The State of Transportation in Hampton Roads 2018

NOVEMBER 2018

T18-10

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THE STATE OF TRANSPORTATION IN HAMPTON ROADS 2018

PREPARED BY:

the heartbeat of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

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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.

NON-DISCRIMINATION

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/I-264 INTERCHANGE CONSTRUCTION

Image Source: VDOT.

INTRODUCTION

Vast improvements to the transportation system are underway throughout Hampton Roads, with more landmark projects coming in the near future. These projects include new tunnels, improved bridges, widened interstates, expanded ports, and more.

There are a number of major roadway construction projects both underway and recently completed in Hampton Roads. Construction has recently been completed on several important roadway projects throughout Hampton Roads, including the Martin Luther King Freeway Extension and the new westbound Midtown Tunnel tube, Phase I of I-64 widening on the Peninsula, upgrades to the Dominion Boulevard corridor including the new Veterans Bridge, the I-564 Intermodal Connector, and the first phase of the I-64 Express Lanes network.

Construction is currently underway on two other **Regional Priority Projects** that are being primarily funded by the Hampton Roads Transportation Accountability Commission (HRTAC) with the regional Hampton Roads Transportation Fund (HRTF) – Phase II of I-64 widening on the Peninsula and improvements to the I-64/I-264 interchange in Norfolk and Virginia Beach. In addition, construction is underway on a parallel tube at the Chesapeake Bay Bridge-Tunnel, and the replacement of the Lesner Bridge in Virginia Beach. Construction will start soon on widening I-64 in Chesapeake (including the High Rise Bridge), Phase III of I-64 widening on the Peninsula, and the $3.6 billion widening of the Hampton Roads Bridge-Tunnel – three more regional priority projects funded primarily with regional funds.

I-64 CONSTRUCTION

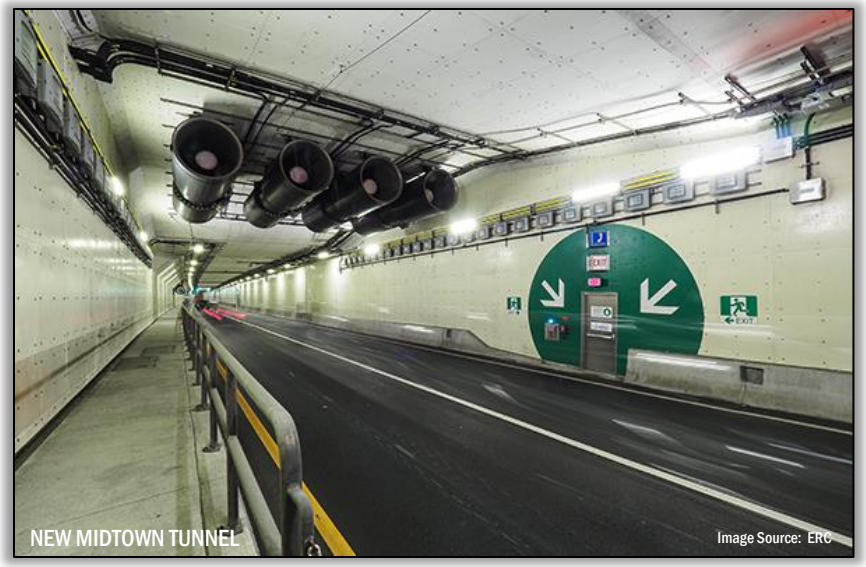
Image Source: VDOT.

Improvements have not been limited to the highway network. The Port of Virginia is in the midst of nearly $700 million in projects to greatly improve and expand Norfolk International Terminals and the Virginia International Gateway facility, and plans are underway to widen and deepen the shipping channels to the port. Millions of dollars of improvements have been made in the last two years at both of the region's commercial service airports (Norfolk International and Newport News-Williamsburg International). A new Amtrak station was built in Norfolk, and construction should begin next year on a new multi-modal station near Bland Boulevard in Newport News.

However, even with all of this construction in Hampton Roads, there continue to be challenges. Funding levels have been lower than anticipated in recent years due to lower fuel prices. In spite of reginal funding, 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 bridge and roadway maintenance will need to increase as transportation infrastructure continues to age. And 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.



NEW MIDTOWN TUNNEL

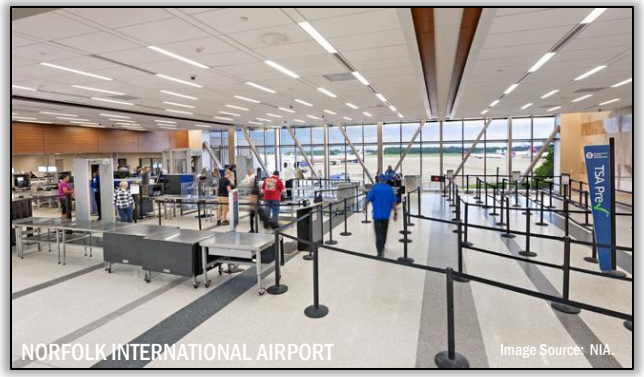
Image Source: ERC

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. In addition, new federal requirements require states and metropolitan areas to use performance measures and set targets in areas such as pavement and bridge condition, freight, travel time reliability, transit, 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.

AIR TRAVEL

After a decade of decreases, passenger levels began to increase at Hampton Roads airports in 2016. This growth is expected to continue as the number of flights to the region increases in 2018.

The number of passengers using commercial air service in Hampton Roads has increased over the last two years after seeing decreases every year since 2007. Nearly 1.9 million passengers boarded flights at the two commercial service airports in Hampton Roads – Norfolk International Airport and Newport News-Williamsburg International Airport – in 2017. The number of passengers using the region's airports has decreased 17% over the last decade but has increased 10% from the low seen in 2015.



Most of the decrease in regional passenger levels over the last decade occurred at Newport News-Williamsburg International Airport. 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.

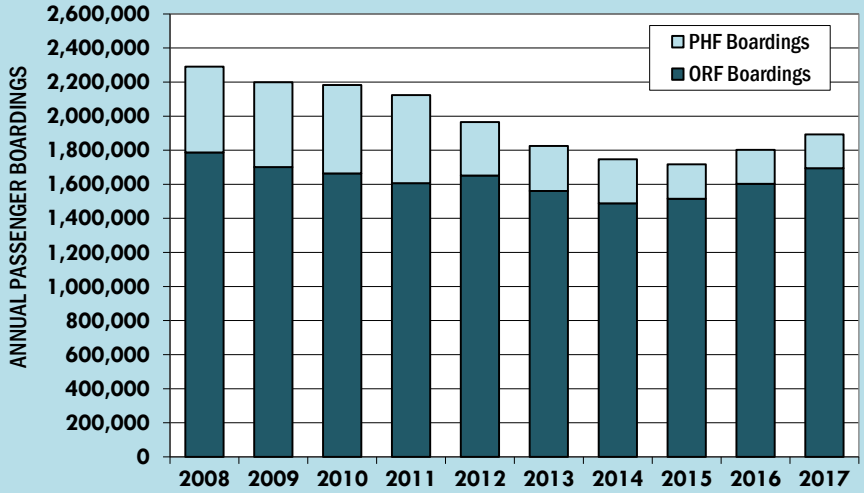
NOTABLE AIR TRAVEL NUMBERS

17% ▼ The decrease in the number of passengers that used Hampton Roads airports between 2008 and 2017.

35% ▼ The decrease in capacity (in terms of available seat-miles) at Hampton Roads airports between 2008 and 2017.

15% ▲ The increase in average airfare at Norfolk International Airport between 2008 and 2017. At Newport News-Williamsburg International Airport, the average airfare increase was 59%.

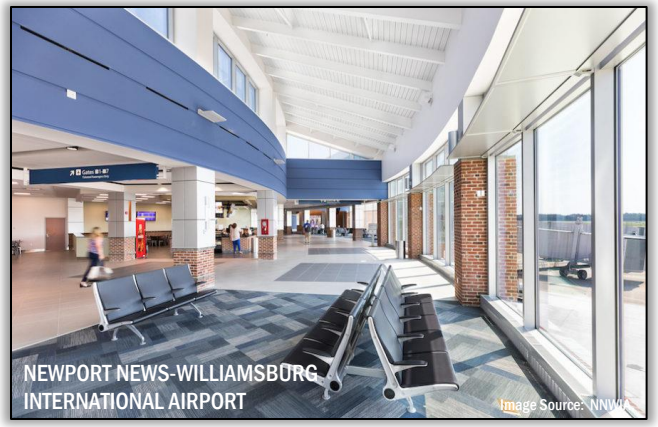
ANNUAL PASSENGER BOARDINGS AT HAMPTON ROADS AIRPORTS, 2008-2017



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.

AIR TRAVEL (continued)

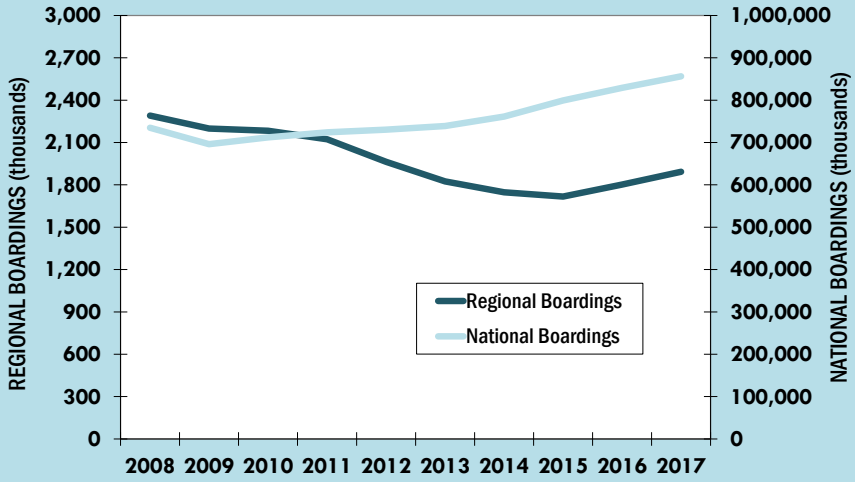
While passenger levels at Hampton Roads airports decreased by 17% over the last decade, passenger levels at Richmond International Airport increased by 5%, and nationally, passenger levels increased by 16% between 2008 and 2017.



Airfares at Hampton Roads airports have slightly decreased over the last three years, after increasing earlier in the decade. In 2008, average airfares at Norfolk International Airport were $360, which was about $27 higher than the national average. At Newport News-Williamsburg International Airport, airfares ($291) were well below the national average, driven by low-cost carrier service. By the end of 2017, the average airfare at Norfolk International Airport had increased 15% to $413, and 59% at Newport News-Williamsburg International Airport to $462. Both were well above the national average airfare of $347. However, average airfares decreased by $50 at Norfolk International between the end of 2014 and 2017 and decreased by $6 at Newport News-Williamsburg.

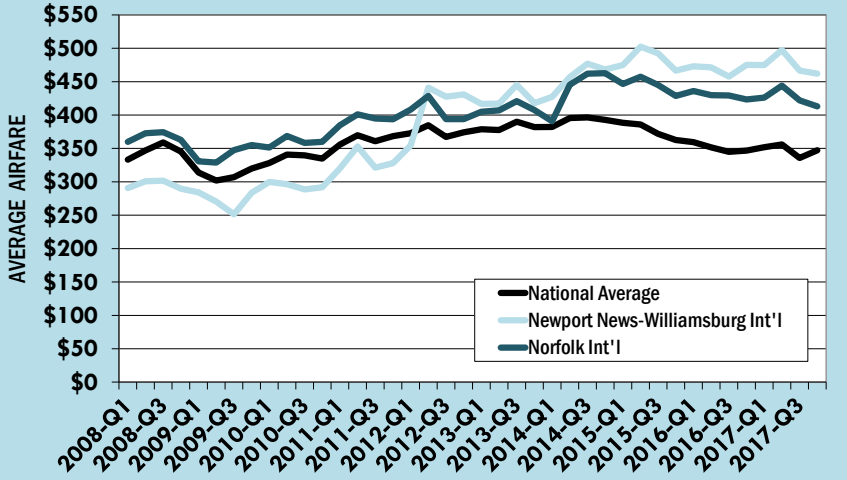
It should be noted that these airfares only reflect the costs associated with ticket fares and do not include additional fees

ANNUAL PASSENGER BOARDINGS AT HAMPTON ROADS AND NATIONAL AIRPORTS, 2008-2017



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, 2008-2017



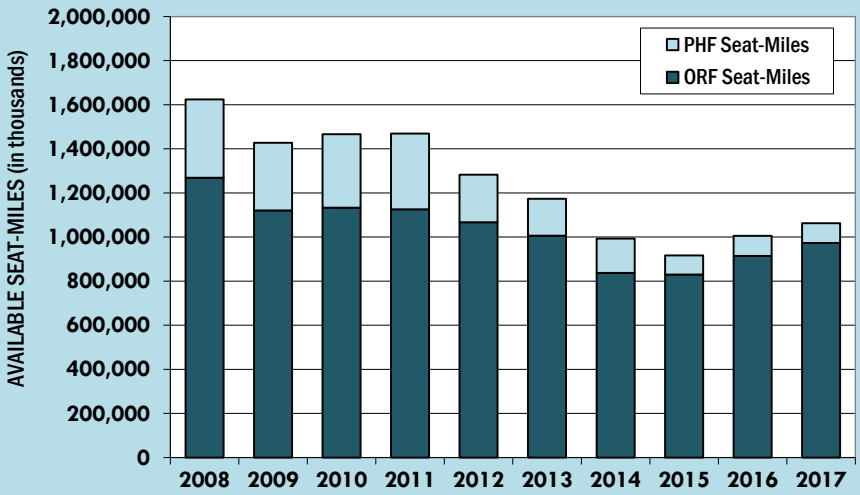
Data source: Bureau of Transportation Statistics. Average fares are based on domestic itinerary fares consisting of round-trip fares unless the customer does not purchase a return trip, in which case the one-way fare is included. Fares are based on the total ticket value (including any additional taxes 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, snacks, etc.

The number of flights departing from Hampton Roads airports has greatly decreased over the last decade, but has increased over the last year. As of March 2018, a total of approximately 82 commercial flights depart from Hampton Roads airports each day. This is an increase over the 75 flights offered each day in March 2017 but is much lower than the 110 flights offered each day as recently as 2010.

This decrease in the number of flights from Hampton Roads airports over the last decade resulted in a decrease in the number of available seat-miles, a common method of measuring an airport's person-carrying capacity. This trend, however, has reversed recently. There were 1.06 billion seat-miles available on flights departing Hampton Roads in 2017.

ANNUAL AVAILABLE SEAT-MILES AT HAMPTON ROADS AIRPORTS, 2008-2017



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 have rebounded over the last two years, the decrease in passenger volumes at Hampton Roads airports over the last decade were caused by a number of factors. While some causes such as government sequestration are region-specific, many are a symptom of the state of the airline industry. The biggest impacts on the industry are a result of airline consolidation. In 2008 there were seven airlines that controlled about 70% of the market share throughout the country. In 2018 nearly the same share of the market is controlled by just four airlines.

These consolidations led to a decrease in flights, nonstop markets, and available seat-miles, not only in Hampton Roads but also at a number of similar-sized airports throughout the county. Of the 100 airports currently classified as "small" or "medium" by the Federal Aviation Administration (which includes Norfolk International), passenger levels decreased at 37 airports between 2008 and 2017. In addition, capacity (in terms of available domestic seat-miles) decreased at 42 of the 100 "small" and "medium" airports during this time.

Fortunately, the increases in passengers and capacity in Hampton Roads over the last year has outpaced many similar-sized airports. Of the 100 "small" and "medium" airports, Norfolk International had the 33rd largest passenger growth percentage and 38th largest capacity growth percentage between 2015 and 2017.

This is down 35% from 1.62 billion seat-miles in 2008, but has increased 16% since 2015. The load factors (which are passenger-miles as a proportion of available seat-miles) have followed an inverse pattern, peaking in 2015 at both Norfolk International (84.3%) and Newport News-Williamsburg International (82.3%), before decreasing in 2017 to 81.0% at Norfolk International and 79.0% at Newport News-Williamsburg International.

As of August 2018 there are a total of 24 airports in 18 markets served nonstop from Hampton Roads. Norfolk International Airport has nonstop flights to all of these airports and markets, while 3 airports/ markets are served nonstop from Newport News-Williamsburg International Airport.

A number of markets lost nonstop service from Hampton Roads airports over the last decade. Most of these markets served as hubs for airlines that reduced service through consolidation in the airline industry. However, nonstop service to many of these markets, including Boston, Denver, Jacksonville, Las Vegas, and Tampa, has restarted in the last two years.

The most popular final destination for passengers using Hampton Roads airports in 2017 was Chicago, with a total of

NEW DEVELOPMENTS

Airport Improvements – Major terminal renovations were recently completed at Norfolk International Airport. These renovations include the lobby atrium area, concourses, restrooms, ticketing areas, and security checkpoints. In addition, a number of retail storefronts were upgraded and many of the dining options were replaced with more emphasis on local and healthy selections.


RENOVATED ORF CONCOURSES Source: NIA.

At Newport News-Williamsburg International Airport, a new security checkpoint area was completed in 2017. The new security area consolidates the original two security checkpoints into one centralized checkpoint with three lanes.

New Service – A number of new air travel options and non-stop destinations have been added in the region over the last year, including:

- Allegiant Air started twice-weekly service from Norfolk on the following dates:
  - Tampa/St. Petersburg (10/4/2017)
  - Orlando/Sanford and Fort Lauderdale (11/17/2017)
  - Jacksonville (6/14/2018)
- Frontier Airlines began service at Norfolk International. Twice-weekly routes began on the following dates:
  - Denver and Orlando (8/12/2018)
  - Las Vegas (8/14/2018)
  - Phoenix & Tampa (will begin 11/17/2018)

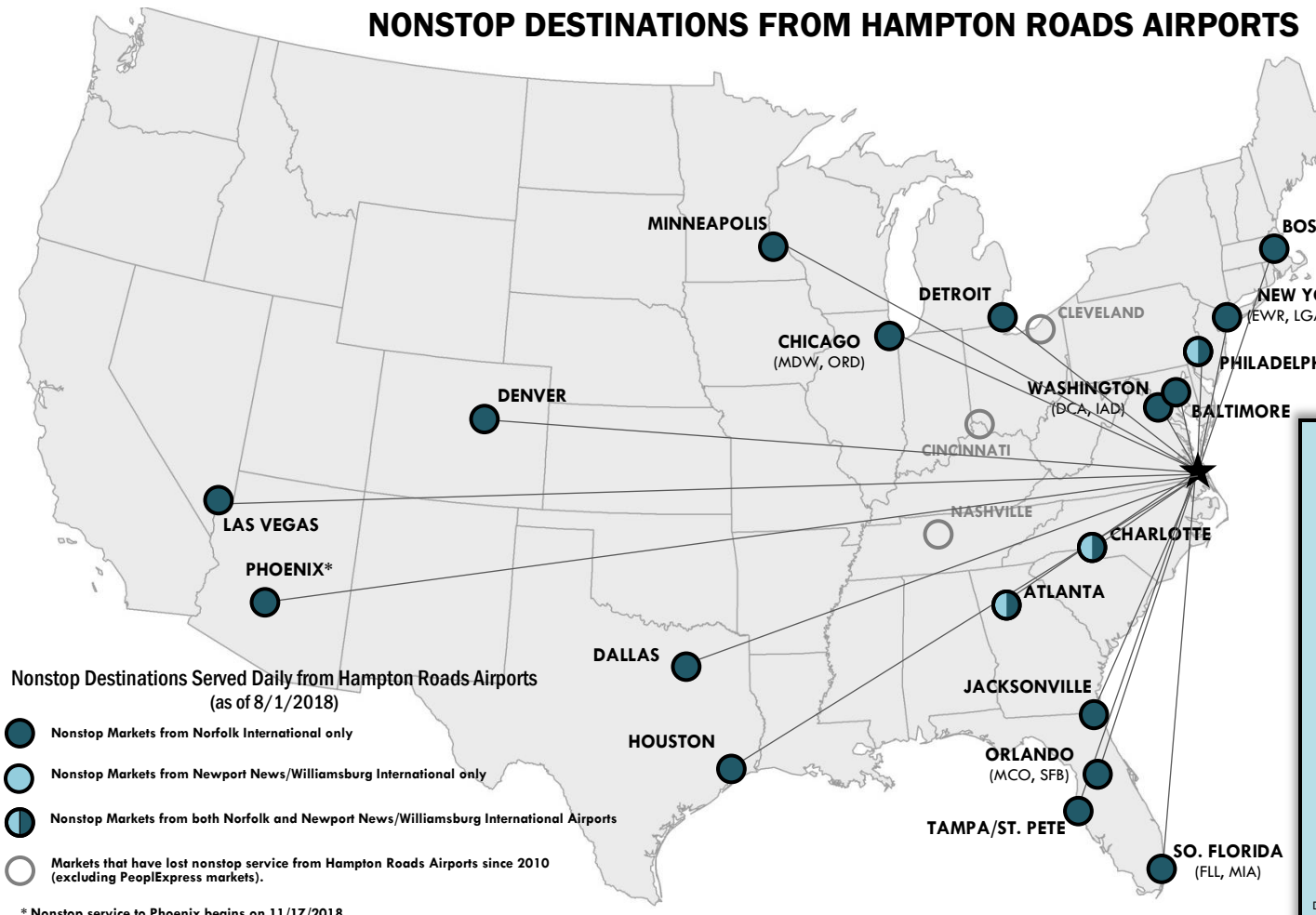
Image Source: Frontier.

- Delta started new daily nonstop service between Norfolk and Boston on September 10, 2017.
- United started year-round daily nonstop service between Norfolk and Denver on June 8, 2018.

170,400 passengers traveling either to or from Chicago. Nearly 30,000 more passengers travelled between Hampton Roads and Chicago in 2017 than in 2016. The second most popular destination from Hampton Roads in 2017 was Atlanta with 150,100 passengers, and the third most popular final destination was New York with 145,200 passengers.

Of the top twelve markets for Hampton Roads air travelers, only three (Los Angeles, San Diego, and Seattle) were not served by any nonstop service from Hampton Roads airports as of August 2018. In recent years this number has been as high as 6 of the top 12 markets.

NONSTOP DESTINATIONS FROM HAMPTON ROADS AIRPORTS



Nonstop Destinations Served Daily from Hampton Roads Airports
(as of 8/1/2018)

- Nonstop Markets from Norfolk International only
- Nonstop Markets from Newport News/Williamsburg International only
- Nonstop Markets from both Norfolk and Newport News/Williamsburg International Airports
- Markets that have lost nonstop service from Hampton Roads Airports since 2010 (excluding PeopleExpress markets).

* Nonstop service to Phoenix begins on 11/17/2018.

Top Final Destinations to/from Hampton Roads Airports (2017)

	Destination	2017 Passengers
1)	Chicago	170,400
2)	Atlanta	150,100
3)	New York	145,200
4)	Orlando	128,500
5)	Los Angeles	124,000
6)	Boston/Providence	115,200
7)	San Diego	111,700
8)	Miami/Ft Lauderdale	111,300
9)	Dallas/Ft. Worth	104,700
10)	Las Vegas	78,000
11)	Denver	71,300
12)	Seattle	69,900

Data Source: Federal Aviation Administration.

PORT DATA

Cargo levels handled by the Port of Virginia reached record levels in 2017, with the largest ships on the East Coast 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.

THE PORT OF VIRGINIA Image Source: VPA

Hampton Roads is the largest exporter of coal in the country. Over 35 million tons of coal was shipped through the region in 2017, a 62% increase over the 22 million tons handled in 2016. The amount of coal shipped through Hampton Roads, however, remains down from a high of 51 million tons in 2013.

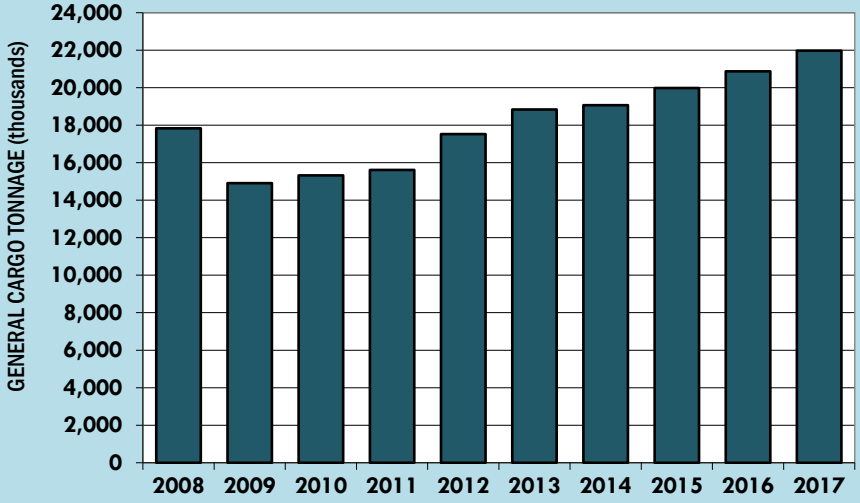
NOTABLE PORT DATA NUMBERS

23% The increase in general cargo tonnage handled by the Port of Virginia between 2008 and 2017.

62% The increase in the amount of coal shipped through Hampton Roads from 2016 to 2017.

3rd The rank of the Port of Virginia among East Coast ports in the volume of containerized cargo handled in 2017. Nationally, the Port of Virginia ranked 6th highest.

GENERAL CARGO TONNAGE HANDLED BY THE PORT OF VIRGINIA, 2008-2017



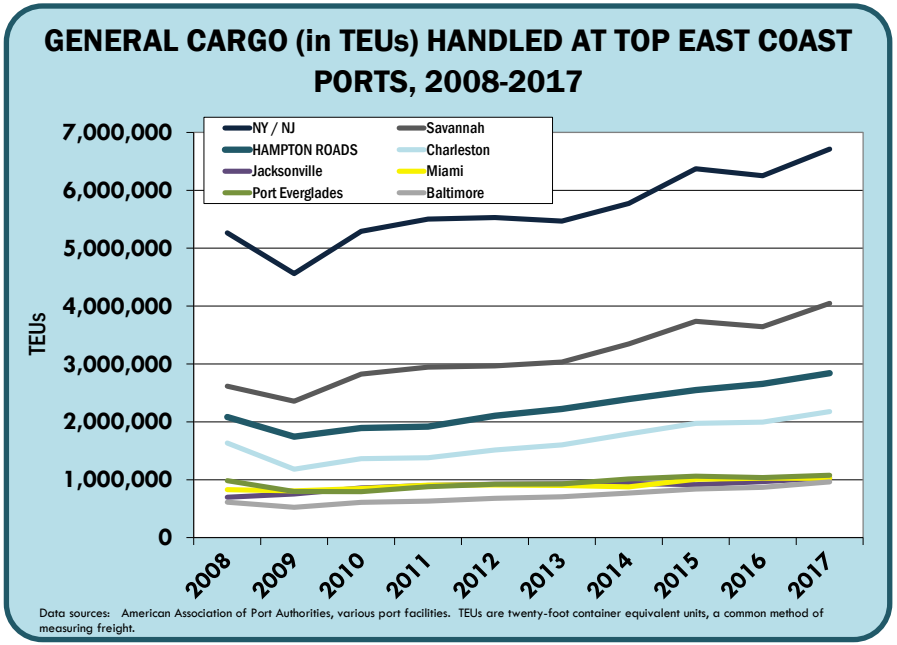
Data source: Virginia Port Authority. Data does not include Virginia Inland Port tonnage.

PORT DATA (continued)

Nearly 22 million tons of general cargo, primarily transported in containers, was handled by the Port of Virginia in 2017, a record for the Port. The amount of general cargo handled by the Port of Virginia increased 23% between 2008 and 2017, with a 47% 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 2.84 million TEUs in 2017. This is up 36% from 2.08 million TEUs handled in 2008. The Port of Virginia ranked third highest among East Coast ports in the volume (in terms of TEUs) of containerized cargo handled in 2017, and sixth highest among all U.S. ports.

In 2017, 61% of the general cargo handled by the Port of Virginia arrived or departed by truck, 36% by rail, and 3%



NEW DEVELOPMENTS

Dredging Approval – The Port of Virginia has seen much larger ships arrive in recent years, largely due to the expansion of the Panama Canal. In order to better accommodate these ships the Port has planned the "Wider, Deeper, Safer" project which would deepen the channels from 50 feet to 55 feet and widen the channels to allow for two-way traffic of ultra-large container vessels. On July 3, 2018, the Army Corps of Engineers issued its final authorization to move ahead with the project, which is a key step in getting federal funding to match the $350 million in state funding previously allocated to the project.

Capital Improvements – The Port of Virginia is undertaking a number of major projects, including:

- NIT North Gate – In June 2017, the new 26-lane semi-automated NIT North Gate complex opened, which connects with the recently-opened Intermodal Connector.
- Multiple improvements at NIT that will allow the facility to handle 700,000 more TEUs annually.
- Phase II Expansion of the Virginia International Gateway (VIG) complex, which will allow it to handle over one million more TEUs annually.

The improvements at NIT and VIG are expected to be complete by 2020.

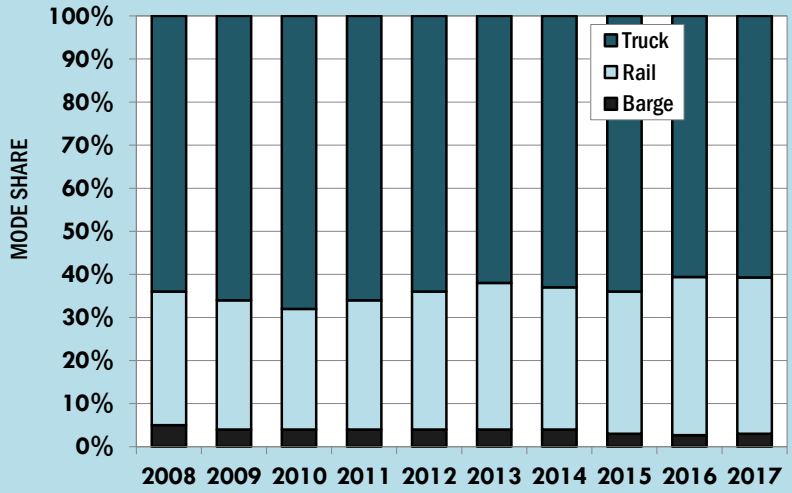

NIT SOUTH CONSTRUCTION
Image Source: VPA

by barge. The share of freight moved by rail through the Port of Virginia has increased, up from 31% in 2008.

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, the year Carnival Cruise Lines resumed service to the region. Although Carnival is not using Norfolk as a homeport during 2018, they are expected to resume cruises from Norfolk in 2019. A number of other cruise lines still provide scheduled stops in Norfolk during their itineraries.

HRTPO conducts a number of freight planning efforts, such as 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, 2008-2017



Data source: Port of Virginia.

BEHIND THE NUMBERS

COSCO DEVELOPMENT Image Source: VPA

The ships calling at the Port of Virginia are getting larger, mostly due to the widening of the Panama Canal. In July 2016 the first ship with a capacity of 10,000 TEUs arrived at the port. Only ten months later, a 13,000 TEU ultra-large container vessel – The Cosco Development – called at the Port, and the 14,400 TEU CMA-CGM Theodore Roosevelt visited Virginia International Gateway in August 2017.

Hampton Roads and the Port of Virginia are well-positioned 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. In addition, the Army Corps of Engineers issued final authorization to widen and deepen the channels to 55 feet to allow for two-way traffic of ultra-large container vessels, 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 2.84 million TEUs that were handled in total by the Port of Virginia in 2017.

RAIL DATA

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.)

AMTRAK STATION IN NORFOLK

Image Source: Norfolk

The number of passengers using Amtrak service in Hampton Roads has increased over the last decade, largely due to the new service to the Southside. There were a total of 214,500 passengers who boarded or departed Amtrak trains in Hampton Roads in Federal Fiscal Year (FFY) 2017, with 106,700 passengers at the Newport News station, 60,300

NOTABLE RAIL TRAVEL NUMBERS

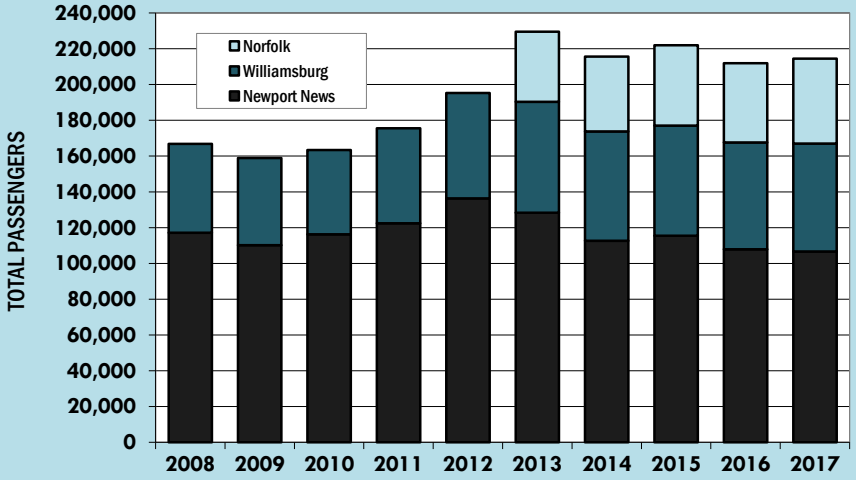
29% ▲

The increase in the number of passengers that boarded or departed Amtrak trains in Hampton Roads between Federal Fiscal Years 2008 and 2017.

47% ▼

The decrease in the number of crashes at highway-rail crossings in Hampton Roads from the 1998-2007 time period to 2008-2017.

TOTAL PASSENGERS BOARDING OR DEPARTING AMTRAK TRAINS IN HAMPTON ROADS, FFY 2008-2017

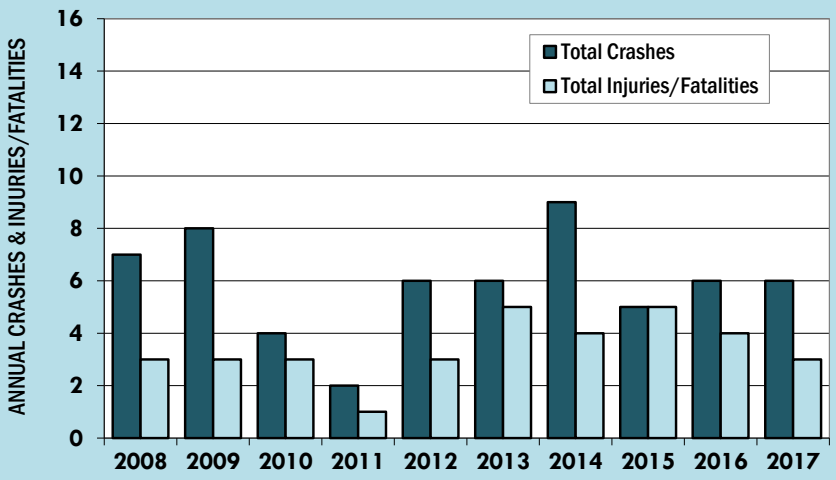


Data source: Amtrak. Federal Fiscal Years run from October to September.

passengers at the Williamsburg station, and 47,500 passengers at the Norfolk station. The number of passengers boarding or departing Amtrak trains in Hampton Roads increased 29% between FFY 2008 and 2017, and increased 10% since service resumed to the Southside in late 2012.

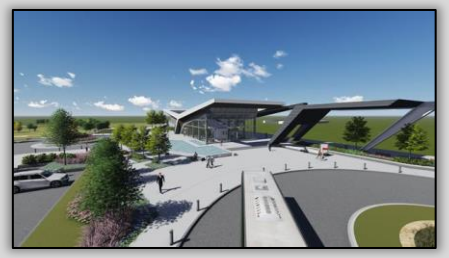
With the number of freight and passenger trains crossing the region each day, safety at highway-rail crossings is a concern. There were six crashes between trains and vehicles at highway-rail crossings in Hampton Roads in 2017, resulting in two injuries and one fatality. Between 2008 and 2017, there were 59 crashes at highway-rail crossings in Hampton Roads, resulting in 7 fatalities and 27 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, 2008-2017



Data source: Federal Railroad Administration.

NEW DEVELOPMENTS



Newport News Multimodal Station – Construction is expected to begin next year 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. Although there have been recent delays, construction on the $43.9 million facility is expected to begin in late 2019.

Funding for Passenger Rail Improvements – More than $643 million has been allocated for passenger rail projects in the Virginia Department of Rail and Public Transportation's Fiscal Year 2019-2024 Six-Year Improvement Program. In Hampton Roads, $20 million in DRPT funding is allocated to building the Newport News Multimodal Station and nearly $25 million is allocated to expand Amtrak service in Norfolk to a second and third train each day. Funds are also allocated to support existing Amtrak service on the Peninsula and Southside.

BRIDGES

The large number of rivers, bays, and streams makes bridges a prominent part of the Hampton Roads transportation network. Adequately funding the maintenance of all of these structures, however, will be difficult as bridges in Hampton Roads continue to age.

Bridges are a vital component of the Hampton Roads transportation network. 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 streams in the region.

There are 1,261 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 421 bridges (33%) 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.

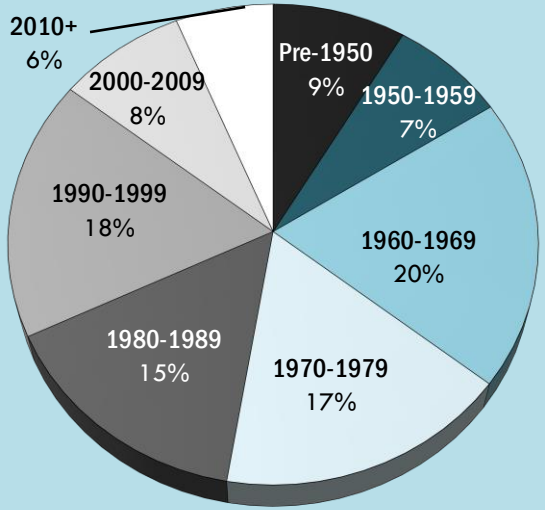
NOTABLE BRIDGE NUMBERS

5.5% The percentage of bridges in Hampton Roads that were classified as structurally deficient as of February 2018.

33% The percentage of bridges in Hampton Roads that are at least 50 years old.

21st Hampton Roads rank among 39 large metropolitan areas with populations between one and four million people in terms of the percentage of structurally deficient bridges.

BRIDGES IN HAMPTON ROADS BY YEAR BUILT



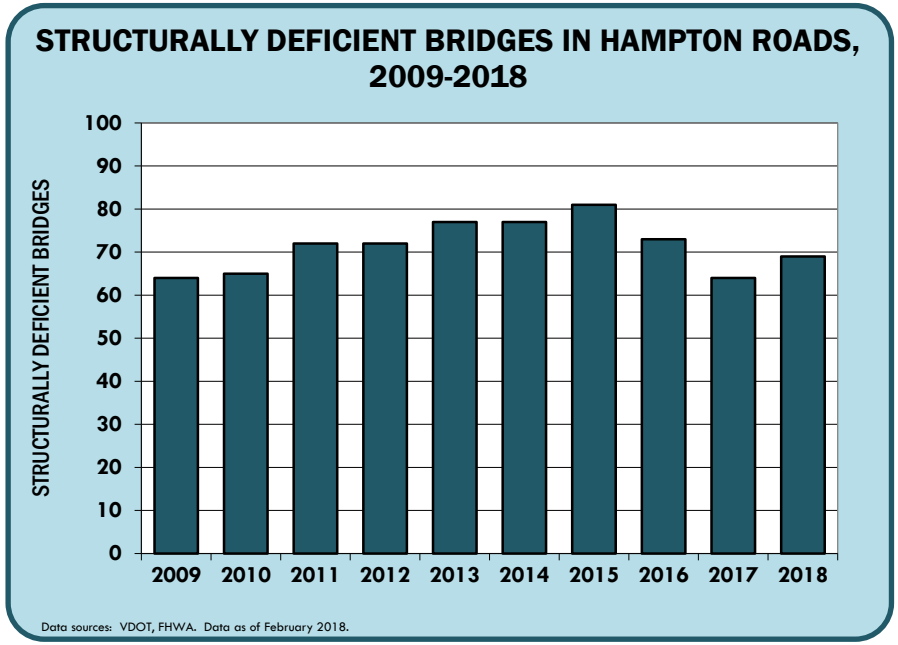
Data sources: VDOT, FHWA. Data as of February 2018.

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.

There are 69 bridges (5.5%) that were classified as structurally deficient as of February 2018. This is up slightly from 64 bridges (5.3%) that were classified as structurally deficient in Hampton Roads in 2009, but down from a high of 81 bridges



NEW DEVELOPMENTS

High Rise Bridge – Construction will begin soon on widening the I-64 corridor in Chesapeake, which will include the High Rise Bridge. The project will include a new 100-foot high fixed span located just to the south of the existing facility, which will remain in use. The project is expected to be complete in 2021.


Image Source: VDOT.


Image Source: City of Virginia Beach

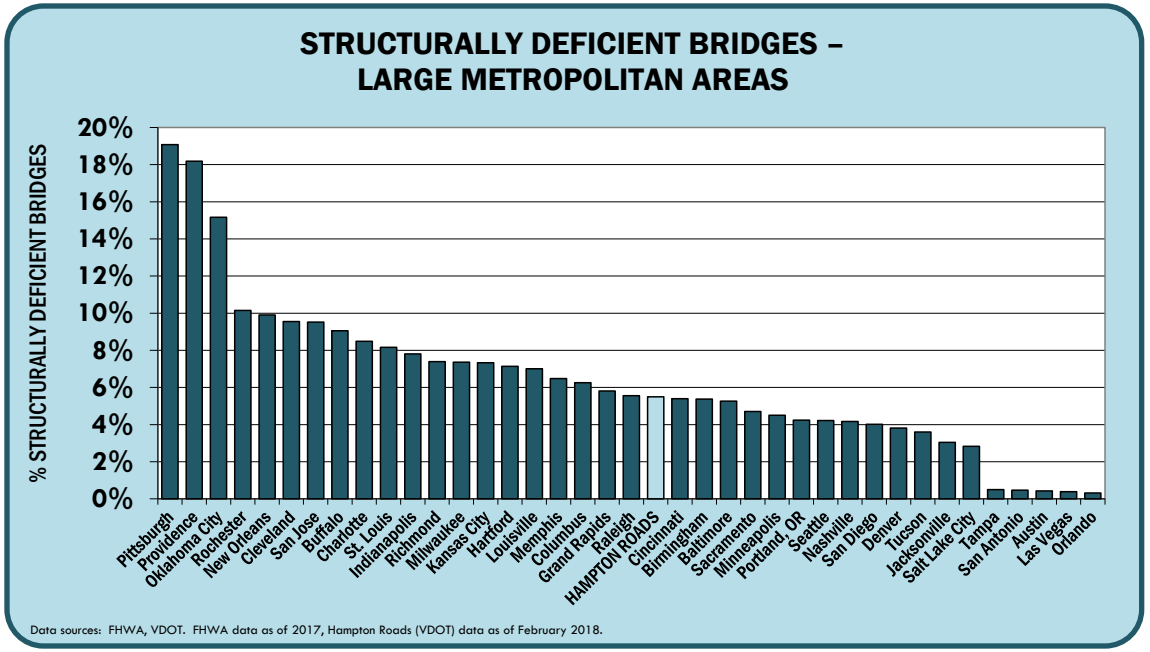
Lesner Bridge – Construction is nearly complete on a replacement for the Lesner Bridge, which carries Shore Drive across Lynnhaven Inlet in Virginia Beach. The new facility is being built to accommodate the possibility of 6 lanes in the future, provide an increased vertical clearance from 35 feet to 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 the end of 2018.

(6.6%) in 2015. Another 264 bridges (20.9%) in Hampton Roads were classified as functionally obsolete. Combining structurally deficient and functionally obsolete bridges, 333 bridges (26.4%) in Hampton Roads were deficient as of February 2018.

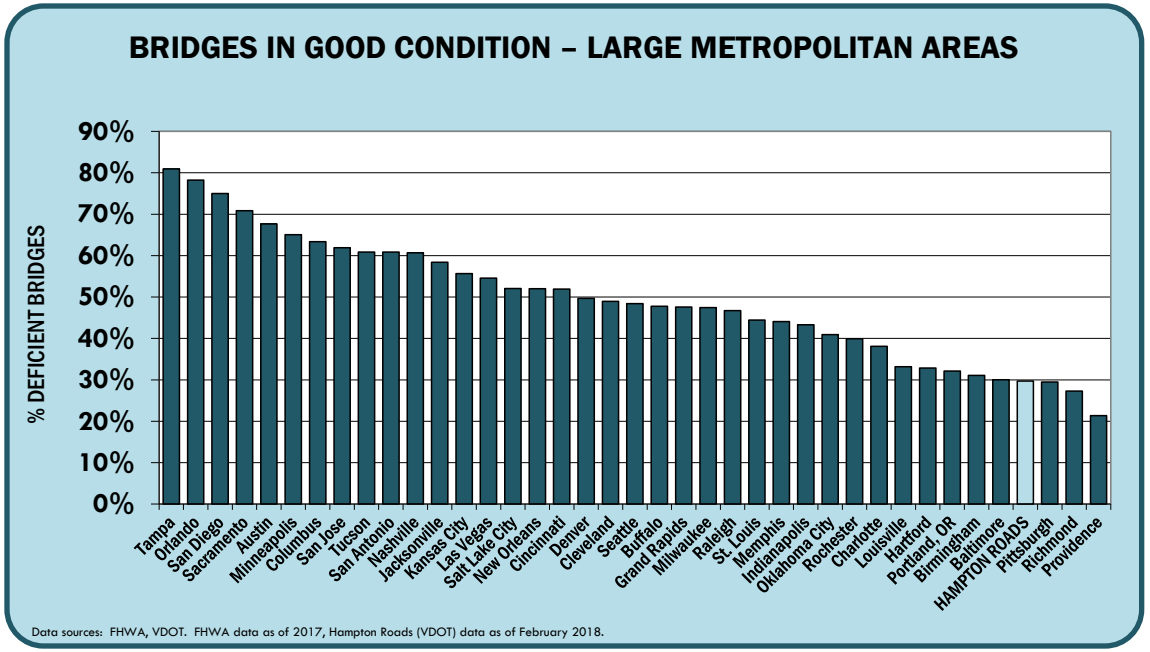
The percentage of bridges that are classified as structurally deficient in Hampton Roads is slightly better than the average of other comparable metropolitan areas. Hampton Roads ranks 21st highest among 39 large metropolitan areas with populations between one and four million people in the percentage of structurally deficient bridges in each region.

However, Hampton Roads ranks much lower in terms of the percentage of bridges that are classified in "Good" condition using federal standards. At 29.7%, Hampton Roads ranks 4th lowest among the 39 comparable metropolitan areas between one and four million people in terms of the percentage of bridges classified as good.

HRTPO released an update to the *Hampton Roads Regional Bridge Study* – which looks at various aspects of the region's bridges – in 2018. The Regional Bridge Study is available on HRTPO's website at http://www.hrtpo.org.



Data sources: FHWA, VDOT. FHWA data as of 2017, Hampton Roads (VDOT) data as of February 2018.



Data sources: FHWA, VDOT. FHWA data as of 2017, Hampton Roads (VDOT) data as of February 2018.

PAVEMENT CONDITION

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

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 roadway pavement condition be classified as deficient.

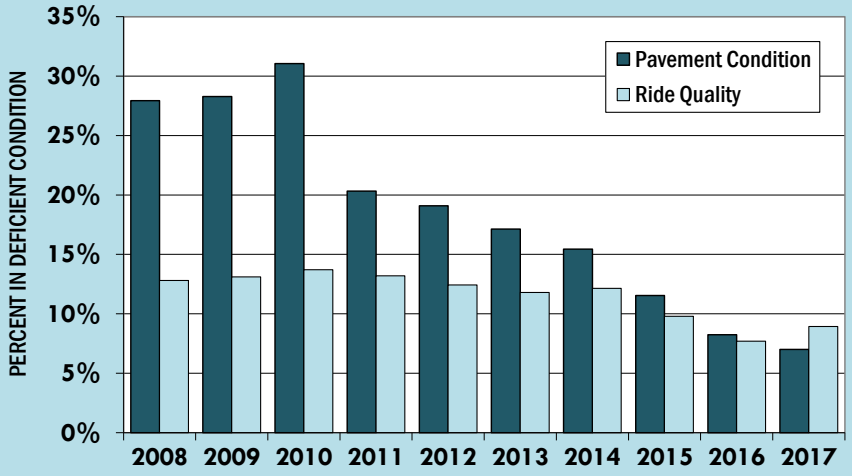
The percentage of state-maintained roadways in deficient condition in Hampton Roads has greatly improved in recent years. As recently as 2010, nearly one third of state-maintained Interstate and Primary roadways in Hampton Roads had a deficient pavement condition. After extensive repaving efforts throughout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

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 2017. This is down from 31% as recently as 2010.

19th Hampton Roads rank among 39 large metropolitan areas with populations between one and four 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 THE HAMPTON ROADS DISTRICT, 2008-2017



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

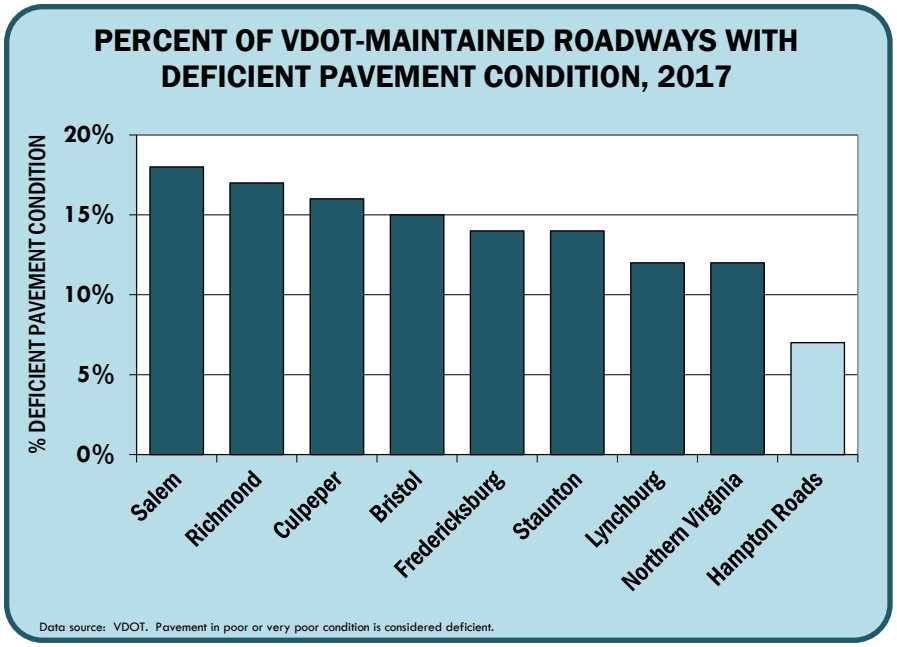
2017. Interstates in Hampton Roads have particularly improved, with only 2% having a deficient pavement condition in 2017.

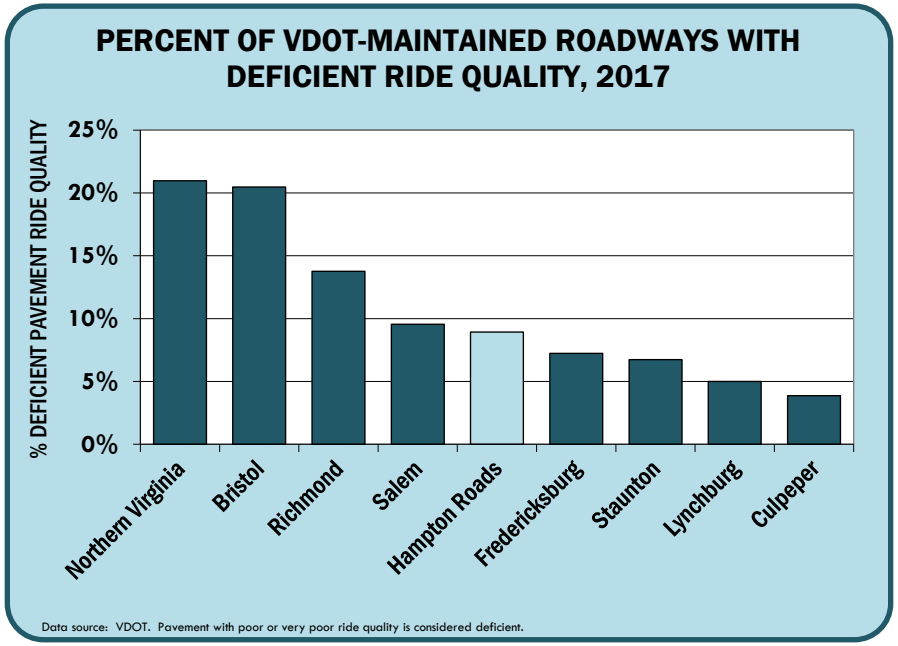
The pavement condition is now better in Hampton Roads than in every other area of the state. Looking only at state-maintained Interstate and Primary roadways, the 7% of lane-miles in Hampton Roads that have a deficient pavement condition is better than all of the other VDOT Districts, with the amount of deficient pavement in all of the other districts ranging between 12% and 18% in 2017.

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 2017, 9% of state-maintained Interstate and Primary roadways in Hampton Roads had a deficient ride quality, down from 12% in 2014 and 14% in 2010.

The pavement ride quality is better in Hampton Roads than in the other large metropolitan areas of the state. The 9% of state-maintained Interstate and Primary lane-miles in Hampton Roads that have a deficient pavement ride quality ranks in the



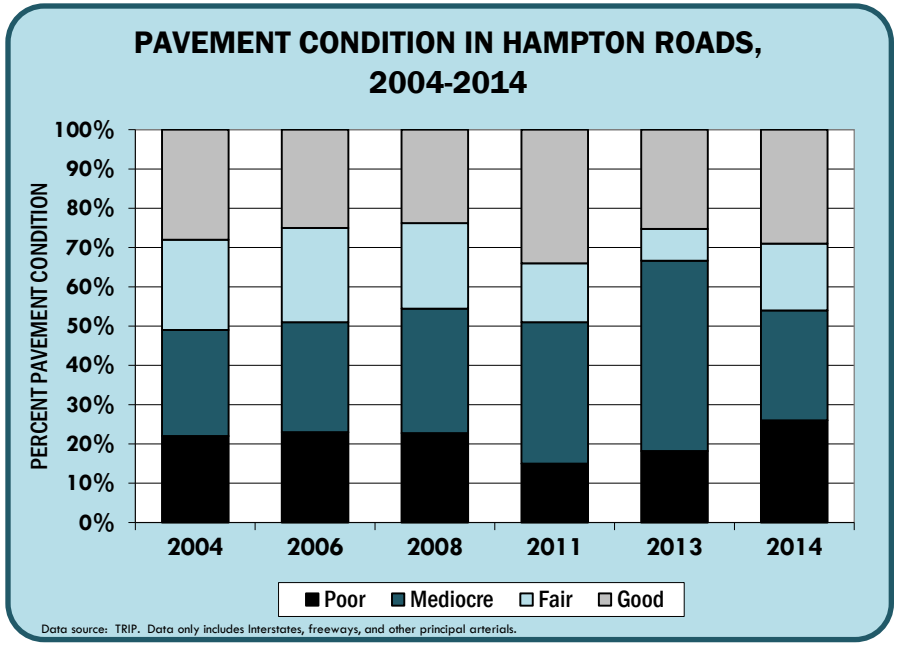


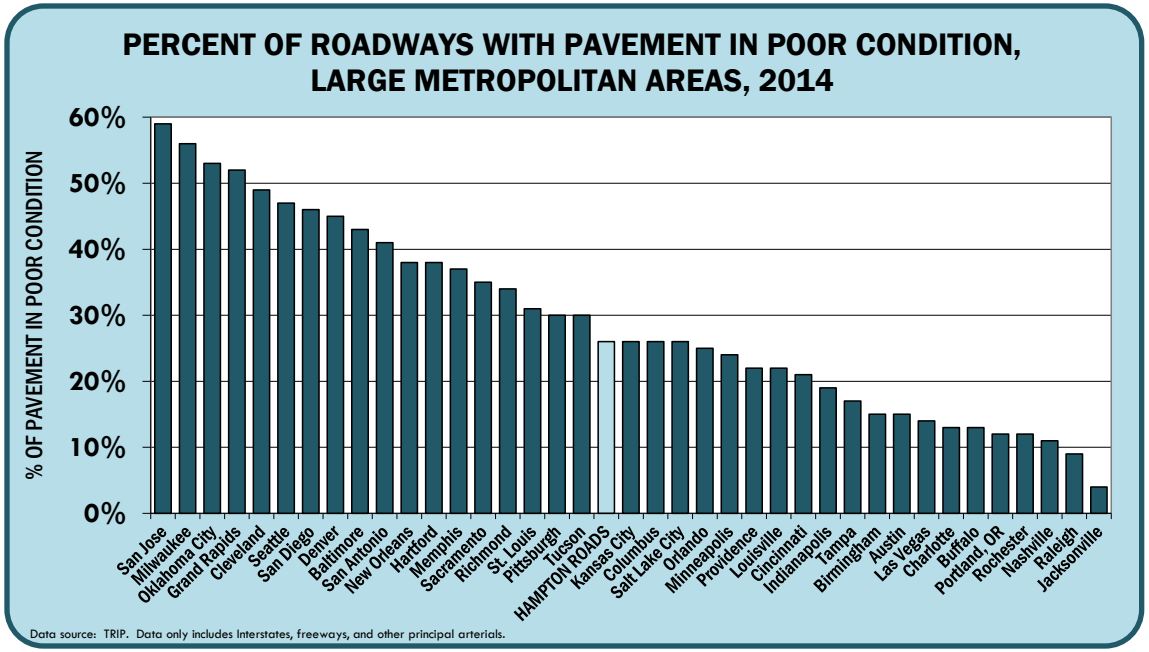
middle compared to VDOT Districts throughout the state but is better than the Northern Virginia (21%) and Richmond (14%) VDOT Districts.

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 prepares 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 analysis 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 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 39 large metropolitan areas with populations between one and four million people, Hampton Roads ranked 19th highest 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.





ROADWAY USAGE

After years of flat or decreasing roadway travel levels in Hampton Roads, regional traffic volumes started growing again in 2015, and have exceeded 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 41 million vehicle-miles of travel (VMT) on the typical day in Hampton Roads in 2017.

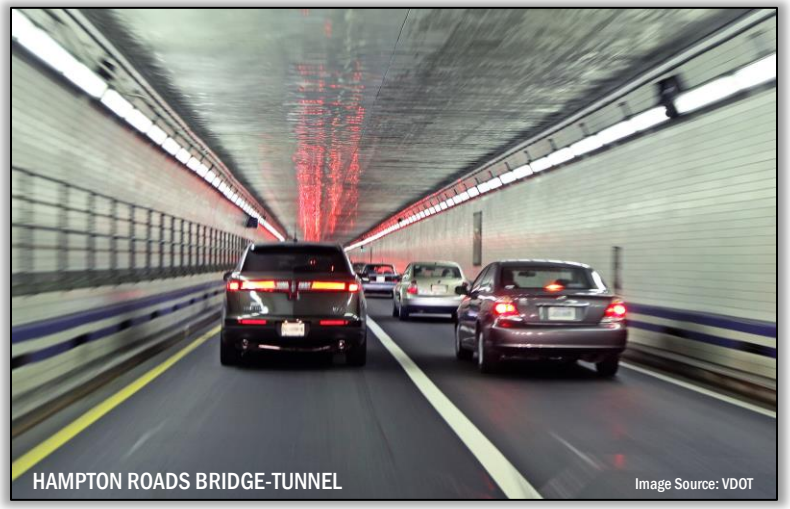

HAMPTON ROADS BRIDGE-TUNNEL

Image Source: VDOT

The amount of roadway travel in Hampton Roads has slightly increased over the last decade according to VDOT estimates. Between 2008 and 2017, there was a 1.0% increase in vehicular travel in Hampton Roads. However, roadway travel

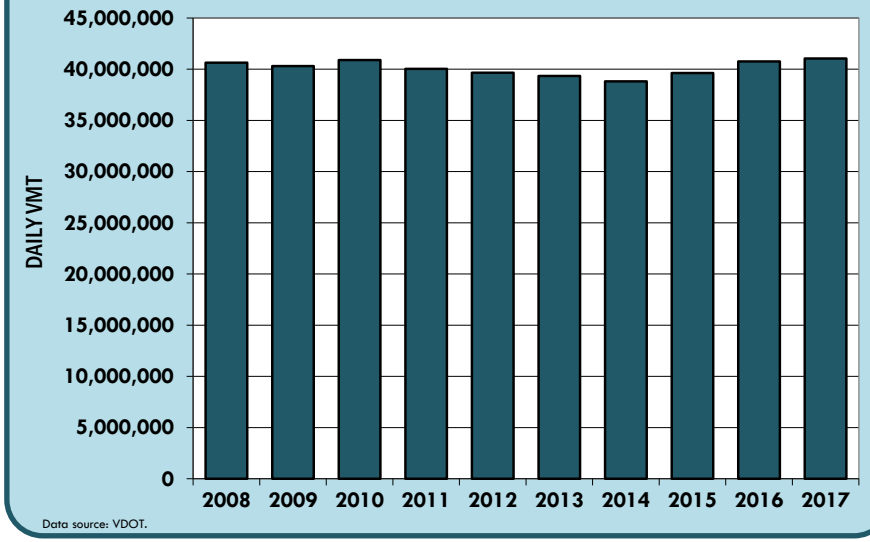
NOTABLE ROADWAY USAGE NUMBERS

1% The increase in daily roadway travel in Hampton Roads between 2008 and 2017 according to VDOT estimates.

6% The increase in the amount of daily roadway travel in Hampton Roads between 2014 and 2017 based on regional continuous count stations.

29th Hampton Roads rank among 39 large metropolitan areas with populations between one and four million people in terms of vehicular travel per capita in 2016.

DAILY VEHICLE-MILES OF TRAVEL (VMT) IN HAMPTON ROADS, 2008-2017



Data source: VDOT.

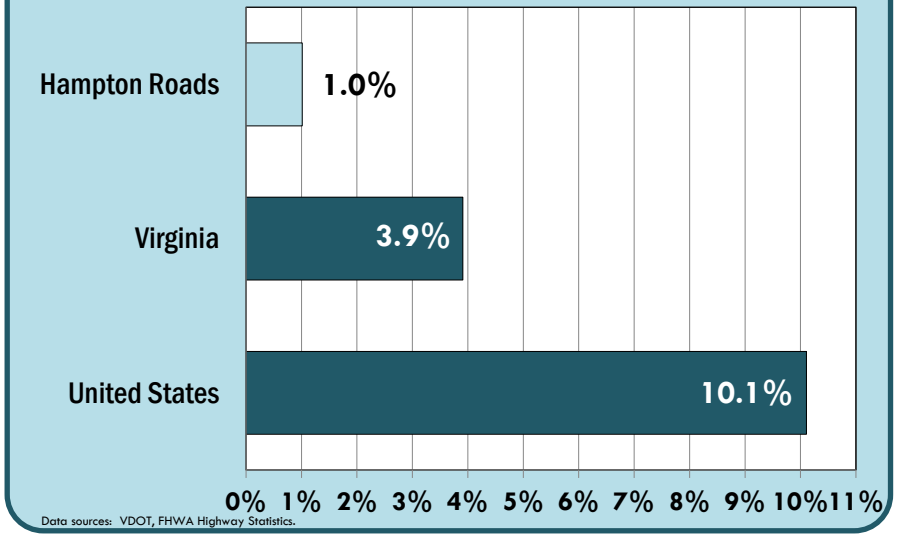
growth in the region has accelerated in recent years, with a 5.8% increase in regional roadway travel between 2014 and 2017.

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 2008 and 2017, roadway travel grew by 3.9% in Virginia and 10.1% across the country. However, roadway travel increased by 5.5% in the United States between 2014 and 2017 – reaching record high levels – and 5.2% in Virginia.

The increase in the Hampton Roads population outpaced the growth in regional roadway travel over the last decade. This combination produced a decrease in vehicular travel per capita. The vehicular travel per capita in Hampton Roads was 23.7 vehicle-miles per person per day in 2017, down 3.5% from 24.6 daily vehicle-miles per capita in 2008.

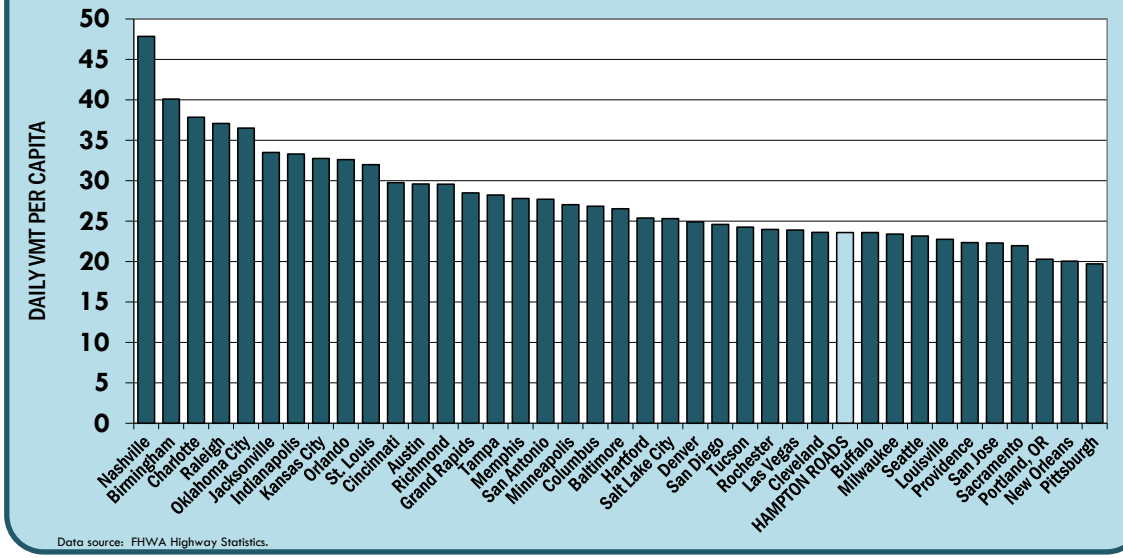
Among 39 large metropolitan areas in the United States with populations between one and four million people, Hampton Roads ranked 29th highest in vehicular travel per capita in 2016. Nashville experienced roadway travel levels that were more than twice the levels seen in Hampton Roads, and areas such as Birmingham, Charlotte, and Raleigh had at least 15 more miles of travel daily per capita than Hampton Roads.

CHANGE IN VEHICLE-MILES OF TRAVEL IN HAMPTON ROADS, VIRGINIA, AND THE UNITED STATES, 2008 TO 2017



Data sources: VDOT, FHWA Highway Statistics.

DAILY VEHICLE-MILES OF TRAVEL PER CAPITA IN LARGE METROPOLITAN AREAS, 2016

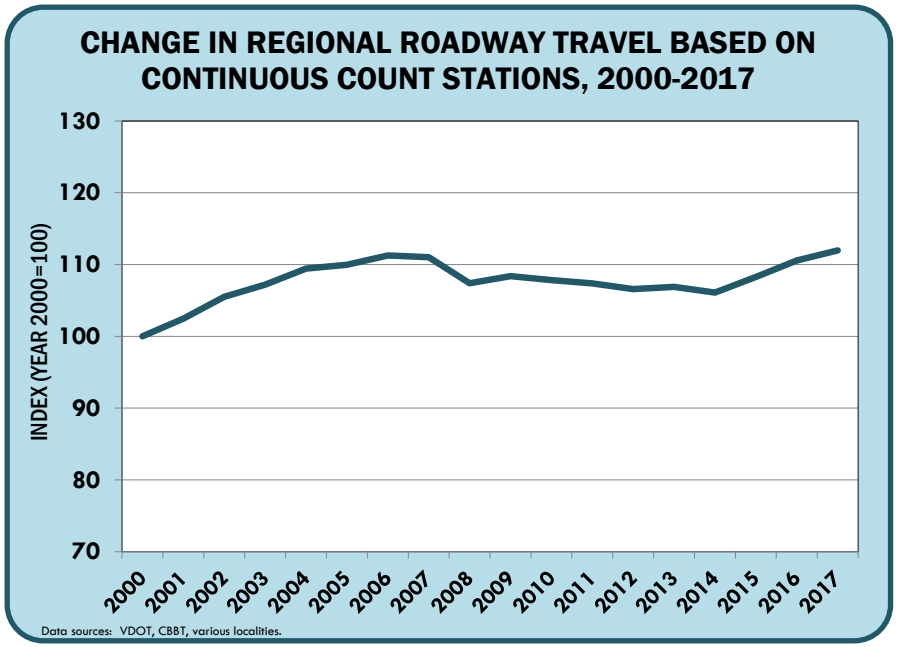


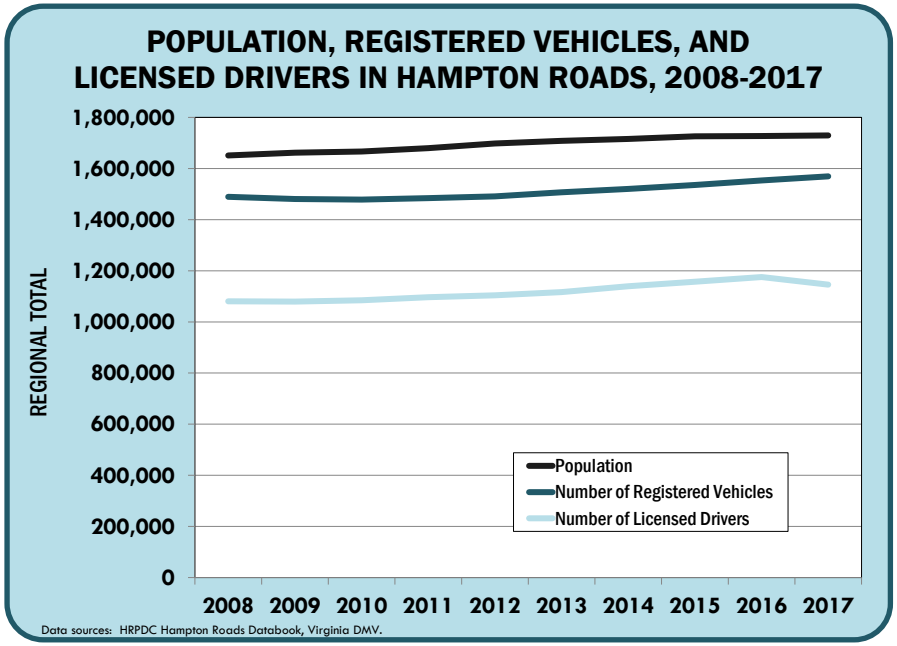
Data source: FHWA Highway Statistics.

Another method of measuring the change in roadway travel is by using count stations that continuously collect traffic volume data throughout the entire year. In Hampton Roads there are approximately 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 12.0% between 2000 and 2017. However, after falling throughout the economic downturn and remaining largely flat earlier in this decade, regional traffic volumes increased nearly 6% from 2014 to 2017. The increase in traffic volumes from 2015 to 2016 is the largest year-over-year increase in regional roadway travel since 2002.

MONITOR-MERRIMAC MEMORIAL BRIDGE-TUNNEL Image Source: VDOT

There were 1,569,000 vehicles registered in Hampton Roads in 2017, or 0.91 vehicles for every Hampton Roads resident. The growth in the number of registered vehicles between 2008 and 2017 (+5.4%) was slightly higher than the growth in population (+4.7%) over this period.





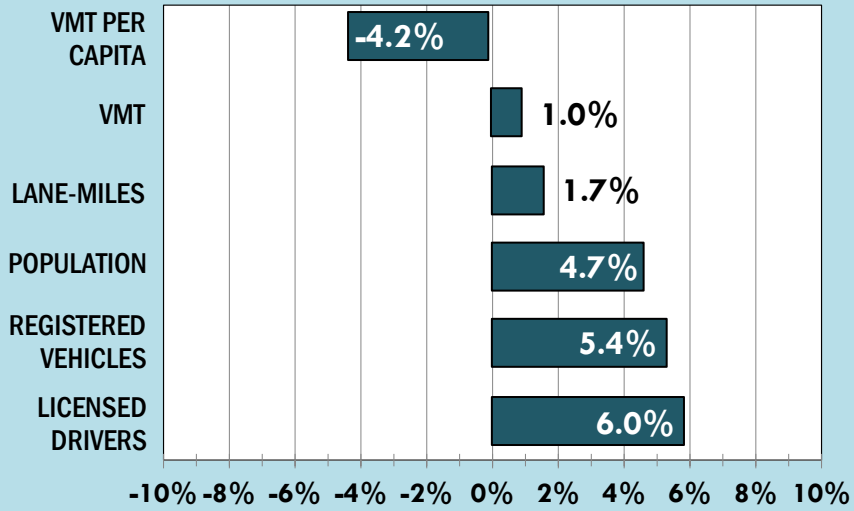
ROADWAY USAGE (continued)

The growth in the number of licensed drivers in Hampton Roads has also outpaced population growth. There were 1,146,000 licensed drivers in Hampton Roads in 2017 – up 6.0% from 2008 – and there were 1.37 registered vehicles for every licensed driver. This is comparable to the 1.38 registered vehicles per licensed driver in 2008.

Between 2008 and 2017, the amount of roadway capacity in Hampton Roads in terms of lane mileage* increased by 1.7%. This is lower than the growth in regional population (+4.7%) but is slightly higher than the change in regional vehicle-miles traveled (+1.0%).

* - 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, LANE-MILES, POPULATION, REGISTERED VEHICLES, AND LICENSED DRIVERS IN HAMPTON ROADS OVER THE LAST DECADE



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

CONGESTION DATA

Roadway congestion is worse and travel times are more unreliable in Hampton Roads than in many comparable metropolitan areas throughout the country.

The Federal Highway Administration (FHWA) publishes the Urban Congestion Report, which provides an analysis of traffic congestion and reliability in 52 metropolitan areas throughout the United States. 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.

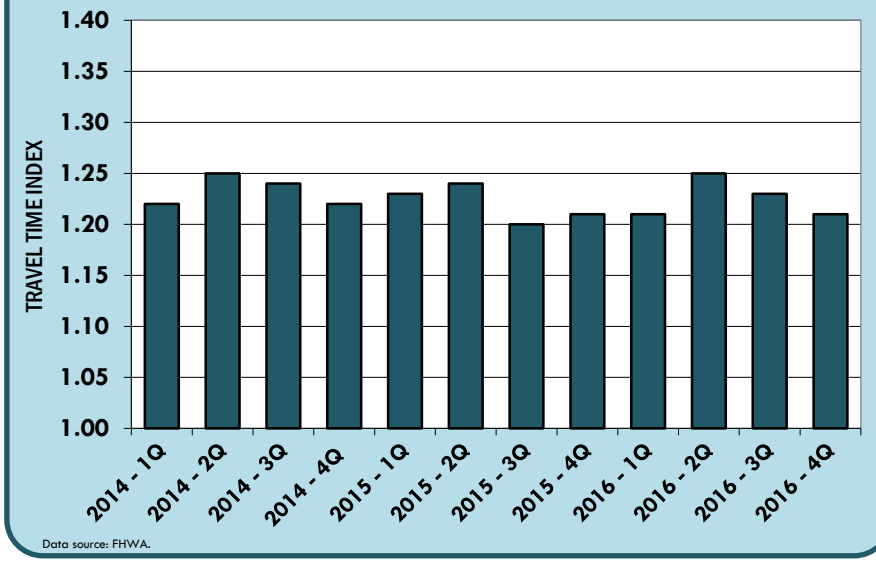
NOTABLE CONGESTION NUMBERS

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.

11th Hampton Roads rank among large areas with populations between one and four million people in terms of the regional travel time index in 2016.

7th 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.

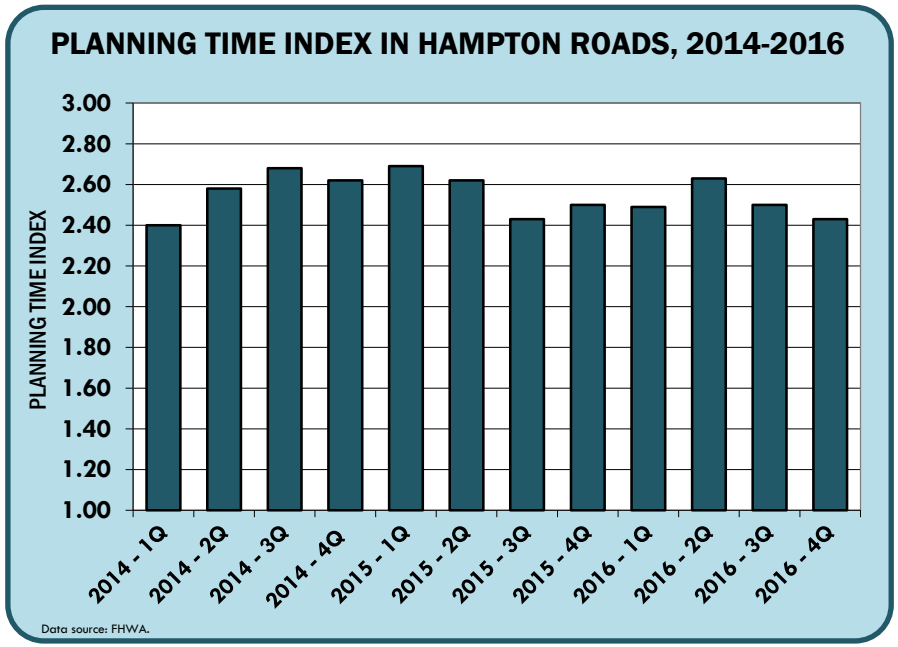
CONGESTION DATA (continued)

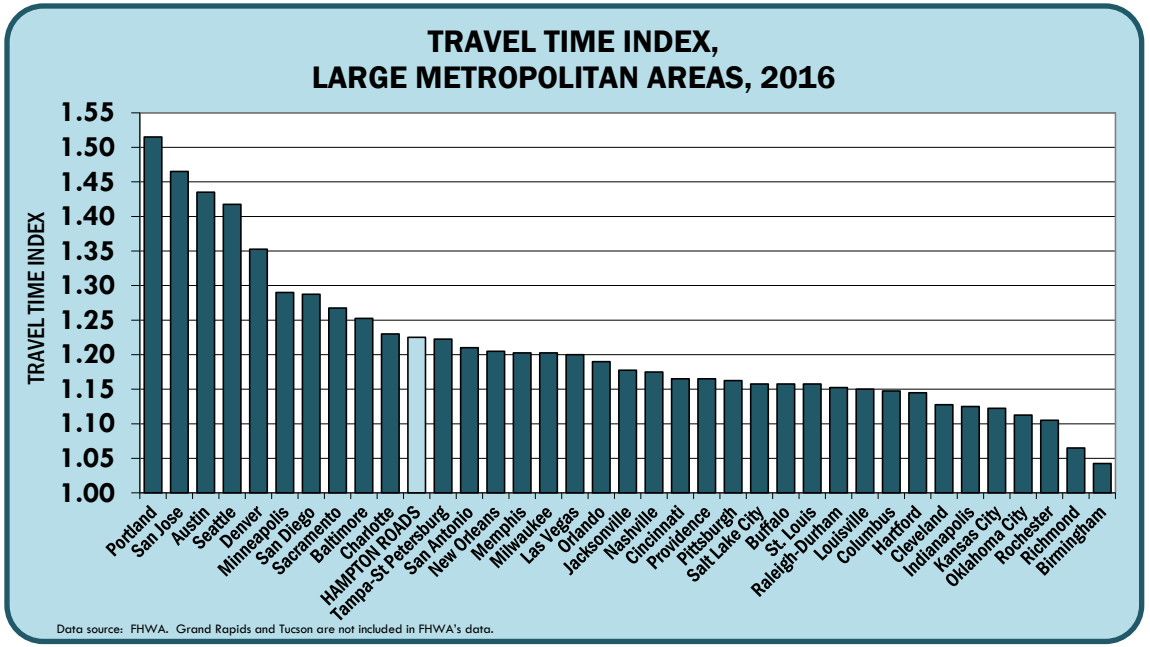
The travel time index in Hampton Roads is higher than the index in many other large metropolitan areas. Among 37 metropolitan areas with populations between one and four million people (Grand Rapids and Tucson are not included in FHWA's data), Hampton Roads had the 11th highest travel time index in 2016.

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 travel times. It represents the total time that needs to be allocated for a peak period 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 37 metropolitan areas included in the Urban Congestion Report with populations between one and four million people, Hampton Roads had the 7th highest planning time index in 2016.



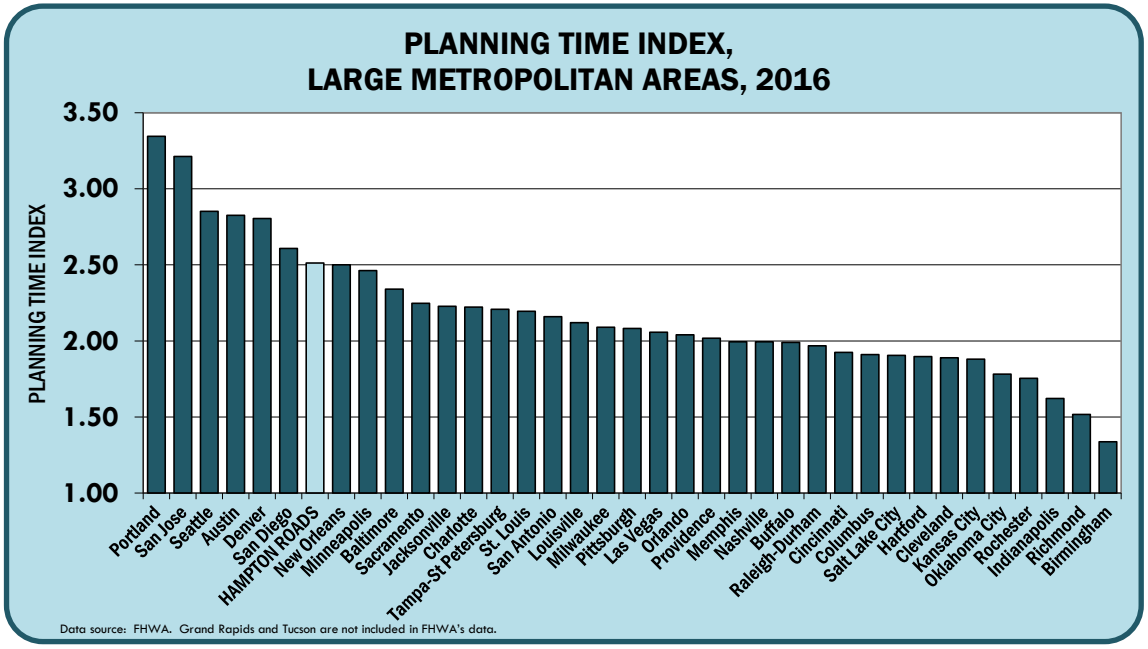


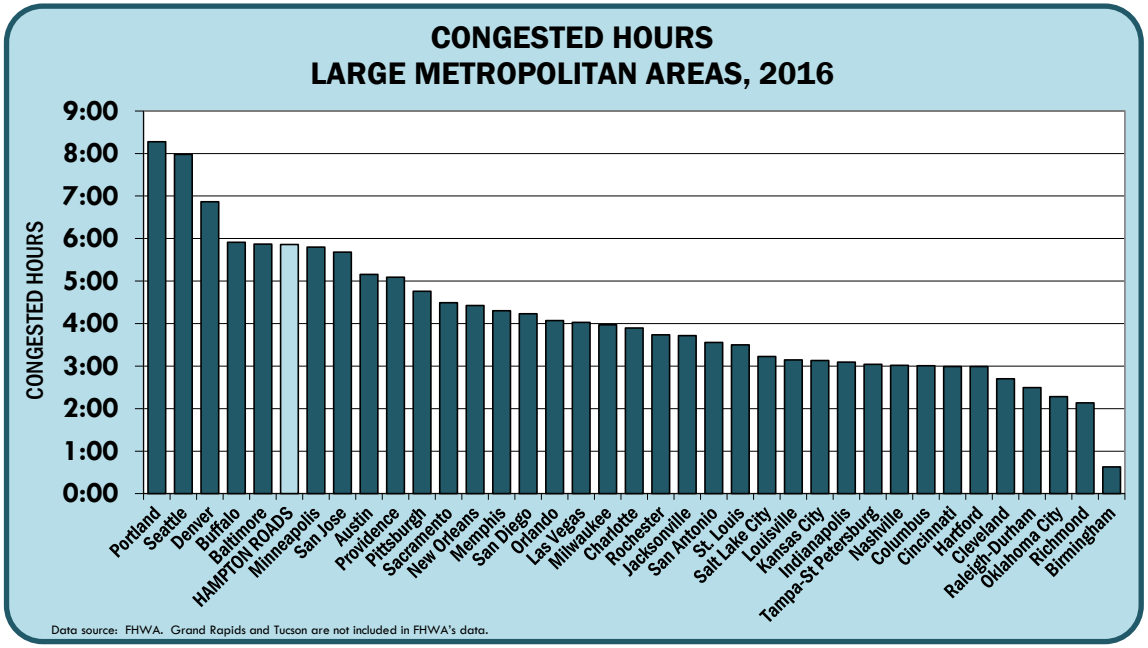
CONGESTION DATA (continued)

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 6th highest among the 37 metropolitan areas included in the Urban Congestion Report with populations between one and four 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 39 large metropolitan areas, Hampton Roads tied for the 18th highest congestion level based on the TomTom Traffic Index.

The Texas A&M Transportation Institute (TTI) also historically published the Urban Mobility Scorecard. However, no Urban Mobility Scorecard reports have been released in recent years.





COMMUTING

In spite of having one of the highest percentages of commuters that work in a jurisdiction that is different than the one they reside in, the travel time to work in Hampton Roads is lower than in many other metropolitan areas.

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 24.0 minutes in 2016. Although this is down from 24.8 minutes in 2015, the regional mean travel time to work has largely remained between 23 and 25 minutes throughout the 2000s.

Among the 39 large metropolitan areas throughout the United States with a population between one and four million people, Hampton Roads has a relatively low travel time to work, ranking 31st highest in 2016. Since 2007, Hampton Roads has ranked between 25th highest and 31st highest in terms of travel time to work among the 39 large metropolitan areas.

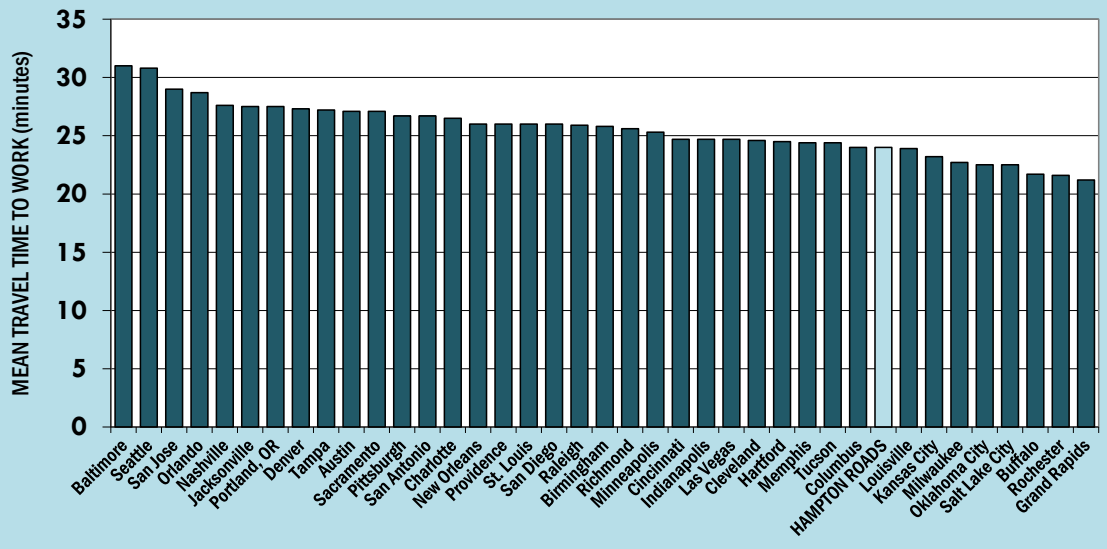
NOTABLE COMMUTING NUMBERS

80% The percentage of commuters in Hampton Roads that drove alone to work in 2016.

48% The percentage of all workers in Hampton Roads that worked in a jurisdiction that was different from the one they resided in in 2016.

24.0 The mean travel time to work in minutes in Hampton Roads in 2016.

MEAN TRAVEL TIME TO WORK IN LARGE METROPOLITAN AREAS, 2016



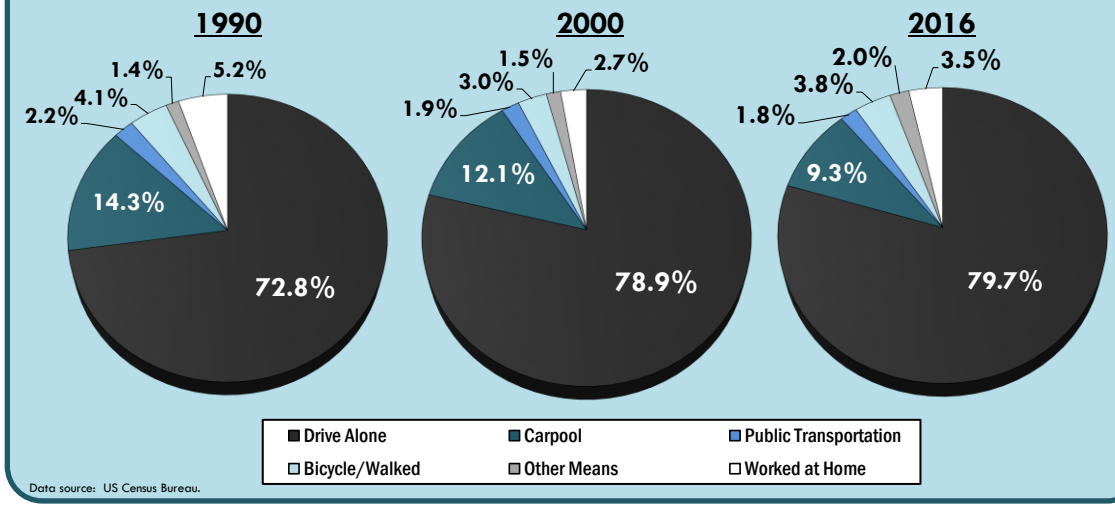
Data source: US Census Bureau.

Many Hampton Roads residents, however, have much longer commutes. In 2016, one out of every three Hampton Roads commuters (33%) traveled 30 minutes or longer to work, and 5% had commutes of an hour or more.

TRAFFIX VANPOOLING Image Source: TRAFFIX

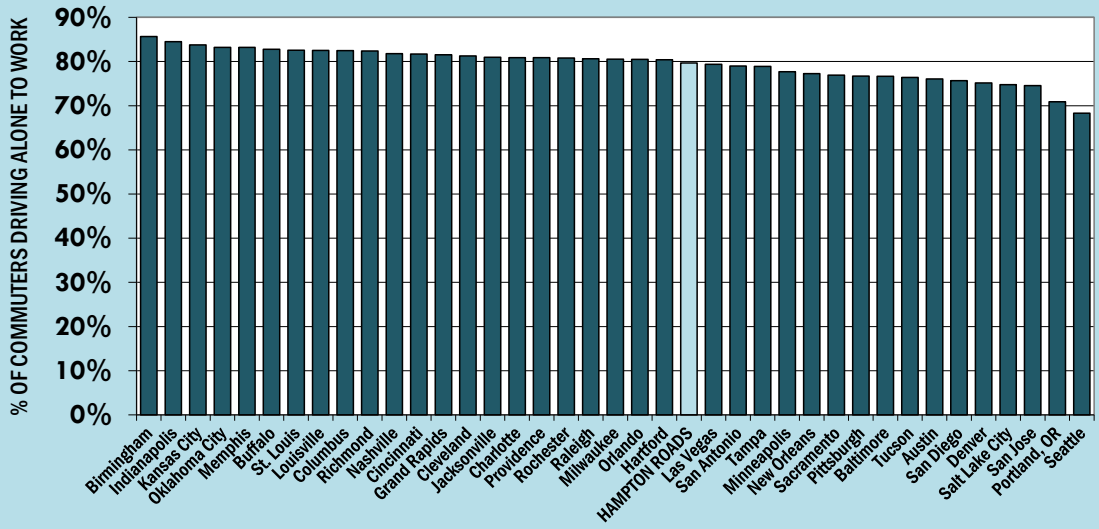
In 2016, just under 80% of commuters in Hampton Roads drove alone to work. While this is up from 73% in 1990 and 79% in 2000, it has varied between 79% and 83% since 2010. In turn, the percentage of commuters in Hampton Roads carpooling to work has decreased from 14% in 1990 to 12% in 2000 and to 9% in 2016. The percentage of commuters using public transportation in Hampton Roads has also decreased, while the percentage that commute via bicycling/ walking has increased since 2000.

COMMUTING METHODS IN HAMPTON ROADS - 1990, 2000 & 2016



Data source: US Census Bureau.

PERCENTAGE OF COMMUTERS THAT DROVE ALONE TO WORK LARGE METROPOLITAN AREAS, 2016

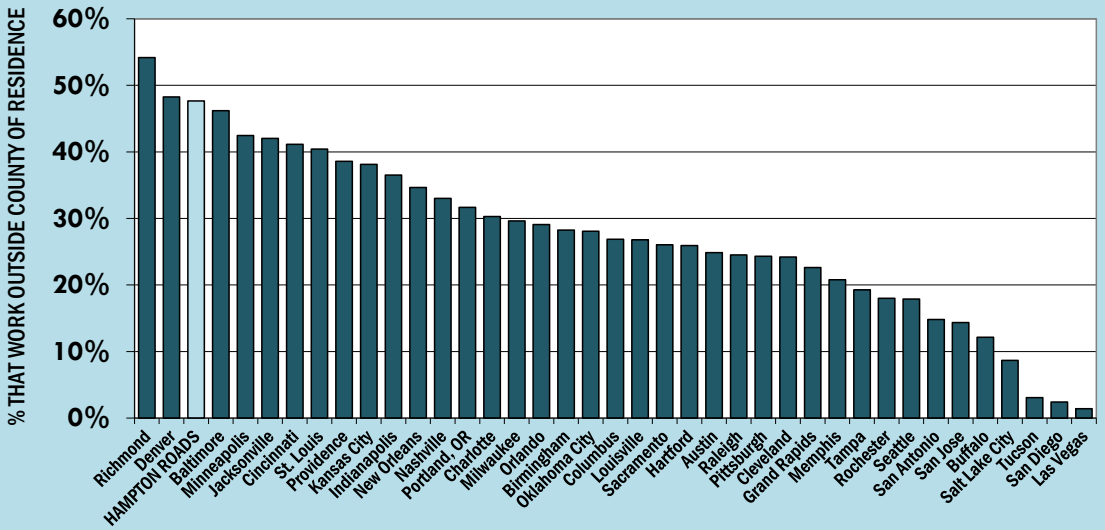


Data source: US Census Bureau.

The percentage of commuters driving alone to work in Hampton Roads is similar to other comparable areas. Hampton Roads ranked 23rd highest among the 39 large metropolitan areas in terms of the percentage of commuters that drove alone to work in 2016, just below the median of 80.5%.

An area where Hampton Roads ranks particularly high is in the percentage of workers that work outside of their locality of residence. In 2016, 48% 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%) but slightly lower than the percentage seen in 2000 (49%), and lower than the high that was experienced in 2005 (50%). The percentage in Hampton Roads is higher than the percentage seen in most other areas, ranking 3rd highest among the 39 large metropolitan areas with populations between one and four million people.

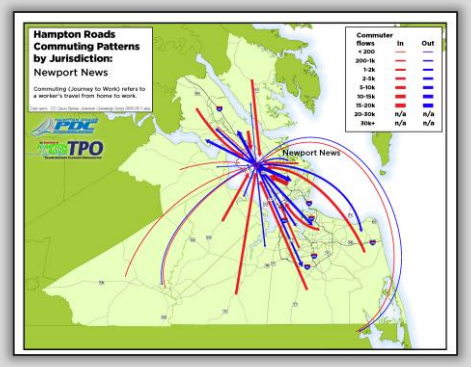
PERCENTAGE OF WORKERS THAT WORKED OUTSIDE COUNTY OF RESIDENCE, LARGE METROPOLITAN AREAS, 2016



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 coordination 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 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:

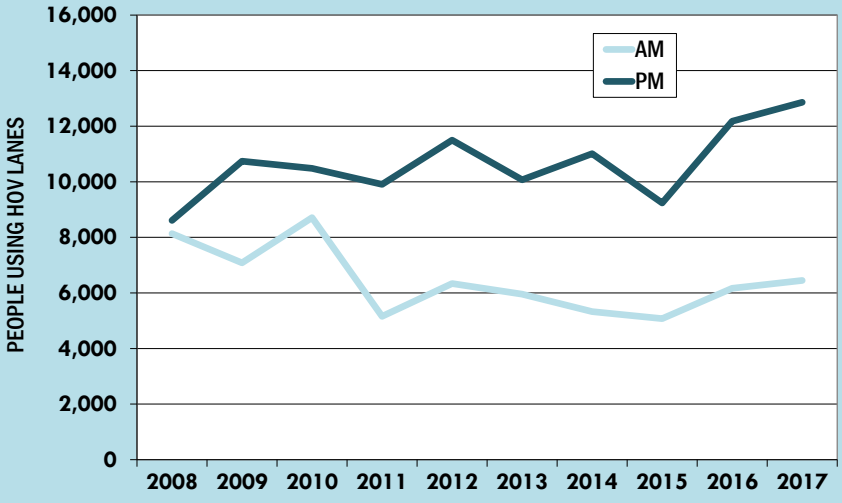
- I-64 Southside - Between Battlefield Boulevard and I-264
- I-64 Peninsula - Between Bland Boulevard and I-664
- I-264 - Between Downtown Norfolk and Rosemont Road in Virginia Beach
- I-564 - Between I-64 and the Naval Base

In addition, the barrier-separated reversible lanes on I-64 between I-564 and I-264 in Norfolk were recently converted to Express Lanes, as described in the callout box to the right.

Usage of the HOV lanes has varied from year to year over the last decade. Nearly 6,500 people used the regional HOV lanes during the AM restricted hours each weekday in 2017, and nearly 13,000 people used the lanes during the PM restricted hours. The PM HOV volumes have increased the previous two years, while the AM volumes are down from about 8,000 people late in the last decade.

Many vehicles in the HOV lanes, however, do not include multiple occupants. The average vehicle occupancy in regional HOV lanes during restricted hours was 1.45 in 2017, indicating that many vehicles only have one occupant.

AVERAGE USAGE OF HOV LANES EACH WEEKDAY IN HAMPTON ROADS, 2008-2017



Data source: VDOT.

NEW DEVELOPMENTS

Express Lanes – As of January 2018 VDOT has converted the I-64 barrier-separated reversible HOV lanes to High Occupancy Toll (HOT) or Express Lanes. During restricted periods, people driving alone can use the I-64 Express Lanes by paying a toll that varies based on congestion levels. Vehicles with two or more people can continue to use the lanes for free with an EZ-Pass Flex device.

VDOT plans to expand the Express Lanes system to include the existing HOV lanes on I-64 in Chesapeake and Virginia Beach and new lanes at the High Rise Bridge and Hampton Roads Bridge-Tunnel.

ROADWAY SAFETY

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 26,765 crashes in Hampton Roads in 2017 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 2008 and 2017 the number of crashes in Hampton Roads decreased 3%. However, the number of crashes experienced in the region has increased most years 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 16,578 injuries that resulted from traffic crashes in Hampton Roads in 2017. This is up 15% from the 14,465 injuries that occurred in 2008, but is 23% 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 6% decrease that was experienced across the Commonwealth during this time.

The number of fatalities in Hampton Roads has largely fluctuated over the last decade. There were 155 fatalities resulting from traffic crashes in Hampton Roads in 2017, the highest number that has been experienced in the region since 2007. While this number of fatalities is only 1% higher than the number of fatalities in 2008, it is 57% higher than the 99 fatalities in the region in 2012. The trend in the number of

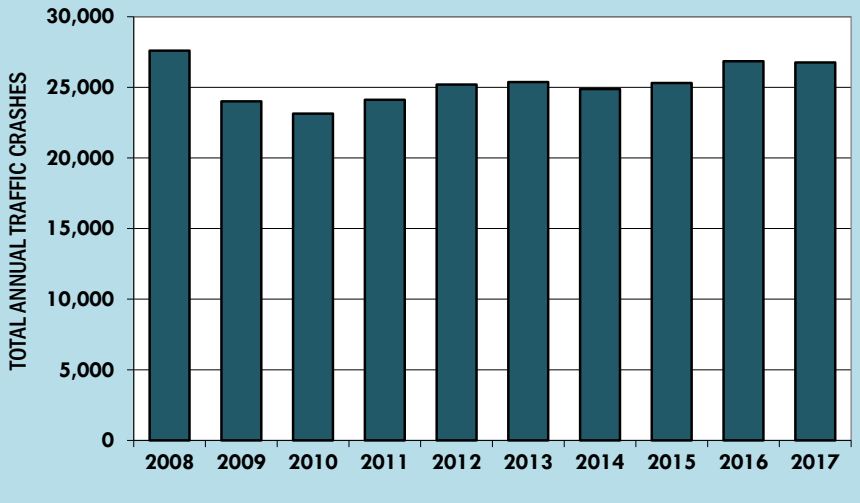
NOTABLE ROADWAY SAFETY NUMBERS

3% ▼ The decrease in the annual number of crashes in Hampton Roads between 2008 and 2017.

15% ▲ The increase in the annual number of injuries in Hampton Roads between 2008 and 2017.

1% ▲ The increase in the annual number of fatalities in Hampton Roads between 2008 and 2017.

CRASHES IN HAMPTON ROADS, 2008-2017



Data source: Virginia DMV.

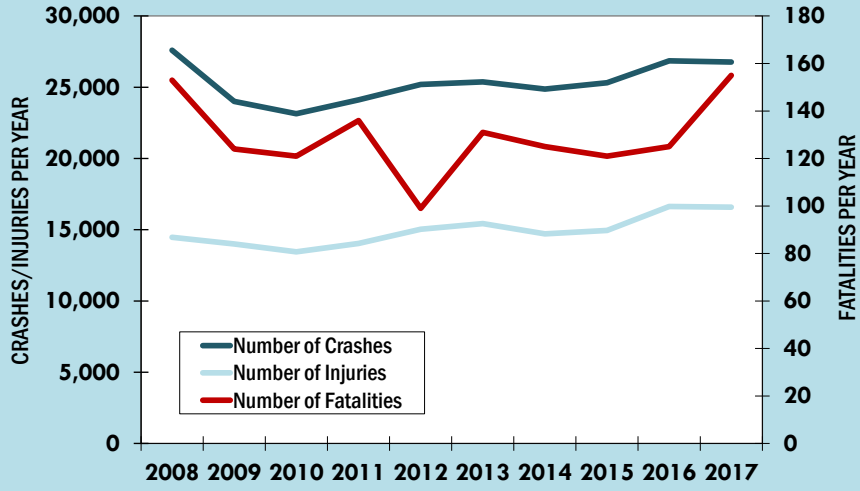
fatalities in Hampton Roads over the last decade was slightly less than the increase seen across the state (3%), but slightly higher than the decrease (-1%) that was seen throughout the country.

The rate of crashes relative to the amount of travel has decreased in Hampton Roads over the last decade. The crash rate in Hampton Roads decreased from 1.86 crashes per million vehicle-miles of travel (VMT) in 2008 to 1.79 crashes per million VMT in 2017, a 4% decrease. This decrease in the crash rate is not as large as the decrease that was seen across Virginia (-9%) during this period.


Image Source: Shutterstock

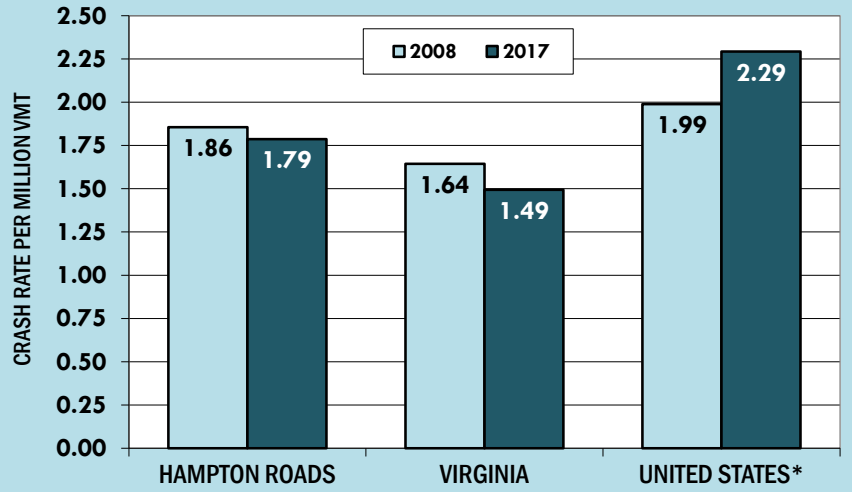
Despite the decrease, the crash rate in Hampton Roads was higher than the statewide rate in 2017, and was higher than the crash rate experienced in other metropolitan areas of Virginia including Roanoke (1.48 crashes per million VMT), Northern Virginia (1.53) and Richmond (1.71).

CRASHES, INJURIES, AND FATALITIES IN HAMPTON ROADS, 2008-2017



Data source: Virginia DMV.

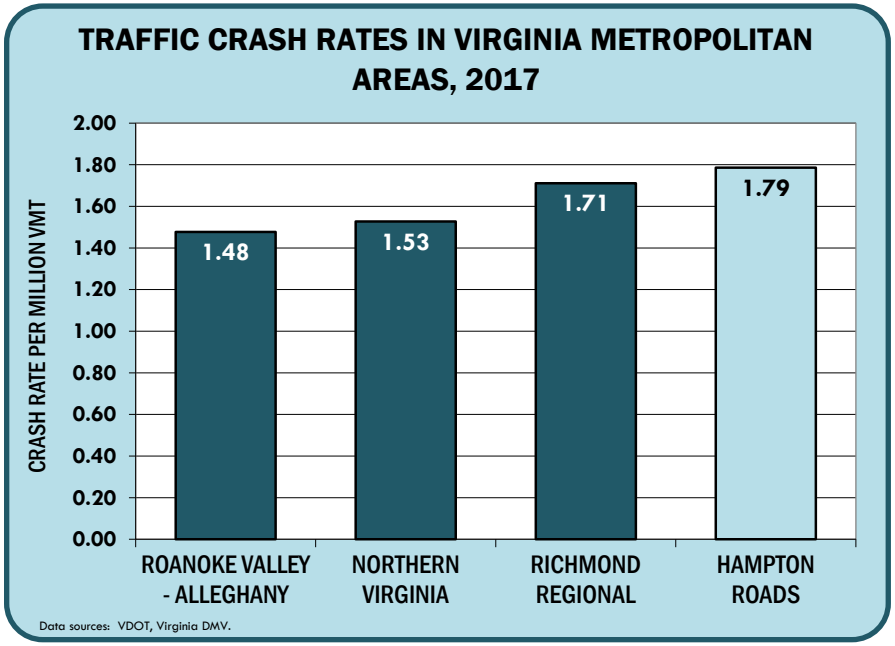
TRAFFIC CRASH RATES IN HAMPTON ROADS, VIRGINIA, AND THE UNITED STATES, 2008 and 2017

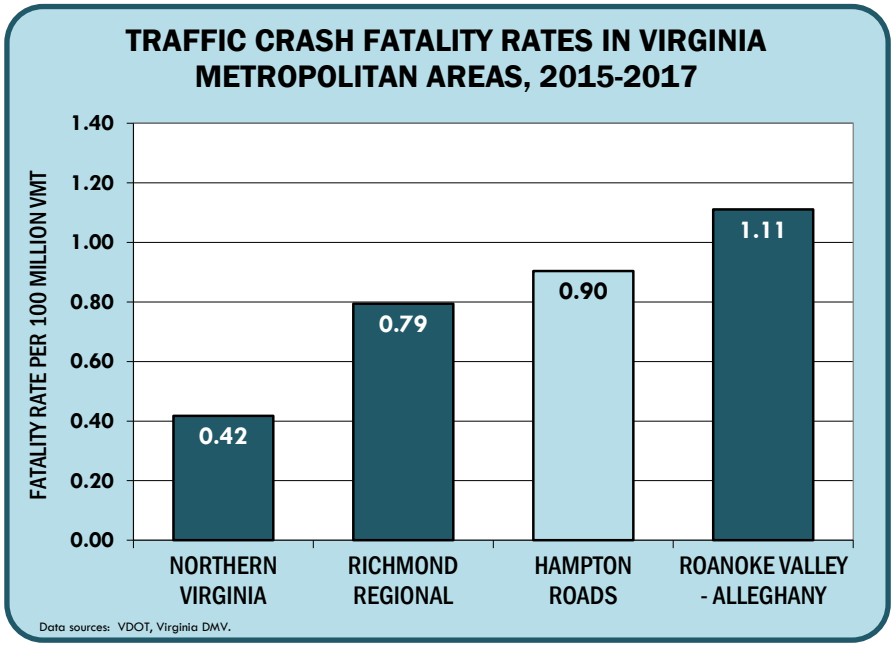


Data sources: VDOT, Virginia DMV, NHTSA.
* U.S. data reflects 2007 and 2016, and the methodology used by NHTSA to estimate the number of crashes in the U.S. was updated in 2016.

The fatality rate in Hampton Roads has also decreased over the last decade. The Hampton Roads crash fatality rate was 0.90 fatalities per 100 million VMT in the three-year period from 2015 to 2017, down 11% from 1.01 fatalities per 100 million VMT in the 2006 to 2008 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 2015 to 2017 was more than twice the rate experienced in the Northern Virginia area (0.42 fatalities per 100 million VMT). The fatality rate was also higher than the rate in the Richmond area (0.79), but was much lower than the fatality rate in the Roanoke area (1.11).

Safety belt use has an impact on the number of injuries and fatalities resulting from crashes. In 2017, Virginia had an observed safety belt usage rate of 85.3% 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 87.4% in 2017 and the localities on the





Peninsula having a usage rate of 86.9%. For the Southside Cities, this 87.4% usage rate is higher than in any year throughout the last decade.

Virginia's safety belt usage rate in 2017 (85.3%) was lower than the national rate of 89.7%, and only fourteen 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 34 states/districts that had primary enforcement safety belt laws in 2017, only three (Arkansas, Kansas, and Mississippi) had a lower safety belt usage rate than Virginia.

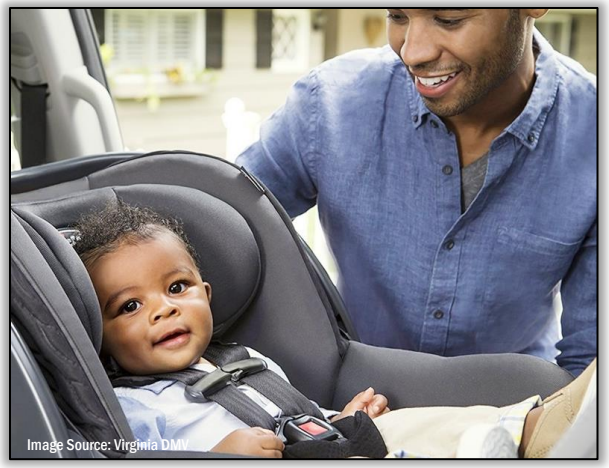
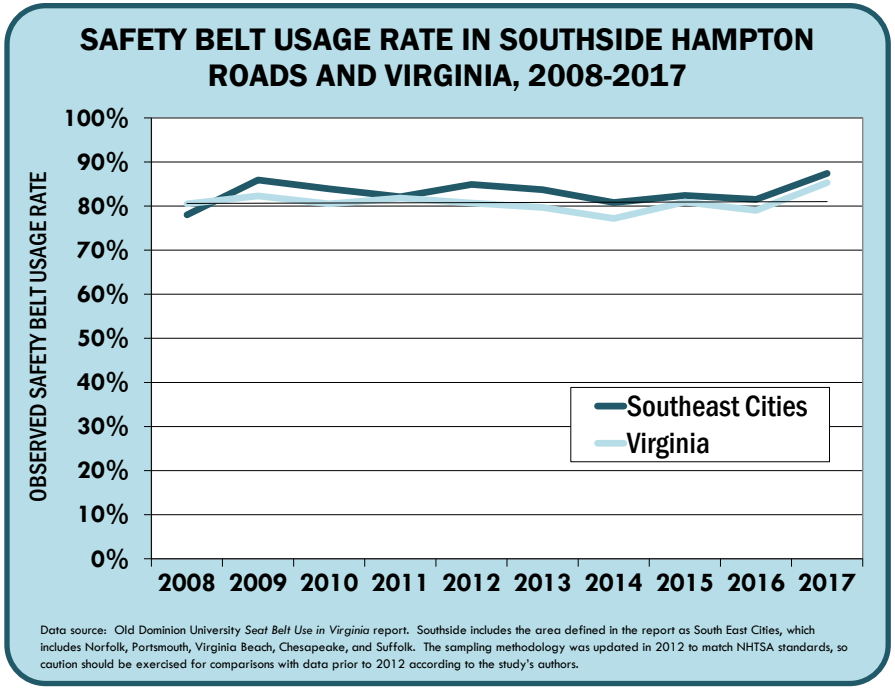


Image Source: Virginia DMV

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 safety countermeasures. More information on the Hampton Roads Regional Safety Study is available at http://www.hrtpo.org/page/roadway-safety.



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.

TRUCK TRAVEL

Nearly 19,000 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 2017, nearly 19,000 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 6,300 trucks used I-64 to enter or exit the region each weekday in 2017, 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 38% in 2008. The next most heavily-used gateways to the region are Route 58 (4,400 trucks each weekday in 2017) and Route 460 (2,500 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 70% of all trucks passing through the region's major gateways in 2017.

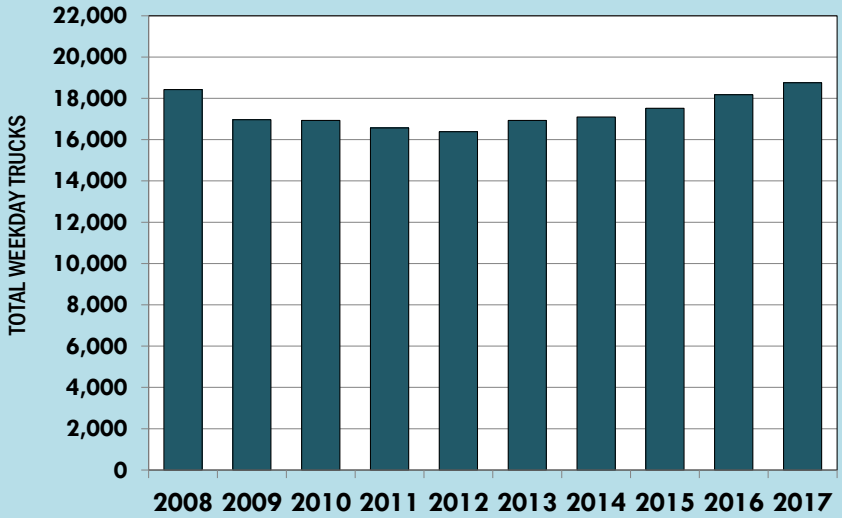
NOTABLE TRUCK TRAVEL NUMBERS

6% ▼ The decrease in the amount of truck travel each day in Hampton Roads between 2008 and 2017.

2% ▲ The increase in the number of trucks that entered or exited Hampton Roads each weekday at major gateways between 2008 and 2017.

61% The percentage of all freight handled by the Port of Virginia that was transported by truck in 2017.

NUMBER OF TRUCKS PASSING THROUGH HAMPTON ROADS GATEWAYS EACH WEEKDAY, 2008-2017



Data sources: VDOT, CBBT.

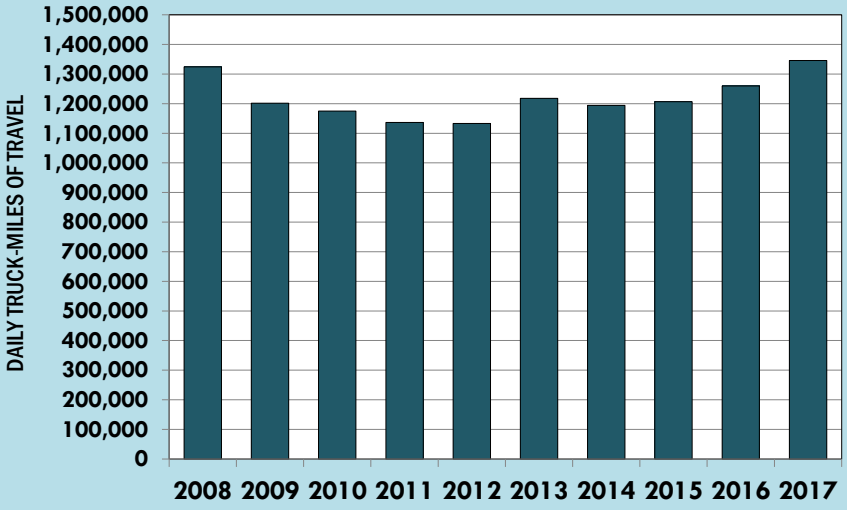
TRUCK TRAVEL (continued)

There was over 1.3 million miles of truck travel each day in Hampton Roads in 2017 according to VDOT, which accounted for 3.3% of the 41 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 6% lower than the level seen in 2007 before the economic downturn began.

A major issue involving truck travel in Hampton Roads is overheight trucks at the tunnels. This is especially an issue at the westbound Hampton Roads Bridge-Tunnel (HRBT), which has a lower vertical clearance than other tunnels in the area. A total of 8,300 trucks were stopped, measured, and turned around at tunnels in Hampton Roads in 2017, which is down from 15,400 trucks in 2016 due to improvements at the Downtown and Midtown Tunnels. Of these 8,300 trucks, 7,100 occurred at the westbound Hampton Roads Bridge-Tunnel, and 1,437 of these HRBT turnarounds occurred at the tunnel entrance on the south island, which greatly impacts congestion and safety since traffic is stopped in both directions to complete the turnaround.

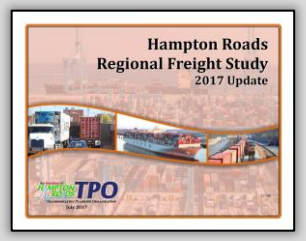
WESTERN FREEWAY Image Source: VDOT.

DAILY TRUCK TRAVEL IN HAMPTON ROADS, 2008-2017

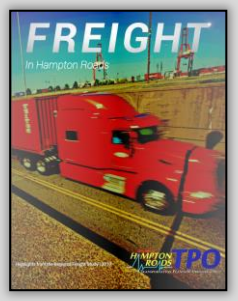


Data source: VDOT.

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

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

Public transportation services in Hampton Roads are primarily provided by three agencies. The Williamsburg Area Transit Authority (WATA) provides transit service in James City County, Williamsburg, and northern York County, while Suffolk Transit provides transit service throughout that city. Hampton Roads Transit (HRT) provides service in the remaining urbanized areas on the Peninsula and Southside.

There were 16.8 million unlinked trips* taken on HRT, WATA, and Suffolk Transit public transportation services in Hampton Roads in 2017. 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 28% increase in annual ridership levels from 2008 to 2012. However, ridership levels peaked in 2012 and have decreased each year since then. Ridership levels in 2017, while

* - 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.

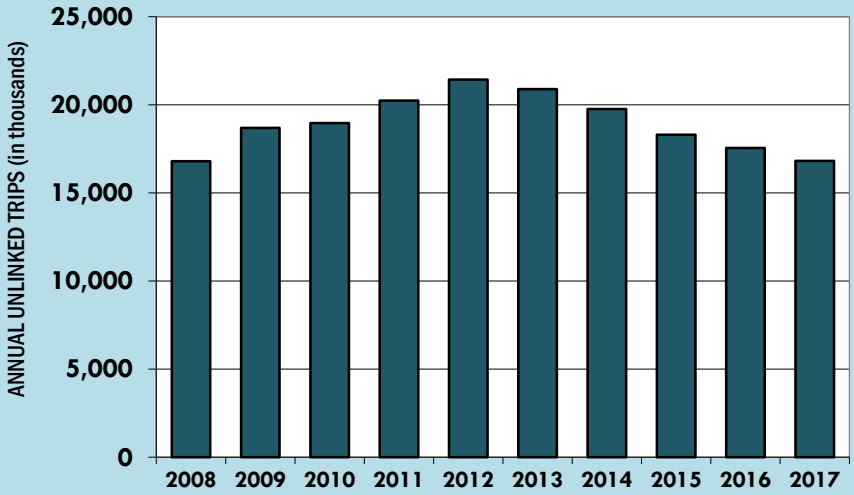
NOTABLE PUBLIC TRANSPORTATION NUMBERS

0% The change in the annual number of passenger trips taken on public transportation in Hampton Roads from 2008 to 2017.

27th Hampton Roads rank among the 39 large metropolitan areas with populations between one and four million people in terms of public transportation use per capita in 2017.

27th Hampton Roads rank among the 39 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, 2008-2017

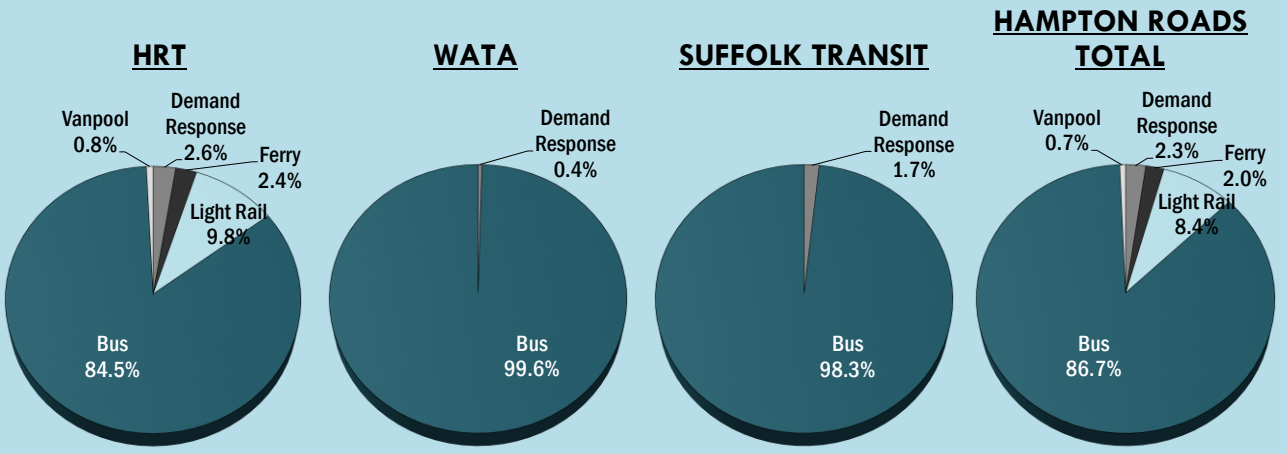


Data sources: HRT, WATA, Suffolk, American Public Transportation Association (APTA).

comparable to the levels seen in 2008, were 22% below the peak levels seen in 2012.

The vast majority of public transportation trips in Hampton Roads – 87% in 2017 – are taken on regular or express bus service. Light rail comprised 10% of all HRT transit trips and 8% of all regional transit trips, and all other modes (including ferry, demand response/paratransit services, and vanpools) comprised the remaining 5%.

TRANSIT USAGE BY MODE AND AGENCY IN HAMPTON ROADS, 2017



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 Trollies.

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

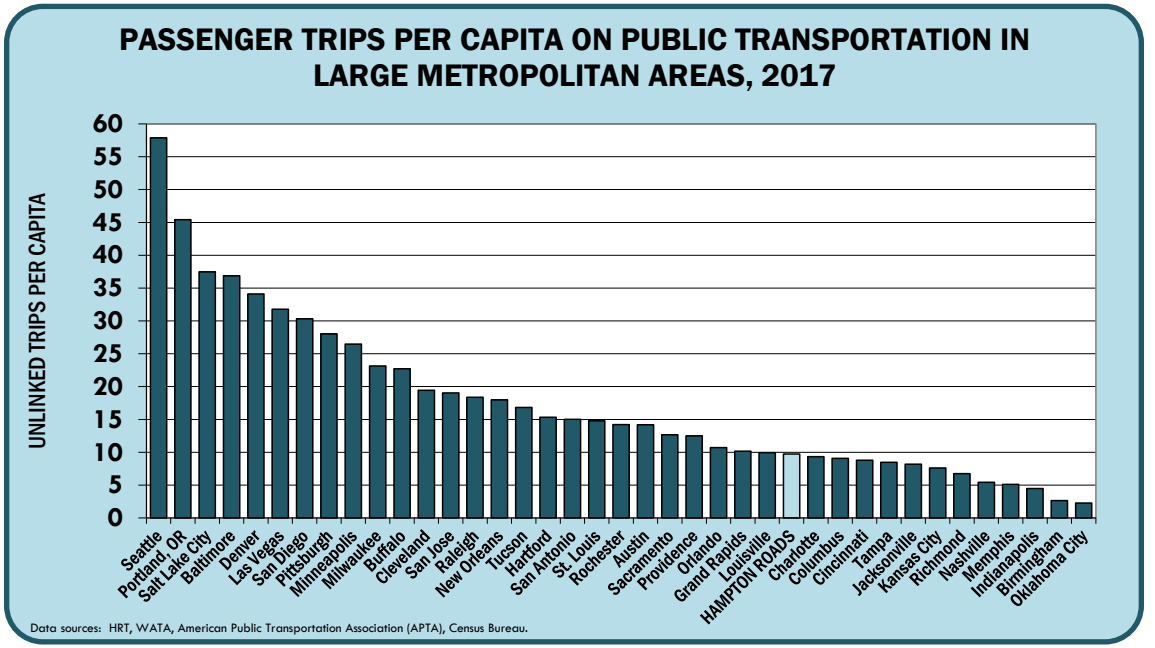
Commuting alternatives are provided by Traffix. These alternatives include ridesharing, telecommuting, van leasing, and guaranteed ride programs.

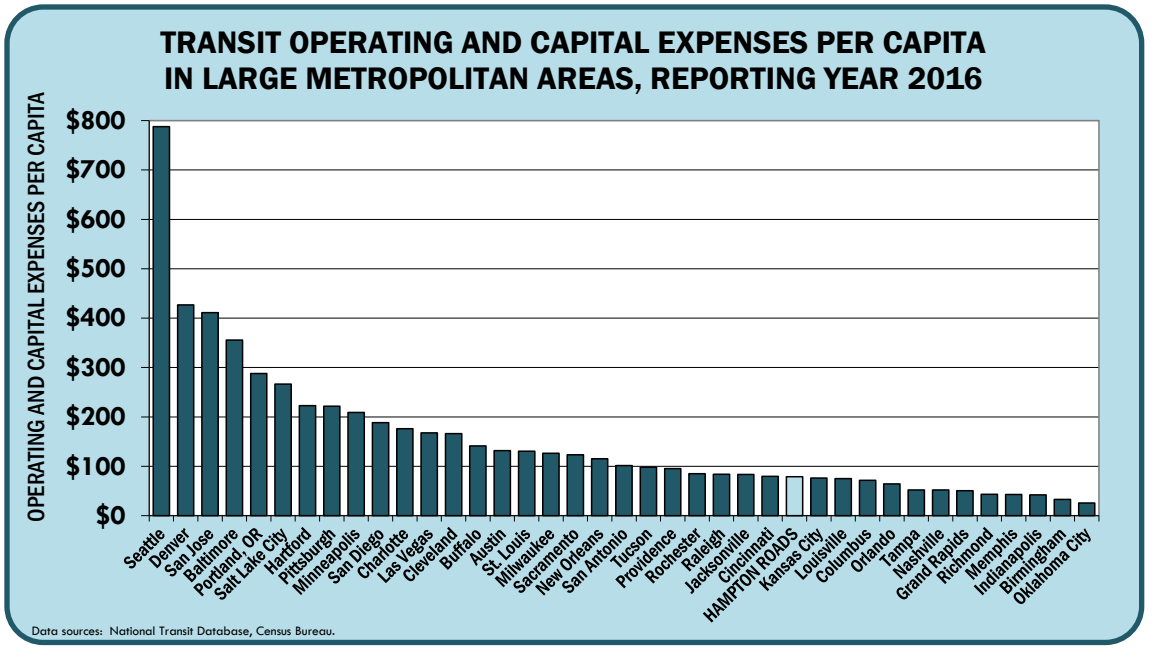
Paratransit

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 lags behind other metropolitan areas. At 9.7 passenger trips on public transportation per capita in 2017, Hampton Roads ranked 27th highest among the 39 large metropolitan areas with populations between one and four million people. Metropolitan areas such as Seattle, Portland, Salt Lake City, and Baltimore have transit usage rates per capita more than three 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, $79 was spent per capita on transit operating and capital expenses in Hampton Roads in Reporting Year 2016. This ranked the region 27th highest among the 39 large metropolitan areas. Seattle spent 10 times more per





capita on public transportation than was spent in Hampton Roads, while areas such as Denver and San Jose spent more than five times more per capita.

This level of spending on public transportation in Hampton Roads contributes to an older fleet of vehicles. The average age of HRT buses was 9.7 years as of July 2017, which is nearly four years beyond FTA's recommended average fleet age. Nearly a quarter of HRT's fleet – 71 buses – is at least 15 years old, and only 29% of the fleet is six years old or younger.

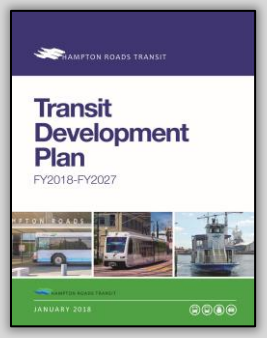
Much of WATA's fleet has been replaced in recent years, which decreased the average age of WATA buses from 10 years in 2015 down to just under 6 years in 2017.

Transit buses are older in Hampton Roads than in other comparable metropolitan areas. Among large metropolitan areas throughout the country with populations between one and four million people, the median age of transit buses was 6.9 years in Reporting Year 2016 according to the National Transit Database. Only two metropolitan areas – San Jose and San Antonio – had an average transit bus

NEW DEVELOPMENTS

Norfolk Westside Transit Study – HRT recently completed the Norfolk Westside Transit Study. The purpose of this study – a joint effort between HRT and the City of Norfolk – was to explore potential connections to Naval Station Norfolk from the existing Tide light rail system along the western side of Norfolk. The results of the study indicate that based on limited ridership potential, high capital and operating costs, the potential to impact vehicular traffic patterns, and significant flooding challenges, a new high capacity transit alternative on the west side of Norfolk is not feasible. A similar study of high capacity transit alternatives on the east side of Norfolk will begin in Fall 2018.

Peninsula Corridor Study – Hampton Roads Transit (HRT), in partnership with Hampton and Newport News, prepared the Peninsula Corridor Study to define potential high-capacity transit connections between existing and future activity centers in the two cities. The study identified the three most feasible, cost-effective alternatives. The study initially considered bus rapid transit, modern streetcar, and light rail transit but determined that bus rapid transit was the most feasible due to capital costs.



Transit Development Plan – HRT has recently completed an update to its Transit Development Plan. The HRT Transit Development Plan evaluates and assesses the performance, connectivity, efficiency and effectiveness of HRT service. It also provides a fiscally-constrained, comprehensive vision for transit operations and capital improvements for the ten-year period of FY 2018 through FY 2027. WATA completed its most recent TDP in 2016.

age that was higher than HRT's average age of 9.7 years.

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 regional 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.


ELIZABETH RVER FERRY Image Source: HRT.

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 3.1, ranks 23rd highest among the 39 metropolitan areas with a population between one and four million people.

BEHIND THE NUMBERS

As shown in this section, transit usage in Hampton Roads continued to decrease in 2017. However, this is not unique to the region. Transit ridership has been decreasing in most metropolitan areas throughout the United States, and nationwide transit usage was down 2.9% from 2016 to 2017 according to the American Public Transportation Association. There are a number of contributing factors for 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 – although rising – are still much lower than they were earlier this decade, making driving costs more economical.
- System Reliability – Many transit systems are aging, and some such as 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, such as bike sharing services.

ACTIVE TRANSPORTATION

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.

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.

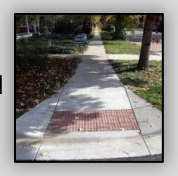
Paved Shoulders
A paved portion of a roadway to the right of the edge stripe on which bicyclists may ride. These areas are not to be marked as bike lanes.

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

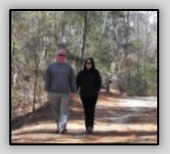
Signed Shared Roadway
A roadway designated by bike route signs that serve to provide continuity to other bicycle facilities.

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.


DISMAL SWAMP CANAL TRAIL Image Source: HRTPO.

In recent years, several major non-motorized facilities have been added in Hampton Roads. Examples of these facilities include sections of the Suffolk Seaboard Coastline Trail, the addition of bike lanes along sections of Ocean View Avenue in Norfolk and Shore Drive in Virginia Beach, the Bike Loop in the Ghent section of Norfolk, and the completion of the Virginia Capital Trail, which connects Jamestown and Downtown Richmond with a 52-mile facility.

NEW DEVELOPMENTS

Pace Bike Share – In April, the City of Norfolk became the home of a bike rental service. The Pace Bike Share service does not require docks and can be rented via smartphone. More than 250 bikes are located throughout the city in Downtown, the NEON art district, Ghent and Old Dominion University.

Norfolk Bike Loop – The City of Norfolk created a 4-mile bike loop along 35th Street, Llewellyn Avenue, Olney Road, 26th Street, 27th Street, and Colley Avenue. Construction of the facility – which is comprised of various types of bicycle facilities – was completed in late 2016.

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 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 extend the trail another 1.3 miles to Nansemond River High School.

Regional Trails – Planning is underway on a number of facilities throughout the region. 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. Plans are also underway for portions of this trail in Chesapeake and Portsmouth. Planning is also underway on the Birthplace of America Trail, which is described later in this section.

Most jurisdictions in Hampton Roads incorporate active transportation in their planning efforts. Examples include:

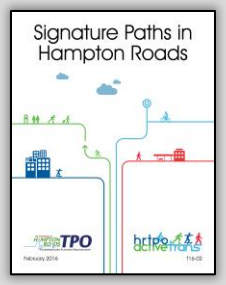
- A **bicycle advisory committee** that helped prepare a Regional Bicycle Facilities Plan and Bikeway Map in the Historic Triangle
- Virginia Beach's **Bikeways and Trails Plan**
- Norfolk's **Bicycle and Pedestrian Strategic Plan**
- Hampton's **Bike Walk Hampton** Strategic Bicycle and Pedestrian Plan
- Suffolk's **Bicycle and Pedestrian Master Plan**
- Isle of Wight County's **Pedestrian and Bicycle Facilities Master Plan**
- Surry County's Comprehensive Bicycle and Pedestrian Plan

Other localities, such as Southampton County, 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:

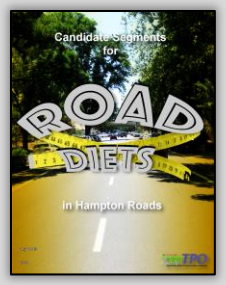
Long-Range Planning – HRTPO evaluated active transportation projects in the 2040 Long-Range Transportation Plan for the first time. A total of 29 candidate active transportation projects were evaluated, with 13 projects being included in the approved plan.



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 trails.

Birthplace of America Trail – The HRTPO has proposed a 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.



Road Diets – A "road diet" is a method of converting a road into a street by reducing the number of lanes and creating on-street parking, bike lanes, wider sidewalks, and/or two-way left turn lanes. To help localities find roads to investigate for a possible road diet, HRTPO staff determined criteria in which road diets may be desirable and prepared a list of suitable segments in Hampton Roads.

Regional Active Transportation Plan – HRTPO staff is currently undertaking 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.

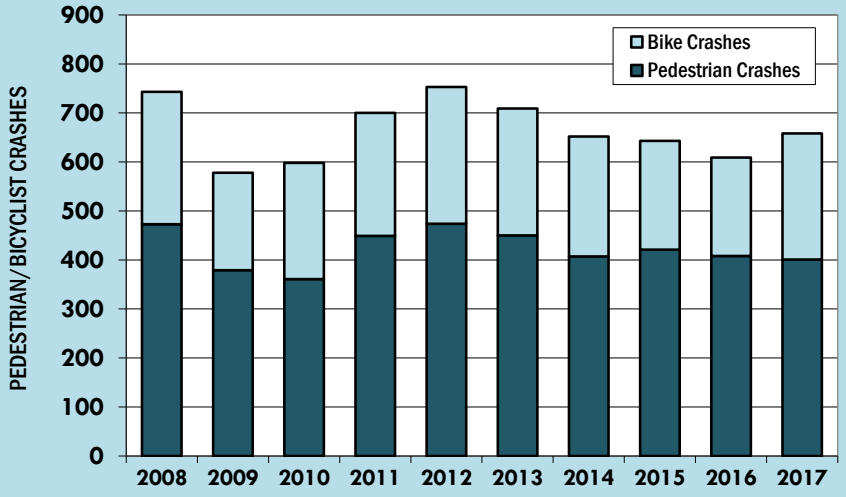
ACTIVE TRANSPORTATION (continued)

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. VDOT has also recently developed a Pedestrian Safety Action Plan. 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, 3.8% of workers walked or rode bicycles to commute to work in 2016. This percentage is equal to the percentage seen in the region in 2010, but increased from 3.0% walking or biking to work in 2000.

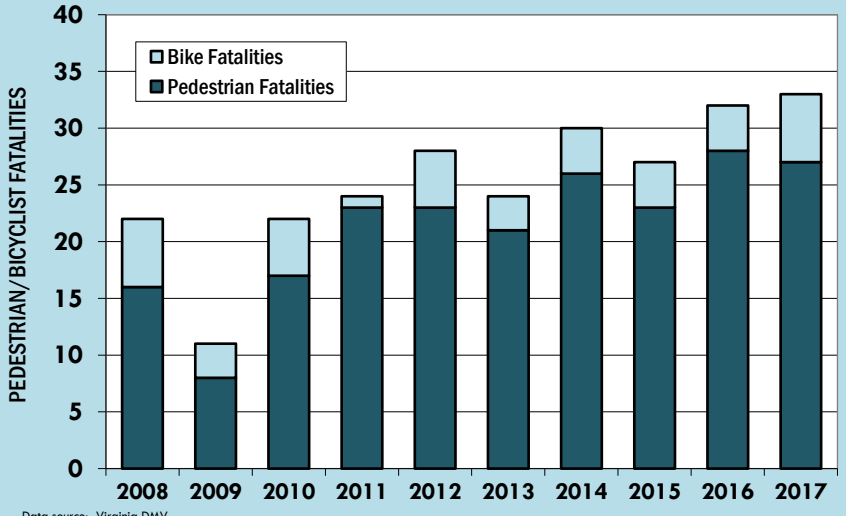
Pedestrians and bicyclists are some of the most vulnerable users of the transportation system, and improving their safety is critical. There were 658 active transportation crashes – 401 involving pedestrians and 257 involving bicyclists – in Hampton Roads in 2017. These crashes resulted in a total of 33 fatalities, 27 of which were pedestrians and 6 of which were bicyclists. The number of crashes involving pedestrians and bicyclists in Hampton Roads increased in 2017 after decreasing each year since 2012, but remains 11% lower than the number seen in 2008. The number of pedestrian and bicyclist fatalities in Hampton Roads, however, has increased 50% over the last decade. Pedestrian

CRASHES INVOLVING PEDESTRIANS OR BICYCLISTS IN HAMPTON ROADS, 2008-2017



Data source: Virginia DMV.

PEDESTRIAN/BICYCLIST FATALITIES IN HAMPTON ROADS, 2008-2017

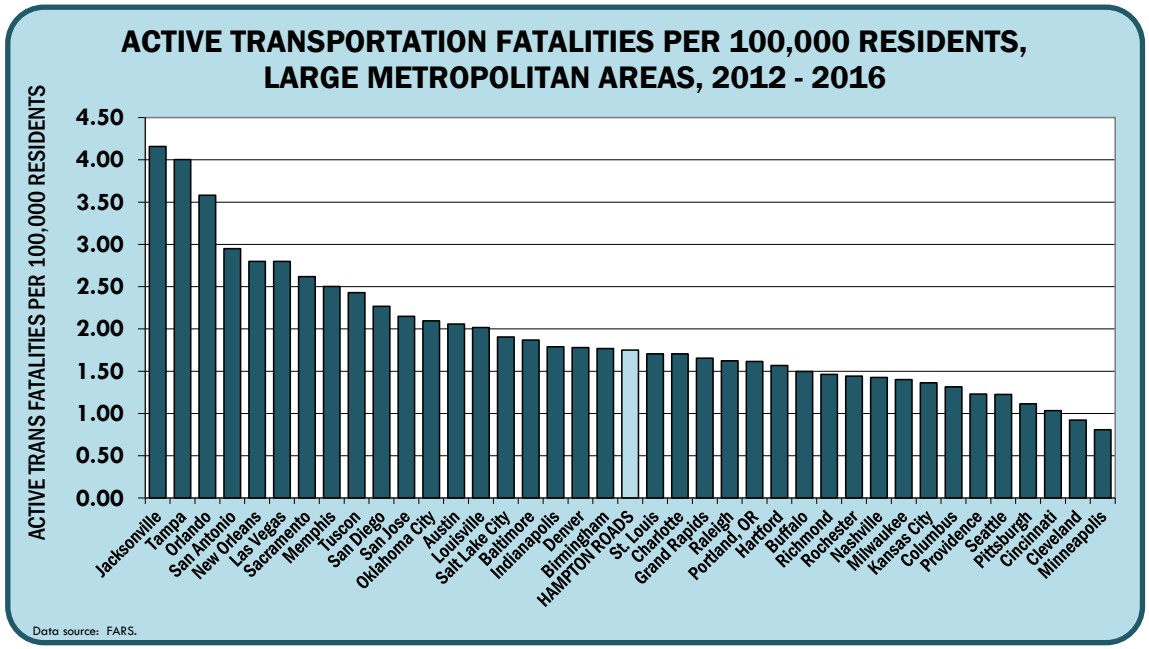


Data source: Virginia DMV.

and bicyclist crashes comprised 3% of the total crashes in Hampton Roads between 2008 and 2017, but comprised 20% 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 20th highest among the 39 large metropolitan areas between one and four million people in terms of the rate of active transportation fatalities per resident for the years 2012 - 2016.

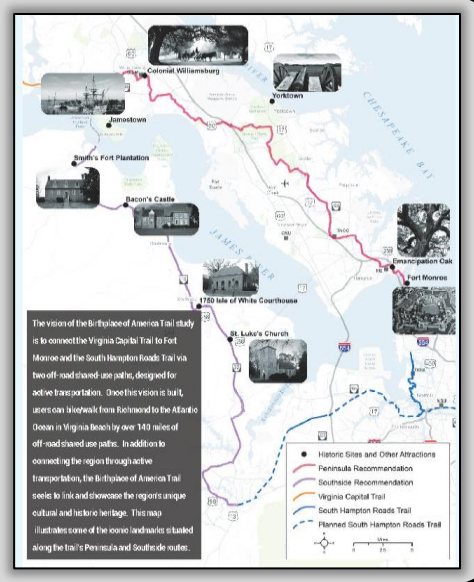
More information on HRTPO's expanding Active Transportation planning efforts is available at http://www.hrtpo.org/page/active-transportation.



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.



TRANSPORTATION FINANCING

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 sources 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 2019, the CTB approved a $6.15 billion statewide transportation budget, which is slightly larger than the $6.12 billion budget in FY 2018. The CTB projects that a total of $37.0 billion will be available in the statewide transportation budget for FY 2019-2024, which is 12% higher than the budgets from FY 2013-2018.

HB 2313 also created a dedicated regional funding stream for Hampton Roads. Increases in regional sales and fuel wholesale taxes has generated $776 million as of May 2018, and is projected to produce $1.2 billion in FY 2019-2024 for use on major regional roadway, bridge, and tunnel projects in the region.

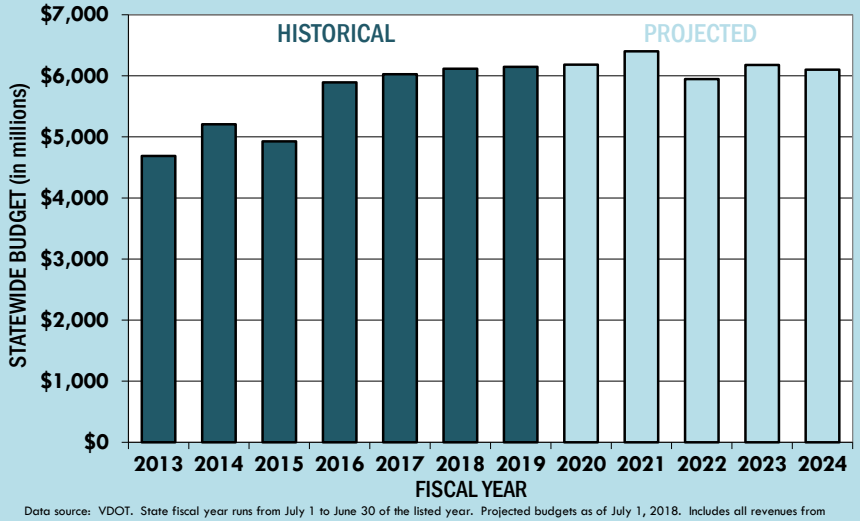
NOTABLE TRANSPORTATION FINANCING NUMBERS

12% ▲ The projected increase in Virginia's statewide transportation budget from Fiscal Years (FY) 2013-2018 to FY 2019-2024.

1% ▼ The projected decrease in funding that will be available for new highway construction statewide from FY 2013-2018 to FY 2019-2024.

39th 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, 2018.

HISTORICAL AND PROJECTED STATE TRANSPORTATION BUDGET, FY 2013-2024



Data source: VDOT. State fiscal year runs from July 1 to June 30 of the listed year. Projected budgets as of July 1, 2018. Includes all revenues from HB2313, including regional revenues.

TRANSPORTATION FINANCING (continued)

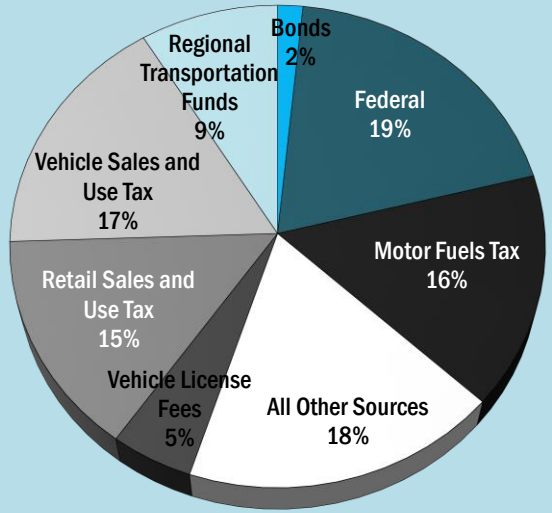
The amount of revenue by source for Virginia's transportation budget has changed based on HB 2313. The motor fuel tax was the most impacted source, decreasing from 20% of transportation revenues in FY 2013 to 16% in FY 2019. Federal sources, the vehicle sales and use tax, the retail sales and use tax, and the tax on motor fuels all comprise between 15%-19% of Virginia's transportation revenues in FY 2019. 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 2019-2024, $13.5 billion will be allocated statewide to maintenance and operations. This is up 13% from the $12.0 billion allocated between FY 2013-2018.

The amount of funding available for new roadway construction, however, is projected to decrease. Including the regional roadway funds, $12.2 billion is projected to be available for new roadway construction in Virginia between FY 2019-2024. This is down from the $12.3 billion in funding that was allocated to construction in FY 2013-2018.

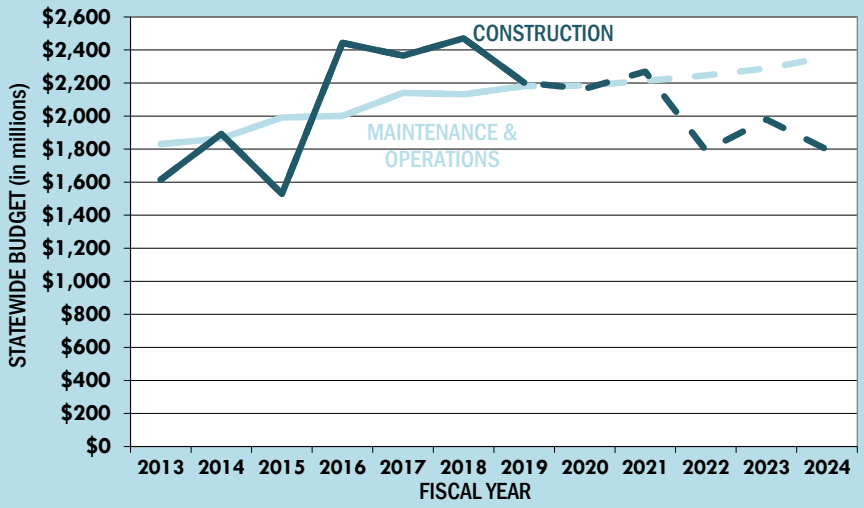
Historically, the amount of funding allocated to roadways in Virginia has lagged behind other states. Using the most recent data available from the U.S. Census Bureau (2015), Virginia ranked 32nd highest among the 50 states and the District of Columbia in highway expenditures per capita. Over the previous decade, Virginia ranked as low as 44th, which occurred in 2010. This improvement is largely due to the implementation of HB 2313 in 2013.

TRANSPORTATION REVENUES IN VIRGINIA BY SOURCE, FISCAL YEAR 2019



Data source: VDOT.

HISTORICAL AND PROJECTED STATEWIDE FUNDING MAINTENANCE VS. CONSTRUCTION, FY 2013-2024

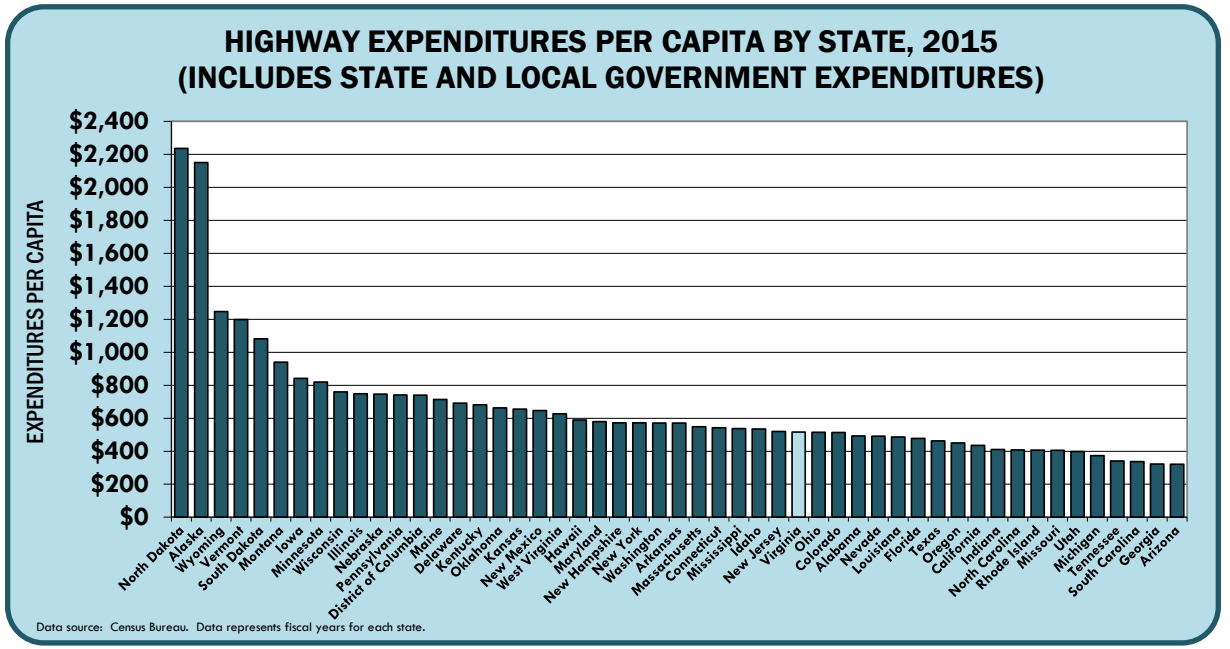


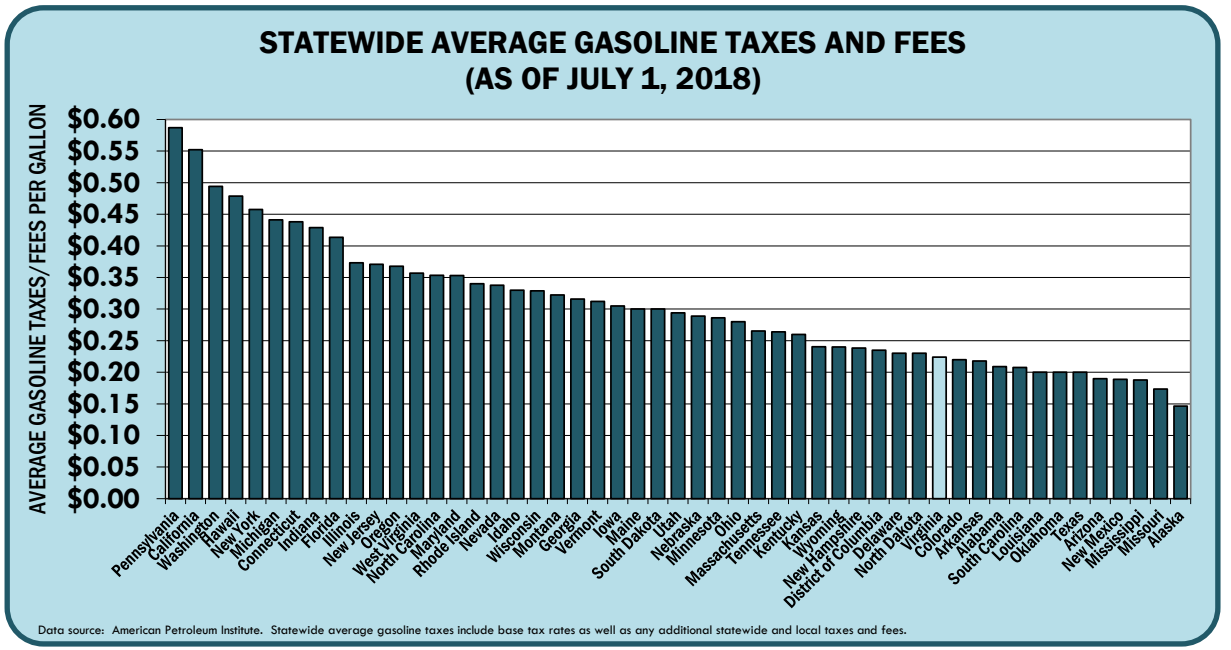
Data source: VDOT. FY 2019-2024 data is projected as of July 1, 2018. Includes all revenues from HB 2313, including regional revenues.

TRANSPORTATION FINANCING (continued)

The level of gasoline taxes and fees collected in Virginia has been 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. Floors have been put in place to guarantee revenues on both the statewide tax and – as of July 2018 – the regional taxes. The tax increased by 5 cents per gallon in January 2015, when Congress failed to pass legislation permitting Virginia to require internet businesses to collect state and local taxes.

As of July 2018 the average statewide tax on each gallon of unleaded gasoline in Virginia was 22.4 cents. Virginia's tax rate on fuel remains lower than most other states. Virginia had the 39th 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 2018.





FUEL PRICES

After dropping as low as $1.50 per gallon in early 2016, fuel prices continue to increase both in Hampton Roads and throughout the country. However, in spite of having regional fuel taxes, fuel prices in Hampton Roads remain lower than in most comparable areas.

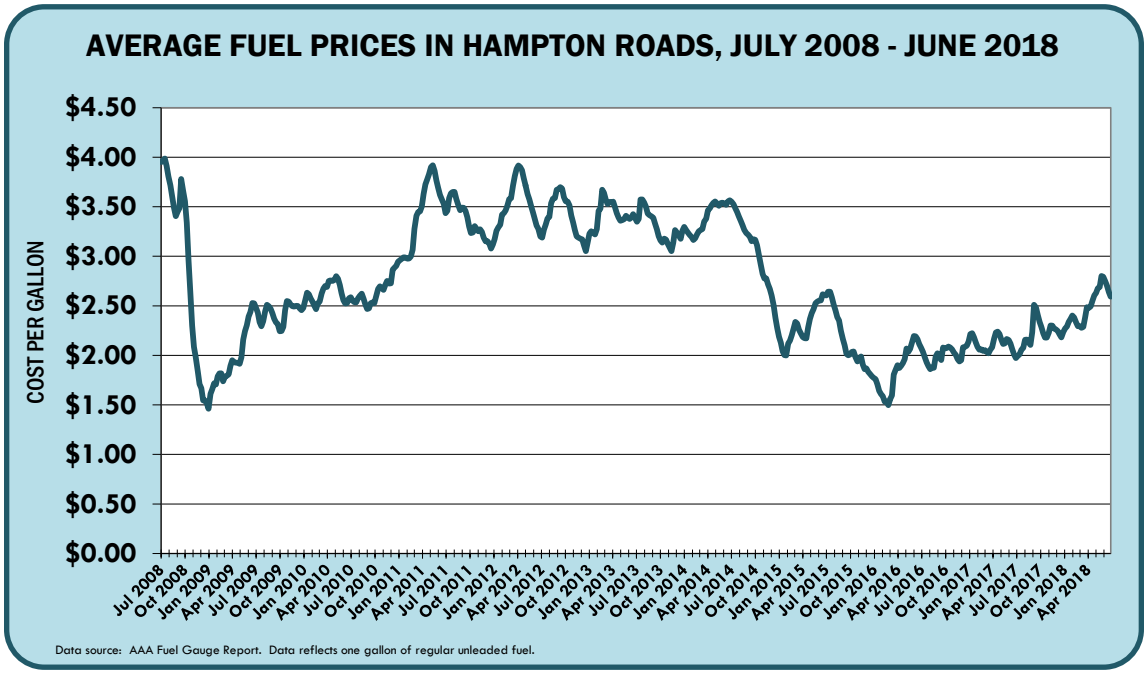
The cost of fuel has increased over the last two years, both in Hampton Roads and throughout the country. The average cost of a gallon of regular unleaded fuel in Hampton Roads was $2.60 on July 1, 2018. This is 63 cents per gallon higher than one year earlier and is at a level not seen since July 2015. Average fuel prices in Hampton Roads, however, topped $3.50 per gallon every summer between 2011 and 2014, but bottomed out just below $1.50 per gallon in February 2016.

NOTABLE FUEL PRICES NUMBERS

32% ▲ The increase in the cost of a gallon of unleaded fuel in Hampton Roads between July 1st, 2017, and July 1st, 2018.

33rd Hampton Roads rank, among the 39 large metropolitan areas with populations between one and four million people, in terms of the cost per gallon of regular unleaded fuel as of July 1st, 2018.

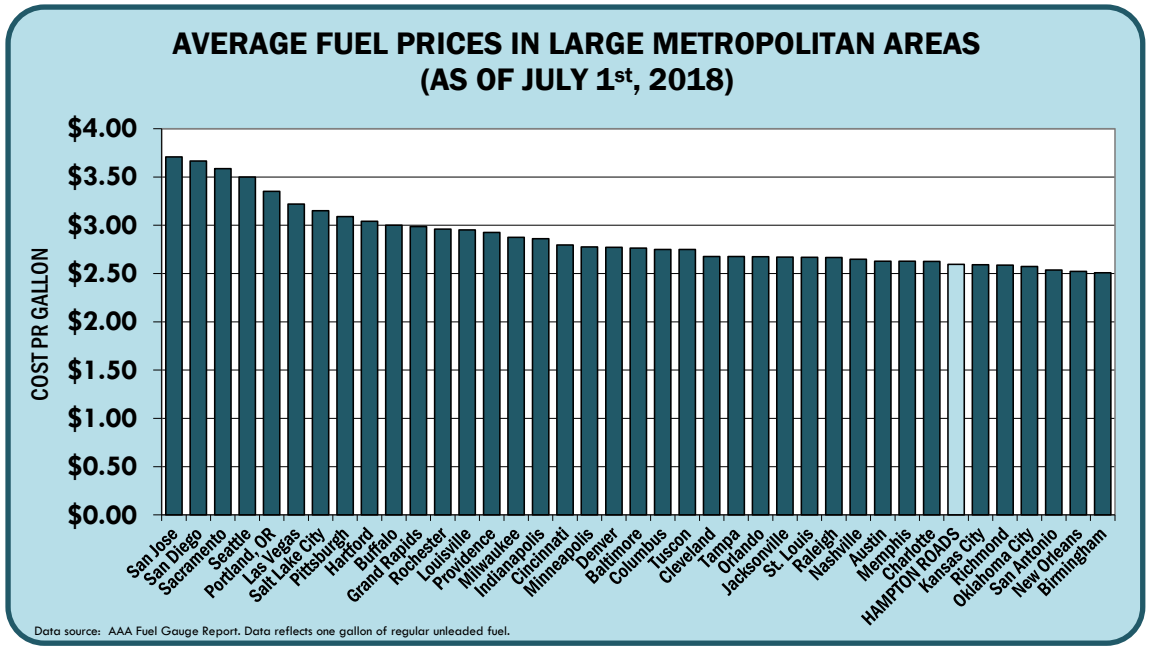
Fuel prices in Hampton Roads are comparable to other metropolitan areas throughout Virginia, despite the higher regional taxes imposed on fuel in the region under HB 2313. Fuel prices were on average two cents per gallon higher in



FUEL PRICES (continued)

Charlottesville, one cent per gallon lower in Richmond, and seven cents per gallon lower in Roanoke as of July 1st, 2018. Statewide, the average cost of fuel was $2.60 per gallon on July 1st, 2018, equal to the rate in Hampton Roads.

Fuel prices in Hampton Roads are also below national averages. Among the 39 metropolitan areas with a population between one and four million people, Hampton Roads had the seventh lowest average fuel price as of July 1st, 2018. Fuel prices in Hampton Roads were 28 cents per gallon lower than the large metropolitan area average.



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 $158 million in Hampton Roads as of May 2018.

In spite of the additional regional fuel taxes, fuel prices in Hampton Roads have actually decreased relative to comparable metropolitan 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. With the additional fuel taxes in place in Hampton Roads, fuel prices in the region were 28 cents per gallon lower than the comparable area average as of July 2018.

In addition, as stated previously in this section, fuel prices as of July 1st, 2018 in Hampton Roads were comparable to those in the Charlottesville and Richmond areas, in spite of no additional regional fuel taxes being collected in those areas.

ROADWAY PROJECTS

Not only have a number of critical projects been completed throughout the region in recent years, but with additional funding being provided by the Hampton Roads Transportation Fund, many more 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 29 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 Intermodal Connector, MLK Freeway Extension, City Center Boulevard, Nimmo Parkway, and the completion of Lynnhaven Parkway. Many sections of roadway were widened, including the first phase of I-64 on the Peninsula, Fort Eustis Boulevard, George Washington Highway, Holland Road, Princess Anne Road, Saunders Road, Turnpike Road, Wesleyan Drive, and Witchduck Road.

I-64/I-264 CONSTRUCTION

Image Source: VDOT

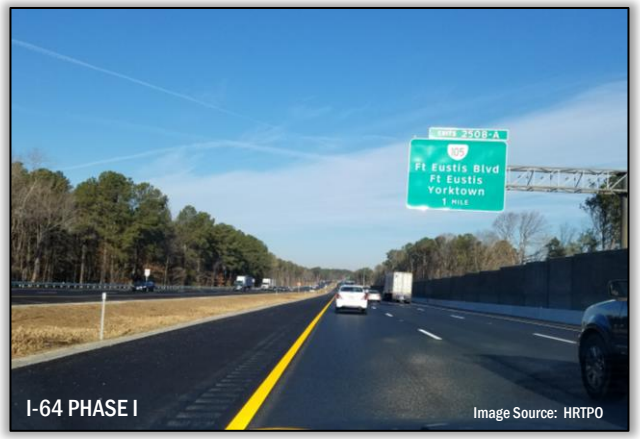
MAJOR ROADWAY PROJECTS COMPLETED IN HAMPTON ROADS, JANUARY 2012 – JUNE 2018

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
Holland Road	Nimmo Pkwy to Dam Neck Rd	Widen to 4 lanes	2018
I-64	Northampton Boulevard	Interchange Improvements	2018
I-64	Norview Ave	Ramp improvement	2013
I-64	Yorktown Road to Bland Boulevard	Widen to 6 lanes	2017
I-64 Express Lanes	Reversible HOV lanes	Conversion to Express Lanes	2018
I-264	London Bridge Rd	New Interchange	2012
Intermodal Connector	I-564 to Naval Station Norfolk/NIT	New 4 lane facility	2018
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
Turnpike Road	Frederick Blvd to Constitution Ave	Widen to 4 lanes	2018
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.

ROADWAY PROJECTS (continued)

A number of major roadway projects are currently underway throughout the region. These projects include widening of Phases II and III of I-64 on the Peninsula, improving the I-64/I-264 Interchange, adding a parallel tunnel at the Chesapeake Bay Bridge-Tunnel, installing a continuous-flow intersection (CFI) at Military Highway and Princess Anne Road/Northampton Boulevard, and replacing the Lesner Bridge. A number of roadway widenings are also underway including Military Highway, Nansemond Parkway/Portsmouth Boulevard, and Witchduck Road.



I-64 PHASE I

Image Source: HRTPO

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

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	2020
Centerville Turnpike	Kempsville Rd to Indian River Rd	Widen to 4 lanes	2022
Centerville Turnpike	Chesapeake CL to Kempsville Rd	Widen to 4 lanes	2024
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
Croaker Road	Route 60 to Rochambeau Dr	Widen to 4 lanes	2025
Elbow Road	Indian River Road to Salem Road	Widen to 4 lanes	2024
George Washington Highway	Deep Creek Bridge	Widen to 4 lanes	2021
George Washington Highway	Wolf Trap Rd to Old York-Hampton Hwy	Widen to 6 lanes	2024
High Street	Churchland Bridge	Replace/Rehabilitate Bridge	2021
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	2021
I-64/Hampton Roads Bridge-Tunnel	Settlers Landing Rd to I-564	Widen to 6/8 lanes	2024
I-64/High Rise Bridge	I-264/I-664 and I-464/Chesapeake Exp (Phase 1)	Widen to 6 lanes	2021
I-264 Eastbound	I-64 off ramp to East of Witchduck Road	Widening	2019/2021
Indian River Road	Kempsville Rd	Intersection Redesign	2020
Indian River Road	Lynnhaven Pkwy to Elbow Rd	Relocated 4 lane facility	2024
Laskin Road	First Colonial Rd to Birdneck Rd	Widen to 6 lanes	2021
Longhill Road	Route 199 to Olde Towne Rd	Widen to 4 lanes	2021
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	2022
Shore Drive	Lesner Bridge	Replace Bridge	2018
Skiffes Creek Connector	Route 60 to Route 143	New facility	2027
Victory Boulevard	Route 17 to Hampton Hwy	Widen to 6 lanes	2027
Witchduck Road	I-264 to Virginia Beach Blvd	Widen to 6 lanes	2020
Wythe Creek Road	Commander Sheppard Blvd to Alphus St	Widen to 3 lanes	2021

Data sources: VDOT, HRTPO, various localities.

are expected to begin construction over the next six years include the widening of the Hampton Roads Bridge-Tunnel, Phase I of widening I-64 on the Southside (including widening the High Rise Bridge), widening and replacement of the Deep Creek Bridge, improving Indian River Road, and widening sections of George Washington Highway, Laskin Road, Route 58/Holland 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 scored using a prioritization process – 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 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. 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 $3.6 billion project is expected to be awarded in 2019, and the project is expected to be complete by 2024.

More information on the project is available at http://www.hrbtexpansion.org.

TRANSPORTATION OPERATIONS

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, changeable message signs, and traveler information.

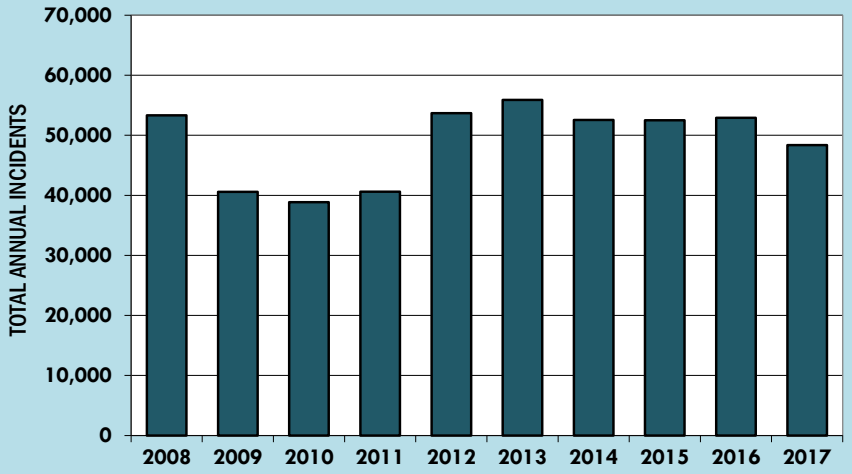
In Hampton Roads, the freeway system is managed by the VDOT Eastern Region Transportation Operations Center. The Eastern Region TOC monitors traffic conditions throughout the region, maintains and operates ITS infrastructure on the regional Interstate system, responds to and clears crashes and other 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.

VDOT EASTERN REGION TOC

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

- Covers **141 miles,** nearly the entire regional Interstate system.
- Includes over **300 closed-circuit cameras, 200 dynamic message signs,** 5 reversible roadway gate entrances, and hundreds of vehicle detection devices, all linked together by fiber optic cable.
- Drove over **3.8 million miles** and responded to over **48,000 incidents** in 2017.

TOTAL INCIDENTS RESPONDED TO BY THE HAMPTON ROADS TOC SAFETY SERVICE PATROL, 2008-2017



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. Data and video can also be shared from these centers.

Another service provided by VDOT to improve mobility is 511 Virginia. 511 Virginia provides real-time traveler information via phone, 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, truck parking, and incidents. Information is also provided on tourist destinations, rest areas, airports, ridesharing, and transit throughout Virginia. Customizable route information is also available.

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

ITS TECHNOLOGIES IN HAMPTON ROADS

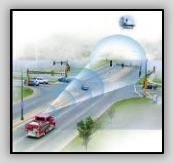
Hampton Roads has been a national leader in the use of Intelligent Transportation Systems (ITS). Nearly every mile of Interstate in the region is instrumented with ITS technologies, and various cities throughout the region maintain ITS infrastructure as well. The following are examples of ITS technologies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

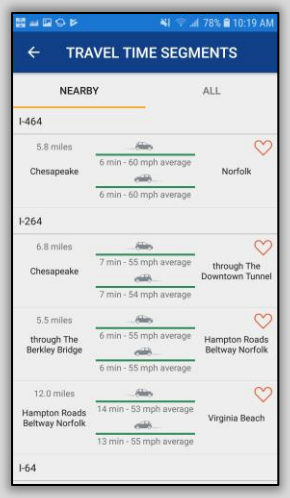
Overheight Detection
Detects overheight vehicles to prevent damage to the region's tunnels and bridges.

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


SAFETY SERVICE PATROL Image Source: VDOT

Regional transportation operations planning and coordination is conducted through multiple committees including the Hampton Roads Transportation Operations (HRTO) Subcommittee. The HRTO Subcommittee facilitates peer-to-peer information sharing and advises the HRTPO Transportation Technical Advisory Committee on transportation operations issues. HRTO 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 – In late 2017 VDOT released a major update to its 511 Virginia traveler information smartphone app. The app includes a list of travel times, maps, camera images, Reach the Beach information, weather information, truck parking availability, and the 511 Virginia Twitter feed. The recent update also includes turn-by-turn navigation via Waze as well as push notifications of traffic alerts.

VDOT SmarterRoads Data Portal – VDOT launched "SmarterRoads", a new cloud-based data portal that provides free, widespread access to a wealth of VDOT roadway and transportation information. Current datasets that are available include traffic volumes, crashes, sensors, incidents, sign messages and locations, tolling and trip pricing, weather events, 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.

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.

AIR QUALITY

Through a number of national, statewide, and regional efforts, the air quality of Hampton Roads has improved over the last decade, and is better than the air in most 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.

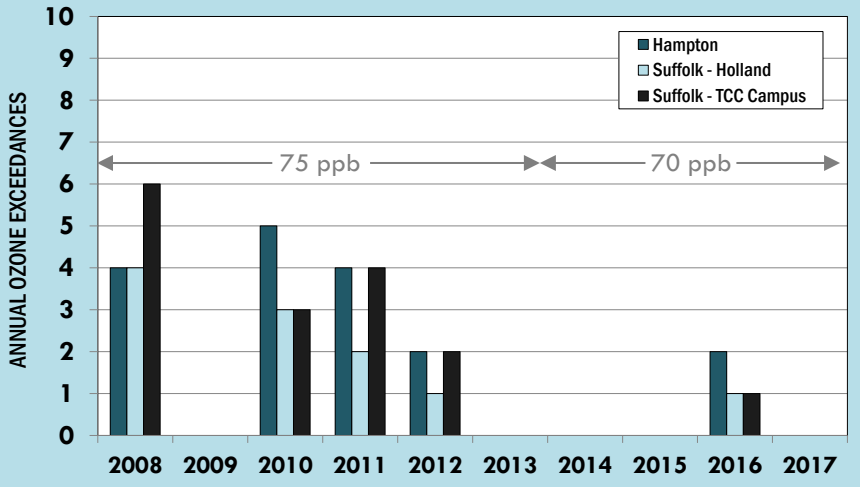
Each metropolitan area is designated as being in attainment or non-attainment of federal ozone air quality standards based on the amount of ground-level ozone recorded at monitoring stations and the National Ambient Air Quality Standards. EPA determines these designations based on an eight-hour standard, 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

0 The number of eight hour ozone exceedances at Hampton Roads air quality monitoring stations in 2017.

5th Hampton Roads rank, among the 39 large metropolitan areas with populations between one and four million people, in terms of the best fourth-highest daily maximum 8-hour ozone averages in 2016.

EIGHT HOUR OZONE EXCEEDANCES AT REGIONAL AIR QUALITY MONITORING STATIONS, 2008-2017



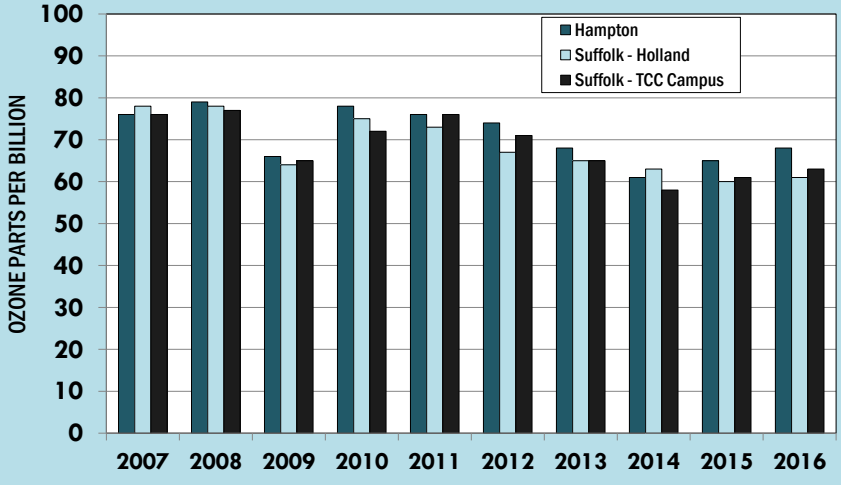
Data source: Virginia DEQ. In 2008, the ozone exceedance standard was reduced from greater than 84 parts per billion (ppb) to greater than 75 parts per billion. The EPA has lowered the ozone standard level from 75 ppb to 70 ppb starting with the 2014 data.

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 took effect in 2017, using the previous three-year (2014-2016) ozone data.

In Hampton Roads, the 2014-2016 three-year ozone averages at the three monitoring stations were between 60 and 64 ppb, all below the 70 ppb threshold. Based on these readings, Hampton Roads is currently designated as an ozone attainment/maintenance area.

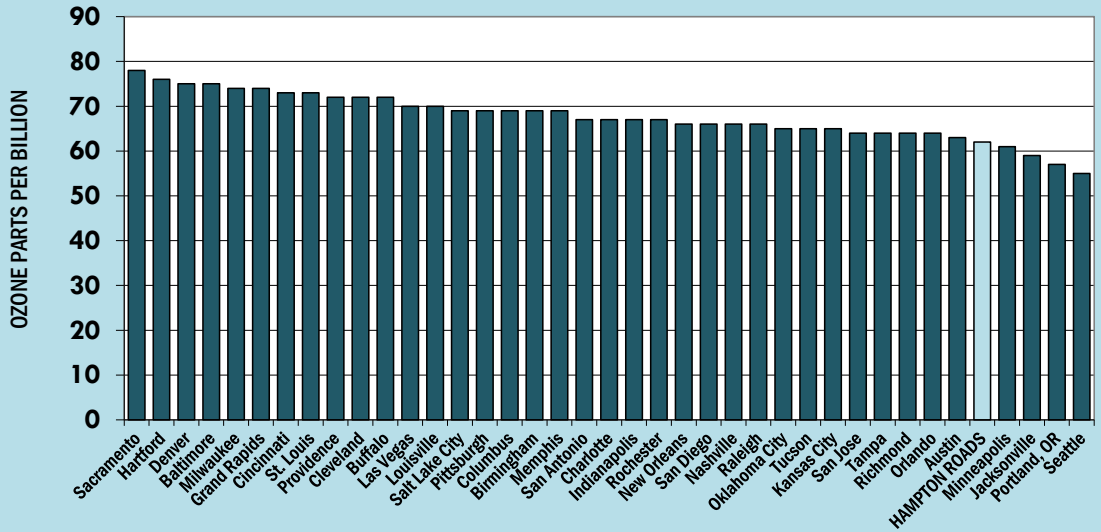
The air quality in Hampton Roads is better than the air quality in many other comparable metropolitan areas based on the eight-hour ozone standard. The fourth-highest eight-hour ozone level was 62 ppb in Hampton Roads in 2016 according to EPA data, which ranked the region 5th best among the 39 large metropolitan areas with populations between one and four million people.

FOURTH-HIGHEST DAILY MAXIMUM 8-HOUR OZONE AVERAGES IN HAMPTON ROADS, 2007-2016



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, 2016



Data source: US Environmental Protection Agency.

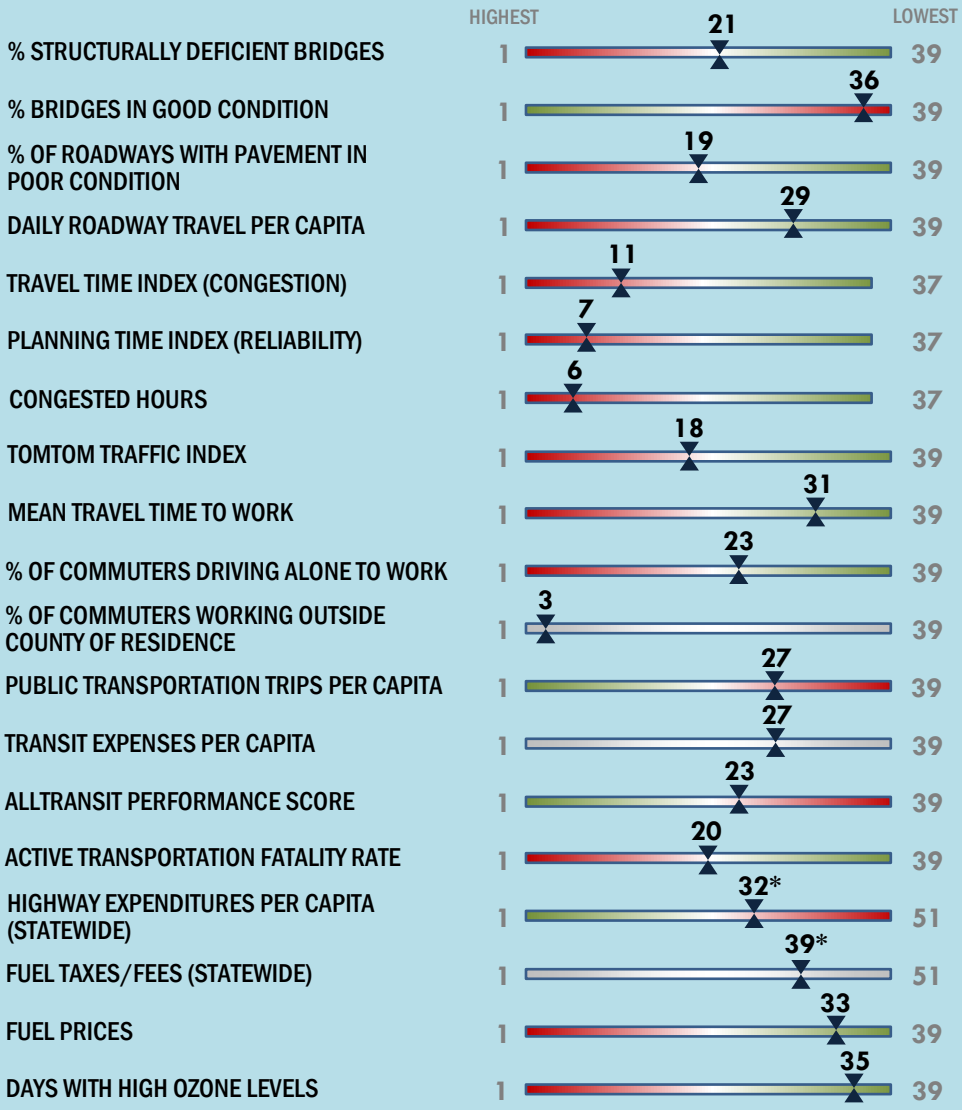
NATIONAL RANKING SUMMARY

In many sections of this report, Hampton Roads is compared to other large metropolitan areas throughout the United States with populations between one and four million people. Many of these 38 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

REGIONAL PERFORMANCE MEASURES

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 (RPMs). 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 the 2017 update, the annual HRTPO Regional Performance Measures effort was 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:

goal: maintain value

goal: increase value

goal: decrease value

- 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

A. Transportation System Performance Measures[13]

Actual Trend is Following Desired Trend

Actual Trend is Going Against Desired Trend

Actual Trend Unclear

	Data Source	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018	Desired Trend
1. congestion reduction													
Annual Delay, hours per peak auto commuter	TTI	43	42	43	43	43	44	45	n.a.	n.a.	n.a.	n.a.	
Annual Excess Fuel Consumed, gallons per peak auto commuter	TTI	18	17	18	18	18	18	19	n.a.	n.a.	n.a.	n.a.	
Travel Time Index (extra time during peak period), %	Inrix/TomTom	18%	18%	18%	18%	18%	19%	19%	18%	18%	n.a.	n.a.	
2. safety													
Annual Roadway Fatalities, number	DMV[24]	153	124	121	136	99	131	125	121	125	155	n.a.	
Annual Roadway Fatalities, per 100 million VMT[25]	DMV[24]	1.01	0.97	0.89	0.86	0.81	0.84	0.88	0.84	0.84	1.03	n.a.	
Annual Roadway Injuries, number	DMV[24]	14,465	14,004	13,449	14,038	15,034	15,432	14,715	14,955	16,628	16,578	n.a.	
Annual Roadway Injuries, per million VMT	DMV[24]	0.97	0.95	0.90	0.96	1.04	1.07	1.04	1.03	1.11	1.11	n.a.	
Annual Roadway Crashes, number	DMV[24]	27,599	24,005	23,142	24,115	25,192	25,374	24,874	25,310	26,853	26,765	n.a.	
Annual Roadway Crashes, per million VMT	DMV[24]	1.86	1.63	1.55	1.65	1.74	1.77	1.76	1.75	1.80	1.79	n.a.	
Annual Transit Fatalities, number	FTA[6]	0	0	0	1	1	0	0	0	3	n.a.	n.a.	0
Annual Transit Fatalities, per 100 million PMT	FTA[6]	0.00	0.00	0.00	0.85	0.81	0.00	0.00	0.00	3.65	n.a.	n.a.	0
Annual Transit Injuries, number	FTA[6]	81	109	135	113	73	95	98	123	187	n.a.	n.a.	
Annual Transit Injuries, per 100 million PMT	FTA[6]	69	102	118	96	59	86	101	145	227	n.a.	n.a.	
Annual Transit Collisions[19], number	FTA[6]	15	27	40	30	26	35	30	39	49	n.a.	n.a.	
Annual Transit Collisions[19], per 100 million PMT	FTA[6]	13	25	35	26	21	32	31	46	60	n.a.	n.a.	
Annual Aviation Fatalities[22], number[23]	NTSB	0	0	1	2	0	8	0	3	0	0	n.a.	0
Annual Aviation Accidents[22], number[23]	NTSB	5	6	8	3	1	5	3	3	9	4	n.a.	
Annual Hwy-Rail Crossing Accidents[20], per million population	FRA	4	5	2	1	4	4	5	3	3	3	n.a.	
3. transit usage													
Annual Unlinked Passenger Trips (UPT), number	APTA/FTA[6]	29,267,974	18,907,492	18,646,984	19,371,225	21,234,400	21,361,191	19,987,547	19,085,376	17,942,371	16,814,136	n.a.	
Annual Unlinked Passenger Trips (UPT), per capita[21]	HRTPO Calculation	20	13	13	13	14	14	13	12	12	11	n.a.	
Annual Vehicle Revenue Miles (VRM), number	FTA[6]	15,547,333	16,659,349	15,972,878	16,016,548	16,158,133	15,634,645	15,552,017	16,084,113	16,857,027	n.a.	n.a.	
Annual Vehicle Revenue Miles (VRM), per capita[21]	HRTPO Calculation	11	11	11	11	11	10	10	10	11	n.a.	n.a.	
Annual Passenger Miles Traveled (PMT), number	FTA[6]	117,881,067	107,055,827	114,165,464	117,148,805	123,461,216	110,291,173	96,842,639	84,926,722	82,243,560	n.a.	n.a.	
Annual Passenger Miles Traveled (PMT), per capita[21]	HRTPO Calculation	80	72	77	78	82	72	63	55	53	n.a.	n.a.	
Passengers Boarding or Departing Amtrak Trains (HR)[32]	Amtrak	166,839	158,914	163,405	175,494	195,263	229,524	215,578	221,917	211,887	214,501	n.a.	
Endpoint On-Time Performance, Amtrak (Rich/NN/Nor")[5 32]	Amtrak	n.a.	n.a.	n.a.	76%	85%	84%	73%	71%	78%	73%	n.a.	
Operating Cost Ratio[30], Amtrak ("Washington-Newport News" & "Washingt	Amtrak	n.a.	n.a.	n.a.	0.99	0.87	0.98	0.76	0.81	0.76	0.78	n.a.	

See page 64 for an explanation of footnotes.

REGIONAL PERFORMANCE MEASURES

	Data Source	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018	Desired Trend
4. HOV usage													
Persons per Hour per HOV Ln During Peak Period, avg of count stations	VDOT	598	637	685	571	638	598	612	525	679	717	n.a.	
# of Park and Ride Spaces	VDOT	n.a.	n.a.	n.a.	n.a.	4,423	n.a.	n.a.	4,193	3,069	3,075	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.	64	63	56	n.a.	
% of Commuters with Journey-to-Work via Carpool[10]	Census	n.a.	n.a.	9.4%	8.1%	8.9%	8.3%	8.2%	7.8%	9.3%	n.a.	n.a.	
5. job-to-housing ratios													
Ratio of Jobs to Labor Force[2]													
Hampton Roads	VWC[34] & HRPDC	0.95	0.95	0.93	0.92	0.92	0.92	0.91	0.93	0.93	0.92	n.a.	
Chesapeake	VWC[34] & HRPDC	0.88	0.88	0.90	0.89	0.88	0.87	0.86	0.88	0.87	0.86	n.a.	n.a.
Gloucester	VWC[34] & HRPDC	0.49	0.49	0.51	0.51	0.52	0.52	0.50	0.51	0.51	0.50	n.a.	n.a.
Hampton	VWC[34] & HRPDC	0.89	0.91	0.92	0.90	0.91	0.90	0.88	0.89	0.90	0.89	n.a.	n.a.
Isle of Wight	VWC[34] & HRPDC	0.65	0.64	0.58	0.55	0.57	0.59	0.58	0.60	0.60	0.58	n.a.	n.a.
James City	VWC[34] & HRPDC	0.87	0.86	0.87	0.86	0.87	0.84	0.84	0.85	0.87	0.87	n.a.	n.a.
Newport News	VWC[34] & HRPDC	1.15	1.09	1.15	1.16	1.16	1.15	1.15	1.16	1.14	1.14	n.a.	n.a.
Norfolk	VWC[34] & HRPDC	1.51	1.54	1.33	1.33	1.32	1.30	1.28	1.34	1.34	1.33	n.a.	n.a.
Poquoson	VWC[34] & HRPDC	0.33	0.34	0.30	0.29	0.29	0.27	0.27	0.28	0.29	0.30	n.a.	n.a.
Portsmouth	VWC[34] & HRPDC	0.98	1.03	1.03	1.04	1.05	1.07	1.05	1.08	1.06	1.04	n.a.	n.a.
Suffolk	VWC[34] & HRPDC	0.65	0.66	0.65	0.64	0.69	0.68	0.68	0.71	0.73	0.74	n.a.	n.a.
Virginia Beach	VWC[34] & HRPDC	0.80	0.80	0.77	0.76	0.76	0.77	0.77	0.79	0.80	0.80	n.a.	n.a.
Williamsburg	VWC[34] & HRPDC	3.10	3.02	2.42	2.18	2.18	2.14	2.09	2.11	2.06	2.02	n.a.	n.a.
York	VWC[34] & HRPDC	0.72	0.74	0.71	0.71	0.70	0.70	0.69	0.71	0.71	0.69	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	0.10	0.11	0.11	0.10	0.10	0.10	0.10	0.10	n.a.	
% of Workers Working Outside Locality (City/County) in Which They Live	Census	48%	49%	48%	47%	49%	46%	47%	49%	48%	n.a.	n.a.	
Mean Travel Time to Work, minutes	Census	23.6	23.2	23.7	23.3	24.0	24.0	24.1	24.8	24.0	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.	84%	84%	84%	84%	85%	85%	84%	n.a.	
% of Households in TAZs[1] Served by Transit[18]	HRTPO[1]	n.a.	n.a.	n.a.	73%	73%	73%	73%	75%	75%	74%	n.a.	
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]	43%	n.a.	n.a.	37%	38%	n.a.	38%	n.a.	n.a.	n.a.	n.a.	
8. air quality													
Annual # of Days when Ozone Levels were Above 8-Hour Standard	DEQ	7	0	6	7	3	0	0	0	3	0	n.a.	0
NOx[7] (from motor vehicles), tons per day (near future)[15]	VDOT	n.a.	n.a.	n.a.	43	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	31.4	32
NOx[7] (from motor vehicles), grams per capita per day (near future)[15]	VDOT	n.a.	n.a.	n.a.	23	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	16.5	
VOC[7] (from motor vehicles), tons per day (near future)[15]	VDOT	n.a.	n.a.	n.a.	35	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	20.9	28
VOC[7] (from motor vehicles), grams per capita per day (near future)[15]	VDOT	n.a.	n.a.	n.a.	19	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	10.9	
CO_2 (greenhouse gas, from motor veh's), tons per day (near future)[15]	VDOT[16]	n.a.	n.a.	n.a.	22,464	n.a.	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.	12,076	n.a.	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 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018	Desired Trend
9. movement of freight													
Shares (%) of General Cargo Handled by Port of Virginia, by container	VPA												
Barge	VPA	5%	4%	4%	4%	4%	4%	4%	3%	3%	3%	n.a.	
Rail	VPA	31%	30%	28%	30%	32%	34%	33%	33%	37%	35%	n.a.	
Truck	VPA	64%	66%	68%	66%	64%	62%	63%	64%	61%	62%	n.a.	
		100%	100%	100%	100%	100%	100%	100%	100%	101%	100%		
Rail Mode Share (%), freight with HR origins, by value and tonnage	FAF4												
by tonnage[26]	FAF4	n.a.	n.a.	35%	n.a.	8%	n.a.	n.a.	1.6%	n.a.	n.a.	n.a.	
by value[26]	FAF4	n.a.	n.a.	3%	n.a.	14%	n.a.	n.a.	1.2%	n.a.	n.a.	n.a.	
Rail Mode Share (%), freight with HR destinations, by value and tonnage	FAF4												
by tonnage[26]	FAF4	n.a.	n.a.	44%	n.a.	61%	n.a.	n.a.	48%	n.a.	n.a.	n.a.	
by value[26]	FAF4	n.a.	n.a.	5%	n.a.	23%	n.a.	n.a.	9%	n.a.	n.a.	n.a.	
10. per capita vehicle miles traveled													
Daily Vehicle Miles Traveled (VMT) per capita	VDOT	24.2	24.0	23.8	23.6	23.1	22.7	22.3	22.7	23.3	23.4	n.a.	
% of Commuters with Journey-to-Work by Alternate Modes[8]	Census	20%	18%	19%	19%	19%	18%	18%	18%	20%	n.a.	n.a.	
11. maintenance													
% of Pavement in Non-Deficient Condition, VDOT-maintained roads[27]	VDOT	70%	69%	66%	76%	75%	83%	85%	89%	93%	93%	n.a.	
% of Bridges Not Structurally Deficient	VDOT	n.a.	95%	94%	94%	94%	94%	94%	93%	94%	95%	95%	
Total Transit Revenue Service Interruptions (mechanical) per million PMT	FTA[6]	40	34	45	38	29	27	32	58	46	n.a.	n.a.	
B. Financial System Performance Measures													
Actual Obligations / Planned Obligations[11]	VDOT	n.a.	n.a.	n.a.	n.a.	1.28	0.95	1.14	0.60	0.53	0.72	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 Allocn's in SYIP (i.e. omitting St'wide[31]), year one[4]	VDOT												
Bristol	HRTPO Calculation	8%	8%	8%	10%	10%	11%	8%	5%	5%	6%	3%	n.a.
Culpeper	HRTPO Calculation	4%	3%	3%	2%	3%	8%	5%	3%	4%	4%	3%	n.a.
Fredericksburg	HRTPO Calculation	5%	3%	4%	3%	6%	5%	4%	6%	7%	9%	4%	n.a.
Hampton Roads	HRTPO Calculation	18%	18%	13%	16%	21%	29%	28%	36%	34%	27%	22%	
Lynchburg	HRTPO Calculation	4%	3%	3%	2%	2%	2%	1%	2%	4%	5%	3%	n.a.
Northern VA	HRTPO Calculation	35%	39%	46%	51%	37%	25%	31%	26%	27%	22%	49%	n.a.
Richmond	HRTPO Calculation	12%	13%	11%	8%	8%	8%	7%	9%	10%	11%	9%	n.a.
Salem	HRTPO Calculation	8%	7%	7%	3%	7%	8%	8%	6%	6%	8%	5%	n.a.
Staunton	HRTPO Calculation	7%	5%	6%	5%	6%	4%	7%	6%	4%	7%	3%	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, WImbg.).
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

FEDERAL PERFORMANCE MEASURES

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 first performance targets that had to be established by Metropolitan Planning Organizations (MPOs) were for roadway safety. Based on the advice of the Performance Measures working group and the Transportation Technical Advisory Committee (TTAC), the HRTPO Board established the annual roadway safety targets shown to the right at their February 2018 meeting.

For the other areas, initial MPO targets are due 180 days after the statewide targets have been submitted. VDOT submitted statewide targets in these remaining areas in May 2018, so initial 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 as well as in an annual system performance report.

Up-to-date information on HRTPO's Federal Performance Measures effort is available at https://www.hrtpo.org/page/regional-performance-measures-and-targets.

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
Transit	Transit Asset Management
CMAQ	N/A for Attainment areas

2018 Safety Performance Targets	
Fatalities	102
Fatality Rate (100M VMT)	0.69
Serious Injuries	1,522
Serious Injury Rate (100M VMT)	10.39
Bike and Pedestrian F & SI	193

ADDITIONAL INFORMATION

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 airfares 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.

ADDITIONAL INFORMATION (continued)

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 6, 2018, through September 21, 2018. No public comments were received.