcommittee in 2017.

Regional Active Transportation Plan – HRTPO staff is beginning to undertake a multi-year effort to create the region's first stand-alone Active Transportation Plan. The plan will identify the region's Principal Regional Active Transportation Network, develop guiding principles and criteria for evaluating network alternatives, prioritize projects, and develop regional policies, performance targets, and design standards.

Ongoing Studies – HRTPO has a number of ongoing studies related to active transportation, including:

- An analysis of active transportation safety on a regional level
- An inventory of gaps in the transportation system
- An analysis of complete streets, where underutilized vehicular lanes could be repurposed to enable safe access and travel for users of all travel modes.

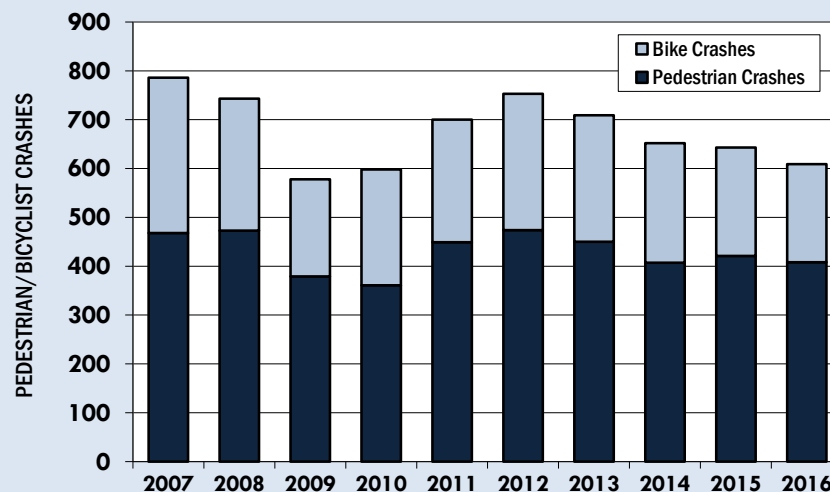


In addition, VDOT develops statewide active transportation plans. The [State Bicycle Policy Plan](#) – adopted in 2011 – includes policy recommendations that will guide the planning, design, construction, operation and maintenance of bicycle facilities. The [State Pedestrian Policy Plan](#) – adopted in 2014 – establishes a vision for the future of walking in Virginia. The plan is a guide for officials, organizations, and individuals to improve pedestrian policy and accommodations. Much of the planning for these efforts has been conducted through the Virginia Statewide Bicycle and Pedestrian Advisory Committee (BPAC), and the Hampton Roads Pedestrian and Bicycle Advisory Committee (PABAC).

Although it is difficult to measure the total amount of walking and bicycling, the percentage of people that commute to work by mode is measured by the Census Bureau. In Hampton Roads, 3.2% of workers walked or rode bicycles to commute to work in 2015. This percentage has decreased since 2010, when 3.8% walked or biked to work, but increased from the 3.0% walking or biking to work in 2000.

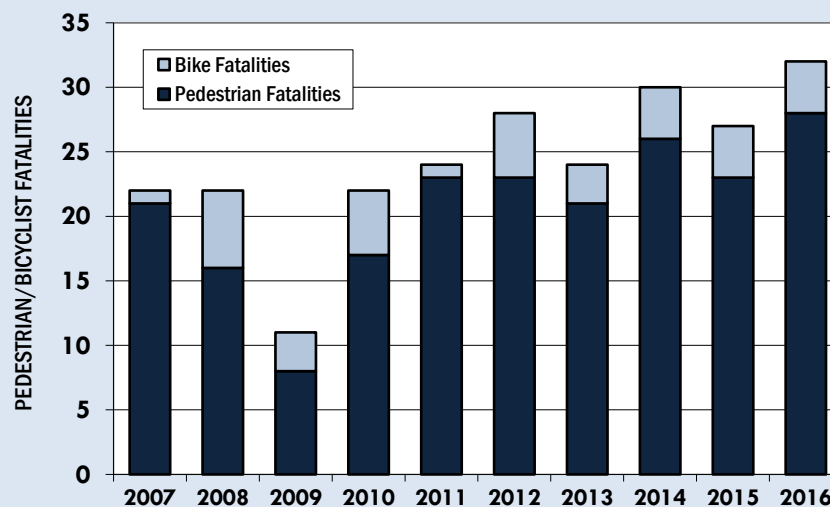
With the emphasis on providing facilities for active transportation users, improving the safety of pedestrians and bicyclists is critical. There were 609 active transportation crashes – 408 involving pedestrians and 201 involving bicyclists – in Hampton Roads in 2016. These crashes resulted in a total of 32 fatalities, 28 of which were pedestrians and 4 of which were bicyclists. The number of crashes involving pedestrians and bicyclists in Hampton Roads has decreased each year since 2012, and is 23% lower than the number seen in 2007. The number of pedestrian and bicyclist fatalities in Hampton Roads, however, has increased over the last decade. Pedestrian and bicyclist crashes comprised 3% of the total crashes in Hampton Roads over the last decade, but

CRASHES INVOLVING PEDESTRIANS OR BICYCLISTS IN HAMPTON ROADS, 2007-2016



Data source: Virginia DMV.

PEDESTRIAN/BICYCLIST FATALITIES IN HAMPTON ROADS, 2007-2016



Data source: Virginia DMV.



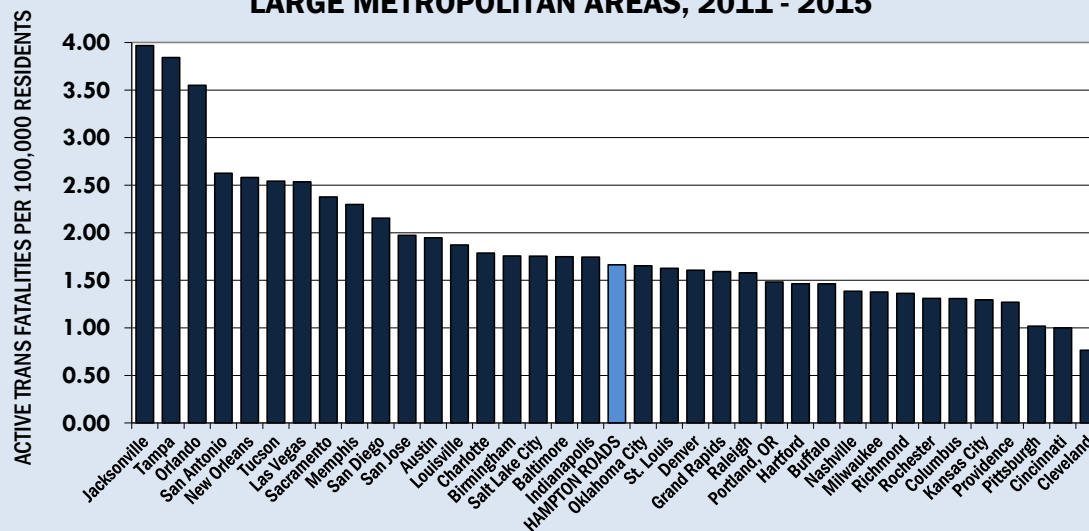
comprised 19% of all roadway fatalities in the region during this time.

The rate of active transportation fatalities in Hampton Roads is typical of other comparable areas. Hampton Roads ranked 19th highest among the 37 large metropolitan areas between one and three million people in terms of the rate of active transportation fatalities per resident for the years 2011 - 2015.

More information on HRTPO's expanding Active Transportation planning efforts is available at

<http://www.hrtpo.org/page/active-transportation>.

ACTIVE TRANSPORTATION FATALITIES PER 100,000 RESIDENTS, LARGE METROPOLITAN AREAS, 2011 - 2015



Data source: FARS.

BIRTHPLACE OF AMERICA TRAIL

HRTPO staff, with assistance from VDOT and a subcommittee made up of localities and local agencies, has been involved in studying the Birthplace of America Trail (BOAT). The BOAT is envisioned as an extension of the Virginia Capital Trail from its current terminus at Jamestown to Fort Monroe and the western terminus of the South Hampton Roads Trail, which would provide a connection all the way to the Virginia Beach Oceanfront. Once built, the Virginia Capital Trail, Birthplace of America Trail, and South Hampton Roads Trail will connect Richmond to Coastal Virginia with over 140 miles of separated, paved off-road trails.

The [Birthplace of America Trail study](#) was adopted by the HRTPO Board in July 2017. With the study adopted, HRTPO staff and localities will be working towards finding funding for constructing and marketing the trail.





In recent years, legislation has been passed by the Virginia General Assembly that comprehensively reforms how transportation projects are funded and selected, and created funding specifically devoted to constructing major projects in Hampton Roads.

With statewide transportation funding levels falling well behind needs, the Virginia General Assembly passed House Bill (HB) 2313 in 2013. HB 2313 comprehensively reformed how transportation is funded throughout the Commonwealth and increased 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 ports, aviation, public transportation, space flight, and rail. For Fiscal Year 2018, the CTB approved a \$6.1 billion transportation budget for the State of Virginia, which is slightly larger than the \$6.0 billion budget in FY 2017. The CTB projects that a total of \$36.0 billion will be available in the statewide transportation budget for FY 2018-2023, which is 12% higher than the budgets from FY 2012-2017.

HB 2313 also created a dedicated regional funding stream for Hampton Roads. Increases in regional sales and fuel wholesale taxes has generated \$613 million as of May 2017, and is projected to produce \$1.0 billion in FY 2018-2023 for use on major regional roadway, bridge, and tunnel projects.

NOTABLE TRANSPORTATION FINANCING NUMBERS

▲
12%

The projected increase in Virginia's statewide transportation budget from Fiscal Years (FY) 2012-2017 to FY 2018-2023.

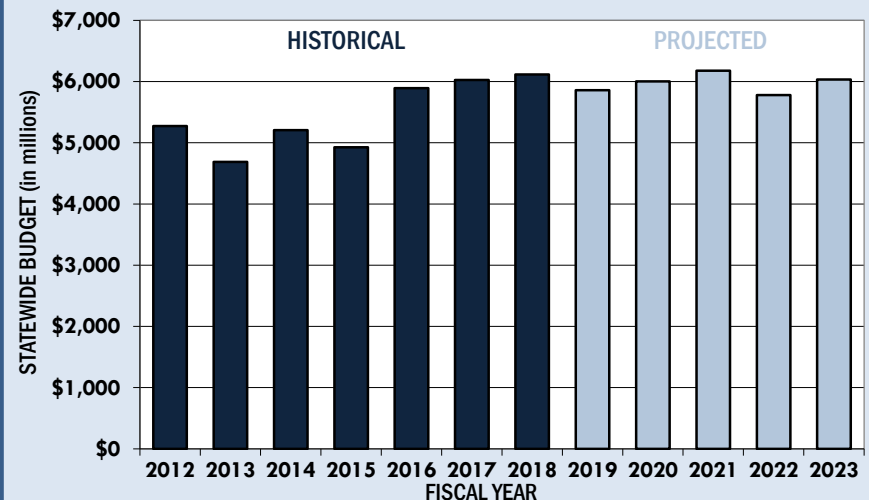
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8%

The projected increase in funding that will be available for new highway construction statewide from FY 2012-2017 to FY 2018-2023.

40th

Virginia's rank among the 50 states and D.C. in terms of average taxes and fees collected on each gallon of unleaded gasoline as of July 1st, 2017.

HISTORICAL AND PROJECTED STATE TRANSPORTATION BUDGET, FY 2012-2023



Data source: VDOT. State fiscal year runs from July 1 to June 30 of the listed year. Projected budgets as of July 1, 2017. Includes all revenues from HB2313, including regional revenues.



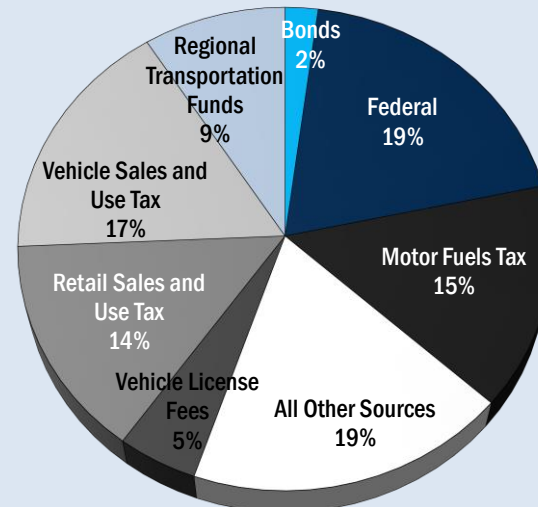
The amount of revenue by source for Virginia's transportation budget has changed based on HB 2313. The motor fuel tax was the most impacted source, decreasing from 20% of transportation revenues in FY 2013 to 15% in FY 2018. Federal sources, the vehicle sales and use tax, the retail sales and use tax, and the tax on motor fuels all comprise between 14%-19% of Virginia's transportation revenues in FY 2018. The regional transportation taxes levied in Hampton Roads and Northern Virginia comprise another 9% of Virginia's transportation revenue.

The amount of money necessary to operate and maintain Virginia's aging roadways and bridges continues to increase. Between FY 2018-2023, \$13.2 billion will be allocated statewide to maintenance and operations. This is up 14% from the \$11.6 billion allocated between FY 2012-2017.

The amount of funding available for new roadway construction is expected to grow as well. Including the regional roadway funds, \$13.0 billion is projected to be available for new roadway construction in Virginia between FY 2018-2023. This is up 8% compared to the \$12.1 billion in funding that was allocated to construction in FY 2012-2017.

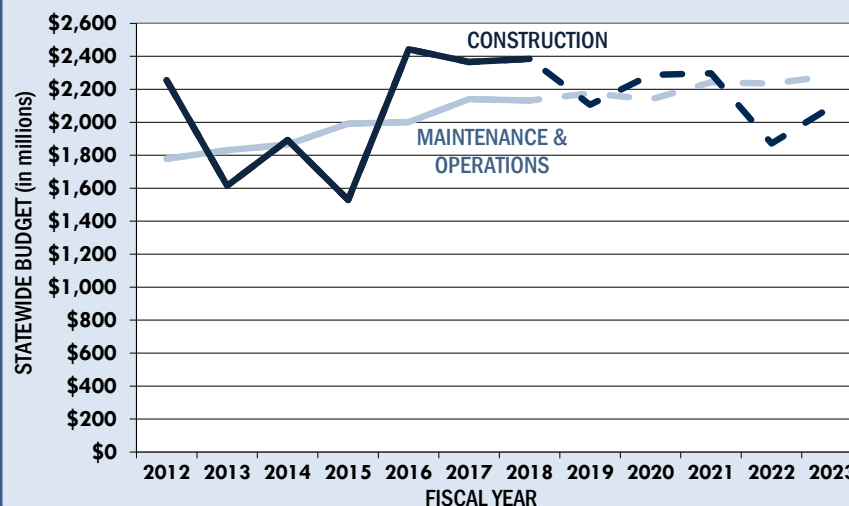
Historically, the amount of funding allocated to roadways in Virginia has lagged behind other states, but that has improved in recent years. Using the most recent data available from the U.S. Census Bureau (2014), Virginia ranked 25th highest among the 50 states and the District of Columbia in highway expenditures per capita. This is the highest that Virginia has ranked over the previous decade, and Virginia ranked as low as 44th in 2010. This improvement is largely due to the implementation of HB 2313 in 2013.

TRANSPORTATION REVENUES IN VIRGINIA BY SOURCE, FISCAL YEAR 2018



Data source: VDOT.

HISTORICAL AND PROJECTED STATEWIDE FUNDING MAINTENANCE VS. CONSTRUCTION, FY 2012-2023



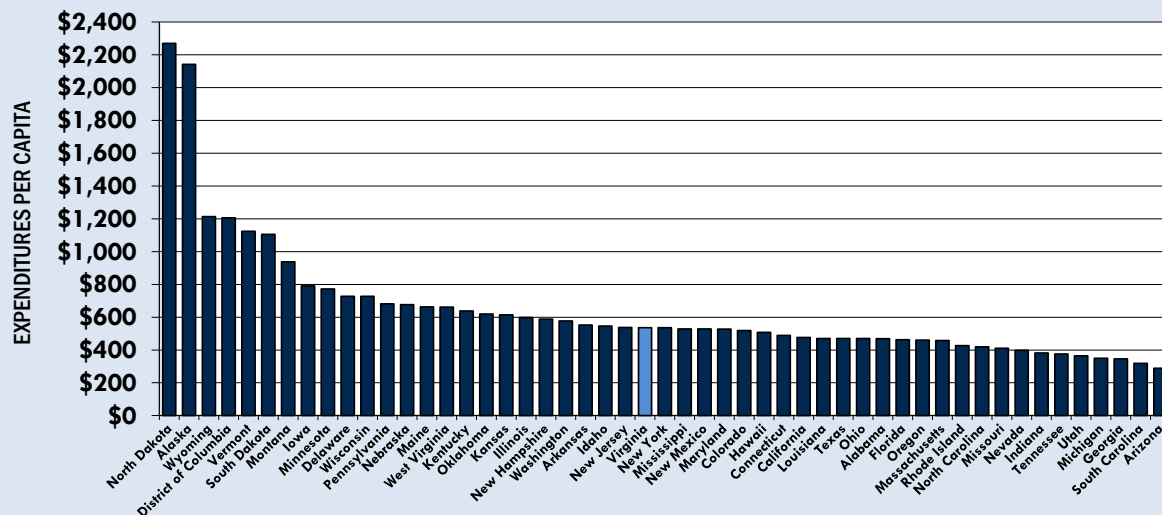
Data source: VDOT. FY 2019-2023 data is projected as of July 1, 2017. Includes all revenues from HB 2313, including regional revenues.



Historically, the level of gasoline taxes and fees collected in Virginia was lower than in most other states, and this continues in spite of the recent tax increases. The current gasoline tax is comprised of 5.1% of the statewide average wholesale price of gasoline, 0.6 cents per gallon statewide for the petroleum underground storage tank fund, and an additional 2.1% regional tax on the gasoline wholesale price in Hampton Roads and Northern Virginia. The tax increased by an additional 5 cents per gallon on January 1st, 2015, due to language in HB 2313 that took effect when Congress failed to pass legislation permitting Virginia to require internet businesses to collect state and local taxes.

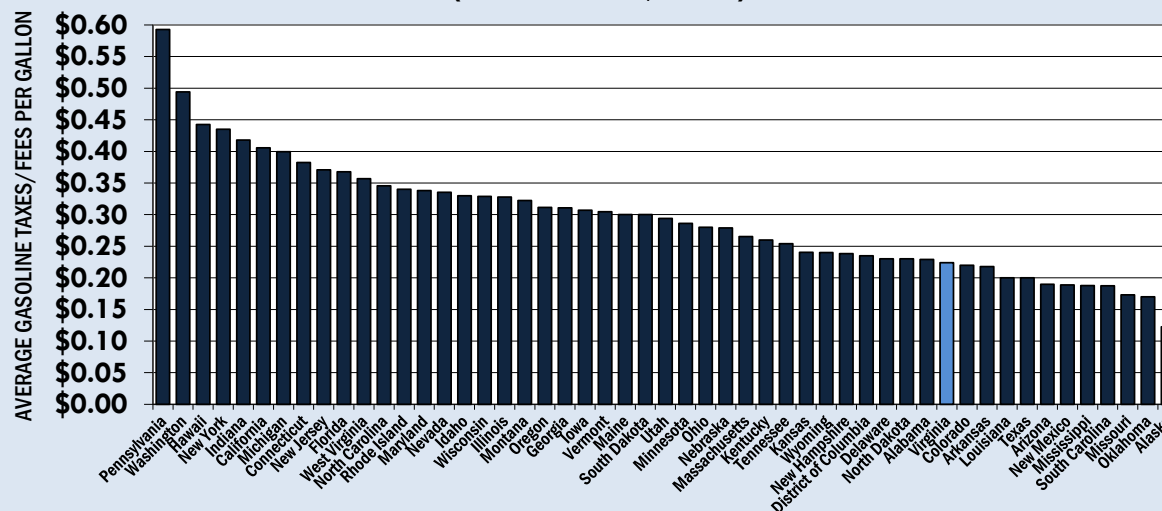
As of July 2017 the average statewide tax on each gallon of unleaded gasoline in Virginia was 22.4 cents. Even with the recent fuel tax increases, Virginia's tax rate on fuel is lower than most other states. Virginia had the 40th highest statewide average taxes and fees collected on each gallon of unleaded gasoline among the 50 states and the District of Columbia as of July 2017.

**HIGHWAY EXPENDITURES PER CAPITA BY STATE, 2014
(INCLUDES STATE AND LOCAL GOVERNMENT EXPENDITURES)**



Data source: Census Bureau. Data represents fiscal years for each state.

**STATEWIDE AVERAGE GASOLINE TAXES AND FEES
(AS OF JULY 1, 2017)**



Data source: American Petroleum Institute. Statewide average gasoline taxes include base tax rates as well as any additional statewide and local taxes and fees.



Fuel prices continue to decrease both in Hampton Roads and throughout the country. In spite of the regional fuel taxes implemented in 2013, fuel prices in Hampton Roads remain lower than in most comparable areas, including other metropolitan areas in Virginia.

The cost of fuel has decreased since the middle of summer in 2014, both in Hampton Roads and throughout the country. The average cost of a gallon of regular unleaded fuel in Hampton Roads was \$1.97 on July 1, 2017. This is 10 cents per gallon lower than one year earlier and \$1.59 per gallon lower than three years earlier. Average fuel prices in Hampton Roads topped \$3.50 per gallon every summer between 2011 and 2014, but bottomed out just below \$1.50 per gallon in February 2016.



FUEL PRICES

Image Source: HRTPO

Fuel prices are lower in Hampton Roads than in other Virginia metropolitan areas, in spite of higher regional taxes imposed on fuel in the region under HB 2313. Fuel prices were on average two cents per gallon higher in Roanoke, three cents per

NOTABLE FUEL PRICES NUMBERS

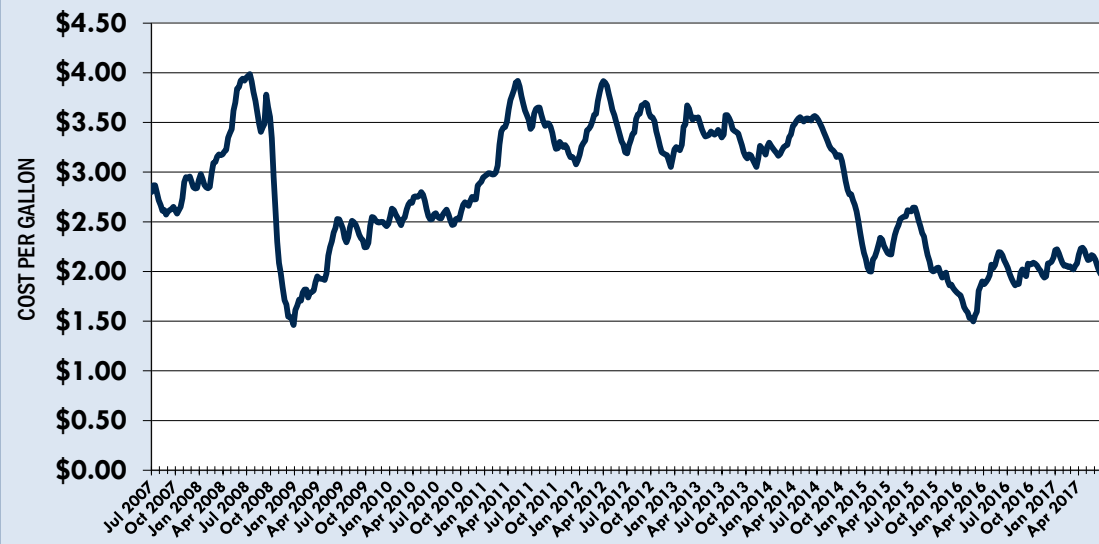
5%
▼

The decrease in the cost of a gallon of unleaded fuel in Hampton Roads between July 1st, 2016, and July 1st, 2017.

34th

Hampton Roads rank, among the 37 large metropolitan areas with populations between one and three million people, in terms of the cost per gallon of regular unleaded fuel as of July 1st, 2017.

AVERAGE FUEL PRICES IN HAMPTON ROADS, JULY 2007 - JUNE 2017



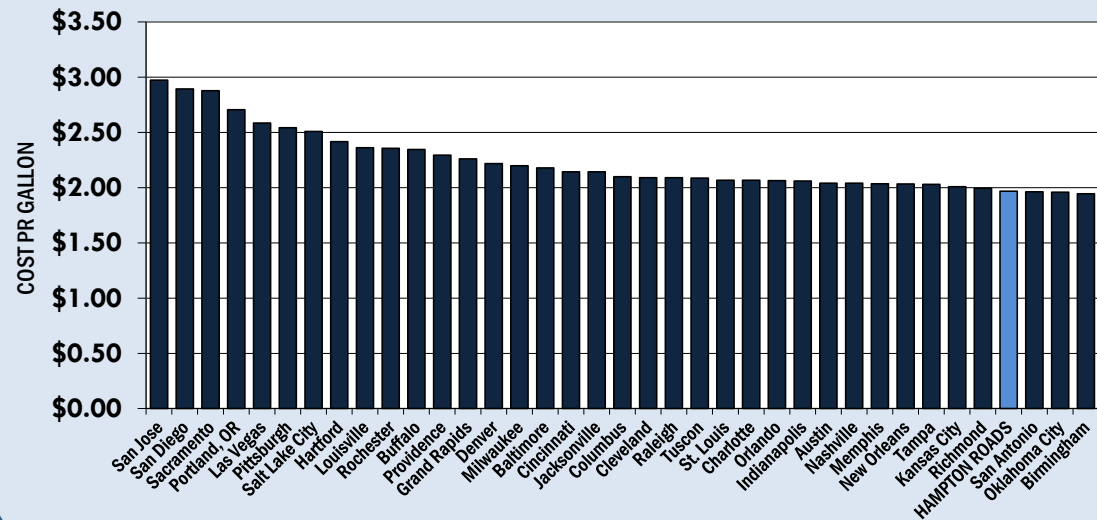
Data source: AAA Fuel Gauge Report. Data reflects one gallon of regular unleaded fuel.



gallon higher in Richmond, and six cents per gallon higher in Charlottesville as of July 1st, 2017. Statewide, the average cost of fuel was \$2.01 per gallon on July 1st, 2017, four cents higher than the rate in Hampton Roads.

Fuel prices in Hampton Roads are also below national averages. Among the 37 metropolitan areas with a population between one and three million people, Hampton Roads had the fourth lowest average fuel price as of July 1st, 2017. Fuel prices in Hampton Roads were 27 cents per gallon lower than the large metropolitan area average.

**AVERAGE FUEL PRICES IN LARGE METROPOLITAN AREAS
(AS OF JULY 1st, 2017)**



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

BEHIND THE NUMBERS

House Bill 2313 changed the way gasoline is taxed in Virginia by replacing the previous statewide gasoline tax with a smaller fuel wholesale tax, and by imposing an additional 2.1% regional tax on the gasoline wholesale price in Hampton Roads and Northern Virginia. This additional tax on fuel has raised \$127 million in Hampton Roads as of May 2017.

In spite of the additional regional fuel taxes, fuel prices in Hampton Roads have actually decreased relative to comparable metro areas throughout the country. Prior to HB 2313, fuel prices in Hampton Roads were 10 cents per gallon lower than the comparable large metropolitan area average. As of July 2017 – with the additional fuel taxes in place in Hampton Roads – fuel prices in the region were 27 cents lower than the comparable area average.

In addition, as stated previously in this section, fuel prices as of July 1st, 2017 were lower in Hampton Roads than they were in the Charlottesville, Richmond and Roanoke areas, in spite of no additional regional fuel taxes being collected in those areas.



ROADWAY PROJECTS



A number of critical projects have been completed throughout the region in recent years. With the arrival of the Hampton Roads Transportation Fund, many major roadway projects are either under construction or will begin construction in the next few years.

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

A total of 23 major roadway projects have been completed throughout Hampton Roads since the beginning of 2012. These projects include constructing a new tube at the Midtown Tunnel; replacing the Gilmerton, Steel (Veterans), and South Norfolk Jordan Bridges; constructing a new railroad overpass into Norfolk International Terminals; and opening new facilities such as the MLK Freeway Extension, City Center Boulevard, Nimmo Parkway, and the completion of Lynnhaven Parkway. Many sections of roadway were widened, including Fort Eustis Boulevard, George Washington Highway, Princess Anne Road, Saunders Road, Wesleyan Drive, and Witchduck Road.



MAJOR ROADWAY PROJECTS COMPLETED IN HAMPTON ROADS, JANUARY 2012 – JUNE 2017

FACILITY	LOCATION	IMPROVEMENT TYPE	COMPLETION
			DATE
City Center Boulevard	Warwick Blvd to Jefferson Ave	New 4 lane facility	2015
Commander Shepard Boulevard	Big Bethel Rd to North Campus Pkwy	New 4 lane facility	2014
Dominion Boulevard	GW Hwy to Cedar Rd	Widen to 4 lanes	2017
Dominion Boulevard	Cedar Rd to Great Bridge Blvd	Widen to 4 lanes	2017
Fort Eustis Boulevard	Jefferson Ave to Route 17	Widen to 4 lanes	2012
George Washington Highway	Hampton Hwy to Wolf Trap Rd	Widen to 6 lanes	2016
George Washington Highway	Mill Creek Pkwy to Willowood Dr	Widen to 4 lanes	2012
Hampton Boulevard	Railroad into Norfolk International Terminals	New overpass	2015
I-64	Norview Ave	Ramp improvement	2013
I-264	London Bridge Rd	New Interchange	2012
Ironbound Road	Strawberry Plains Rd to Longhill Connector Rd	Widen to 4 lanes	2013
Lynnhaven Pkwy	Centerville Tpke to Indian River Rd	New 4 lane facility	2017
Midtown Tunnel	Between Portsmouth and Norfolk	Widen to 4 lanes	2017
Military Highway	Gilmerton Bridge	Replace Bridge	2013
MLK Freeway	I-264 to High St	New 4 lane facility	2016
Nimmo Parkway	Princess Anne Rd to Holland Rd	New 4 lane facility	2012
Nimmo Parkway	Holland Rd to General Booth Blvd	New 4 lane facility	2014
Princess Anne Road	Dam Neck Rd to Nimmo Pkwy	Widen to 4 lanes	2014
Princess Anne Road	Witchduck Rd	Intersection Relocation	2012
Saunders Road	Newport News CL to Big Bethel Rd	Widen to 4 lanes	2016
South Norfolk Jordan Bridge	Between Portsmouth and Chesapeake	Replace Bridge	2012
Wesleyan Drive	Northampton Blvd to Baker Rd	Widen to 4 lanes	2013
Witchduck Road	Princess Anne Rd to I-264	Widen to 6 lanes	2012

Data obtained from various sources.



A number of major roadway projects are currently underway throughout the region. These projects include widening of Phases I and II of I-64 on the Peninsula, improving the I-64/I-264 Interchange, constructing the Intermodal Connector between I-564 and Naval Station Norfolk/Norfolk International Terminals, installing a continuous-flow intersection (CFI) at Military Highway and Princess Anne Road/Northampton Boulevard, and replacing the Lesner Bridge.



Upcoming roadway projects throughout Hampton Roads are programmed 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 over the next six years include the widening of the Hampton Roads Bridge-Tunnel, Phase III of widening I-64 on the Peninsula, Phase I of widening I-64 on the

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	2019
Centerville Turnpike	Kempsville Rd to Indian River Rd	Widen to 4 lanes	2021
Centerville Turnpike	Chesapeake CL to Kempsville Rd	Widen to 4 lanes	2023
Chesapeake Bay Bridge-Tunnel	Thimble Shoal Tunnel	Widen to 4 lanes	2022
Coliseum Drive Extension	Hampton Roads Center Pkwy to Butler Farm Rd	New 4 lane facility	2020
George Washington Highway	Deep Creek Bridge	Widen to 4 lanes	2021
High Street	Churchland Bridge	Replace Bridge	2019
Holland Road	Nimmo Pkwy to Dam Neck Rd	Widen to 4 lanes	2017
I-64	Yorktown Rd to Bland Blvd	Widen to 6+ lanes	2017
I-64	Route 199 (Exit 242) to Yorktown Rd	Widen to 6 lanes	2019
I-64	Route 199 (Exit 234) to Route 199 (Exit 242)	Widen to 6 lanes	2022
I-64/Hampton Roads Bridge-Tunnel	Settlers Landing Rd to I-564	Widen to 6 lanes	2024
I-64	I-264/I-664 and I-464/Chesapeake Exp (Phase 1)	Widen to 6 lanes	2020
I-64	Northampton Boulevard	Interchange Improvements	2018
I-264 Eastbound	I-64 off ramp to East of Witchduck Road	Widening	2019/2021
Indian River Road	Kempsville Rd	Intersection Redesign	2018
Indian River Road	Lynnhaven Pkwy to Elbow Rd	Relocated 4 lane facility	2023
Intermodal Connector	I-564 to Naval Station Norfolk/NIT	New 4 lane facility	2018
Longhill Road	Route 199 to Olde Towne Rd	Widen to 4 lanes	2020
Military Highway	Lowery Rd to Northampton Blvd	Widen to 8 lanes	2018
Military Highway	Northampton Blvd/Princess Anne Rd	Intersection Redesign	2018
Military Highway	Northampton Blvd to Robin Hood Rd	Widen to 6 lanes	2018
Nansemond Parkway	Shoulders Hill Rd to Chesapeake CL	Widen to 4 lanes	2018
Nike Park Road Extension	Reynolds Dr to Route 17	New 2 lane facility	2021
Portsmouth Boulevard	Suffolk CL to Jolliff Rd	Widen to 4 lanes	2018
Princess Anne Road	General Booth Blvd to Upton Dr	Widen to 4 lanes	2020
Route 58	Business Route 58 East of Courtland	New interchange	2018
Route 58	West of Manning Bridge Rd to Suffolk Bypass	Widen to 6 lanes	2021
Shore Drive	Lesner Bridge	Replace Bridge	2018
Turnpike Road	Frederick Blvd to Constitution Ave	Widen to 4 lanes	2018
Witchduck Road	I-264 to Virginia Beach Blvd	Widen to 6 lanes	2020
Wythe Creek Road	Commander Sheppard Blvd to Alphas St	Widen to 4 lanes	2021

Data sources: VDOT, HRTPO, various localities.



Southside (including widening the High Rise Bridge), widening and replacement of the Deep Creek Bridge, and widening sections of Route 58/Holland Road, Nansemond Parkway/Portsmouth Boulevard, Witchduck Road, and Wythe Creek Road.

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

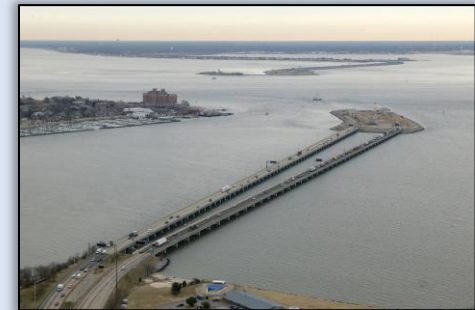
NEW DEVELOPMENTS

Smart Scale – Signed into law in 2014, House Bill (HB) 2 was created to ensure that limited tax dollars are invested in the projects that meet the most critical transportation needs in Virginia. Starting with the FY 2017 SYIP, transportation projects are being scored using a prioritization process – now referred to as SMART SCALE – that is based on an objective analysis of congestion mitigation, economic development, safety, environmental quality, accessibility, and land use. Each eligible candidate project is scored and ranked, and the Commonwealth Transportation Board (CTB) uses this information as guidance when selecting projects for inclusion in the Six-Year Improvement Program.



More information on SMART SCALE is available at <http://vasmartscale.org>.

Hampton Roads Bridge-Tunnel (HRBT) – For decades, planners have been looking at ways to increase roadway capacity across the Hampton Roads Harbor. Based on the results of the Hampton Roads Crossing Study – Supplemental Environmental Impact Statement, the HRTPO and HRTAC Boards unanimously endorsed Alternative A “Modified”, which includes widening the HRBT to 6 lanes. In late 2016, the Commonwealth Transportation Board selected Alternative A as the preferred alternative, and in 2017 determined that the additional lanes would be High-Occupancy/Toll (HOT) lanes. The contract for the \$3.3 billion project is expected to be awarded in 2019, and the project is expected to be complete by 2024.





Hampton Roads continues to be a leader in managing transportation infrastructure through transportation operations, which is a cost-effective method of maximizing the safety and capacity of the existing roadway network.

The safety, security, and mobility of roadway users are enhanced by the active management of the regional transportation system. Transportation operations is a cost-effective strategy for improving the transportation network as funding for new roadway construction becomes more competitive and constructing major roadway projects becomes more challenging. Transportation operations involves trained and coordinated personnel managing the system with Intelligent Transportation Systems (ITS) technologies. Examples of transportation operations include incident management (such as VDOT's Safety Service Patrol), traffic signal coordination, EZ-Pass electronic toll collection, and providing traveler information.

In Hampton Roads, the freeway system is managed by the VDOT Hampton Roads Transportation Operations Center (HRTOC). The Hampton Roads TOC monitors traffic conditions throughout the region, maintains and operates ITS infrastructure on the regional Interstate system, responds to and clears crashes and other types of incidents with the Safety Service Patrol, and informs travelers of roadway conditions via changeable message signs, highway advisory radio, and the 511 Virginia phone, smartphone app, social media, and other online services.

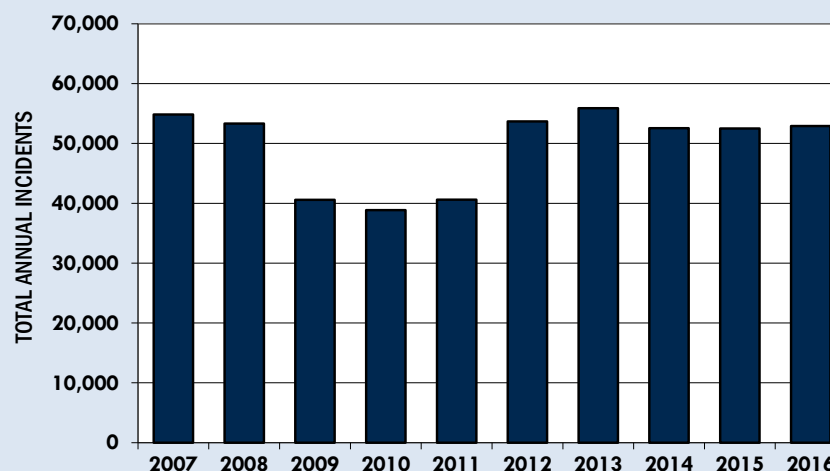
HAMPTON ROADS TOC

The VDOT Hampton Roads Transportation Operations Center (HRTOC) serves as the backbone for transportation operations in the region. Some facts about the HRTOC and its Safety Service Patrol:



- Covers **141 miles**, nearly the entire regional Interstate system.
- Includes over **300 closed-circuit cameras**, **200 dynamic message signs**, 13 highway advisory radio transmitters, 5 reversible roadway gate entrances, and hundreds of vehicle detection devices, all linked together by fiber optic cable.
- Drove over 5 million miles and responded to nearly **53,000 incidents** in 2016.

TOTAL INCIDENTS RESPONDED TO BY THE HAMPTON ROADS TOC SAFETY SERVICE PATROL, 2007-2016



Data source: VDOT.



In addition to VDOT's Hampton Roads Transportation Operations Center, most cities in the region maintain their own traffic management centers. These centers operate local traffic signal systems, changeable message signs, and cameras. In some cases, these centers allow for data and video sharing.

Another service provided to improve mobility is 511 Virginia. 511 Virginia provides real-time traveler information via mobile or landline phones, email, Twitter, text message, smartphone app, and the <http://www.511virginia.org> website. 511 Virginia includes information on road conditions, traffic speeds, work zones, camera images, changeable sign messages, weather closures, and incidents. Information is also provided on tourist destinations, rest areas, airports, and transit throughout the Commonwealth. Customizable route information is also available.

Traveler information is also provided on many platforms by private sector companies.

ITS TECHNOLOGIES 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 TOC staff of congestion and incidents.

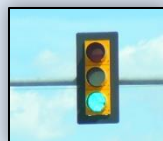


Reversible Roadway Gates

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 safety and response time.



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.

Shoulder/Lane Control

Allows the shoulder to be opened to vehicles during peak travel periods.

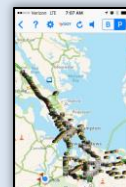


CCTV Cameras

Provides roadway images to transportation operations centers and the public.

Electronic Toll Collection

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



511 Virginia

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



Changeable Message Signs

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



Transit Automatic Vehicle Location (AVL)

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

Highway Advisory Radio

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



Overheight Detection

Detects overheight vehicles to prevent damage to the region's tunnels and bridges.



Examples include Google and Bing Maps, INRIX, Waze (which also is available through the 511 Virginia website), and local television and radio stations.

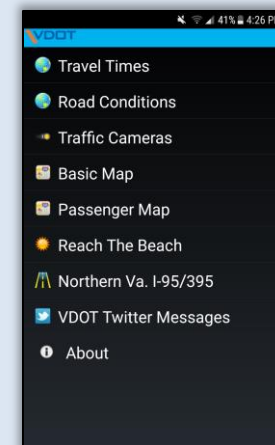


Regional transportation operations planning and coordination is conducted through multiple committees including the Hampton Roads Transportation Operations (HRTTO) Subcommittee. The HRTTO Subcommittee facilitates peer-to-peer information sharing and advises the HRTPO Transportation Technical Advisory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

NEW DEVELOPMENTS

511 Virginia – VDOT regularly produces updates to the 511 Virginia traveler information program. The smartphone app has been updated to include a list of travel times, maps, camera images, Reach the Beach information, and the 511 Virginia Twitter feed. Customizable route information is also now available on the 511 Virginia website.

Upcoming updates to the 511 smartphone app will allow for push notifications of traffic alerts as well as turn-by-turn navigation.



Instant Tow – In April 2017 VDOT initiated a quick incident clearance policy called Operation Instant Tow in the Hampton Roads area. In this program, a tow truck is dispatched simultaneously with the initial Virginia State Police (VSP) trooper to specific incident types, thus saving critical clearance time. Prior to this program, tow dispatch occurred after a VSP trooper responded to and verified the incident.

The objective of Operation Instant Tow is to reduce incident clearance time by 15 minutes, which will help mitigate congestion and reduce the likelihood of additional secondary incidents.

VDOT Smart Portal – VDOT launched “[SmarterRoads](#)”, a new cloud based data portal that provides free, widespread access to a wealth of VDOT roadway and transportation information. Initial data sets include traffic volumes, sensors, incidents, sign messages and locations, and signal phasing and timing data.

Through the creation of the SmarterRoads portal, VDOT is assisting Connected and Automated Vehicle technology development by sharing operations data with third-party sector business, application developers and university partners.



Through a number of national, statewide, and regional efforts, the air quality of Hampton Roads has improved, and is better than the air in many other comparable areas.

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.

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 and the National Ambient Air Quality Standards. EPA determines these designations based on an eight-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. According to EPA regulations, if an area is in non-attainment, the area's Long-Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) must be tested for conformity with the state's air quality plan.

NOTABLE AIR QUALITY NUMBERS

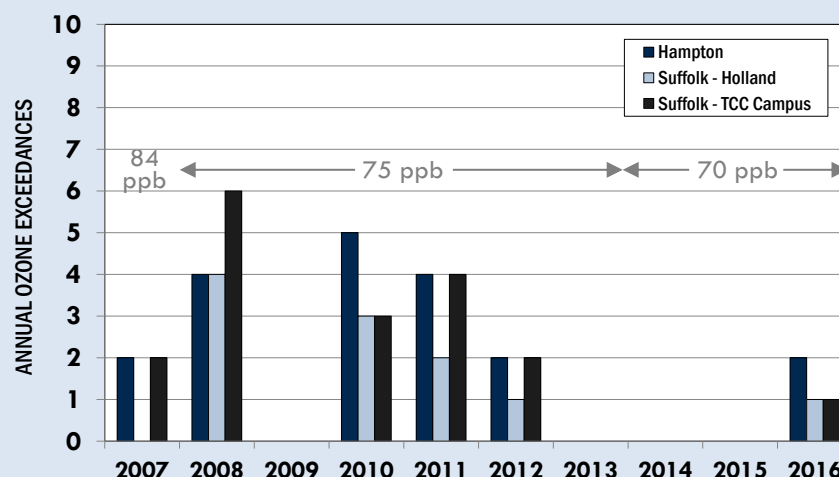
4

The number of eight hour ozone exceedances at Hampton Roads air quality monitoring stations in 2016.

3rd

Hampton Roads rank, among the 37 large metropolitan areas with populations between one and three million people, in terms of the best fourth-highest daily maximum 8-hour ozone averages in 2015.

EIGHT HOUR OZONE EXCEEDANCES AT REGIONAL AIR QUALITY MONITORING STATIONS, 2007-2016



Data source: Virginia DEQ. In 2008, the ozone exceedance standard was reduced from greater than 84 parts per billion (ppb) to greater than 75 parts per billion. The EPA is currently lowering the ozone standard level from 75 ppb to 70 ppb starting with the 2014 data.

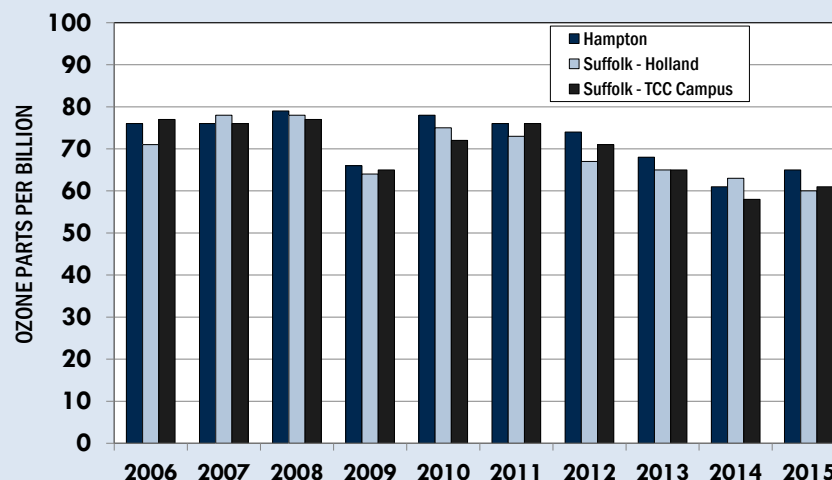


Prior to 2008, regions were classified as non-attainment if the fourth-highest eight-hour ozone averages were greater than 84 parts per billion (ppb) at any of the regional monitoring stations over a three-year period. This standard was lowered to 75 ppb in 2008. In 2015, EPA revised ozone standard levels down to 70 ppb, based on their review of scientific research on ozone's effects on public health. The lower standards take effect in 2017, using the previous three-year (2014-2016) ozone data.

In Hampton Roads, the 2013-2015 three-year ozone averages at the three monitoring stations were between 61 and 65 ppb, all below the 70 and 75 ppb thresholds. Based on these readings, Hampton Roads is currently designated as an ozone attainment/maintenance area, and this designation means VDOT and the HRTPO currently do not have to test for air quality conformity in the regional LRTP and TIP.

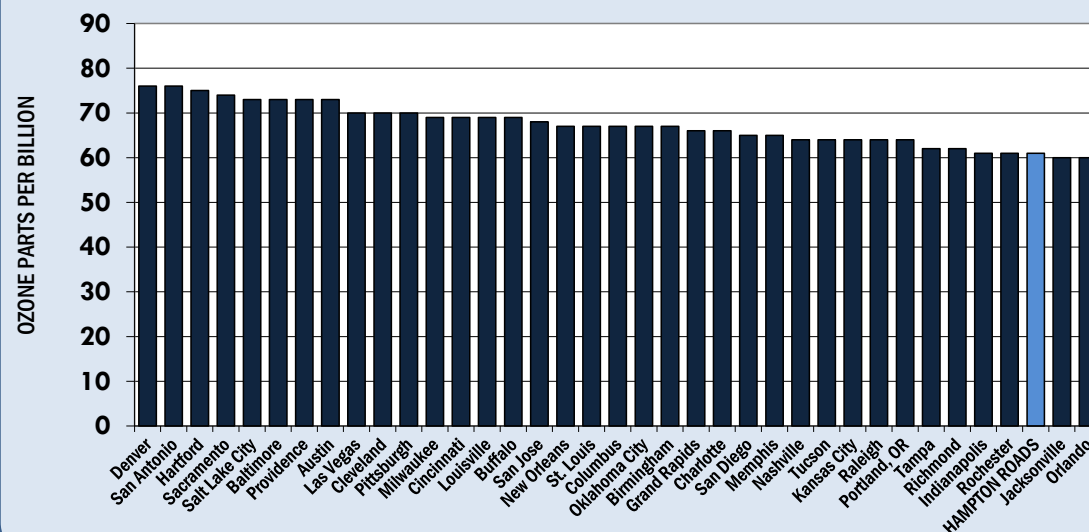
The air quality in Hampton Roads is better than the air quality in many other comparable metropolitan areas based on the eight-hour ozone standard. The fourth-highest eight-hour ozone level was 61 ppb in Hampton Roads in 2015 according to EPA data, which ranked the region 3rd best among the 37 large metropolitan areas with populations between one and three million people.

FOURTH-HIGHEST DAILY MAXIMUM 8-HOUR OZONE AVERAGES IN HAMPTON ROADS, 2006-2015



Data source: Virginia DEQ. A temporary station was used in Newport News in 2009 in place of the Hampton station.

FOURTH-HIGHEST DAILY MAXIMUM 8-HOUR OZONE AVERAGES IN LARGE METROPOLITAN AREAS, 2015



Data source: US Environmental Protection Agency.

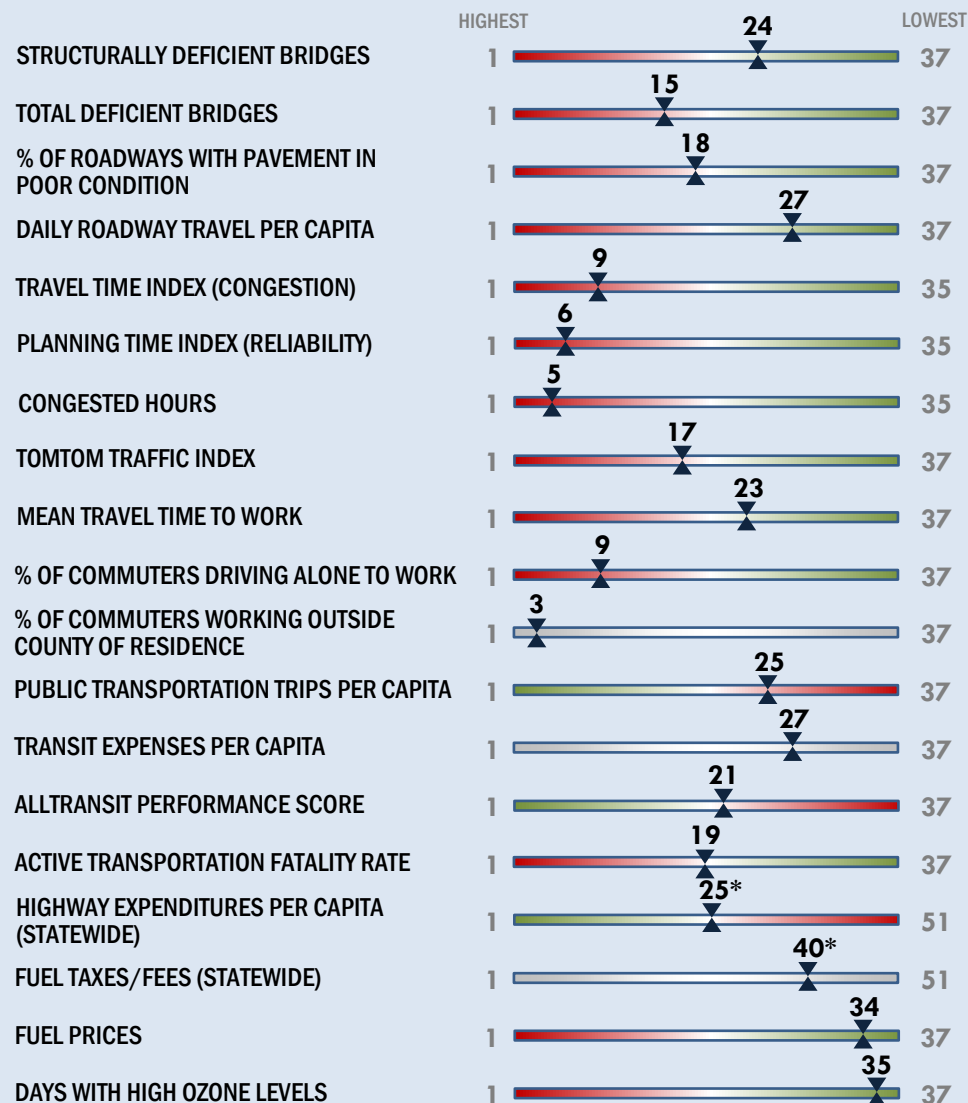


In many sections of this report, Hampton Roads is compared to other large metropolitan areas throughout the United States with populations between one and three million people. Many of these 36 other metropolitan areas have similar transportation issues to the Hampton Roads area, from congestion to funding 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.

Those measures where Hampton Roads ranks in the “green” indicates that the region fares better than most of the comparable large metropolitan areas, whereas measures where Hampton Roads is in the “red” means that the region fares worse than the comparable areas.

HAMPTON ROADS CURRENT RANK AMONG LARGE METROPOLITAN AREAS



*Statewide Ranking



In 2009, the General Assembly of Virginia passed legislation codifying regional transportation performance measurement. In response to the legislation, 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. The HRTPO Board approved this list in January 2011 and the Commonwealth Transportation Board (CTB) approved it in June 2011.

The Hampton Roads regional performance measures (RPMs) include approximately 70 measures, which are organized in the following 12 categories:

A. Transportation System Measures

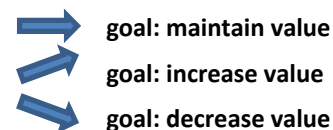
1. Congestion Reduction
2. Safety
3. Transit Usage
4. HOV Usage
5. Job-to-Housing Ratios
6. Job and Housing Access to Transit
7. Job and Housing Access to Pedestrian Facilities
8. Air Quality
9. Movement of Freight
10. Vehicle Miles Traveled (VMT)
11. Maintenance

B. Financial System Measures

The first ten categories were suggested by the Commonwealth; the last two—Maintenance and Financial—were added by the TTAC.

In April 2012, the HRTPO Board approved a set of targets for its RPMs. 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 – increasing a particular value, decreasing a particular value, or maintaining that particular value.

Starting with this 2017 update, the annual HRTPO Regional Performance Measures update is now combined with the State of Transportation in Hampton Roads report. The RPM values and targets are presented on the following pages. The desired direction of each target and the success in meeting these goals is indicated by the following:



- Green indicates that the actual trend is following the desired trend
- Orange indicates that the actual trend is directionally opposite to the desired trend
- Blue indicates an unclear trend.

REGIONAL PERFORMANCE MEASURES



	Data Source	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Desired Trend
A. Transportation System Performance Measures¹³													
Actual Trend is Following Desired Trend													
Actual Trend is Going Against Desired Trend													
Actual Trend Unclear													
<u>1. congestion reduction</u>													
Annual Delay, hours per peak auto commuter	TTI	42	43	42	43	43	43	44	45	n.a.	n.a.	n.a.	→
Annual Excess Fuel Consumed, gallons per peak auto commuter	TTI	18	18	17	18	18	18	18	19	n.a.	n.a.	n.a.	→
Travel Time Index (extra time during peak period), %	Inrix via TTI	18%	18%	18%	18%	18%	18%	19%	19%	n.a.	n.a.	n.a.	→
<u>2. safety</u>													
Annual Roadway Fatalities, number	DMV ²⁴	155	153	124	121	136	99	131	125	121	125	n.a.	→
Annual Roadway Fatalities, per 100 million VMT ²⁵	DMV ²⁴	0.99	1.01	0.97	0.89	0.86	0.81	0.84	0.88	0.84	n.a.	n.a.	→
Annual Roadway Injuries, number	DMV ²⁴	14,494	14,465	14,004	13,449	14,038	15,034	15,432	14,715	14,955	16,628	n.a.	→
Annual Roadway Injuries, per million VMT	DMV ²⁴	0.98	0.97	0.95	0.90	0.96	1.04	1.07	1.04	1.03	n.a.	n.a.	→
Annual Roadway Crashes, number	DMV ²⁴	30,276	27,599	24,005	23,142	24,115	25,192	25,374	24,874	25,310	26,853	n.a.	→
Annual Roadway Crashes, per million VMT	DMV ²⁴	2.05	1.86	1.63	1.55	1.65	1.74	1.77	1.76	1.75	n.a.	n.a.	→
Annual Transit Fatalities, number	FTA ⁶	0	0	0	0	1	1	0	0	0	n.a.	n.a.	0
Annual Transit Fatalities, per 100 million PMT	FTA ⁶	0.00	0.00	0.00	0.00	0.85	0.81	0.00	0.00	0.00	n.a.	n.a.	0
Annual Transit Injuries, number	FTA ⁶	71	81	109	135	113	73	95	98	123	n.a.	n.a.	→
Annual Transit Injuries, per 100 million PMT	FTA ⁶	69	69	102	118	96	59	86	101	145	n.a.	n.a.	→
Annual Transit Collisions ¹⁹ , number	FTA ⁶	25	15	27	40	30	26	35	30	39	n.a.	n.a.	→
Annual Transit Collisions ¹⁹ , per 100 million PMT	FTA ⁶	24	13	25	35	26	21	32	31	46	n.a.	n.a.	→
Annual Aviation Fatalities ²² , number ²³	NTSB	3	0	0	1	2	0	8	0	3	0	n.a.	0
Annual Aviation Accidents ²² , number ²³	NTSB	10	5	6	8	3	1	5	3	3	9	n.a.	→
Annual Hwy-Rail Crossing Accidents ²⁰ , per million population	FRA	5	4	5	2	1	4	4	5	3	3	n.a.	→
<u>3. transit usage</u>													
Annual Unlinked Passenger Trips (UPT), number	FTA ⁶	26,895,343	29,267,974	18,907,492	18,646,984	19,371,225	21,234,400	21,361,191	19,987,547	19,085,376	n.a.	n.a.	→
Annual Unlinked Passenger Trips (UPT), per capita ²¹	HRTPO Calculation	18	20	13	13	13	14	14	13	12	n.a.	n.a.	→
Annual Vehicle Revenue Miles (VRM), number	FTA ⁶	14,750,419	15,547,333	16,659,349	15,972,878	16,016,548	16,158,133	15,634,645	15,634,645	15,849,704	n.a.	n.a.	→
Annual Vehicle Revenue Miles (VRM), per capita ²¹	HRTPO Calculation	10	11	11	11	11	11	10	10	10	n.a.	n.a.	→
Annual Passenger Miles Traveled (PMT), number	FTA ⁶	103,013,911	117,881,067	107,055,827	114,165,464	117,148,805	123,461,216	110,291,173	96,842,639	84,926,722	n.a.	n.a.	→
Annual Passenger Miles Traveled (PMT), per capita ²¹	HRTPO Calculation	70	80	72	77	78	82	72	63	55	n.a.	n.a.	→
Passengers Boarding or Departing Amtrak Trains (HR) ³²	Amtrak	138,414	166,839	158,914	163,405	175,494	195,263	229,524	215,578	221,917	211,887	n.a.	→
Endpoint On-Time Performance, Amtrak (Rich/NN/Nor) ¹¹ ⁵ ³²	Amtrak	n.a.	n.a.	n.a.	n.a.	76%	85%	84%	73%	71%	78%	n.a.	→
Operating Cost Ratio ³⁰ , Amtrak ("Washington-Newport News" & "Washingt	Amtrak	n.a.	n.a.	n.a.	n.a.	0.99	0.87	0.98	0.76	0.81	0.76	n.a.	→

See page 64 for an explanation of footnotes.

REGIONAL PERFORMANCE MEASURES



	Data Source	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Desired Trend
4. HOV usage													
Persons per Hour per HOV Ln During Peak Period, avg of count stations	VDOT	703	598	637	685	571	638	598	612	525	685	n.a.	→
# of Park and Ride Spaces	VDOT	n.a.	n.a.	n.a.	n.a.	n.a.	4,423	n.a.	n.a.	4,193	3,069	3,075	→
# of Occupied Park and Ride Spaces, per 100,000 population	VDOT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	64	63	n.a.	→
% of Commuters with Journey-to-Work via Carpool ¹⁰	Census	n.a.	n.a.	n.a.	9.4%	8.1%	8.9%	8.3%	8.2%	7.8%	n.a.	n.a.	→
5. job-to-housing ratios													
Ratio of Jobs to Labor Force ²													
Hampton Roads	VWC ³⁴ & HRPDC	0.96	0.95	0.95	0.93	0.92	0.92	0.92	0.91	0.93	0.93	n.a.	→
Chesapeake	VWC ³⁴ & HRPDC	0.90	0.88	0.88	0.90	0.89	0.88	0.87	0.86	0.88	0.88	n.a.	n.a.
Gloucester	VWC ³⁴ & HRPDC	0.51	0.49	0.49	0.51	0.51	0.52	0.52	0.50	0.51	0.51	n.a.	n.a.
Hampton	VWC ³⁴ & HRPDC	0.89	0.89	0.91	0.92	0.90	0.91	0.90	0.88	0.89	0.89	n.a.	n.a.
Isle of Wight	VWC ³⁴ & HRPDC	0.66	0.65	0.64	0.58	0.55	0.57	0.59	0.58	0.60	0.60	n.a.	n.a.
James City	VWC ³⁴ & HRPDC	0.84	0.87	0.86	0.87	0.86	0.87	0.84	0.84	0.85	0.88	n.a.	n.a.
Newport News	VWC ³⁴ & HRPDC	1.17	1.15	1.09	1.15	1.16	1.16	1.15	1.15	1.16	1.14	n.a.	n.a.
Norfolk	VWC ³⁴ & HRPDC	1.50	1.51	1.54	1.33	1.33	1.32	1.30	1.28	1.34	1.33	n.a.	n.a.
Poquoson	VWC ³⁴ & HRPDC	0.33	0.33	0.34	0.30	0.29	0.29	0.27	0.27	0.28	0.29	n.a.	n.a.
Portsmouth	VWC ³⁴ & HRPDC	0.97	0.98	1.03	1.03	1.04	1.05	1.07	1.05	1.08	1.05	n.a.	n.a.
Suffolk	VWC ³⁴ & HRPDC	0.65	0.65	0.66	0.65	0.64	0.69	0.68	0.68	0.71	0.73	n.a.	n.a.
Virginia Beach	VWC ³⁴ & HRPDC	0.82	0.80	0.80	0.77	0.76	0.76	0.77	0.77	0.79	0.80	n.a.	n.a.
Williamsburg	VWC ³⁴ & HRPDC	3.30	3.10	3.02	2.42	2.18	2.18	2.14	2.09	2.11	2.09	n.a.	n.a.
York	VWC ³⁴ & HRPDC	0.74	0.72	0.74	0.71	0.71	0.70	0.70	0.69	0.71	0.71	n.a.	n.a.
Jobs - Labor Force ² Regional Linear Dissimilarity Index, 0.0 to 1.0 ³	VWC ³⁴ & HRPDC	0.11	0.11	0.11	0.10	0.11	0.11	0.10	0.10	0.10	0.10	n.a.	→
% of Workers Working Outside Locality (City/County) in Which They Live	Census	50%	48%	49%	48%	47%	49%	46%	47%	49%	n.a.	n.a.	→
Mean Travel Time to Work, minutes	Census	23.3	23.6	23.2	23.7	23.3	24.0	24.0	24.1	24.8	n.a.	n.a.	→
6. job and housing access to transit													
% of Employment in TAZs ¹ Served by Transit ¹⁸	HRTPO ¹	n.a.	n.a.	n.a.	n.a.	84%	84%	84%	84%	85%	85%	84%	→
% of Households in TAZs ¹ Served by Transit ¹⁸	HRTPO ¹	n.a.	n.a.	n.a.	n.a.	73%	73%	73%	73%	75%	75%	74%	→
7. job and housing access to pedestrian facilities													
% of Housing Units ⁹ in areas ¹⁷ with 1%+ Walk-To-Work Mode Share	CTPP & ACS ³³	n.a.	43%	n.a.	n.a.	37%	38%	n.a.	n.a.	n.a.	n.a.	n.a.	→
8. air quality													
Annual # of Days when Ozone Levels were Above 8-Hour Standard	DEQ	9	7	0	6	7	3	0	0	0	3	n.a.	0
NOx ⁷ (from motor vehicles), tons per day (near future) ¹⁵	VDOT	n.a.	n.a.	n.a.	n.a.	43	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	32
NOx ⁷ (from motor vehicles), grams per capita per day (near future) ¹⁵	VDOT	n.a.	n.a.	n.a.	n.a.	23	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	→
VOC ⁷ (from motor vehicles), tons per day (near future) ¹⁵	VDOT	n.a.	n.a.	n.a.	n.a.	35	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	28
VOC ⁷ (from motor vehicles), grams per capita per day (near future) ¹⁵	VDOT	n.a.	n.a.	n.a.	n.a.	19	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	→
CO ₂ (greenhouse gas, from motor veh's), tons per day (near future) ¹⁵	VDOT ¹⁶	n.a.	n.a.	n.a.	n.a.	22,464	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	→
CO ₂ (greenhouse gas, from motor veh's), grams/capita/day (near future) ¹⁵	VDOT ¹⁶	n.a.	n.a.	n.a.	n.a.	12,076	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	→

See page 64 for an explanation of footnotes.

REGIONAL PERFORMANCE MEASURES



	Data Source	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Desired Trend
9. movement of freight													
Shares (%) of General Cargo Handled by Port of Virginia, by weight	VPA												
Barge	VPA	4%	5%	4%	4%	4%	4%	4%	4%	3%	3%	n.a.	Orange arrow
Rail	VPA	31%	31%	30%	28%	30%	32%	34%	33%	33%	37%	n.a.	Green arrow
Truck	VPA	65%	64%	66%	68%	66%	64%	62%	63%	64%	61%	n.a.	Green arrow
		100%	100%	100%	100%	100%	100%	100%	100%	100%	101%		
Rail Mode Share (%), freight with HR origins, by value and tonnage	FAF3												
by tonnage ²⁶	FAF3	29%	n.a.	n.a.	35%	n.a.	8%	n.a.	n.a.	n.a.	n.a.	n.a.	Blue arrow
by value ²⁶	FAF3	3%	n.a.	n.a.	3%	n.a.	14%	n.a.	n.a.	n.a.	n.a.	n.a.	Blue arrow
Rail Mode Share (%), freight with HR destinations, by value and tonnage	FAF3												
by tonnage ²⁶	FAF3	40%	n.a.	n.a.	44%	n.a.	61%	n.a.	n.a.	n.a.	n.a.	n.a.	Blue arrow
by value ²⁶	FAF3	4%	n.a.	n.a.	5%	n.a.	23%	n.a.	n.a.	n.a.	n.a.	n.a.	Blue arrow
10. per capita vehicle miles traveled													
Daily Vehicle Miles Traveled (VMT) per capita	VDOT	24.2	24.2	24.0	23.8	23.6	23.1	22.7	22.3	22.7	n.a.	n.a.	Green arrow
% of Commuters with Journey-to-Work by Alternate Modes ⁸	Census	20%	20%	18%	19%	19%	19%	18%	18%	18%	n.a.	n.a.	Orange arrow
11. maintenance													
% of Pavement in Non-Deficient Condition, VDOT-maintained roads ²⁷	VDOT	n.a.	70%	69%	66%	76%	75%	83%	85%	89%	93%	n.a.	Green arrow
% of Bridges Not Structurally Deficient	VDOT	96%	n.a.	95%	94%	94%	94%	94%	94%	93%	94%	95%	Blue arrow
Total Transit Revenue Service Interruptions (mechanical) per million PMT	FTA ⁶	56	40	34	45	38	29	27	32	58	n.a.	n.a.	Blue arrow
B. Financial System Performance Measures													
Actual Obligations / Planned Obligations ¹¹	VDOT	n.a.	n.a.	n.a.	n.a.	n.a.	1.28	0.95	1.14	0.60	0.53	n.a.	n.a.
Average Age of Federal Dollars Spent on TIP Projects ¹⁴	VDOT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Mid-Fiscal-Year Total of Unspent Obligations for TIP Projects ¹²	VDOT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
% of Total District Alloc'n in SYIP (i.e. omitting St'wide ³¹), year one ⁴	VDOT												
Bristol HRTPO Calculation		10%	8%	8%	8%	10%	10%	11%	8%	5%	5%	6%	n.a.
Culpeper HRTPO Calculation		4%	4%	3%	3%	2%	3%	8%	5%	3%	4%	4%	n.a.
Fredericksburg HRTPO Calculation		5%	5%	3%	4%	3%	6%	5%	4%	6%	7%	9%	n.a.
Hampton Roads HRTPO Calculation		25%	18%	18%	13%	16%	21%	29%	28%	36%	34%	27%	Blue arrow
Lynchburg HRTPO Calculation		4%	4%	3%	3%	2%	2%	2%	1%	2%	4%	5%	n.a.
Northern VA HRTPO Calculation		29%	35%	39%	46%	51%	37%	25%	31%	26%	27%	22%	n.a.
Richmond HRTPO Calculation		13%	12%	13%	11%	8%	8%	8%	7%	9%	10%	11%	n.a.
Salem HRTPO Calculation		5%	8%	7%	7%	3%	7%	8%	8%	6%	6%	8%	n.a.
Staunton HRTPO Calculation		5%	7%	5%	6%	5%	6%	4%	7%	6%	4%	7%	n.a.
total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

See page 64 for an explanation of footnotes.



Footnotes

- 1 Transportation Analysis Zone (TAZ) data from regional 4-step model
- 2 Data employment by job location as "jobs" measure; employment by home location as "labor force" measure
- 3 Calculated via equation 2 in "Feasibility of Using Jobs/Housing Balance in Virginia Statewide Planning", VTRC, Aug 2010, pg. 26; 0: perfectly balanced; 1: perfectly unbalanced.
- 4 First fiscal year shown in SYIP, e.g. the "2013" number shown herein comes from the FY13 column of the FY13-18 SYIP.
- 5 New performance measure for FY13 evaluation (i.e. not included in FY12 evaluation).
- 6 FTA's National Transit Database
- 7 These two pollutants (NOx and VOC)--precursors of ground-level ozone--are measured in several Va. MPOs for AQ conformity.
Note: "2011" numbers are from VDOT's MOBILE 6.2 model; subsequent numbers will be calculated using MOVES model, making comparison to earlier numbers difficult.
- 8 Sum of all modes other than Drove Alone (i.e. including bike, ped, transit, work-at-home, carpool, etc.).
- 9 Given the necessary proximity of jobs to houses of persons who walk to work, this measure is intended to cover both job and housing access to pedestrian facilities.
- 10 The goal of HOV lanes--carpooling--is measured herein.
- 11 Actual obligations ("Obligated") / planned obligations ("TIP"); source: Annual Obligation Report (AOR).
- 12 "Total" = "Unspent Obligations" for each project, summed over all projects in TIP.
Due to large amount of funds typically obligated near end of fiscal years, "Total" calculated via financial "snapshot" taken near middle of subject fiscal year.
"Unspent Obligations" for a project = (total obligations for any year up to and including FY of snapshot) - (total spent in any year up to snapshot date).
Because the "total obligations" will exclude matching funds, the "total spent" should exclude matching funds.
- 13 The source of the first ten category names is Section 33.1-23.03 Code of Va. [amended via Chapter 670], except that "movement of freight" is used herein instead of original "movement of freight by rail"; category 11 and financial RPMs were added by HRTPO.
- 14 This calculation covers all federal transportation dollars spent during the subject fiscal year.
"Average Age" is a weighted average of the ages of each payment made during the subject fiscal year.
The age of a specific payment is calculated by comparing the date of the payment to the date of the appropriate obligation for that payment.
To calculate "Average Age", weight the age of each payment by the amount of that payment.
If the actual dates are not available, monthly or FY data may be used, e.g. the age of a payment made in FY11 for an obligation made in FY09 is 2.0 years.
- 15 For air quality conformity, VDOT estimates emissions for various future years including one near future year; NOx and VOC emissions for the ozone season, and CO2 emissions as annual averages.
- 16 In addition to the pollutants required for AQ conformity, VDOT calculates CO2 when it conducts analyses for conformity.
- 17 Due to slow release of TAZ data by the CTPP, in later years staff used ACS data by Block Group (block groups being similar in size to TAZs).
- 18 Due to the relatively large size of a typical TAZ, consider only those TAZs which are bordered or penetrated by transit as being served by transit.
- 19 FTA's "National Transit Database" uses the term "collisions" ("Collision_Total"), instead of "crashes".
- 20 FRA uses the term "accidents".
- 21 Using July estimates from Weldon Cooper for nine localities (Ches., Norf., Ports., Suf., VaB., Hamp., JCC, NN, Wlmbg.).
Note: The Urbanized Area (UZA) population (which is typically used by FTA) could not be found for inter-census years.
For year 2000, the HR9 Weldon Cooper population (1,413,272) is similar to the Urbanized Area (UZA) population (1,394,439).
- 22 "Fatalities"= number of people died; "Accidents"=number of crash events; NTSB and FAA use the term "accidents".
- 23 No rate (e.g. "per PMT") is included here because the number of person-miles-of-travel (PMT) in the airspace above Hampton Roads is not known.
- 24 "DMV": Department of Motor Vehicles.
- 25 Rate shown is for a 3-year period ending in year shown.
- 26 Including domestic portion of international freight movement.
- 27 VDOT-maintained roadways only.
- 28 VMT for this year not yet available.
- 29 PMT for this year not yet available.
- 30 OCR = "Total Costs excl. OPEB's, Capital Charge and Other Costs" / "Total Revenue". (OPEB: other post-employment benefits)
- 31 Note: Some large projects (e.g. US 460, I-95 HOT Lanes) are in "Statewide".
- 32 Note: Norfolk Amtrak began on 12-12-12.
- 33 CTPP: Census Transportation Planning Products; ACS: American Community Survey
- 34 VWC: Virginia Workforce Connection



Recent federal legislation established that states and metropolitan areas will be required to prepare and use a set of federally-established performance measures and set targets. These measures and targets will be required in the areas shown to the right.

The initial safety performance targets for each Metropolitan Planning Organization (MPO) will be due on February 27th, 2018. For the other areas, MPO targets will be due 180 days after the statewide targets have been submitted. With statewide targets being due on May 20, 2018, MPO targets will be due in November 2018.

HRTPO staff, in cooperation with the Transportation Technical Advisory Committee, will produce performance measures and targets for each of these areas as required by the federal legislation. These measures and targets will be reported in future versions of the State of Transportation in Hampton Roads report.

Area	Measures
Safety	Fatalities
	Fatality Rate
	Serious Injuries
	Serious Injury Rate
	Bike/Pedestrian Fatalities & Serious Injuries
Pavement Condition	Interstate System pavement in good condition
	Interstate System pavement in poor condition
	Non-Interstate System NHS pavement in good condition
	Non-Interstate System NHS pavement in poor condition
Bridge Condition	NHS bridges in good condition
	NHS bridges in poor condition
Roadway Performance	Interstate Travel Time Reliability
	Non-Interstate NHS Travel Time Reliability
Freight	Truck Travel Time Reliability Index
CMAQ	N/A for Attainment areas



The information provided in this report was compiled from a variety of sources. Data from each section of the report can be accessed from the locations described below 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/airports/planning_capacity/passenger_allcargo_stats/passenger. Further information on fares and capacity is available at <http://www.transtats.bts.gov>. Passenger data is also provided by each of the Hampton Roads airports at <http://www.norfolkairport.com> and <http://www.flyphf.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 maintains extensive information regarding all aspects of the port. Their website is <http://www.vamaritime.com>. National port activity information is collected by the American Association of Port Authorities and is available at <http://www.aapa-ports.org>.

Rail Travel – Amtrak maintains a list of passenger volumes by station at their website <https://www.amtrak.com/state-fact-sheets>. Information regarding high speed rail and other rail improvements throughout Virginia is available from the Virginia Department of Rail and Public Transportation 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://www.virginiadot.org/info/state_of_the_pavement.asp.

TRIP is an organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP regularly releases an analysis of the condition of major roadways in metropolitan areas and the costs that deteriorating roadways have on the public. This analysis is available at <http://www.tripnet.org>.

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 <https://www.fhwa.dot.gov/policyinformation/statistics.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 – FHWA publishes the Urban Congestion Report on a quarterly basis, which details mobility and traffic congestion levels in urbanized areas throughout the country. The report is located at http://www.ops.fhwa.dot.gov/perf_measurement/ucr.

TomTom also prepares a measure called the TomTom Traffic Index to describe congestion levels. More information is located at http://www.tomtom.com/en_us/trafficindex.

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 crash query and mapping tools on their website. These documents and crash tools are located at https://www.dmv.virginia.gov/safety/#crash_data/index.asp.

Truck Travel – VDOT releases truck travel data on an annual basis for every Virginia jurisdiction. This data is available at <http://www.virginiadot.org/info/ct-TrafficCounts.asp>.

Public Transportation – The Federal Transit Administration releases data on public transportation via the National Transit Database (NTD) program. The NTD is located at <https://www.transit.dot.gov/ntd>. The American Public Transportation Association also includes transit data on their website at <http://www.apta.com>. HRT and WATA also include public transportation statistics on their websites at <http://www.gohrt.com> and <http://www.gowata.org>.

AllTransit provide information on the performance of transit for each metropolitan area. More information on AllTransit is available at <http://alltransit.cnt.org>.

Bike and Pedestrian Facilities – A wide variety of information regarding bicycling and walking in Virginia is provided by VDOT at <http://www.virginiadot.org/programs/bikeped/default.asp>. The DMV also maintains bicyclist and pedestrian crash data at https://www.dmv.virginia.gov/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 AAA at <http://gasprices.aaa.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>.

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>. National air quality information is available from the Environmental Protection Agency's website at <http://www.epa.gov>.

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:

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PUBLIC REVIEW AND COMMENTS

As part of the Hampton Roads Transportation Planning Organization's (HRTPO) efforts to provide opportunities for the public and stakeholders to review and comment on this draft report prior to the final product being published, a public review period was conducted from September 1, 2017, through September 22, 2017. No public comments were received.