



York 2040 Committee Meeting #5

Monday, April 8, 2019 – 7:00 PM

Public Works Multi-Purpose Room

Agenda

1. Call to Order – Michael King, Chairman
2. Approval of March 6, 2019 Meeting Notes
3. Presentation: Historic Triangle Comprehensive Plan Transportation Study
 - Keith M. Nichols, PE, Principal Transportation Engineer, HRTPO
4. Presentation: Williamsburg Area Transit Authority
 - Zach Trogdon, Executive Director, Williamsburg Area Transit Authority
5. Yorktown Market Days Public Outreach – Gail Whittaker, York Co. Public Information Officer
6. Other Business
7. Citizen Comment Period
8. Adjournment

Attachments:

- Draft Meeting Notes, March 6, 2019
- Daily Press article, March 9, 2019
- DRAFT Historic Triangle Comprehensive Plan Transportation Study

MEETING NOTES
York 2040 Committee

Wednesday, March 6, 2019 – 7:00 p.m.
Tabb Library Meeting Room
100 Long Green Boulevard, Yorktown, Virginia

Members Present: Gregory “Skip” Brooks, W. Chad Green, Leigh Houghland, Montgoussaint “Montee” E. Jons, Vivian McGettigan, Sheila Myers, Jacob Rizzio, Eugene Seiter, Mark Bellamy, Eric Henegar, R. Anderson Moberg and Cowles “Buddy” Spencer

Staff Present: Susan Kassel, Director of Planning and Development Services; Timothy Cross, Deputy Director of Planning and Development Services; Amy Parker, Senior Planner; Gail Whittaker, Public Information Officer; Justin Atkins, Assistant County Attorney; and Victoria “Vicki” Diggs, Clerk

Members Absent: Michael S. King and Richard Myer

Call to Order – Vice Chairman Montgoussaint Jons

Vice Chairman Jons, on behalf of Chairman King who was absent, called the meeting to order at approximately 7:00 p.m. and welcomed the Committee members and visitors. He explained to those in the audience that public comments would be received at the end of the meeting, prior to adjournment. Lastly he stated that a videographer was present who would be video recording portions of the meeting.

Approval of February 6, 2019 Meeting Notes

The February 6, 2019 meeting notes were approved unanimously.

Overview of the Historic Triangle Bicycle Advisory Committee – Amy Parker, Senior Planner

Ms. Parker provided a brief overview of the history and role of the Historic Triangle Bicycle Advisory Committee (HTBAC), which included the following information:

- The HTBAC, which meets on a quarterly basis, was founded in 1993 by James City County, Williamsburg, and York County.
- The committee members include citizen appointees and staff from each participating locality, as well as representatives from the National Park Service, the Colonial Williamsburg Foundation, and the College of William and Mary.
- The committee developed a long-range Regional Bikeways Plan showing existing and proposed bikeway systems on a regional level for commuters and recreational cyclists.
- The Bikeway Plan map, which depicts shoulder bike lanes, off-road multi-use paths, and shared roadways, is updated when the three participating localities update their respective Comprehensive Plans.
- HTBAC’s bikeway project list, which is updated annually, recommends to the localities needed facilities requiring funding and/or construction.
- Federal and state funds as well as local Capital Improvement Program (CIP) monies are used to fund the construction of additional bike paths in the Regional Plan.

- Although York County was unable to fund the Regional Plan during the recession, funds for active transportation have been included in the County Administrator's preliminary recommended CIP for FY 2020 through FY 2025.
- York County staff, relative to bicycle paths, collaborates on an ongoing basis with the Virginia Department of Transportation (VDOT); the Hampton Roads Planning District Commission (HRPDC); and the Hampton Roads Transportation Planning Organization (HRTPO) through the HRTPO Active Transportation Subcommittee and the VDOT Pedestrian and Bicycle Advisory Committee (PABAC), which is composed of VDOT, HRTPO, HRPDC, and local jurisdiction representatives.
- A prime example of a successful regional bikeway project is the Capital-to-Capital Trail, which currently ends near Jamestown but is planned to be extended to Fort Monroe as part of the recently adopted Birthplace of America Trail (BOAT) Plan.

Ms. Parker added that HRTPO regional bikeway planning studies currently underway include the Economic Impacts of Bicycle Facilities in Hampton Roads and Linking Hampton Roads—Regional Active Transportation Plan. In conclusion, she stated that HRTPO representatives were in attendance to provide additional information on this topic.

Regional Bike Planning in Hampton Roads – Robert Case, P.E., PhD and Steve Lambert, HRTPO

Mr. Robert Case, HRTPO Chief Transportation Engineer, provided the following information on the economic impact of bicycle facilities in Hampton Roads:

- In the summer of 2017, the HRTPO commenced the development of a regional active bicycle and pedestrian transportation plan for the Hampton Roads region.
- Annual salary income for commuters who bike to work reveal that Virginia Beach bicycle commuters have the highest total annual income in the region.
- Williamsburg has a much higher proportion of bicycle commuters than the rest of the region, which is likely due to the College of William and Mary. However, overall the Historic Triangle holds a high third place position among its competitors in Virginia, North Carolina, and South Carolina.
- Virginia Beach is the leader in the Hampton Roads area relative to number of bike shops and bike rental companies.
- StreetLight Data, providers of geospatial data, was hired by HRTPO to obtain data, extracted from smart phone apps, which provides the approximate number of people who attend biking events from outside localities and their origin.
- In the summer of 2019, Streetlight Data will perform a survey to screen persons who are visiting Hampton Roads in order to obtain such information as the amount of money they spend locally and how important the Virginia Capital Trail was in their decision to visit Hampton Roads.

Mr. Steve Lambert, HRTPO Transportation Planner II, provided an update on the project to connect the Virginia Capital Trail to Fort Monroe and the South Hampton Roads Trail via two off-road shared use paths for non-motorized traffic to be known as the Birthplace of America Trail (BOAT Trail). He pointed out that alignment issues on the Peninsula have made this project somewhat difficult. However, subsequent to speaking with all of the affected localities, large

companies, schools, universities, etc. and utilizing existing right-of-way, parks, public property, etc., the HRTPO is seeking to connect the following segments in order to create the BOAT Trail:

- Segment 1: Capital Trail to Williamsburg
- Segment 2: Williamsburg to Yorktown Road (in Newport News)
- Segment 3: Yorktown Road to Richneck Road
- Segment 4: Richneck Road to Route 17 (in York County)
- Segment 5: Route 17 to North Armistead Avenue (in Hampton)
- Segment 6: North Armistead Avenue to Fort Monroe

He stated that as part of a regional study on how to attract people to this trail from all around the world, it was decided that the trail would be built in such a way as to accommodate both cyclists and walkers.

Mr. Lambert briefly described the various types of bicycle facilities as follows:

- Sharrows – where on-road markings designate a roadway as shared by bicycles and vehicles.
- Bike Lanes – striping separates a marked bicycle lane from automobile traffic.
- Buffered Bike Lanes – a painted buffer zone separates the bike lane from vehicular traffic.
- One-Way Protected Cycle Track – a dedicated and protected space for bicyclists.
- Two-Way Cycle Track – a dedicated and protected space for bicyclists.
- Bicycle Boulevards – residential streets with enhanced design treatments.
- Paved Shared-Use Path – two-way paved path is shared by bikes and pedestrians
- Unpaved Shared-Use Path – two-way unpaved path shared by bikes and pedestrians.
- Wide Paved Shoulder – paved shoulder on the edge of a roadway.
- Signed Bike Route – appropriate along more lightly traveled residential, secondary and rural roads.

He stated that Williamsburg has the highest proportion of commuters who walk or bike to work, followed by with local military bases.

Mr. Lambert also provided the following information relative to the population/areas along the designated trail route:

- The population and employment densities are much higher on the Southside than on the Peninsula.
- The degrees of disadvantage were found to be more prevalent in rural areas.
- The active transportation commute mode share was found in pockets on both the Peninsula and Southside areas.
- Active transportation crash numbers were similar for the Southside and the Peninsula.
- Strava Metro Data, a vendor that purchases cycling data, identified Williamsburg and Virginia Beach as having the highest number of active bicyclists.

In response to a Committee query, Mr. Lambert stated that high-crash areas are primarily the result of conflicts between autos and bicycles, facilities that have been improperly constructed to accommodate both modes of travel, mid-block crossings, etc.

In conclusion, Mr. Lambert stated that the HRTPO's next steps to make the BOAT Trail a reality include:

- Collaborating with localities on regional and sub-regional active transportation facilities recommendations.
- Sponsoring a public input campaign to obtain regional recommendations.
- Establishing priorities among regional and sub-regional active transportation projects.

In response to a Committee query, Mr. Lambert stated that the Colonial Parkway was not included in the trail because an off-road facility is needed and the Park Service does not wish to relinquish a portion of the Parkway's existing roadway.

Sidewalk Plans and Planning in York County – Timothy Cross, AICP, Deputy Director of Planning and Development Services

Mr. Cross stated that the Comprehensive Plan addresses all modes of transportation, including walkways. As such, he presented the following information on walkways in the County:

- Approximately 2.1% of York County citizens walk to work.
- From 2010 through 2018, there have been a total of 50 crashes involving pedestrians, including 49 injuries and 5 fatalities.
- In 1991 when the original Comprehensive Plan was adopted, the lack of sidewalks was identified as an issue that needed to be addressed.
- The County began constructing sidewalks approximately fifteen years ago following the adoption of a County Sidewalk Plan and the establishment of a sidewalk development fund as part of the Capital Improvements Program (CIP).
- Merrimac Trail and Penniman Trail, where sidewalks ended at the County line, were two of the highest sidewalk priorities in the Comprehensive Plan, resulting in the construction of sidewalks in these two areas in 2005-06.
- When determining sidewalk priorities, staff looks at citizens' origins and destinations within a reasonable walking distance.
- County staff works with developers to encourage inclusion of sidewalks in new developments, especially if they will connect to existing sidewalks.
- Two VDOT funding sources for sidewalks are the Revenue Sharing Program, which requires a 50% County funding match, and the Transportation Alternatives Set-Aside, which requires at least a 20% County funding match.
- The County used federal economic stimulus funds awarded in 2009 to build sidewalks along Hubbard Lane, Commons Way, and Hampton Highway.
- Whereas VDOT discouraged construction of sidewalks in the past, they now assume that sidewalks will be included in every project.
- During and after the 2008-2009 recession, the County stopped setting aside funds bike path and sidewalk projects because of the lack of funds; however, that is expected to change beginning next year.

Mr. Cross showed aerial photographs of sidewalk projects around the County, including Merrimac Trail and Second Street, Bypass Road and Commons Way, Route 17/Ft. Eustis Boulevard, Hampton Highway, and Yorktown Road, which clearly depicted existing walkways as well as those planned for construction in the future.

In response to Committee member queries, Mr. Cross stated that he would investigate why the existing planned sidewalk on Merrimac Trail was not extended to connect with the walkway on Second Street and he affirmed that the developer of Yorktown Crescent on Ft. Eustis Boulevard would be responsible for repairing damage to the existing sidewalk caused by construction of that development.

In conclusion, Mr. Cross stated that as part of the Comprehensive Plan update, the map showing potential future walkways, which was included with the meeting agenda package, will need to be updated. He asked the Committee to review the map and provide staff with feedback as to proposed changes.

Survey Status Report – John Martin, CEO and President, Southeastern Institute of Research (SIR)

Mr. Cross stated that Earl Anderson, Senior Planner, was originally scheduled to provide an update on the scientific survey but that he had to go out of town on family business. He introduced Mr. John Martin of the Southeastern Institute of Research (SIR), the firm that will be conducting the survey, to provide an update. Mr. Martin distributed copies of the latest draft of the survey instrument, which reflects input from SIR, staff, and the Committee members. He stated that his company is under contract with York County to assist with this project and that residents will be contacted via land line and cell phone once the questions are finalized. He pointed out that the survey results would be accurate within a 5% margin of error. Subsequent to the telephone survey, he stated that another unscientific online “Convenience Survey” would be completed and analyzed; however, the two sets of survey results would not be combined. Mr. Martin explained that the current survey instrument before them was drafted after discussions with the Planning staff. He stated that he is cognizant of the Committee’s concerns regarding survey length but that his years of experience have revealed that people are typically eager to discuss improving their community. He assured the Committee that should his employees have any issues relative to obtaining the required number of completed surveys, he would contact the Planning staff immediately.

Following Mr. Martin’s brief comments, various changes to the survey instrument were suggested by Committee members. Mr. Henegar stated that survey abandonment rates was increasing, to which Mr. Martin responded that it depends upon the type of survey that is being conducted. However, he did point out that when implementing a survey in a smaller locality, more call backs are required. In response to Mr. Green’s query, Mr. Martin explained that for a County of 70,000 persons, a minimum of 200 responses would be required to achieve an acceptable margin of error. Following Mr. Spencer’s comments about the need to attract more young adults to the County, Mr. Martin stated that this is one of his company’s primary focus areas with the County and that it is his hope to focus on the specific preferences of the various age groups in the future.

Lastly, he thanked the Committee members and staff for providing his firm with the opportunity to assist with this important survey and he asked the Committee to carefully review the draft to ensure that it covers all important issues.

Vice Chairman Jons urged the Committee members to review the survey in greater detail and provide staff with their input.

Other Business

Gail Whittaker stated that prior to the meeting, she had sent an email seeking Committee volunteers to sign up to host a table at upcoming Yorktown Market Days in order to publicize the Comprehensive Plan update. She explained that a table has been reserved for this purpose at the April 27th Yorktown Market Day and that she would do the same for the scheduled July and August Market Days. She encouraged Committee and staff members alike to sign up to participate at these events in order to publicize the Plan update and engage citizens in the process. In conclusion, she stated that promotional items will be provided in order to entice people to the Committee's table to learn about the Comprehensive Plan update.

Citizen Comment Period

Robert ("Buck) Rodgers stated that he would like to see the Senior Citizen Center added to the survey questions regarding new or expanded public facilities.

Patrick Johnston, HTBAC Chairman and an avid cyclist, encouraged attendees to read the Williamsburg York Daily (WYD) article regarding the economic benefits of bike paths. He stated that cyclists spend a good deal of money, on food, lodging, etc., each year while traveling outside of York County on special bike events. He pointed out that Virginia Beach is currently seeking to replace Yorktown as the ending location for the Trans America Trail event which starts in Oregon. He encouraged the County to provide additional bike signage and to urge VDOT to clean the existing streets and bike paths. Lastly he stated that he supports combining walkways and bike paths to save money and lives.

Bonnie Baffer stated that she is also one of York County's representatives on HTBAC and that she was very encouraged by the comments made this evening but that there is still much to do to provide additional safer bike paths.

Adjournment

The meeting was adjourned at 8:50 p.m.

York studies pedestrian, cycling upgrades

Changes could link Virginia Capital Trail to Fort Monroe

BY JESSICA NOLTE
Staff writer

The York 2040 Steering Committee recently met to consider expansions and improvements to pedestrian and bicycle facilities as part of its updated comprehensive plan.

The presentations during the meeting focused on adding sidewalks and expanding the Virginia Capital Trail to benefit residents and tourists.

As a whole, the comprehensive plan will focus on development in areas like transportation, land use, housing, public facilities and the environment. It is required by the Code of Virginia and is reviewed every five years.

“When the recession hit in 2008 and 2009, we basically stopped funding the bikeway and the sidewalk development fund,” deputy director of planning and development services Timothy Cross said. “Because of the economic situation at the time, the capital improvement program was scaled back dramatically.”

Those cuts are expected to end in the upcoming fiscal year, Cross said.

He said there is a “fairly substantial” amount of money designated to active transportation in the preliminary budget for the capital improvement program.

When the comprehensive plan last was updated in 2013, the county relied heavily on citizen input about the best locations for sidewalks, Cross said. The committee now will review the planned sidewalks, looking for areas that may have been missed and locations that may no longer be suitable.

“We’re looking for logical connections — places where people



DAILY PRESS FILE

Improvements to cycling facilities being studied by the York 2040 Steering Committee include an expansion of the Virginia Capital Trail.

The Hampton Roads Transportation Planning Organization has been working on a proposed route to connect the Virginia Capital Trail to Fort Monroe with the Birthplace of America Trail.

will access amenities by foot,” Cross said.

The county also is looking to improve biking facilities in the updated plan. The Hampton Roads Transportation Planning Organization (HRTPO) has been working on a proposed route to connect the Virginia Capital Trail to Fort Monroe with the Birthplace of America Trail.

Under the current proposal, the

trail would go through York along Carter’s Grove Country Road, HRTPO transportation planner Steve Lambert said. There was an interest in expanding the trail along the Colonial Parkway, but he said that’s not a viable option right now.

The plan is for the trail to be off-road, Lambert said. He said the parkway is not interested in giving up more space for it.

HRTPO also will conduct a study this summer to figure out how much money bicycle trails bring to the county, HRTPO chief transportation engineer Robert Case said.

Smartphone location data collected by StreetLight Data, Inc. found that about half of the people using the Virginia Capital Trail do not live in the area, Case said. The study will look at how many tourists are drawn to the area because of the trail and their spending habits while visiting the region.

Two York County cyclists spoke during the public comment portion of the meeting to voice their

support for the emphasis on improving bicycle facilities.

One of the cyclists, Patrick Johnston, requested that in addition to the trails, the committee consider posting signs emphasizing the 3-foot law, which requires vehicles give at least 3 feet of clearance to the left when passing bicycles. He also asked that it talk with the Virginia Department of Transportation about cleaning debris from the existing bike lanes.

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INTRODUCTION

Located in the northwestern section of the Hampton Roads Metropolitan Planning Area, the Historic Triangle – comprised of James City County, Williamsburg, and York County – not only includes tourist destinations such as Busch Gardens, Colonial Williamsburg, Jamestown Settlement and the Yorktown Battlefield but also serves as a gateway for the Hampton Roads region (**Map 1**). I-64 is the most critical gateway to the region in terms of traffic volumes, tourists, and freight movement. Other major highways, such as US Routes 17 and 60, also provide access to the area through the Historic Triangle. Amtrak – which provides service to a station in Williamsburg – operates inter-city rail service through the area between Newport News and the Northeast Corridor. CSX Transportation operates freight rail service on the same corridor, and air passenger service is provided at nearby Newport News-Williamsburg International Airport. Public Transportation is also provided in the Historic Triangle via the Williamsburg Area Transit Authority, with connections to Hampton Roads Transit.

The purpose of this report is to assist James City County, Williamsburg, and York County officials with the transportation section of their Comprehensive Plan update. A Comprehensive Plan is a policy document that provides direction for policy makers to guide growth and development by providing the long-range vision, goals, and strategies of their communities. Every Virginia locality is required by state law to have a Comprehensive Plan.

Because of the link between the Historic Triangle communities, each locality aims to coordinate the timing of their Comprehensive Plan updates. Williamsburg and York County adopted their most recent Comprehensive Plans in 2013, while James City County adopted its most recent Plan in 2015. All three communities have begun the process of updating their Comprehensive Plans.



MAP 1 – HISTORIC TRIANGLE

This report is broken down into separate sections for current and future conditions. Each of the following transportation features is examined in this report:

- Highway
- Roadway Safety
- Commuting Patterns
- Rail
- Active Transportation
- Public Transportation
- Bridges
- Freight
- Air Travel

CURRENT CONDITIONS - HIGHWAY

This chapter looks at current roadway conditions in the Historic Triangle and compares these conditions to historical trends. This chapter is divided into the following sections:

- **Roadway Inventory** - Includes an inventory of those roadways in the Historic Triangle that are classified as minor collectors and above. A description of NHS Roadways and Corridors of Statewide Significance in the study area are also included, as is a summary of the mileage of the roadway network. Further, it includes a description of roadway improvements that have occurred over the last decade.
- **Roadway Travel** - Includes current and historical traffic volume data on roadways in the Historic Triangle and a summary of the current and historical roadway travel levels in terms of vehicle-miles of travel (VMT).
- **Roadway Congestion** - Includes an analysis of peak hour roadway congestion levels during the morning and afternoon peak travel periods and information on average travel speeds.

ROADWAY INVENTORY

Roadways are organized into a hierarchy based on their function, and are classified as arterials, collectors, or locals (Figure 1). Arterial roadways (which include Interstates, Freeways and Expressways, Other Principal Arterials, and Minor Arterials) provide more mobility, which is defined as the ability of traffic to pass through a defined area in a reasonable amount of time. Local roadways provide more

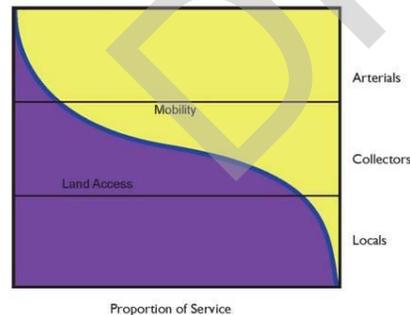


FIGURE 1 - ROADWAY FUNCTIONAL CLASSIFICATION DEFINITION

accessibility, which is measured in the roadway's capability to provide access to and between land use activities within a defined area. Major and Minor Collectors offer a mix between providing mobility and accessibility.

Roadways are also classified as urban or rural based on their location as defined by the U.S. Census Bureau. While all of the City of Williamsburg is classified as urban, James City County and York County have areas designated as both rural and urban.

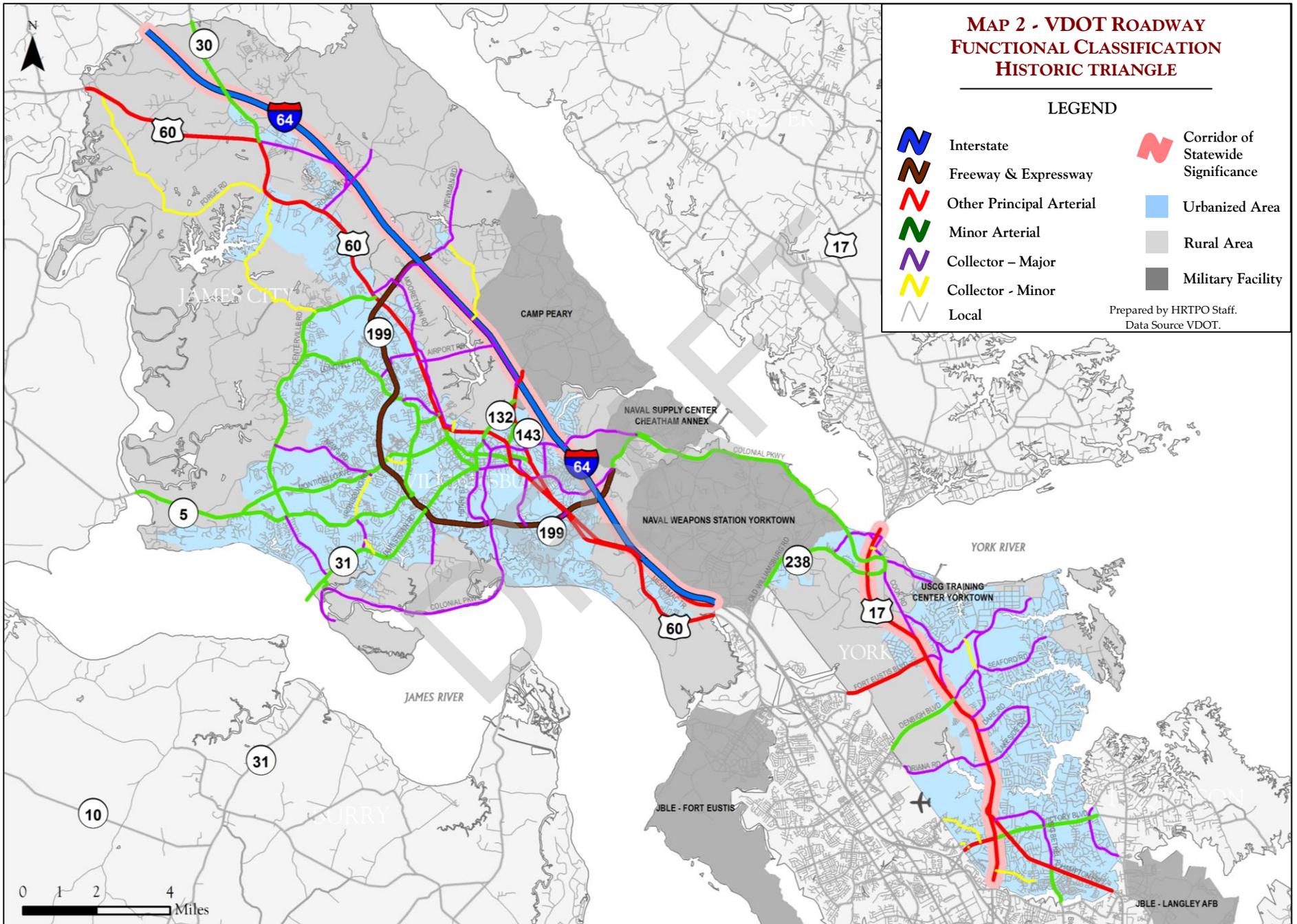
Figure 2 shows the number of miles (centerline miles) and the number of lane-miles¹ of roadway in each of the three localities by roadway functional classification, and Map 2 on page 3 shows the functional classification for roadways throughout the Historic Triangle.

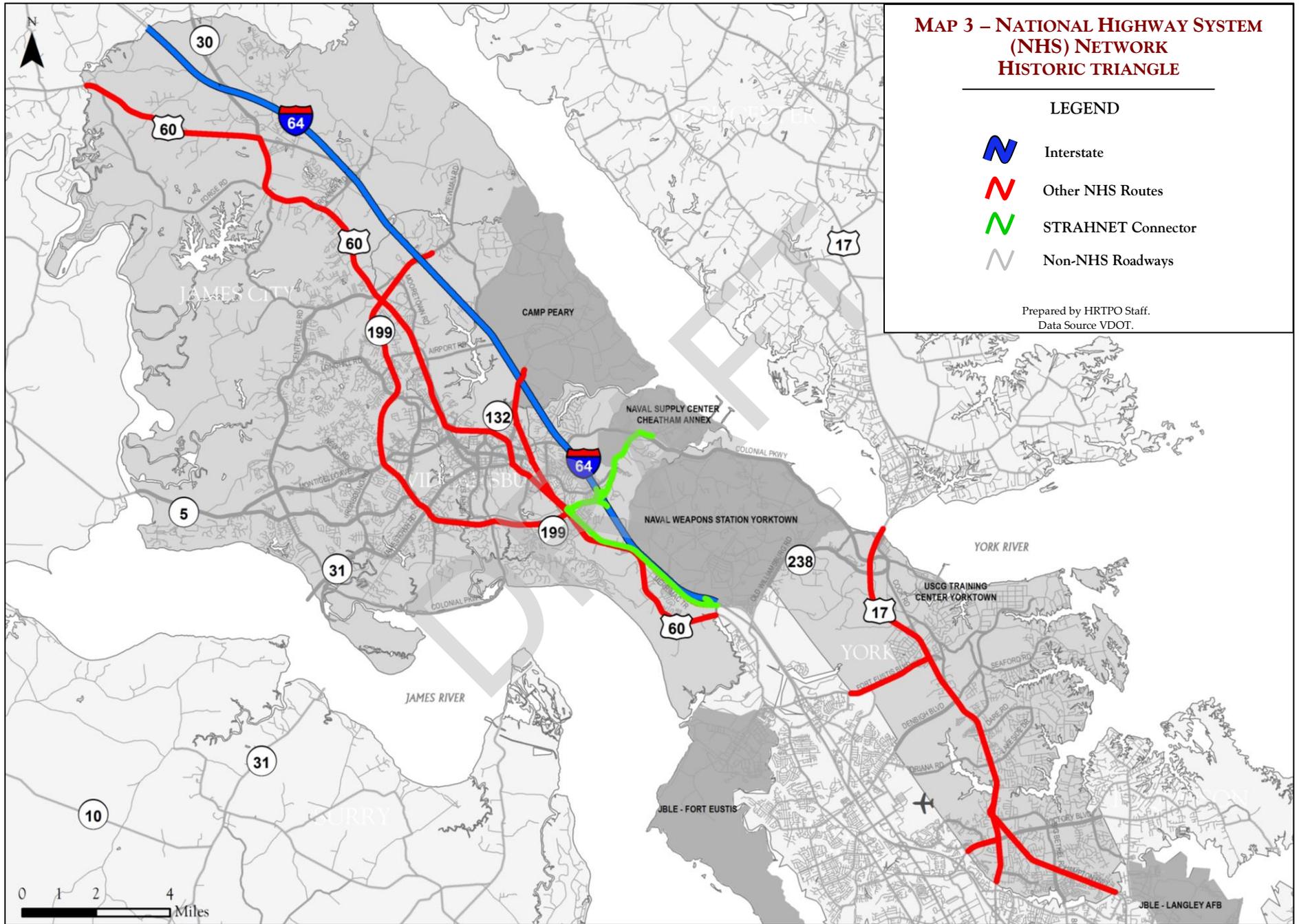
Functional Class	James City County		Williamsburg		York County	
	Centerline Miles	Lane-Miles	Centerline Miles	Lane-Miles	Centerline Miles	Lane-Miles
Interstate	11.04	44.16	0.00	0.00	11.23	44.92
Freeway & Expressway	9.83	39.32	0.47	1.88	4.09	16.36
Other Principal Arterial	21.45	79.60	4.87	16.48	26.21	106.60
Minor Arterial	36.09	80.72	9.18	21.98	21.52	44.30
Collector - Major	28.78	66.40	9.38	19.34	45.79	90.70
Collector - Minor	14.03	28.06	0.00	0.00	6.14	10.52
Local	285.66	574.26	33.05	65.55	254.07	527.63
LOCALITY TOTAL	406.88	912.52	56.95	125.23	369.05	841.03

FIGURE 2 – CENTERLINE MILES AND LANE-MILES OF ROADWAY BY VDOT FUNCTIONAL CLASSIFICATION (2017)

Data source: VDOT.

¹ A lane-mile is defined as the length of a roadway segment multiplied by the number of lanes. A one-mile long, four-lane wide roadway segment would comprise four lane-miles.





National Highway System

According to the Federal Highway Administration (FHWA), the National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. The NHS includes Interstates, Other Principal Arterials, the Strategic Highway Network (STRAHNET), Major Strategic Highway Network Connectors, and Intermodal Connectors. Improvements on NHS roadways are eligible for Federal funding through the National Highway Performance Program (NHPP).

Map 3 on page 4 shows those roadways in the Historic Triangle that are part of the NHS.

Corridors of Statewide Significance

In recent years, the state has designated a network of Corridors of Statewide Significance (CoSS), and recent legislation mandates that localities include local segments of the CoSS in their comprehensive plan updates.

Corridors of Statewide Significance are defined as "An integrated, multimodal network of transportation facilities that connect major centers of activity within and through the Commonwealth and promote the movement of people and goods essential to the economic prosperity of the state." Corridors identified as CoSS must demonstrate all of the following characteristics:

- Multiple modes and/or an extended freight corridor.
- Connection among regions, states, and/or major activity centers.
- High volume of travel.
- Unique statewide function and/or fulfillment of statewide goal.



Coleman Bridge (Route 17)

There are twelve Corridors of Statewide Significance throughout Virginia. Two of these corridors – the East-West Corridor (Interstate 64) and the Coastal Corridor (US Route 17) – are located within the Historic Triangle and shown in **Map 2 on page 3**. More information on these Corridors of Statewide Significance is included in the Future Conditions - VTrans section of this report.

Recent Roadway Improvements

A number of roadway improvements have occurred throughout the Historic Triangle over the last decade. These improvements include both major projects such as major roadway widenings as well as many smaller projects such as adding intersection turn bays, installing and upgrading traffic signals, and adding paved shoulders. **Figure 3 on page 6** shows these recent roadway improvements (excluding bridge, active transportation, and transit improvements, which are included separately in this report).

The largest roadway improvement projects that have been completed in the Historic Triangle over the last decade include widening Fort Eustis Boulevard, widening George Washington Memorial Highway (Route 17) between Hampton Highway and Wolf Trap Road, and widening Ironbound Road in James City County and Williamsburg.

JAMES CITY COUNTY

Route Num	Facility	Improvement	Year Completed
615	Ironbound Rd	Add Right Turn Lane at John Tyler Hwy	2008
60	Richmond Rd	Install Traffic Signal at Fire Station #2	2010
614	Centerville Rd	Install Traffic Signal and Add Turn Lanes at Longhill Rd	2011
199	Route 199	Add Turn Lanes at John Tyler Hwy	2011
199	Route 199	Upgrade Signal at Intersection with John Tyler Hwy	2012
615	Ironbound Rd	Widen to 4 Lanes between Monticello Ave and Williamsburg CL	2013
612	Longhill Rd	Signal Upgrade and Install Median Barrier at Olde Towne Road	2013
60	Richmond Rd	Turn Lane Improvements - Centerville Rd and Lightfoot Rd	2013
60	Richmond Rd	Upgrade Signal at Airport Road	2013
-	Country Club Dr	Reconstruction - Country Club Dr, Country Club Ct, and Lexington Dr	2014
321	Monticello Ave	Add turn lanes at News Road and Old News Road	2016
60	Richmond Rd	Intersection Improvements at Route 199 West Ramp	2016
199	Route 199	Intersection Improvements at Brookwood Drive	2018

WILLIAMSBURG

Route Num	Facility	Improvement	Year Completed
-	Ironbound Rd	Intersection Improvements at Longhill Rd	2018
-	Ironbound Rd	Widen to 4 Lanes between James City CL and Depue Dr	2013
60	York St	Corridor Improvements	2014

YORK COUNTY

Route Num	Facility	Improvement	Year Completed
646	Lightfoot Rd	Install Signal - Lightfoot Road (Rte 646) at Mooretown Road (Rte 603)	2008
621	Grafton Dr	Intersection Realignment at Amory Ln	2008
238	Old Williamsburg Rd	Install Traffic Signal at Baptist Rd/Yorktown Weapons Station Entrance	2008
143	Merrimac Trail	Upgrade Signal - Route 143 at Route 132	2010
199	Route 199	Improve Traffic Signal at Merrimac Trail	2010
17	George Washington Mem Hwy	Improve Rail Crossing - South of Fort Eustis Blvd	2011
134	Hampton Hwy	Extend Turn Lane - Route 134 at Tabb Smith Trail	2011
105	Fort Eustis Blvd	Widen from 2 to 4 Lanes - Newport News CL to George Washington Hwy	2012
620	Lakeside Dr	Construct Left and Right Turn Lanes - Various locations from Route 17 to Dare Rd	2014
F137	Rochambeau Dr	Construct Paved Shoulders - East of Mooretown Road	2015
F137	Rochambeau Dr	Intersection Improvements at Airport Road	2015
17	George Washington Mem Hwy	Intersection Improvements at Oriana Rd/Lakeside Dr	2016
17	George Washington Mem Hwy	Widen from 4 to 6 Lanes - Hampton Hwy to Wolf Trap Rd	2016
634	Old York-Hampton Hwy	Upgrade Flashing Lights and Add Gates at R/R	2017

FIGURE 3 – RECENT ROADWAY IMPROVEMENTS IN THE HISTORIC TRIANGLE, 2008 TO 2018

Data source: HRTPO analysis of VDOT and HRTPO data. Data does not include active transportation, bridge, and transit improvements.

ROADWAY TRAVEL

VDOT collects traffic volume data at hundreds of locations in the Historic Triangle, of which approximately 225 locations – 76 in James City County, 43 in Williamsburg, and 106 in York County – are on roadways with functional classifications of minor collector or above. At most of these 225 locations, data is collected once every three years over a 48-hour period. These counts were most recently collected in each of the three localities in 2016.

VDOT produces Annual Average Daily Traffic (AADT) volume estimates based on these counts. These estimates describe the average number of vehicles that travel on each roadway segment each day, based on the total annual traffic estimate divided by the number of days in the year.

Figure 5 on pages 8-12 includes historical weekday volumes for each roadway classified as a minor collector and above based on the 48-hour counts, and VDOT's AADT volume estimates for those years where VDOT collected traffic count data. These AADT estimates are also shown on **Map 4 on page 13**. VDOT also produces AADT estimates for many local roadways that they maintain within counties. These AADT estimates are included in VDOT's Daily Traffic Volume Estimates Jurisdiction reports, which are available on VDOT's website at <http://virginiadot.org/info/ct-TrafficCounts.asp>.

Among the 225 locations on minor collectors and above where traffic counts are collected in the study area, 192 locations were counted in both 2007 and 2016. Of these 192 locations, 117 locations (61%) experienced an increase in AADT volumes over this time period, with 36 locations experiencing an increase of 20% or more. Of the 58 locations that experienced a decrease in AADT volumes over this time period, 8 experienced a decrease of 20% or more.

Based on these traffic counts and AADT estimates, VDOT produces estimates of total roadway travel in each locality (in terms of vehicle-miles of travel). **Figure 4** shows the average daily vehicle-miles of

	2004	2007	2010	2013	2016
James City County	1,529,800	1,704,200	1,797,700	1,770,100	1,936,200
Williamsburg	253,900	250,300	265,500	251,400	259,300
York County	1,996,300	2,037,900	2,165,000	2,087,400	2,147,300
HISTORIC TRIANGLE	3,780,000	3,992,400	4,228,200	4,108,900	4,342,800

FIGURE 4 – DAILY VEHICLE-MILES OF TRAVEL, 2004 TO 2016

Data Source: VDOT.

travel (VMT) in each Historic Triangle locality in those years between 2004 and 2016 where VDOT collected traffic count data. In 2016 there were over 4 million vehicle-miles of travel each day throughout the Historic Triangle – 1.9 million vehicle-miles in James City County, 0.3 million vehicle-miles in Williamsburg, and 2.1 million vehicle-miles in York County.

While the amount of roadway travel was largely flat during the economic downturn, the amount of travel has increased in recent years. Between 2004 and 2016, the amount of roadway travel increased 27% in James City County, 2% in Williamsburg, and 8% in York County. Looking at the three-year period between 2013 and 2016, roadway travel increased 9% in James City County and 3% in both Williamsburg and York County. By comparison, roadway travel in Hampton Roads only increased 3% between 2004 and 2016 and 4% between 2013 and 2016 according to VDOT data.

JAMES CITY COUNTY

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT 2007 to 2016	
				2007	2010	2013	2016		2007	2010	2013	2016		
645	Airport Rd	US 60 - Richmond Rd	Rte 603 - Mooretown Rd/York CL	-	-	-	10,066	12/1	-	-	-	10,000	-	-
30	Barhamsville Rd	I-64	US 60 - Richmond Rd	7,124	9,423	9,537	10,250	2/9-2/10	6,800	9,400	9,600	10,000	+3,200	+47.1%
700	Brookwood Dr	Rte 617 - Lake Powell Rd	SR 199	9,845	8,761	8,498	8,534	2/17-2/18	9,400	8,800	8,200	8,200	-1,200	-12.8%
614	Centerville Rd	SR 5 - John Tyler Hwy	Rte 633 - Jolly Pond Rd	4,719	4,248	5,246	5,099	2/9-2/10	4,300	4,800	5,400	5,100	+800	+18.6%
614	Centerville Rd	Rte 633 - Jolly Pond Rd	Adams Hunt Dr	9,407	7,414	8,986	9,547	2/9-2/10	8,700	8,400	9,100	9,500	+800	+9.2%
614	Centerville Rd	Adams Hunt Dr	US 60 - Richmond Rd	10,319	9,095	9,990	10,837	2/9-2/10	10,000	9,700	9,500	11,000	+1,000	+10.0%
631	Chickahominy Rd	Rte 632 - Cranstons Mill Pond Rd	US 60 - Richmond Rd	1,586	1,592	1,901	1,774	2/3-2/4	1,500	1,700	1,900	1,700	+200	+13.3%
	Colonial Pkwy	Jamestown Visitor Center	Williamsburg CL	2,118	-	-	-	-	1,900	2,400	2,400	2,400	+500	+26.3%
632	Cranston's Mill Pond Rd	Rte 611 - Jolly Pond Rd	Rte 631 - Chickahominy Rd	-	521	530	549	10/14	570	520	530	550	-20	-3.5%
607	Croaker Rd	US 60 - Richmond Rd	Rte 760 - Maxton Ln	8,185	8,364	9,150	9,802	2/2-2/3	7,800	9,100	9,400	9,800	+2,000	+25.6%
607	Croaker Rd	Rte 760 - Maxton Ln	SR 30 - Rochambeau Dr	8,059	8,286	8,910	9,391	2/2-2/3	7,700	9,100	9,100	9,400	+1,700	+22.1%
30	Croaker Rd	SR 30 - Rochambeau Dr	I-64	10,997	11,021	11,898	12,586	2/2-2/3	11,000	12,000	12,000	14,000	+3,000	+27.3%
607	Croaker Rd	I-64	Rte 602 - Fenton Mill Rd	6,773	6,494	6,090	5,471	2/23-2/24	6,400	6,700	6,200	6,100	-300	-4.7%
607	Croaker Rd	Rte 602 - Fenton Mill Rd	Rte 606 - Ware Creek Rd	3,515	3,352	3,227	3,165	2/2-2/3	3,300	3,700	3,300	3,500	+200	+6.1%
607	Croaker Rd	Rte 606 - Ware Creek Rd	Rte 605 - Croaker Landing Rd	1,023	1,056	881	791	2/2-2/3	970	1,200	920	880	-90	-9.3%
615	Depue Dr	Rte 615 - Ironbound Rd	SR 322 - Ashbury Rd	6,223	8,151	8,335	9,866	2/10-2/11	6,100	7,800	7,800	9,600	+3,500	+57.4%
615	Depue Dr	SR 322 - Ashbury Rd	Rte 612 - Longhill Rd	7,920	9,664	9,405	11,039	2/10-2/11	7,700	9,300	8,800	11,000	+3,300	+42.9%
603	Diascund Rd	Rte 610 - Forge Rd	US 60 - Richmond Rd	863	687	662	589	2/3-2/4	680	750	690	620	-60	-8.8%
610	Forge Rd	Rte 603 - Diascund Rd	US 60 - Richmond Rd	2,527	2,576	2,699	2,583	2/3-2/4	2,400	2,700	2,800	2,700	+300	+12.5%
614	Greensprings Rd	SR 31 - Jamestown Rd	SR 5 - John Tyler Hwy	2,959	2,984	3,113	4,690	2/17-2/18	2,700	3,200	3,200	3,100	+400	+14.8%
64	I-64	New Kent CL	SR 30 - Old Stage Rd	49,376	48,913	45,720	50,803	All 2016	47,000	53,000	54,000	58,000	+11,000	+23.4%
64	I-64	SR 30 - Old Stage Rd	Rte 607 - Croaker Rd	55,206	51,775	52,216	57,238	All 2016	56,000	58,000	59,000	64,000	+8,000	+14.3%
64	I-64	Rte 607 - Croaker Rd	York CL	62,101	58,252	59,067	64,620	All 2016	63,000	64,000	65,000	70,000	+7,000	+11.1%
64	I-64	York CL	SR 143 Merrimac Trail/NN CL	86,497	87,885	83,803	84,322	8/23 - 8/24	81,000	82,000	79,000	87,000	+6,000	+7.4%
615	Ironbound Rd	Rte 681 - Sandy Bay Rd	SR 5 - John Tyler Hwy	7,570	7,150	6,898	10,801	2/17-2/18	7,300	7,200	6,700	6,900	-400	-5.5%
615	Ironbound Rd	SR 5 - John Tyler Hwy	Rte 613 - News Road	10,509	9,675	9,104	9,144	2/17-2/18	10,000	9,600	8,800	8,900	-1,100	-11.0%
783	Ironbound Rd	Rte 613 - News Road	Dead End	1,073	1,070	1,022	1,226	6/7-6/8	990	1,100	1,100	1,100	+110	+11.1%
615	Ironbound Rd	Dead End	Rte 616 - Strawberry Plains Rd	2,037	1,988	2,045	4,312	2/9-2/10	1,900	2,000	2,000	4,300	+2,400	+126.3%
615	Ironbound Rd	Rte 616 - Strawberry Plains Rd	SR 321 - Monticello Ave	7,659	9,382	11,179	10,867	2/9-2/10	7,500	9,000	11,000	11,000	+3,500	+46.7%
615	Ironbound Rd	SR 321 - Monticello Ave	Williamsburg CL	9,631	11,023	10,534	12,269	2/10-2/11	9,300	11,000	9,800	12,000	+2,700	+29.0%
359	Jamestown Festival Pkwy	Colonial Pkwy	SR 31 - Jamestown Rd	1,206	1,498	1,755	1,271	2/17-2/18	1,100	2,200	1,600	1,200	+100	+9.1%
31	Jamestown Rd	Jamestown Ferry	Rte 681 - Sandy Bay Rd	7,910	-	6,838	7,315	2/17-2/18	7,600	16,000	7,100	7,100	-500	-6.6%
31	Jamestown Rd	Rte 681 - Sandy Bay Rd	Williamsburg CL	9,820	9,567	8,643	9,139	2/17-2/18	9,500	8,900	8,300	8,900	-600	-6.3%
5	John Tyler Memorial Hwy	Charles City CL	Rte 5000 - Monticello Ave	3,214	2,885	2,894	4,456	2/17-2/18	3,100	3,000	3,000	3,100	0	0.0%
5	John Tyler Memorial Hwy	Rte 5000 - Monticello Ave	Rte 615 - Ironbound Rd	8,147	8,033	7,621	8,099	2/17-2/18	7,800	8,400	8,000	7,900	+100	+1.3%
5	John Tyler Memorial Hwy	Rte 615 - Ironbound Rd	Rte 652 - Stanley Dr	11,506	10,663	9,816	11,078	2/17-2/18	11,000	9,900	9,400	11,000	0	0.0%
5	John Tyler Memorial Hwy	Rte 652 - Stanley Dr	SR 199	18,522	17,546	16,004	18,245	2/17-2/18	18,000	16,000	15,000	18,000	0	0.0%
611	Jolly Pond Rd	Rte 632 - Cranston's Mill Pond Rd	Rte 614 - Centerville Rd	-	1,192	1,188	1,196	10/14	1,300	1,200	1,200	1,200	-100	-7.7%
617	Lake Powell Rd	Treasure Island Rd	Rte 700 - Brookwood Dr	2,073	1,427	1,573	1,438	2/17-2/18	2,000	1,500	1,500	1,400	-600	-30.0%
612	Longhill Rd	Rte 614 - Centerville Rd	Rte 658 - Olde Towne Rd	7,567	6,577	7,288	7,943	2/10-2/11	7,000	7,200	7,500	7,700	+700	+10.0%
612	Longhill Rd	Rte 658 - Olde Towne Rd	Rte 615 - Depue Dr	17,721	16,087	16,518	16,878	2/10-2/11	17,000	17,000	16,000	16,000	-1,000	-5.9%
612	Longhill Rd	Rte 615 - Depue Dr	SR 322 - Ashbury Rd	-	-	-	4,592	2/23-2/24	14,000	12,000	13,000	4,600	-9,400	-67.1%
612	Longhill Rd	SR 322 - Ashbury Rd	Williamsburg CL	4,215	4,237	4,605	4,960	2/10-2/11	9,200	8,800	8,900	4,800	-4,400	-47.8%
143	Merrimac Trail	York CL	Rte 641 - Penniman Rd/York CL	16,543	16,342	8,618	16,458	2/17-2/18	16,000	15,000	15,000	16,000	0	0.0%
143	Merrimac Trail	Newport News CL	York CL	10,282	10,021	10,828	11,600	2/17-2/18	10,000	9,300	10,000	11,000	+1,000	+10.0%
5000	Monticello Ave	SR 5 - John Tyler Hwy	Rte 613 - News Road	11,395	-	-	12,433	2/17-2/18	-	-	-	12,000	-	-
5000	Monticello Ave	Rte 613 - News Road	SR 199	41,348	-	39,564	38,707	2/24-2/25	-	-	38,000	38,000	-	-
321	Monticello Ave	SR 199	Rte 615 - Ironbound Rd	25,204	24,179	22,769	34,428	3/15-3/16	23,000	24,000	23,000	32,000	+9,000	+39.1%

FIGURE 5 – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES, 2007 TO 2016

Data source: VDOT. '-' indicates data is not available for that roadway segment and year.

JAMES CITY COUNTY

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT 2007 to 2016	
				2007	2010	2013	2016		2007	2010	2013	2016		
646	Newman Rd	York CL	Rte 768 - North Cove Rd	1,247	1,238	1,284	1,317	2/2-2/3	1,200	1,300	1,300	1,500	+300	+25.0%
646	Newman Rd	Rte 768 - North Cove Rd	Rte 606 - Riverview Rd	1,051	1,035	1,070	1,078	2/2-2/3	970	1,100	1,100	1,200	+230	+23.7%
613	News Rd	Rte 614 - Centerville Rd	Powhatan Secondary	3,349	3,440	3,874	6,204	2/9-2/10	3,200	3,600	4,000	4,000	+800	+25.0%
613	News Rd	Powhatan Secondary	Rte 5000 - Monticello Ave	7,863	7,908	8,085	8,546	2/9-2/10	7,600	8,300	8,300	8,500	+900	+11.8%
613	News Rd	Rte 5000 - Monticello Ave	Rte 615 - Ironbound Rd	11,003	10,495	9,464	11,501	6/7-6/8	10,000	11,000	9,700	11,000	+1,000	+10.0%
742	Old News Rd	Rte 613 - News Rd	Rte 5000 - Monticello Ave	2,756	2,659	3,682	4,065	2/9-2/10	2,600	2,800	3,700	4,100	+1,500	+57.7%
30	Old Stage Hwy	New Kent CL	I-64	8,516	9,512	9,869	10,220	2/23-2/24	8,100	10,000	9,900	11,000	+2,900	+35.8%
658	Olde Towne Rd	Rte 612 - Longhill Rd	King William Dr	8,325	8,378	8,113	7,957	2/10-2/11	7,900	8,100	8,000	7,700	-200	-2.5%
658	Olde Towne Rd	King William Dr	Chisel Run Rd	9,422	8,537	8,936	8,982	2/10-2/11	9,100	9,100	8,700	8,700	-400	-4.4%
658	Olde Towne Rd	Chisel Run Rd	US 60 - Richmond Rd	10,439	9,479	9,742	9,867	2/10-2/11	9,700	9,100	9,600	9,600	-100	-1.0%
60	Pocahontas Trail	Williamsburg CL	SR 199	8,513	8,165	8,386	9,053	3/15-3/16	8,300	7,600	8,100	8,500	+200	+2.4%
60	Pocahontas Trail	York CL	Newport News CL	9,461	9,243	8,841	10,247	2/17-2/18	9,200	8,600	8,700	9,900	+700	+7.6%
60	Richmond Rd	New Kent CL	SR 30 - Barhamsville Rd	6,793	5,861	5,831	5,795	2/3-2/4	6,400	6,400	5,900	6,100	-300	-4.7%
60	Richmond Rd	SR 30 - Barhamsville Rd	SR 30 - Croaker Rd	14,015	13,792	14,432	15,041	2/3-2/4	13,000	15,000	15,000	15,000	+2,000	+15.4%
60	Richmond Rd	Rte 607 - Croaker Rd	Rte 614 - Centerville Rd	19,919	21,419	19,481	21,746	2/2-3/16	19,000	20,000	18,000	21,000	+2,000	+10.5%
60	Richmond Rd	Rte 614 - Centerville Rd	SR 199	24,656	26,430	22,023	23,128	2/2-2/3	24,000	25,000	21,000	23,000	-1,000	-4.2%
60	Richmond Rd	SR 199	Williamsburg CL	13,364	15,206	13,526	12,870	2/2-2/3	13,000	14,000	13,000	13,000	0	0.0%
30	Rochambeau Dr	US 60 - Richmond Rd	Rte 607 - Croaker Rd	7,764	7,164	8,092	9,135	2/10-2/11	7,600	7,500	8,100	8,900	+1,300	+17.1%
199	SR 199	US 60 - Richmond Rd	Rte 612 - Longhill Rd	22,252	23,523	26,216	25,732	2/2-2/3	22,000	23,000	25,000	25,000	+3,000	+13.6%
199	SR 199	Rte 612 - Longhill Rd	SR 321 - Monticello Ave	28,869	29,040	30,752	30,029	2/2-2/3	28,000	28,000	29,000	30,000	+2,000	+7.1%
199	SR 199	SR 321 - Monticello Ave	SR 5 - John Tyler Hwy	30,270	27,515	31,196	28,865	2/2-2/3	29,000	27,000	30,000	28,000	-1,000	-3.4%
199	SR 199	SR 5 - John Tyler Hwy	Williamsburg CL	37,160	36,498	35,623	36,257	2/2-2/3	34,000	35,000	33,000	36,000	+2,000	+5.9%
199	SR 199	Williamsburg CL	Brookwood Dr	37,015	36,180	37,165	36,971	2/2-2/3	36,000	36,000	34,000	36,000	0	0.0%
199	SR 199	Brookwood Dr	SR 132 - Henry St	33,784	34,542	33,843	33,813	2/2-2/3	32,000	33,000	32,000	33,000	+1,000	+3.1%
199	SR 199	SR 132 - Henry St	Mounts Bay Rd	34,021	33,078	34,702	34,512	2/2-2/3	33,000	33,000	32,000	34,000	+1,000	+3.0%
199	SR 199	Mounts Bay Rd	US 60 - Pocahontas Trail/York CL	32,250	31,169	33,119	32,267	2/2-2/3	31,000	31,000	31,000	32,000	+1,000	+3.2%
681	Sandy Bay Rd	SR 31 - Jamestown Rd	Rte 615 - Ironbound Rd	5,452	4,994	4,841	4,847	2/17-2/18	5,300	5,100	4,700	4,700	-600	-11.3%
616	Strawberry Plains Rd	SR 5 - John Tyler Hwy	Rte 615 - Ironbound Rd	6,946	8,048	8,593	9,813	2/23-2/24	6,800	7,500	8,000	9,800	+3,000	+44.1%

WILLIAMSBURG

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT 2007 to 2016	
				2007	2010	2013	2016		2007	2010	2013	2016		
5	Boundary St	Jamestown Rd	Francis St	11,076	12,532	9,746	9,366	7/26-7/27	9,800	12,000	9,200	8,800	-1,000	-10.2%
60	Bypass Rd	Richmond Rd	York CL	21,128	26,802	24,178	26,368	7/12-7/14	20,000	25,000	23,000	25,000	+5,000	+25.0%
60	Bypass Rd	SR 132 - Henry St	Parkway Dr	13,844	15,868	15,105	14,772	7/12-7/14	12,000	15,000	14,000	14,000	+2,000	+16.7%
60	Bypass Rd	Parkway Dr	SR 5 - Capitol Landing Rd	11,409	13,198	11,598	12,010	7/12-7/14	10,000	12,000	11,000	11,000	+1,000	+10.0%
5	Capitol Landing Rd	US 60 - Bypass Rd	SR 143 - Merrimac Trail	6,754	-	6,980	7,406	7/12-7/14	6,300	6,900	6,700	6,900	+600	+9.5%
90003	Colonial Pkwy	James City CL	York CL	2,919	-	-	-	-	6,200	4,700	4,700	4,700	-1,500	-24.2%
-	England St	Newport Ave	Francis St	-	1,803	1,712	1,966	7/26-7/27	2,300	1,800	1,700	1,900	-400	-17.4%
5	Francis St	Boundary St	SR 132 - Henry St	7,660	8,917	7,303	6,890	7/26-7/27	6,700	8,200	6,600	6,500	-200	-3.0%
7075	Francis St	SR 132 - Henry St	Waller St	7,087	6,477	-	5,898	7/26-7/27	6,200	6,000	5,600	5,500	-700	-11.3%
132	Henry St	SR 199	Ireland St	4,120	3,801	3,145	3,071	7/12-7/13	3,700	3,600	2,900	2,900	-800	-21.6%
132	Henry St	Ireland St	Francis St	5,346	5,660	4,255	4,229	7/12-7/13	4,800	5,400	3,900	4,000	-800	-16.7%
5	Henry St	Francis St	SR 5 - Lafayette St	5,565	5,803	4,926	5,451	7/12-7/14	4,900	5,500	4,500	5,100	+200	+4.1%
132	Henry St	SR 5 - Lafayette St	SR 132 Y	7,504	6,853	5,882	5,999	7/12-7/14	6,600	6,400	5,500	5,600	-1,000	-15.2%
132	Henry St	SR 132 Y	US 60 - Bypass Rd	9,114	10,116	8,670	9,112	7/12-7/14	8,000	9,400	8,200	8,500	+500	+6.3%

FIGURE 5 (CONTINUED) – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES, 2007 TO 2016

Data source: VDOT. '-' indicates data is not available for that roadway segment and year.

WILLIAMSBURG

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT 2007 to 2016	
				2007	2010	2013	2016		2007	2010	2013	2016		
7081	Ironbound Rd	James City CL	Longhill Rd	10,115	9,913	9,806	9,898	7/12-7/13	8,900	9,100	9,200	9,300	+400	+4.5%
7081	Ironbound Rd	Longhill Rd	Richmond Rd	13,632	15,292	14,493	12,334	8/24-8/25	12,000	14,000	14,000	11,000	-1,000	-8.3%
31	Jamestown Rd	Williamsburg CL	SR 199	18,414	17,349	16,829	16,665	7/26-7/27	16,000	16,000	16,000	16,000	0	0.0%
5	Jamestown Rd	SR 199	John Tyler Hwy	11,933	11,994	9,134	9,100	7/26-7/27	11,000	11,000	8,600	8,500	-2,500	-22.7%
5	Jamestown Rd	John Tyler Hwy	Boundary St	12,235	13,820	10,161	9,630	7/26-7/27	11,000	13,000	9,700	9,000	-2,000	-18.2%
7077	Lafayette St	Richmond Rd	Bacon Ave	8,345	8,911	-	9,189	7/12-7/13	7,300	8,200	8,200	8,700	+1,400	+19.2%
7077	Lafayette St	Bacon St	SR 132 - Henry St	9,796	9,835	9,821	10,268	7/12-7/13	8,600	9,300	9,400	9,700	+1,100	+12.8%
5	Lafayette St	SR 132 - Henry St	Capital Landing Rd	9,682	10,151	10,046	10,361	7/13-7/14	8,500	9,300	9,400	9,600	+1,100	+12.9%
5	Lafayette St	Capital Landing Rd	US 60 - Page St	7,890	8,263	8,160	8,494	7/13-7/14	6,900	7,800	7,800	7,800	+900	+13.0%
7082	Longhill Rd	Ironbound Rd	James City CL	4,215	4,237	4,605	4,638	8/24-8/25	3,700	3,900	4,500	4,200	+500	+13.5%
-	Matoaka Court	Mount Vernon Avenue	Richmond Road	-	837	770	699	7/12-7/13	730	840	760	690	-40	-5.5%
143	Merrimac Trail	York CL	SR 5 - Capital Landing Rd	7,617	7,217	7,273	7,029	7/12-7/14	6,700	6,700	6,900	6,500	-200	-3.0%
143	Merrimac Trail	SR 5 - Capital Landing Rd	York CL	9,974	9,445	9,341	9,898	7/12-7/13	8,800	8,800	8,900	9,300	+500	+5.7%
321	Monticello Ave	Rte 615 - Ironbound Rd	Compton Dr	18,412	17,358	16,257	-	7/12-7/13	17,000	18,000	17,000	16,000	-1,000	-5.9%
7083	Monticello Ave	Compton Dr	Richmond Rd	15,876	17,074	15,269	15,922	7/12-7/13	14,000	16,000	14,000	15,000	+1,000	+7.1%
60	Page St	SR 5 - Capitol Landing Rd	Second St	13,531	15,332	14,186	14,589	7/13-8/25	12,000	14,000	20,000	21,000	+9,000	+75.0%
60	Page St	Second St	Lafayette St	-	15,804	14,062	14,717	7/13-7/14	14,000	15,000	13,000	14,000	0	0.0%
7086	Penniman Rd	Page St	York CL	2,375	2,822	2,951	3,325	7/27-7/28	2,100	2,700	2,800	3,100	+1,000	+47.6%
-	Quarterpath Rd	SR 199	US 60 - York St	-	595	1,169	1,218	7/13-7/14	610	550	1,100	1,100	+490	+80.3%
60	Richmond Rd	James City CL	Ironbound Rd	19,148	23,783	-	22,330	7/12-7/13	17,000	22,000	20,000	21,000	+4,000	+23.5%
60	Richmond Rd	Ironbound Rd	Bypass Rd	25,776	25,987	27,656	26,383	7/26-7/27	24,000	24,000	26,000	25,000	+1,000	+4.2%
7075	Richmond Rd	Bypass Rd	Monticello Ave	19,306	19,001	20,187	20,981	7/12-7/13	17,000	18,000	19,000	20,000	+3,000	+17.6%
7075	Richmond Rd	Monticello Ave	Boundary St	12,395	13,511	10,623	10,913	7/12-7/13	11,000	13,000	10,000	10,000	-1,000	-9.1%
132	SR 132 Y	Colonial Parkway	SR 132 - Henry St	6,115	2,967	-	5,861	7/12-7/14	5,400	5,900	5,600	5,500	+100	+1.9%
199	SR 199	James City CL	SR 31 - Jamestown Rd	37,160	36,498	35,623	36,257	2/2-2/3	34,000	35,000	33,000	36,000	+2,000	+5.9%
199	SR 199	SR 31 - Jamestown Rd	James City CL	37,015	36,180	37,165	36,971	2/2-2/3	36,000	36,000	34,000	36,000	0	0.0%
7079	Second St	Page St	Parkway Dr	13,557	13,965	12,995	13,989	7/13-7/14	13,000	13,000	12,000	13,000	0	0.0%
7079	Second St	Parkway Dr	York CL	15,207	15,123	14,031	14,652	7/13-7/14	13,000	14,000	13,000	14,000	+1,000	+7.7%
60	York St	Lafayette St	James City CL	10,850	13,385	12,201	12,774	7/27-7/28	9,900	13,000	12,000	12,000	+2,100	+21.2%

YORK COUNTY

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT 2007 to 2016	
				2007	2010	2013	2016		2007	2010	2013	2016		
645	Airport Rd	Rte 603 - Mooretown Rd	Rte 749	-	5,022	5,110	5,489	12/7-12/8	5,100	5,000	5,100	5,400	+300	+5.9%
645	Airport Rd	Rte 749	Rte 737 - Waller Mill Park	-	5,447	5,478	5,435	11/30-12/1	5,400	5,400	5,500	5,400	0	0.0%
645	Airport Rd	Rte 737 - Waller Mill Park	FR-137 - Rochambeau Dr	-	5,572	5,642	5,422	12/7-12/8	5,700	5,600	5,600	5,300	-400	-7.0%
1012	Alexander Hamilton Blvd	US 17 - GW Mem Hwy	Rte 1020 - Ballard St	-	1,325	1,339	1,036	11/30-12/1	1,300	1,300	1,300	1,000	-300	-23.1%
1020	Ballard St	Water St	Colonial Pkwy	1,760	1,960	2,025	1,952	7/12-8/25	1,500	1,800	1,900	1,800	+300	+20.0%
1020	Ballard St	Colonial Pkwy	SR 238 - Cook Rd	4,940	5,899	5,473	6,866	7/12-7/13	4,300	5,400	5,200	6,700	+2,400	+55.8%
238	Ballard St	SR 238 - Cook Rd	Moore House Rd	-	3,329	3,357	3,300	7/12-7/13	2,600	3,000	3,100	3,200	+600	+23.1%
238	Ballard St	Moore House Rd	Coast Guard Training Center	2,967	2,430	2,900	2,776	7/12-7/13	2,600	2,200	2,700	2,600	0	0.0%
604	Barlow Rd	Rochambeau Dr	Rte 602 - Fenton Mill Rd	1,511	-	1,489	1,521	3/22	1,500	1,500	1,500	1,500	0	0.0%
604	Barlow Rd	Rte 602 - Fenton Mill Rd	Rte 646 - Newman Rd	-	1,417	1,427	1,440	3/22	1,400	1,400	1,400	1,400	0	0.0%
600	Big Bethel Rd	Hampton CL	SR 134 - Hampton Hwy	10,847	9,444	11,852	9,210	6/28-6/29	9,600	8,600	11,000	8,500	-1,100	-11.5%
600	Big Bethel Rd	SR 134 - Hampton Hwy	SR 171 - Victory Blvd	6,359	4,971	5,211	4,817	6/28-6/29	5,600	4,500	4,900	4,400	-1,200	-21.4%

FIGURE 5 (CONTINUED) – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES, 2007 TO 2016

Data source: VDOT. '-' indicates data is not available for that roadway segment and year.

YORK COUNTY

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT	
				2007	2010	2013	2016		2007	2010	2013	2016	2007 to 2016	%
60	Bypass Rd	Williamsburg CL	SR 132 - Henry St	21,128	26,802	24,178	26,368	7/12-7/14	20,000	25,000	23,000	25,000	+5,000	+25.0%
782	Carys Chapel Rd	Poquoson CL	SR 171 - Victory Blvd	5,681	5,155	4,708	4,509	6/28-6/29	5,000	4,700	4,400	4,100	-900	-18.0%
90003	Colonial Pkwy	Williamsburg CL	Ballard St	6,218	-	-	-	-	5,700	6,000	6,000	6,000	+300	+5.3%
704	Cook Rd	US 17 - GW Mem Hwy	Rte 634 - Old York Hampton Hwy	5,719	5,354	5,258	5,734	7/12-7/13	5,000	4,900	5,000	5,400	+400	+8.0%
704	Cook Rd	Rte 634 - Old York Hampton Hwy	Rte 634 - Surrender Rd North	6,234	6,368	6,256	7,287	7/12-7/13	5,600	5,800	5,900	6,800	+1,200	+21.4%
704	Cook Rd	Rte 634 - Surrender Rd North	SR 238 - Goosley Rd	6,671	6,125	5,910	7,376	7/12-7/13	5,700	6,300	5,500	7,200	+1,500	+26.3%
238	Cook Rd	SR 238 - Goosley Rd	Ballard St	6,500	6,658	7,330	8,102	7/12-7/13	5,700	6,300	6,400	7,700	+2,000	+35.1%
1763	Coventry Blvd	US 17 - GW Mem Hwy	Rte 1840 - Bridge Wood Dr	-	5,992	6,012	6,911	11/29-11/30	6,000	6,000	6,000	6,900	+900	+15.0%
1763	Coventry Blvd	Rte 1840 - Bridge Wood Dr	Rte 1766 - Peachtree Court	-	-	5,655	5,521	12/7-12/8	5,600	5,600	5,600	5,500	-100	-1.8%
1763	Coventry Blvd	Rte 1766 - Peachtree Court	Rte 1764 - Blackberry Bend	-	4,687	4,709	4,129	11/29-11/30	4,800	4,700	4,700	4,100	-700	-14.6%
1763	Coventry Blvd	Rte 1764 - Blackberry Bend	Rte 1745 - Honeysuckle Lane	-	4,572	4,577	4,358	12/7-12/8	4,600	4,600	4,600	4,300	-300	-6.5%
1763	Coventry Blvd	Rte 1745 - Honeysuckle Lane	Rte 1750 - Owen Davis Blvd	-	2,962	3,045	3,801	11/29-11/30	2,800	3,000	3,000	3,800	+1,000	+35.7%
621	Dare Rd	US 17 - GW Mem Hwy	Rte 620 - Lakeside Dr	4,273	4,946	4,977	4,816	6/29-6/30	3,800	4,500	4,600	4,400	+600	+15.8%
173	Denhigh Blvd	Newport News CL	US 17 - GW Mem Hwy	16,509	16,203	15,929	16,861	All 2016	16,000	15,000	15,000	16,000	0	0.0%
782	E Yorktown Rd	SR 171 - Victory Blvd	Poquoson CL	5,681	5,585	5,787	5,705	6/28-6/29	5,000	5,100	5,500	5,200	+200	+4.0%
105	Fort Eustis Blvd	Newport News CL	US 17 - GW Mem Hwy	17,469	-	17,203	18,504	All 2016	16,000	15,000	15,000	17,000	+1,000	+6.3%
1050	Fort Eustis Blvd Ext	US 17 - GW Mem Hwy	Rte 634 - Old York Hampton Hwy	-	3,312	3,322	3,462	11/29-11/30	3,200	3,300	3,300	3,500	+300	+9.4%
17	GW Mem Hwy	Newport News CL	SR 171 - Victory Blvd	37,917	38,983	35,050	34,018	6/21-6/22	35,000	35,000	31,000	31,000	-4,000	-11.4%
17	GW Mem Hwy	SR 171 - Victory Blvd	SR 134 - Hampton Hwy	41,992	42,347	38,592	36,740	1/17-1/19	39,000	38,000	34,000	35,000	-4,000	-10.3%
17	GW Mem Hwy	SR 134 - Hampton Hwy	Rte 621 - Grafton Dr	56,977	54,914	-	48,876	6/21-6/22	53,000	51,000	50,000	44,000	-9,000	-17.0%
17	GW Mem Hwy	Rte 621 - Grafton Dr	SR 173 - Denhigh Blvd	39,975	39,235	37,878	-	-	37,000	35,000	34,000	34,000	-3,000	-8.1%
17	GW Mem Hwy	SR 173 - Denhigh Blvd	SR 105 - Fort Eustis Blvd	38,995	39,111	36,726	36,487	6/21-6/22	36,000	35,000	33,000	33,000	-3,000	-8.3%
17	GW Mem Hwy	SR 105 - Fort Eustis Blvd	Rte 704 - Cook Rd	38,170	38,988	34,284	36,373	6/21-6/22	35,000	35,000	32,000	33,000	-2,000	-5.7%
17	GW Mem Hwy	Rte 704 - Cook Rd	SR 238 - Goosley Rd	28,938	29,384	35,113	27,147	6/21-6/22	27,000	27,000	32,000	25,000	-2,000	-7.4%
17	GW Mem Hwy	SR 238 - Goosley Rd	Colonial Pkwy	29,300	30,836	28,282	29,398	6/21-6/22	27,000	28,000	25,000	27,000	0	0.0%
17	GW Mem Hwy	Colonial Pkwy	Mathew St	31,764	34,117	34,432	34,210	6/21-6/22	30,000	31,000	31,000	31,000	+1,000	+3.3%
17	GW Mem Hwy	Mathew St	Gloucester CL	35,778	34,051	33,384	34,401	All 2016	34,000	32,000	31,000	32,000	-2,000	-5.9%
173	Goodwin Neck Rd	US 17 - GW Mem Hwy	Rte 630 - Wolf Trap Rd	10,528	9,318	9,576	9,970	6/29-6/30	9,300	8,500	8,900	9,000	-300	-3.2%
173	Goodwin Neck Rd	Rte 630 - Wolf Trap Rd	Back Creek Rd	5,222	3,811	4,811	2,964	6/29-7/28	4,600	3,500	4,500	2,700	-1,900	-41.3%
173	Goodwin Neck Rd	Back Creek Rd	Dandy Loop Rd	1,602	2,299	1,968	1,838	6/29-6/30	1,400	2,100	1,800	1,700	+300	+21.4%
238	Goosley Rd	SR 238 - Old Williamsburg Rd	US 17 - GW Mem Hwy	6,809	6,878	6,436	6,501	6/22-6/23	6,000	6,300	6,000	5,900	-100	-1.7%
238	Goosley Rd	US 17 - GW Mem Hwy	Rte 704 - Cook Rd	1,668	1,690	1,530	1,558	6/22-6/23	1,500	1,600	1,400	1,500	0	0.0%
134	Hampton Hwy	US 17 - GW Mem Hwy	SR 171 - Victory Blvd	21,843	21,178	18,435	16,657	6/28-6/29	19,000	19,000	17,000	15,000	-4,000	-21.1%
134	Hampton Hwy	SR 171 - Victory Blvd	Rte 600 - Big Bethel Rd	29,902	29,041	25,607	24,453	6/28-6/29	26,000	26,000	24,000	22,000	-4,000	-15.4%
134	Hampton Hwy	Rte 600 - Big Bethel Rd	Hampton CL	30,486	27,101	26,040	23,632	6/28-6/29	27,000	25,000	24,000	22,000	-5,000	-18.5%
718	Hornshyville Rd	Rte 634 - Old York Hampton Hwy	Rte 631 - Waterview Rd	3,396	3,021	2,730	3,199	7/12-7/13	3,000	2,800	2,600	3,000	0	0.0%
718	Hornshyville Rd	Rte 631 - Waterview Rd	SR 173 - Goodwin Neck Rd	1,764	1,553	1,453	1,387	7/12-7/13	1,600	1,400	1,400	1,300	-300	-18.8%
716	Hubbard Ln	Rte 641 - Penniman Rd	Lakeshead Dr	5,425	5,413	4,726	4,615	6/21-6/22	4,800	4,900	4,300	4,200	-600	-12.5%
64	I-64	James City CL	SR 199/Rte 646 - Newman Rd	62,101	58,252	59,067	64,620	All 2016	63,000	64,000	65,000	70,000	+7,000	+11.1%
64	I-64	SR 199/Rte 646 - Newman Rd	SR 143 - Camp Peary Rd	56,042	56,909	56,226	60,262	All 2016	61,000	61,000	61,000	65,000	+4,000	+6.6%
64	I-64	SR 143 - Camp Peary Rd	SR 199	64,079	65,349	57,304	65,418	All 2016	60,000	63,000	59,000	69,000	+9,000	+15.0%
64	I-64	SR 199	Busch Gardens Interchange	81,028	83,621	76,126	81,291	All 2016	78,000	81,000	78,000	84,000	+6,000	+7.7%
64	I-64	Busch Gardens Interchange	James City CL	86,497	87,885	83,803	84,322	All 2016	78,000	82,000	79,000	87,000	+9,000	+11.5%
1800	Kiln Creek Pkwy	ECL Newport News; Edgewater Dr	NCL Newport News; Shoreline Pt	-	4,237	4,319	5,584	11/29-11/30	4,200	4,200	4,300	8,600	+4,400	+104.8%
620	Lakeside Dr	US 17 - GW Mem Hwy	Rte 614 - Showalter Rd	8,969	9,392	8,557	8,983	7/12-7/13	7,900	8,600	8,000	8,300	+400	+5.1%
620	Lakeside Dr	Rte 614 - Showalter Rd	Rte 621 - Dare Rd	4,402	4,514	4,755	5,820	7/12-7/13	3,900	4,100	4,400	5,400	+1,500	+38.5%
646	Lightfoot Rd	US 60 - Richmond Rd	Mooretown Rd	10,166	10,211	10,249	9,878	6/21-6/22	9,400	9,700	9,800	9,600	+200	+2.1%
1001	Mathews St	US 17 - GW Mem Hwy	Water St	3,609	4,069	3,829	3,240	6/22-6/23	3,200	3,700	3,600	2,900	-300	-9.4%

FIGURE 5 (CONTINUED) – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES, 2007 TO 2016

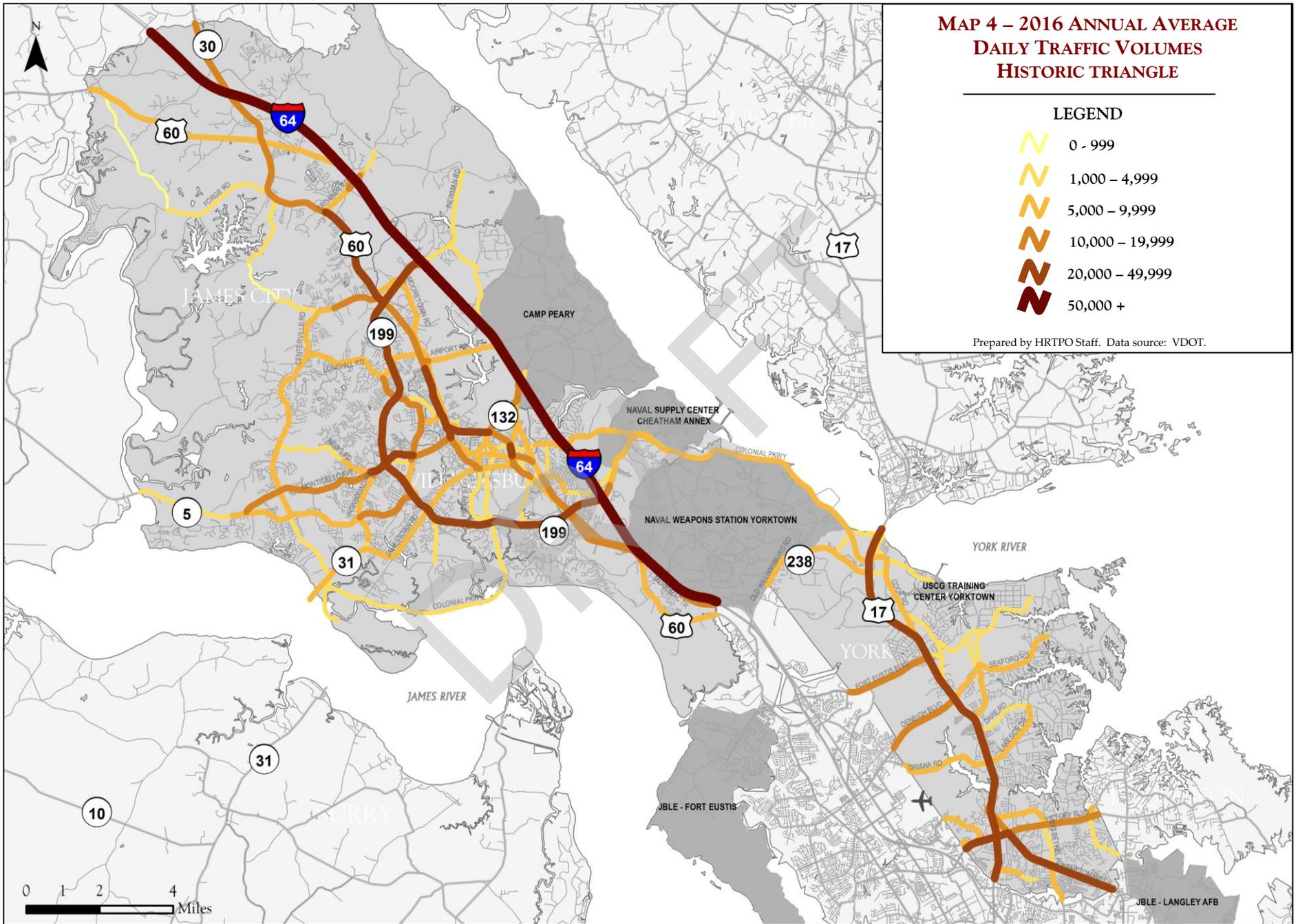
Data source: VDOT. '-' indicates data is not available for that roadway segment and year.

YORK COUNTY

Route Num	Location	Segment From	Segment To	Weekday Volume				2016 Count Date	Annual Average Daily Traffic (AADT)				Change in AADT 2007 to 2016	
				2007	2010	2013	2016		2007	2010	2013	2016		
143	Merrimac Trail	Busch Gardens Interchange	SR 199	16,875	14,675	18,641	17,754	6/22-7/13	15,000	13,000	17,000	16,000	+1,000	+6.7%
143	Merrimac Trail	Penniman Rd	Second St	16,543	-	8,618	-	-	7,600	7,300	7,400	7,000	-600	-7.9%
143	Merrimac Trail	Second St	Williamsburg CL	8,640	7,936	8,000	7,575	6/21-6/22	7,600	7,300	7,400	7,000	-600	-7.9%
143	Merrimac Trail	Williamsburg CL	SR 132	9,643	9,226	9,168	9,523	6/21-6/22	8,500	8,700	8,700	9,300	+800	+9.4%
143	Merrimac Trail	SR 132	I-64	17,947	19,138	18,870	19,146	6/21-6/22	16,000	18,000	18,000	19,000	+3,000	+18.8%
143	Merrimac Trail	I-64	Camp Peary Main Gate	3,509	2,668	-	2,614	6/21-6/22	3,200	2,500	2,600	2,500	-700	-21.9%
603	Mooretown Rd	Rte 713 - Waller Mill Rd	Rte 645 - Airport Rd	5,822	6,289	5,885	6,232	6/21-6/22	5,400	6,000	5,600	5,700	+300	+5.6%
603	Mooretown Rd	Rte 645 - Airport Rd	SR 199	8,651	9,283	9,024	9,091	6/21-6/22	7,900	8,800	8,600	8,400	+500	+6.3%
603	Mooretown Rd	SR 199	Rte 646 - Lightfoot Rd	-	-	-	-	-	-	-	-	-	-	-
646	Newman Rd	I-64	James City CL	2,755	2,859	2,955	2,880	6/21-6/22	2,500	2,700	2,800	2,800	+300	+12.0%
238	Old Williamsburg Rd	Newport News CL	Rte 660 - Baptist Rd	10,769	11,158	9,681	9,533	All 2016	9,400	9,600	8,600	8,500	-900	-9.6%
238	Old Williamsburg Rd	Rte 660 - Baptist Rd	SR 238 - Goosley Rd	9,244	9,833	9,179	9,381	6/22-6/23	8,200	8,900	8,600	8,500	+300	+3.7%
1020	Old Williamsburg Rd	SR 238 - Goosley Rd	Colonial Pkwy	2,590	3,013	3,017	3,104	6/22-6/23	2,300	2,700	2,800	2,800	+500	+21.7%
634	Old York Hampton Hwy	US 17 - GW Mem Hwy	Rte 1050 - Fort Eustis Blvd Ext	4,033	4,126	4,106	4,576	7/12-7/13	3,600	3,800	3,800	4,300	+700	+19.4%
634	Old York Hampton Hwy	Rte 1050 - Fort Eustis Blvd Ext	Rte 718 - Hornsbyville Rd	2,627	2,774	2,838	2,809	7/12-7/13	2,300	2,600	2,700	2,600	+300	+13.0%
718	Old York Hampton Hwy	Rte 718 - Hornsbyville Rd	Battle Rd	5,420	4,817	4,199	4,846	7/12-7/13	4,800	4,400	3,900	4,600	-200	-4.2%
634	Old York Hampton Hwy	Battle Rd	Rte 693 - Wormley Creek Dr	4,745	4,157	3,712	4,490	7/12-7/13	4,200	3,800	3,500	4,200	0	0.0%
634	Old York Hampton Hwy	Rte 693 - Wormley Creek Dr	Rte 704 - Cook Rd	3,563	2,868	2,833	3,223	7/12-7/13	3,200	2,700	2,700	3,000	-200	-6.3%
620	Oriana Rd	Newport News CL	US 17 - GW Mem Hwy	6,234	6,037	6,643	6,444	7/12-7/13	5,500	5,500	6,300	6,000	+500	+9.1%
641	Penniman Rd	Williamsburg CL	SR 143 - Merrimac Trail	2,436	2,810	2,913	3,146	6/21-6/22	2,200	2,600	2,700	2,900	+700	+31.8%
641	Penniman Rd	SR 143 - Merrimac Trail	Fillmore Dr	6,294	6,087	6,078	6,293	6/21-6/22	5,600	5,600	5,700	5,800	+200	+3.6%
641	Penniman Rd	Fillmore Dr	SR 199	2,152	2,879	2,520	6,106	6/21-6/22	1,900	2,600	2,300	2,600	+700	+36.8%
641	Penniman Rd	SR 199	Colonial Pkwy	5,534	5,479	6,009	6,395	All 2016	4,900	4,900	5,200	5,500	+600	+12.2%
60	Pocahontas Trail	SR 199	James City CL	10,726	11,459	11,143	12,840	6/22-6/23	9,600	10,000	11,000	12,000	+2,400	+25.0%
137	Rochambeau Dr	SC-9500 Bruton High School Exit	SR 143 Capitol Landing Rd	9,213	-	9,220	9,993	11/30-12/1	9,200	9,200	9,200	10,000	+800	+8.7%
132	SR 132	US 60 - Bypass Rd	SR 143 - Merrimac Trail	8,737	11,135	10,165	10,521	6/21-6/22	8,300	9,400	9,200	10,000	+1,700	+20.5%
199	SR 199	I-64	Rte 603 - Mooretown Rd	25,199	29,588	29,687	25,666	2/3-2/4	23,000	24,000	25,000	25,000	+2,000	+8.7%
199	SR 199	Rte 603 - Mooretown Rd	US 60 - Richmond Rd/JCC CL	24,536	27,033	26,986	24,658	2/3-2/4	22,000	22,000	22,000	24,000	+2,000	+9.1%
199	SR 199	SR 143 - Merrimac Trail/JCC CL	I-64	30,529	30,753	30,661	30,857	All 2016	27,000	28,000	28,000	28,000	+1,000	+3.7%
199	SR 199	I-64	Marquis Pkwy	10,826	20,012	18,133	18,883	8/17-8/18	9,500	16,000	15,000	16,000	+6,500	+68.4%
199	SR 199	Marquis Pkwy	Rte 641 - Penniman Rd	7,896	9,598	9,055	9,572	6/21-6/22	7,100	7,800	7,500	8,400	+1,300	+18.3%
622	Seaford Rd	SR 173 - Goodwin Neck Rd	Ellerson Ct	9,413	9,128	8,157	9,010	6/29-6/30	8,300	8,300	7,600	8,100	-200	-2.4%
622	Seaford Rd	Ellerson Ct	Rte 718 - Back Creek Rd	6,732	6,855	6,047	6,611	6/29-6/30	5,900	6,300	5,600	6,000	+100	+1.7%
622	Seaford Rd	Rte 718 - Back Creek Rd	Rte 787 - W. Old Seaford Rd	-	2,212	2,226	2,534	11/29-11/30	2,100	2,200	2,200	2,500	+400	+19.0%
622	Seaford Rd	Rte 787 - W. Old Seaford Rd	Rte 623 - Wildey Rd	-	1,249	1,255	1,243	12/7-12/8	1,200	1,200	1,300	1,200	0	0.0%
622	Seaford Rd	Rte 623 - Wildey Rd	Rte 670 - Hansford Lane	-	788	810	873	12/7-12/8	760	790	810	860	+100	+13.2%
162	Second St	Williamsburg CL	SR 143 - Merrimac Trail	15,207	15,123	14,031	14,652	7/13-7/14	13,000	14,000	13,000	14,000	+1,000	+7.7%
171	Victory Blvd	Newport News CL	US 17 - GW Mem Hwy	50,111	52,998	48,289	40,051	6/21-6/22	43,000	49,000	46,000	37,000	-6,000	-14.0%
171	Victory Blvd	US 17 - George Washington Hwy	SR 134 - Hampton Hwy	32,291	33,648	29,985	31,361	6/28-7/28	28,000	31,000	28,000	29,000	+1,000	+3.6%
171	Victory Blvd	SR 134 - Hampton Hwy	Rte 600 - Big Bethel Rd	19,853	20,304	19,649	19,397	6/28-6/29	17,000	19,000	19,000	18,000	+1,000	+5.9%
171	Victory Blvd	Rte 600 - Big Bethel Rd	Poquoson CL	20,895	21,568	20,022	20,038	6/28-6/29	18,000	20,000	19,000	18,000	0	0.0%
713	Waller Mill Rd	US 60 - Bypass Rd	Rte 643 - Caran Rd	4,572	4,634	4,310	4,679	6/21-6/22	4,000	4,300	4,100	4,300	+300	+7.5%
1020	Water St	Colonial Pkwy	Ballard St	5,040	5,179	4,744	3,732	6/22-6/23	4,100	4,700	4,500	3,400	-700	-17.1%
630	Wolf Trap Rd	US 17 - GW Mem Hwy	SR 173 - Goodwin Neck Rd	8,740	8,219	7,761	6,888	6/29-6/30	7,700	7,500	7,200	6,200	-1,500	-19.5%
630	Wolf Trap Rd	SR 173 Goodwin Neck Rd	Rte 718 - Hornsbyville Rd	-	1,926	1,937	2,655	11/29-11/30	1,800	1,900	1,900	2,700	+900	+50.0%
706	Yorktown Rd	SR 134 Hampton Hwy	Rte 735 - Greenland Dr	-	6,219	6,239	6,172	4/27	6,300	6,200	6,200	6,200	-100	-1.6%
706	Yorktown Rd	Rte 735 - Greenland Dr	Rte 600 - Big Bethel Rd	-	4,701	4,750	4,762	4/27	4,600	4,700	4,800	4,800	+200	+4.3%

FIGURE 5 (CONTINUED) – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES, 2007 TO 2016

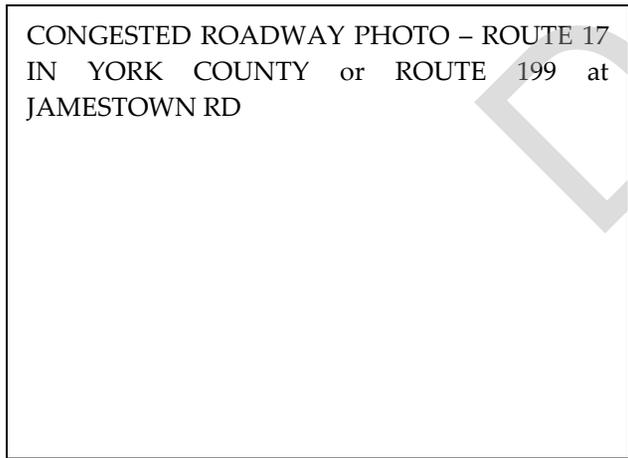
Data source: VDOT. '-' indicates data is not available for that roadway segment and year.



ROADWAY CONGESTION

The roadway congestion analysis performed for this study is similar to the procedure used in the HRTPO Congestion Management Process (CMP).² In the Congestion Management Process, weekday peak period congestion levels are determined for each roadway segment that comprises the CMP Roadway Network, which includes all roadways classified as minor arterials and above, as well as selected collectors. Roadway segment congestion levels are determined using either averaged speed data or Highway Capacity Manual (HCM) traffic volume-based level of service methods for roadways where speed data is not available.

The travel time and speed data used in this analysis was collected by INRIX. INRIX collects travel time and speed data on a continuous basis, using millions of GPS-enabled fleet vehicles (taxis, airport shuttles, service vehicles, and long haul trucks), mobile devices that have INRIX’s real-time traffic applications installed, traditional road sensors, and other sources. This data has been purchased by VDOT and access is provided to Metropolitan Planning Organizations throughout the state.



Congestion levels for roadways in the Historic Triangle where INRIX speed data is available were determined based on the travel time index (TTI). The TTI represents the ratio of the actual travel time during the peak hour to the travel time in free-flow conditions. For example, a TTI of 1.20 means a trip that takes 20 minutes under free-flow conditions takes 24 minutes (20% longer) in the peak hour.

HRTPO staff calculated the travel time index for each roadway segment by direction for each 15-minute interval during the AM and PM Peak Periods in 2017. The highest 15-minute travel time index during the AM Peak Period (defined as occurring between 5:00 am and 9:00 am) and the PM Peak Period (defined as occurring between 3:00 pm and 7:00 pm) was used to determine each roadway segment’s peak period congestion level.

Each roadway segment was classified as having a “low”, “moderate”, or “severe” level of peak period congestion based on this highest travel time index, using the thresholds shown in the following table.

CONGESTION LEVELS FOR ROADWAYS WITH SPEED DATA

Congestion Level		Freeway	Arterial
Low	LOW	TTI < 1.15	TTI < 1.25
Moderate	MOD	1.15 ≤ TTI < 1.3	1.25 ≤ TTI < 1.4
Severe	SEV	TTI ≥ 1.3	TTI ≥ 1.4

Congestion levels for roadways without INRIX speed data were determined using traffic volumes and Highway Capacity Manual³ (HCM) level of service (LOS) methods. The HCM is a widely accepted engineering standard. The HCM describes LOS as a measure of operating conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

² Hampton Roads Congestion Management Process: System Performance and Mitigation Report, HRTPO, October 2014.

³ Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016.

Level of Service is categorized on a scale from LOS A through LOS F, with LOS A representing the best operating conditions and LOS F representing the most congested conditions (Figure 6). Levels of Service A through D are considered to be acceptable operating conditions, while Levels of Service E and F (shown in red in the congestion maps) are considered unacceptable operating conditions with severe congestion. LOS D is the “warning” level condition where favorable conditions are on the verge of becoming unacceptable.

CONGESTION LEVELS FOR ROADWAYS WITHOUT SPEED DATA

Congestion Level		HCM LOS
Low	LOW	A-C
Moderate	MOD	D
Severe	SEV	E-F

Congestion levels for roadways in the Historic Triangle without INRIX speed data were calculated for both the AM Peak Period and PM Peak Period using weekday traffic volume data collected most recently by VDOT in 2016. This analysis was done using the LOSPLAN software package⁴ produced by the Florida Department of Transportation. The LOSPLAN software uses HCM methods to calculate Levels of Service based on various roadway and traffic characteristics. Congestion levels for each roadway segment were determined for the hour with the highest traffic volume during the AM Peak Period (which is defined as the highest volume of weekday traffic in four consecutive 15-minute periods between 5 and 9 am) and the PM Peak Period (between 3 pm and 7 pm).

Figure 8 on pages 17-20 shows the existing congestion levels during the AM Peak Period and PM Peak Period for roadways in the Historic Triangle that are part of the regional CMP Roadway Network. These congestion levels are also shown on Maps 5-6 on pages 24-25. Individual congestion maps for each locality are also

⁴ LOSPLAN Software, Florida Department of Transportation, 2009. Information on LOSPLAN Software is available at <http://www.dot.state.fl.us/planning/systems/sm/los>.

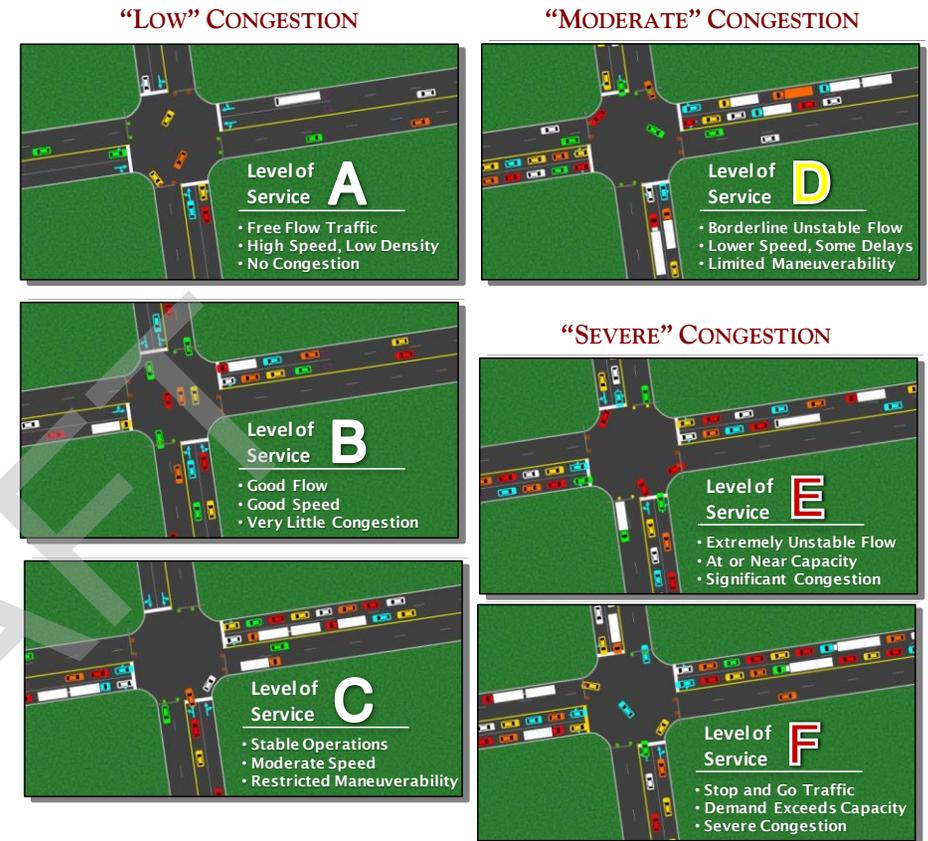


FIGURE 6 – LEVEL OF SERVICE DEFINITIONS

Source: HRTPO Congestion Management Process report.

included in Appendix X. Finally, travel time information for roadways with INRIX data, including speeds, travel time indices (TTIs), and duration of congestion, is included in Figure 9 on pages 21-22.

There are 8 roadway segments in the Historic Triangle that currently operate under severely congested conditions during the AM Peak Period and 25 segments during the PM Peak Period. Most of the congested roadways are in York County, including sections of George Washington Memorial Highway, Hampton Highway, and

Victory Boulevard. Sections of Centerville Road, Longhill Road, Monticello Avenue, and Route 199 are severely congested in James City County, as are sections of Route 199 and Jamestown Road in Williamsburg.

Looking at roadways with INRIX speed data available, the roadway segment in the Historic Triangle that is the most congested (based on the travel time index) is Route 199 Eastbound between John Tyler Highway and Jamestown Road. This segment has a PM Peak Period TTI of 2.32, meaning the slowest travel times during the PM Peak Period are 2.32 times longer than during uncongested conditions. The next most congested segments are Route 60 Westbound between Route 199 and Centerville Road (PM TTI=2.06), Route 17 Northbound between the Newport News CL and Victory Boulevard (PM TTI=2.04), Victory Boulevard Eastbound between Hampton Highway and Big Bethel Road (PM TTI=1.79), and Victory Boulevard

Eastbound between Newport News CL and Route 17 (PM TTI=1.76). A total of 14 lane-miles⁵ of the Historic Triangle’s CMP roadway network is severely congested during the AM Peak Period (Figure 7). This comprises just over 2% of the major roadway lane-miles in the area. York County has the highest percentage of severely congested roadways at 5% of the locality’s CMP roadway network lane-miles, followed by 3% in Williamsburg and less than 1% in James City County.

In the PM Peak Period, 48 lane-miles of major roadways (8%) in the Historic Triangle are severely congested. Similar to the AM Peak Period, York County has the highest percentage of severely congested conditions in the PM Peak Period at 9% of the locality’s CMP roadway network lane-miles, followed by 8% in James City County and 5% in Williamsburg.

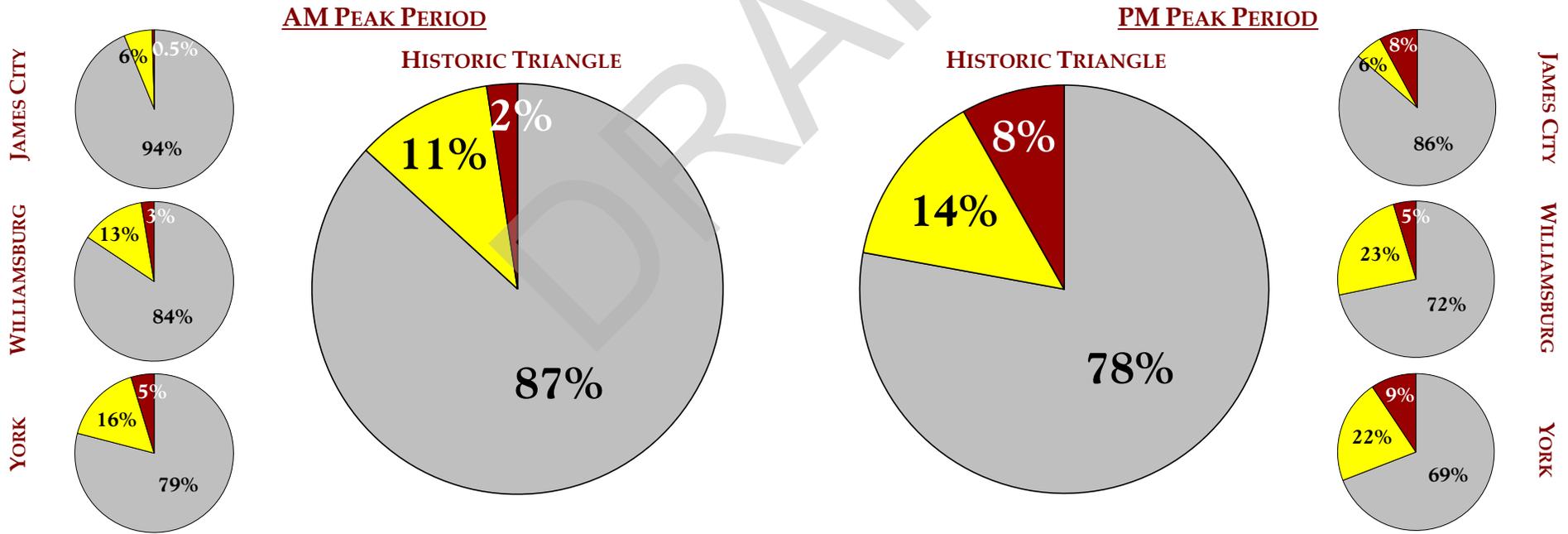


FIGURE 7 – PEAK PERIOD CONGESTION LEVELS BY LANE-MILE IN THE HISTORIC TRIANGLE, 2017

Source: HRTPO. Only includes those roadways in the regional CMP roadway network.

⁵ A lane-mile is defined as the length of a roadway segment multiplied by the number of lanes. A one-mile long, four-lane wide roadway segment would comprise four lane-miles.

JAMES CITY COUNTY

Route Num	Location	Segment From	Segment To	Existing Peak Period Congestion Level			
				AM		PM	
				NB/EB	SB/WB	NB/EB	SB/WB
30	Barhamsville Rd	I-64	US 60 - Richmond Rd	LOW	LOW	LOW	LOW
614	Centerville Rd	SR 5 - John Tyler Hwy	Rte 5000 - Monticello Ave		LOW		LOW
614	Centerville Rd	Rte 5000 - Monticello Ave	Rte 613 - News Road		LOW		LOW
614	Centerville Rd	Rte 613 - News Road	Rte 612 - Longhill Rd		LOW		LOW
614	Centerville Rd	Rte 612 - Longhill Rd	US 60 - Richmond Rd		LOW		SEV
-	Colonial Pkwy	Jamestown Visitor Center	Williamsburg CL		LOW		LOW
607	Croaker Rd	US 60 - Richmond Rd	Rte 760 - Maxton Ln		LOW		MOD
607	Croaker Rd	Rte 760 - Maxton Ln	I-64		LOW		LOW
607	Croaker Rd	I-64	Rte 602 - Fenton Mill Rd		LOW		LOW
607	Croaker Rd	Rte 602 - Fenton Mill Rd	Rte 606 - Riverview Rd		LOW		LOW
615	Depue Dr	Rte 615 - Ironbound Rd	Rte 612 - Longhill Rd		LOW		LOW
64	I-64	New Kent CL	SR 30 - Old Stage Rd	LOW	LOW	LOW	LOW
64	I-64	SR 30 - Old Stage Rd	Rte 607 - Croaker Rd	LOW	LOW	LOW	LOW
64	I-64	Rte 607 - Croaker Rd	York CL	LOW	LOW	LOW	LOW
64	I-64	York CL	SR 143 Merrimac Trail/NN CL	MOD	LOW	MOD	MOD
615	Ironbound Rd/Sandy Bay Rd	SR 31 - Jamestown Rd	SR 5 - John Tyler Hwy	MOD	LOW	LOW	LOW
615	Ironbound Rd/News Rd	SR 5 - John Tyler Hwy	SR 321 - Monticello Ave	LOW	LOW	LOW	LOW
615	Ironbound Rd	Rte 616 - Strawberry Plains Rd	SR 321 - Monticello Ave		LOW		LOW
615	Ironbound Rd	SR 321 - Monticello Ave	Williamsburg CL		LOW		LOW
31	Jamestown Rd	Jamestown Ferry	Rte 614 - Greensprings Rd		MOD		MOD
31	Jamestown Rd	Rte 614 - Greensprings Rd	Rte 681 - Sandy Bay Rd	LOW	MOD	LOW	LOW
31	Jamestown Rd	Rte 681 - Sandy Bay Rd	Rte 682 - Neck-O-Land Rd	LOW	LOW	LOW	LOW
31	Jamestown Rd	Rte 682 - Neck-O-Land Rd	Williamsburg CL	LOW	LOW	LOW	LOW
5	John Tyler Memorial Hwy	Charles City CL	Rte 5000 - Monticello Ave	LOW	LOW	LOW	LOW
5	John Tyler Memorial Hwy	Rte 5000 - Monticello Ave	Rte 614 - Centerville Rd	LOW	LOW	LOW	LOW
5	John Tyler Memorial Hwy	Rte 614 - Centerville Rd	Rte 615 - Ironbound Rd	LOW	LOW	LOW	LOW
5	John Tyler Memorial Hwy	Rte 615 - Ironbound Rd	Rte 652 - Stanley Dr	LOW	LOW	LOW	LOW
5	John Tyler Memorial Hwy	Rte 652 - Stanley Dr	SR 199	LOW	LOW	LOW	LOW
612	Longhill Rd	Rte 614 - Centerville Rd	Rte 658 - Olde Towne Rd		LOW		LOW
612	Longhill Rd	Rte 658 - Olde Towne Rd	SR 199		LOW		SEV
612	Longhill Rd	SR 199	Rte 615 - Depue Dr		LOW		LOW
143	Merrimac Trail	Newport News CL	York CL (South of Busch Gardens)	LOW	LOW	LOW	LOW
143	Merrimac Trail	SR 199/York CL	Rte 641 - Penniman Rd/York CL	LOW	LOW	LOW	LOW
5000	Monticello Ave	SR 5 - John Tyler Hwy	Rte 614 - Centerville Rd		LOW		MOD
5000	Monticello Ave	Rte 614 - Centerville Rd	Rte 613 - News Road		LOW		LOW
5000	Monticello Ave	Rte 613 - News Road	SR 199		LOW		SEV
321	Monticello Ave	SR 199	Rte 615 - Ironbound Rd		LOW		SEV
30	Old Stage Hwy	New Kent CL	Rte 601 - Barnes Rd	LOW	LOW	LOW	LOW
30	Old Stage Hwy	Rte 601 - Barnes Rd	I-64	LOW	LOW	LOW	LOW
658	Olde Towne Rd	Rte 612 - Longhill Rd	US 60 - Richmond Rd		LOW		LOW
60	Pocahontas Trail	Williamsburg CL	SR 199/York CL	LOW	LOW	LOW	LOW
60	Pocahontas Trail	York CL	BASF Rd	LOW	LOW	LOW	LOW
60	Pocahontas Trail	BASF Rd	Newport News CL	LOW	LOW	LOW	LOW
60	Richmond Rd	New Kent CL	SR 30 - Barhamsville Rd	LOW	LOW	LOW	LOW
60	Richmond Rd	SR 30 - Barhamsville Rd	Rte 607 - Croaker Rd	LOW	LOW	LOW	LOW
60	Richmond Rd	Rte 607 - Croaker Rd	Rte 646 - Lightfoot Rd	LOW	LOW	LOW	LOW
60	Richmond Rd	Rte 646 - Lightfoot Rd	Rte 614 - Centerville Rd	LOW	LOW	LOW	LOW
60	Richmond Rd	Rte 614 - Centerville Rd	SR 199	MOD	SEV	SEV	SEV
60	Richmond Rd	SR 199	Rte 658 - Olde Towne Rd	LOW	LOW	LOW	LOW
60	Richmond Rd	Rte 658 - Olde Towne Rd	Williamsburg CL	LOW	LOW	LOW	LOW

FIGURE 8 – EXISTING WEEKDAY PEAK PERIOD CONGESTION LEVELS

Source: HRTPO.

JAMES CITY COUNTY

Route Num	Location	Segment From	Segment To	Existing Peak Period Congestion Level			
				AM		PM	
				NB/EB	SB/WB	NB/EB	SB/WB
30	Rochambeau Dr	US 60 - Richmond Rd	0.7 mi east of Ashington Way	LOW	LOW	LOW	LOW
30	Rochambeau Dr	0.7 mi east of Ashington Way	Rte 607 - Croaker Rd	LOW	LOW	LOW	LOW
199	SR 199	US 60 - Richmond Rd/York CL	Rte 612 - Longhill Rd	LOW	LOW	LOW	LOW
199	SR 199	Rte 612 - Longhill Rd	SR 321 - Monticello Ave	LOW	LOW	LOW	LOW
199	SR 199	SR 321 - Monticello Ave	SR 5 - John Tyler Hwy	LOW	LOW	MOD	LOW
199	SR 199	SR 5 - John Tyler Hwy	Williamsburg CL	SEV	SEV	SEV	SEV
199	SR 199	Williamsburg CL	SR 132 - Henry St	LOW	MOD	LOW	SEV
199	SR 199	SR 132 - Henry St	Mounts Bay Rd	LOW	MOD	LOW	SEV
199	SR 199	Mounts Bay Rd	US 60 - Pocahontas Tr./York CL	LOW	LOW	LOW	SEV
616	Strawberry Plains Rd	SR 5 - John Tyler Hwy	Rte 615 - Ironbound Rd	MOD		LOW	

WILLIAMSBURG

Route Num	Location	Segment From	Segment To	Existing Peak Period Congestion Level			
				AM		PM	
				NB/EB	SB/WB	NB/EB	SB/WB
5	Boundary St	Jamestown Rd	Francis St	MOD		MOD	
60	Bypass Rd	Richmond Rd	York CL	LOW	LOW	MOD	MOD
60	Bypass Rd	SR 132 - Henry St	SR 5 - Capitol Landing Rd	LOW	LOW	LOW	LOW
5	Capitol Landing Rd	US 60 - Bypass Rd	SR 143 - Merrimac Trail	LOW		LOW	
-	Colonial Pkwy	James City CL	York CL	LOW		LOW	
5	Francis St	Boundary St	SR 132 - Henry St	LOW	LOW	LOW	LOW
132	Henry St	SR 199	Francis St	LOW	LOW	LOW	LOW
5	Henry St	Francis St	SR 5 - Lafayette St	LOW	LOW	MOD	MOD
132	Henry St	SR 5 - Lafayette St	SR 132 Y	LOW	LOW	LOW	LOW
7081	Ironbound Rd	James City CL	Depue Dr	LOW		LOW	
7081	Ironbound Rd	Depue Dr	Longhill Rd	LOW		MOD	
7081	Ironbound Rd	Longhill Rd	Richmond Rd	LOW		LOW	
31	Jamestown Rd	Williamsburg CL	SR 199	LOW	LOW	LOW	LOW
5	Jamestown Rd	SR 199	John Tyler Hwy	MOD	SEV	LOW	SEV
5	Jamestown Rd	John Tyler Hwy	College Creek	LOW	LOW	LOW	LOW
5	Jamestown Rd	College Creek	Boundary St	LOW	LOW	LOW	LOW
7077	Lafayette St	Richmond Rd	SR 132 - Henry St	MOD		MOD	
5	Lafayette St	SR 132 - Henry St	Capital Landing Rd	MOD		MOD	
5	Lafayette St	Capital Landing Rd	US 60 - Page St	MOD		MOD	
143	Merrimac Trail	York CL (South)	SR 5 - Capital Landing Rd	LOW	LOW	LOW	SEV
143	Merrimac Trail	SR 5 - Capital Landing Rd	York CL (North)	LOW	LOW	LOW	LOW
321	Monticello Ave	Rte 615 - Ironbound Rd	Richmond Rd	LOW		MOD	
60	Page St	SR 5 - Capitol Landing Rd	Second St	LOW	LOW	LOW	LOW
60	Page St	Second St	Lafayette St	LOW	LOW	LOW	LOW
-	Quarterpath Rd	SR 199	US 60 - York St	LOW		LOW	
60	Richmond Rd	James City CL	Ironbound Rd	LOW	LOW	LOW	LOW
60	Richmond Rd	Ironbound Rd	Bypass Rd	LOW	LOW	MOD	MOD
7075	Richmond Rd	Bypass Rd	Monticello Ave	LOW		MOD	
7075	Richmond Rd	Monticello Ave	Brooks St	MOD		MOD	
7075	Richmond Rd	Brooks St	Boundary St	MOD		MOD	
132	SR 132	SR 132 Y	US 60 - Bypass Rd	MOD	LOW	LOW	LOW
132	SR 132 Y	Colonial Parkway	SR 132 - Henry St	LOW		LOW	

FIGURE 8 (CONTINUED) – EXISTING WEEKDAY PEAK PERIOD CONGESTION LEVELS

Source: HRTPO.

WILLIAMSBURG

Route Num	Location	Segment From	Segment To	Existing Peak Period Congestion Level			
				AM		PM	
				NB/EB	SB/WB	NB/EB	SB/WB
199	SR 199	James City CL (West)	SR 31 - Jamestown Rd	SEV	SEV	SEV	SEV
199	SR 199	SR 31 - Jamestown Rd	James City CL (East)	LOW	MOD	LOW	SEV
7079	Second St	Page St	York CL	LOW		LOW	
-	Treyburn Dr	Monticello Ave	Ironbound Rd	LOW		LOW	
60	York St	Lafayette St	James City CL	LOW	LOW	LOW	LOW

YORK COUNTY

Route Num	Location	Segment From	Segment To	Existing Peak Period Congestion Level			
				AM		PM	
				NB/EB	SB/WB	NB/EB	SB/WB
1020	Ballard St	Colonial Pkwy	SR 238 - Cook Rd	LOW		MOD	
238	Ballard St	SR 238 - Cook Rd	Coast Guard Training Center	MOD		MOD	
600	Big Bethel Rd	Hampton CL	SR 134 - Hampton Hwy	LOW	LOW	MOD	LOW
600	Big Bethel Rd	SR 134 - Hampton Hwy	SR 171 - Victory Blvd	MOD	LOW	LOW	LOW
60	Bypass Rd	Williamsburg CL	Rte 713 - Waller Mill Rd	LOW	LOW	MOD	MOD
60	Bypass Rd	Rte 713 - Waller Mill Rd	SR 132 - Henry St	LOW	LOW	MOD	MOD
-	Colonial Pkwy	Williamsburg CL	Ballard St	MOD		MOD	
704	Cook Rd	US 17 - GW Mem Hwy	SR 238 - Goosley Rd	LOW		LOW	
238	Cook Rd	SR 238 - Goosley Rd	Ballard St	LOW		LOW	
173	Denbigh Blvd	Newport News CL	US 17 - GW Mem Hwy	LOW	LOW	LOW	LOW
782	E Yorktown Rd	SR 171 - Victory Blvd	Poquoson CL	LOW		LOW	
105	Fort Eustis Blvd	Newport News CL	US 17 - GW Mem Hwy	LOW	LOW	LOW	LOW
1050	Fort Eustis Blvd Ext	US 17 - GW Mem Hwy	Rte 634 - Old York Hampton Hwy	LOW		LOW	
17	George Washington Mem Hwy	Newport News CL	SR 171 - Victory Blvd	LOW	SEV	SEV	MOD
17	George Washington Mem Hwy	SR 171 - Victory Blvd	SR 134 - Hampton Hwy	LOW	MOD	LOW	SEV
17	George Washington Mem Hwy	SR 134 - Hampton Hwy	Rte 621 - Dare Rd	LOW	LOW	LOW	LOW
17	George Washington Mem Hwy	Rte 621 - Dare Rd	SR 173 - Denbigh Blvd	LOW	LOW	LOW	LOW
17	George Washington Mem Hwy	SR 173 - Denbigh Blvd	SR 105 - Fort Eustis Blvd	LOW	SEV	SEV	MOD
17	George Washington Mem Hwy	SR 105 - Fort Eustis Blvd	Rte 704 - Cook Rd	LOW	SEV	SEV	MOD
17	George Washington Mem Hwy	Rte 704 - Cook Rd	SR 238 - Goosley Rd	LOW	SEV	SEV	MOD
17	George Washington Mem Hwy	SR 238 - Goosley Rd	Gloucester CL	LOW	LOW	LOW	LOW
173	Goodwin Neck Rd	US 17 - GW Mem Hwy	Rte 630 - Wolf Trap Rd	LOW	MOD	LOW	SEV
238	Goosley Rd	SR 238 - Old Williamsburg Rd	Rte 637 - Crawford Rd	LOW		LOW	
238	Goosley Rd	Rte 637 - Crawford Rd	US 17 - GW Mem Hwy	LOW		LOW	
238	Goosley Rd	US 17 - GW Mem Hwy	Rte 704 - Cook Rd	LOW		LOW	
134	Hampton Hwy	US 17 - GW Mem Hwy	SR 171 - Victory Blvd	LOW	MOD	LOW	SEV
134	Hampton Hwy	SR 171 - Victory Blvd	Rte 600 - Big Bethel Rd	LOW	LOW	SEV	LOW
134	Hampton Hwy	Rte 600 - Big Bethel Rd	Hampton CL	LOW	LOW	MOD	LOW
64	I-64	James City CL	SR 199/Rte 646 - Newman Rd	LOW	LOW	LOW	LOW
64	I-64	SR 199/Rte 646 - Newman Rd	SR 143 - Camp Peary Rd	LOW	LOW	LOW	LOW
64	I-64	SR 143 - Camp Peary Rd	SR 199	MOD	LOW	LOW	LOW
64	I-64	SR 199	Busch Gardens Interchange	LOW	LOW	LOW	LOW
64	I-64	Busch Gardens Interchange	James City CL	MOD	LOW	MOD	MOD
646	Lightfoot Rd	US 60 - Richmond Rd	Mooretown Rd	LOW		LOW	

FIGURE 8 (CONTINUED) – EXISTING WEEKDAY PEAK PERIOD CONGESTION LEVELS

Source: HRTPO.

YORK COUNTY

Route Num	Location	Segment From	Segment To	Existing Peak Period Congestion Level			
				AM		PM	
				NB/EB	SB/WB	NB/EB	SB/WB
143	Merrimac Trail	James City CL	Busch Gardens Interchange	LOW	LOW	LOW	LOW
143	Merrimac Trail	Busch Gardens Interchange	SR 199/James City CL	LOW	LOW	LOW	LOW
143	Merrimac Trail	Penniman Rd	Second St	LOW	LOW	LOW	MOD
143	Merrimac Trail	Second St	Williamsburg CL	LOW	LOW	LOW	SEV
143	Merrimac Trail	Williamsburg CL	SR 132	LOW	LOW	LOW	LOW
603	Mooretown Rd	Rte 713 - Waller Mill Rd	Rte 645 - Airport Rd	LOW	LOW	LOW	LOW
603	Mooretown Rd	Rte 645 - Airport Rd	Old Mooretown Rd	LOW	LOW	LOW	LOW
603	Mooretown Rd	Old Mooretown Rd	SR 199	LOW	LOW	LOW	LOW
603	Mooretown Rd	SR 199	Rte 646 - Lightfoot Rd	LOW	LOW	LOW	LOW
646	Newman Rd	I-64	Rte 602 - Fenton Mill Rd	LOW	LOW	LOW	LOW
238	Old Williamsburg Rd	Newport News CL	Rte 660 - Baptist Rd	LOW	LOW	LOW	LOW
238	Old Williamsburg Rd	Rte 660 - Baptist Rd	SR 238 - Goosley Rd	LOW	LOW	LOW	LOW
641	Penniman Rd	SR 199	Colonial Pkwy	LOW	LOW	LOW	LOW
60	Pocahontas Trail	SR 199/James City CL	Kingsmill Rd	LOW	LOW	LOW	LOW
60	Pocahontas Trail	Kingsmill Rd	Busch Gardens Interchange	LOW	LOW	LOW	LOW
60	Pocahontas Trail	Busch Gardens Interchange	James City CL	LOW	LOW	LOW	LOW
132	SR 132	US 60 - Bypass Rd	SR 143 - Merrimac Trail	LOW	LOW	LOW	LOW
143	SR 143	SR 132	I-64	LOW	LOW	LOW	LOW
199	SR 199	I-64	Rte 603 - Mooretown Rd	LOW	LOW	LOW	LOW
199	SR 199	Rte 603 - Mooretown Rd	US 60 - Richmond Rd/JCC CL	LOW	LOW	LOW	LOW
199	SR 199	SR 143 - Merrimac Trail/JCC CL	I-64	LOW	LOW	LOW	LOW
199	SR 199	I-64	Manquis Pkwy	LOW	LOW	LOW	LOW
199	SR 199	Manquis Pkwy	Rte 641 - Penniman Rd	LOW	LOW	LOW	LOW
162	Second St	Williamsburg CL	SR 143 - Merrimac Trail	LOW	LOW	LOW	LOW
171	Victory Blvd	Newport News CL	US 17 - GW Mem Hwy	LOW	LOW	SEV	LOW
171	Victory Blvd	US 17 - GW Mem Hwy	SR 134 - Hampton Hwy	LOW	LOW	MOD	SEV
171	Victory Blvd	SR 134 - Hampton Hwy	Rte 600 - Big Bethel Rd	LOW	LOW	SEV	LOW
171	Victory Blvd	Rte 600 - Big Bethel Rd	Rte 782 - Cary's Chapel Rd	LOW	LOW	MOD	LOW
171	Victory Blvd	Rte 782 - Cary's Chapel Rd	Poquoson CL	LOW	LOW	MOD	LOW
713	Waller Mill Rd	US 60 - Bypass Rd	Rte 603 - Mooretown Rd	LOW	LOW	LOW	LOW

FIGURE 8 (CONTINUED) – EXISTING WEEKDAY PEAK PERIOD CONGESTION LEVELS

Source: HRTPO.

JAMES CITY COUNTY

Route Num	Location	Segment From	Segment To	AM PEAK PERIOD (5:00 am - 9:00 am)								PM PEAK PERIOD (3:00 pm - 7:00 pm)							
				Speed (mph)		Travel Time Index		Peak Time Start		Congestion Duration		Speed (mph)		Travel Time Index		Peak Time Start		Congestion Duration	
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
30	Barhamsville Rd	I-64	US 60 - Richmond Rd	47	42	1.06	1.12	7:15	5:15	-	-	49	41	1.00	1.13	15:00	17:45	-	-
64	I-64	New Kent CL	SR 30 - Old Stage Rd	68	67	0.98	0.99	6:15	5:00	-	-	65	69	1.02	0.97	15:45	17:00	-	-
64	I-64	SR 30 - Old Stage Rd	Rte 607 - Croaker Rd	65	66	1.02	0.99	8:45	5:00	-	-	66	65	1.00	1.02	16:15	16:15	-	-
64	I-64	Rte 607 - Croaker Rd	York CL	67	66	0.98	0.98	5:00	5:00	-	-	66	67	1.00	0.97	17:00	16:45	-	-
64	I-64	York CL	SR 143 Merrimac Trail/NN CL	53	56	1.21	1.13	8:45	8:00	-	-	50	54	1.29	1.17	15:45	17:30	-	-
615	Ironbound Rd/Sandy Bay Rd	SR 31 - Jamestown Rd	SR 5 - John Tyler Hwy	22	28	1.36	1.09	5:30	7:15	-	-	28	28	1.08	1.10	16:00	16:15	-	-
615	Ironbound Rd/News Rd	SR 5 - John Tyler Hwy	SR 321 - Monticello Ave	34	33	1.05	1.08	6:45	7:00	-	-	35	32	1.03	1.12	17:30	17:00	-	-
31	Jamestown Rd	Rte 614 - Greensprings Rd	Rte 681 - Sandy Bay Rd	41	32	1.01	1.32	7:15	6:15	-	-	38	40	1.08	1.05	17:45	17:00	-	-
31	Jamestown Rd	Rte 681 - Sandy Bay Rd	Williamsburg CL	32	37	1.14	1.02	5:00	7:30	-	-	33	36	1.11	1.05	15:15	18:30	-	-
5	John Tyler Memorial Hwy	Charles City CL	Rte 614 - Centerville Rd	48	54	1.03	1.04	8:45	8:00	-	-	45	54	1.10	1.04	15:15	16:30	-	-
5	John Tyler Memorial Hwy	Rte 614 - Centerville Rd	Rte 615 - Ironbound Rd	34	38	1.15	1.06	7:15	7:15	-	-	35	38	1.10	1.07	16:15	15:00	-	-
5	John Tyler Memorial Hwy	Rte 615 - Ironbound Rd	SR 199	29	33	1.15	1.02	7:00	8:30	-	-	29	30	1.15	1.12	16:30	17:30	-	-
143	Merrimac Trail	Newport News CL	York CL (S. of Busch Gardens)	48	46	1.09	1.12	8:15	5:00	-	-	43	48	1.21	1.06	17:00	15:30	-	-
143	Merrimac Trail	SR 199/York CL	Rte 641 - Penniman Rd/York CL	38	38	1.11	1.07	6:15	7:30	-	-	39	36	1.07	1.12	18:15	17:30	-	-
30	Old Stage Hwy	New Kent CL	Rte 601 - Barnes Rd	53	51	1.03	1.06	8:00	7:00	-	-	51	50	1.06	1.07	16:15	17:30	-	-
30	Old Stage Hwy	Rte 601 - Barnes Rd	I-64	54	53	1.03	1.03	5:00	8:00	-	-	55	52	1.02	1.04	16:45	17:30	-	-
60	Pocahontas Trail	Williamsburg CL	SR 199/York CL	29	31	1.16	1.14	8:00	8:45	-	-	31	33	1.11	1.07	17:15	15:30	-	-
60	Pocahontas Trail	York CL	Newport News CL	36	35	1.10	1.12	8:15	8:15	-	-	32	35	1.21	1.11	16:15	15:45	-	-
60	Richmond Rd	New Kent CL	SR 30 - Barhamsville Rd	53	50	1.05	1.13	8:15	7:15	-	-	53	56	1.05	1.00	15:00	15:00	-	-
60	Richmond Rd	SR 30 - Barhamsville Rd	Rte 607 - Croaker Rd	40	39	1.06	1.10	7:30	7:15	-	-	39	40	1.10	1.07	17:15	17:00	-	-
60	Richmond Rd	Rte 607 - Croaker Rd	Rte 614 - Centerville Rd	35	34	1.10	1.16	8:45	8:45	-	-	33	32	1.18	1.24	16:15	16:00	-	-
60	Richmond Rd	Rte 614 - Centerville Rd	SR 199	21	17	1.29	1.45	7:45	8:00	-	2	18	12	1.49	2.06	17:15	17:30	9	14
60	Richmond Rd	SR 199	Rte 658 - Olde Towne Rd	38	38	1.05	1.06	7:15	8:45	-	-	33	35	1.21	1.15	15:00	17:15	-	-
60	Richmond Rd	Rte 658 - Olde Towne Rd	Williamsburg CL	24	29	1.23	1.10	6:15	5:15	-	-	26	28	1.16	1.17	18:15	17:45	-	-
30	Rochambeau Dr	US 60 - Richmond Rd	Rte 607 - Croaker Rd	43	46	1.13	1.10	8:45	5:15	-	-	40	45	1.19	1.10	18:00	18:00	-	-
199	SR 199	US 60 - Richmond Rd/York CL	Rte 612 - Longhill Rd	59	56	1.04	1.09	6:15	7:00	-	-	60	59	1.02	1.03	18:30	15:30	-	-
199	SR 199	Rte 612 - Longhill Rd	SR 321 - Monticello Ave	56	57	1.05	1.03	5:15	6:00	-	-	57	59	1.04	1.00	18:30	18:45	-	-
199	SR 199	SR 321 - Monticello Ave	SR 5 - John Tyler Hwy	43	51	1.14	1.01	8:00	7:00	-	-	40	52	1.22	1.00	17:30	15:45	-	-
199	SR 199	SR 5 - John Tyler Hwy	Williamsburg CL	23	24	1.51	1.48	8:00	8:45	1	7	15	21	2.32	1.68	17:30	17:15	14	13
199	SR 199	Williamsburg CL	Mounds Bay Rd	41	36	1.16	1.29	8:00	8:00	-	-	40	31	1.17	1.51	17:15	17:30	-	3
199	SR 199	Mounds Bay Rd	US 60 - Pocahontas Tr/York CL	52	44	1.01	1.13	8:45	8:00	-	-	52	30	1.02	1.70	15:15	17:30	-	4

FIGURE 9 – ROADWAY PEAK PERIOD TRAVEL TIME AND SPEED DATA (2017)

Source: HRTPO analysis of INRIX data.

Speed represents the yearly average travel speed during the slowest 15-minute interval during each peak period.

Travel Time Index is the ratio of travel time in the peak period to travel time in free-flow conditions. A TTI of 1.20 means a 20-minute trip in free-flow conditions takes 24 minutes in the peak period.

Peak Time Start represents the starting time of the 15-minute period where the average speeds are the slowest during the peak period.

Congestion Duration represents the number of 15-minute intervals during each peak period when conditions are severely congested. Each roadway segment may be congested for up to 16 15-minute intervals during each peak period.

WILLIAMSBURG

Route Num	Location	Segment From	Segment To	AM PEAK PERIOD (5:00 am - 9:00 am)								PM PEAK PERIOD (3:00 pm - 7:00 pm)							
				Speed (mph)		Travel Time Index		Peak Time Start		Congestion Duration		Speed (mph)		Travel Time Index		Peak Time Start		Congestion Duration	
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
60	Bypass Rd	Richmond Rd	York CL	25	25	1.17	1.13	8:45	8:45	-	-	23	21	1.28	1.34	17:30	17:15	-	-
60	Bypass Rd	SR 132 - Henry St	SR 5 - Capitol Landing Rd	27	27	1.13	1.16	8:00	8:45	-	-	25	27	1.22	1.15	16:00	16:30	-	-
5	Francis St	Boundary St	SR 132 - Henry St	20	19	1.00	1.00	5:00	5:00	-	-	18	16	1.10	1.17	18:45	18:45	-	-
132	Henry St	SR 199	Francis St	29	26	1.02	1.08	5:45	8:15	-	-	28	27	1.06	1.03	15:45	18:45	-	-
5	Henry St	Francis St	SR 5 - Lafayette St	15	14	1.04	1.15	8:15	8:45	-	-	12	12	1.32	1.26	17:15	17:15	-	-
132	Henry St	SR 5 - Lafayette St	SR 132 Y	24	24	1.20	1.10	7:00	7:15	-	-	26	25	1.12	1.09	15:00	15:00	-	-
31	Jamestown Rd	Williamsburg CL	SR 199	32	37	1.14	1.02	5:00	7:30	-	-	33	36	1.11	1.05	15:15	18:30	-	-
5	Jamestown Rd	SR 199	John Tyler Hwy	23	14	1.31	1.53	8:00	7:15	-	4	24	14	1.22	1.59	15:00	16:45	-	10
5	Jamestown Rd	John Tyler Hwy	Boundary St	27	27	1.01	1.02	8:15	8:45	-	-	26	26	1.05	1.08	18:00	17:15	-	-
143	Merrimac Trail	York CL (South)	SR 5 - Capital Landing Rd	28	19	1.16	1.22	7:45	5:45	-	-	28	16	1.17	1.41	15:00	16:45	-	1
143	Merrimac Trail	SR 5 - Capital Landing Rd	York CL (North)	36	26	1.07	1.06	8:45	7:45	-	-	37	25	1.07	1.10	15:30	18:15	-	-
60	Page St	SR 5 - Capitol Landing Rd	Second St	27	27	1.16	1.13	8:45	8:00	-	-	27	25	1.15	1.22	16:30	16:00	-	-
60	Page St	Second St	Lafayette St	31	29	1.14	1.16	8:45	8:00	-	-	33	31	1.07	1.11	15:30	17:15	-	-
60	Richmond Rd	James City CL	Ironbound Rd	29	24	1.10	1.23	5:15	6:15	-	-	28	26	1.17	1.16	17:45	18:15	-	-
60	Richmond Rd	Ironbound Rd	Bypass Rd	25	25	1.13	1.17	8:45	8:45	-	-	21	23	1.34	1.28	17:15	17:30	-	-
132	SR 132	SR 132 Y	US 60 - Bypass Rd	22	30	1.26	1.12	8:45	7:45	-	-	22	31	1.23	1.07	17:30	15:45	-	-
199	SR 199	James City CL (West)	SR 31 - Jamestown Rd	23	24	1.51	1.48	8:00	8:45	1	7	15	21	2.32	1.68	17:30	17:15	14	13
199	SR 199	SR 31 - Jamestown Rd	James City CL (East)	41	36	1.16	1.29	8:00	8:00	-	-	40	31	1.17	1.51	17:15	17:30	-	3
60	York St	Lafayette St	James City CL	29	31	1.16	1.14	8:00	8:45	-	-	31	33	1.11	1.07	17:15	15:30	-	-

FIGURE 9 (CONTINUED) – ROADWAY PEAK PERIOD TRAVEL TIME AND SPEED DATA (2017)

Source: HRTPO analysis of INRIX data.

Speed represents the yearly average travel speed during the slowest 15-minute interval during each peak period.

Travel Time Index is the ratio of travel time in the peak period to travel time in free-flow conditions. A TTI of 1.20 means a 20-minute trip in free-flow conditions takes 24 minutes in the peak period.

Peak Time Start represents the starting time of the 15-minute period where the average speeds are the slowest during the peak period.

Congestion Duration represents the number of 15-minute intervals during each peak period when conditions are severely congested. Each roadway segment may be congested for up to 16 15-minute intervals during each peak period.

YORK COUNTY

Route Num	Location	Segment From	Segment To	AM PEAK PERIOD (5:00 am - 9:00 am)								PM PEAK PERIOD (3:00 pm - 7:00 pm)							
				Speed (mph)		Travel Time Index		Peak Time Start		Congestion Duration		Speed (mph)		Travel Time Index		Peak Time Start		Congestion Duration	
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
600	Big Bethel Rd	Hampton CL	SR 134 - Hampton Hwy	27	32	1.21	1.09	8:00	7:45	-	-	25	32	1.30	1.09	17:00	17:30	-	-
600	Big Bethel Rd	SR 134 - Hampton Hwy	SR 171 - Victory Blvd	26	28	1.32	1.25	8:45	8:45	-	-	28	29	1.22	1.21	15:45	15:45	-	-
60	Bypass Rd	Williamsburg CL	SR 132 - Henry St	25	25	1.17	1.13	8:45	8:45	-	-	23	21	1.28	1.34	17:30	17:15	-	-
173	Denbigh Blvd	Newport News CL	US 17 - GW Mem Hwy	38	39	1.11	1.06	8:00	8:00	-	-	34	37	1.22	1.12	17:30	16:15	-	-
105	Fort Eustis Blvd	Newport News CL	US 17 - GW Mem Hwy	43	46	1.09	1.05	8:00	7:30	-	-	42	47	1.12	1.03	17:30	15:00	-	-
17	George Washington Mem Hwy	Newport News CL	SR 171 - Victory Blvd	32	25	1.12	1.55	7:45	8:00	-	2	18	28	2.04	1.35	17:30	17:30	10	-
17	George Washington Mem Hwy	SR 171 - Victory Blvd	SR 134 - Hampton Hwy	39	24	0.99	1.37	8:45	8:00	-	-	32	23	1.18	1.45	18:00	17:15	-	4
17	George Washington Mem Hwy	SR 134 - Hampton Hwy	SR 173 - Denbigh Blvd	32	36	1.07	1.04	7:45	7:45	-	-	30	37	1.16	1.00	16:30	18:45	-	-
17	George Washington Mem Hwy	SR 173 - Denbigh Blvd	SR 105 - Fort Eustis Blvd	39	30	1.16	1.48	7:00	7:45	-	2	30	33	1.49	1.34	16:45	17:30	6	-
17	George Washington Mem Hwy	SR 105 - Fort Eustis Blvd	SR 238 - Goosley Rd	39	30	1.16	1.48	7:00	7:45	-	2	30	33	1.49	1.34	16:45	17:30	6	-
17	George Washington Mem Hwy	SR 238 - Goosley Rd	Gloucester CL	45	45	1.06	1.09	8:00	7:45	-	-	42	42	1.15	1.16	16:45	17:30	-	-
173	Goodwin Neck Rd	US 17 - GW Mem Hwy	Rte 630 - Wolf Trap Rd	31	27	1.22	1.31	7:45	8:15	-	-	31	25	1.20	1.41	17:15	17:15	-	2
134	Hampton Hwy	US 17 - GW Mem Hwy	SR 171 - Victory Blvd	38	28	1.06	1.36	8:30	8:45	-	-	32	22	1.25	1.69	17:30	17:30	-	6
134	Hampton Hwy	SR 171 - Victory Blvd	Rte 600 - Big Bethel Rd	34	35	1.21	1.19	7:45	8:00	-	-	29	36	1.45	1.16	17:45	15:45	2	-
134	Hampton Hwy	Rte 600 - Big Bethel Rd	Hampton CL	39	36	1.12	1.24	5:00	7:45	-	-	33	38	1.33	1.18	17:30	17:30	-	-
64	I-64	James City CL	SR 199/Rte 646 - Newman Rd	67	66	0.98	0.98	5:00	5:00	-	-	66	67	1.00	0.97	17:00	16:45	-	-
64	I-64	SR 199/Rte 646 - Newman Rd	SR 143 - Camp Peary Rd	65	66	1.02	0.99	8:45	5:00	-	-	63	65	1.04	1.00	17:15	15:00	-	-
64	I-64	SR 143 - Camp Peary Rd	SR 199	55	64	1.18	1.02	8:45	5:15	-	-	60	63	1.07	1.03	15:00	15:00	-	-
64	I-64	SR 199	Busch Gardens Interchange	59	58	1.09	1.06	7:30	8:45	-	-	57	56	1.13	1.10	15:30	15:15	-	-
64	I-64	Busch Gardens Interchange	James City CL	53	56	1.21	1.13	8:45	8:00	-	-	50	54	1.29	1.17	15:45	17:30	-	-
143	Merrimac Trail	James City CL	Busch Gardens Interchange	46	48	1.12	1.09	5:00	8:15	-	-	48	43	1.06	1.21	15:30	17:00	-	-
143	Merrimac Trail	Busch Gardens Interchange	SR 199/James City CL	45	50	1.05	1.04	8:15	5:30	-	-	44	51	1.07	1.02	17:30	15:00	-	-
143	Merrimac Trail	Penniman Rd	Second St	29	26	1.04	1.20	8:45	6:45	-	-	24	24	1.24	1.28	15:30	17:15	-	-
143	Merrimac Trail	Second St	Williamsburg CL	28	19	1.16	1.22	7:45	5:45	-	-	28	16	1.17	1.41	15:00	16:45	-	1
143	Merrimac Trail	Williamsburg CL	SR 132	36	26	1.07	1.06	8:45	7:45	-	-	37	25	1.07	1.10	15:30	18:15	-	-
641	Penniman Rd	SR 199	Colonial Pkwy	41	45	1.10	1.00	6:45	5:00	-	-	42	43	1.09	1.03	15:45	15:30	-	-
60	Pocahontas Trail	SR 199/James City CL	Busch Gardens Interchange	32	35	1.05	1.09	8:45	8:30	-	-	30	30	1.15	1.24	18:00	16:15	-	-
60	Pocahontas Trail	Busch Gardens Interchange	James City CL	36	35	1.10	1.12	8:15	8:15	-	-	32	35	1.21	1.11	16:15	15:45	-	-
132	SR 132	US 60 - Bypass Rd	SR 143 - Merrimac Trail	33	38	1.24	1.07	7:30	7:00	-	-	34	37	1.20	1.10	17:00	16:45	-	-
143	SR 143	SR 132	I-64	24	28	1.08	1.12	8:45	8:00	-	-	21	25	1.19	1.24	15:45	15:45	-	-
199	SR 199	I-64	Rte 603 - Mooretown Rd	48	51	1.08	1.02	5:30	5:00	-	-	53	53	0.98	0.97	16:15	18:30	-	-
199	SR 199	Rte 603 - Mooretown Rd	US 60 - Richmond Rd/JCC CL	56	58	1.04	0.99	5:00	5:00	-	-	58	58	0.99	1.00	18:15	16:15	-	-
199	SR 199	SR 143 - Merrimac Trail/JCC CL	I-64	50	45	1.06	1.05	5:00	5:15	-	-	52	50	1.02	0.96	15:15	15:15	-	-
171	Victory Blvd	Newport News CL	US 17 - GW Mem Hwy	26	34	1.21	1.11	8:45	7:30	-	-	18	32	1.76	1.20	17:30	17:30	8	-
171	Victory Blvd	US 17 - GW Mem Hwy	SR 134 - Hampton Hwy	28	22	1.16	1.25	8:45	6:00	-	-	25	19	1.32	1.45	17:45	17:00	-	4
171	Victory Blvd	SR 134 - Hampton Hwy	Rte 600 - Big Bethel Rd	39	33	1.06	1.17	8:15	7:45	-	-	23	32	1.79	1.23	17:45	16:00	6	-
171	Victory Blvd	Rte 600 - Big Bethel Rd	Poquoson CL	36	31	1.09	1.24	8:15	7:45	-	-	30	32	1.30	1.19	17:45	17:30	-	-

FIGURE 9 (CONTINUED) – ROADWAY PEAK PERIOD TRAVEL TIME AND SPEED DATA (2017)

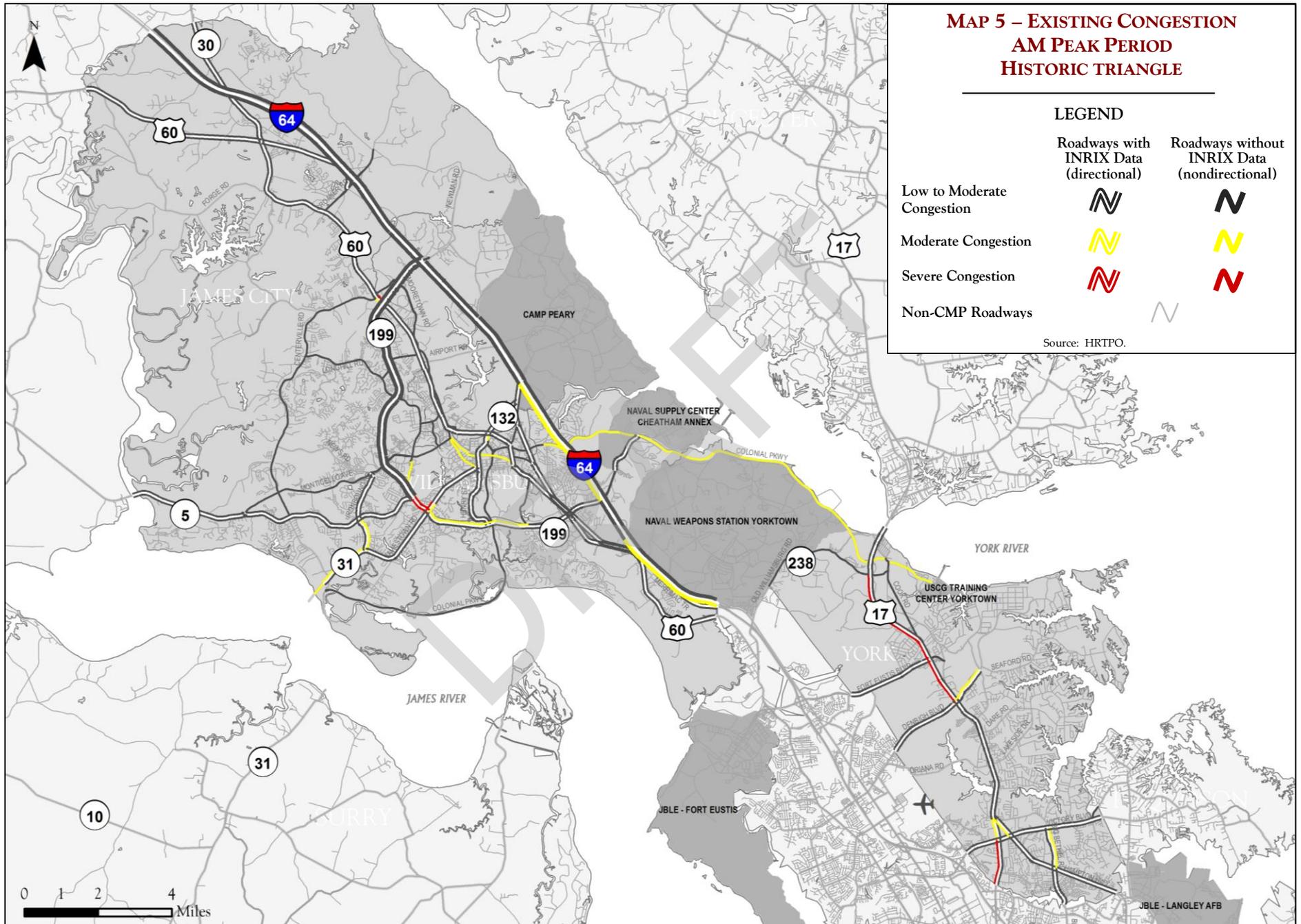
Source: HRTPO analysis of INRIX data.

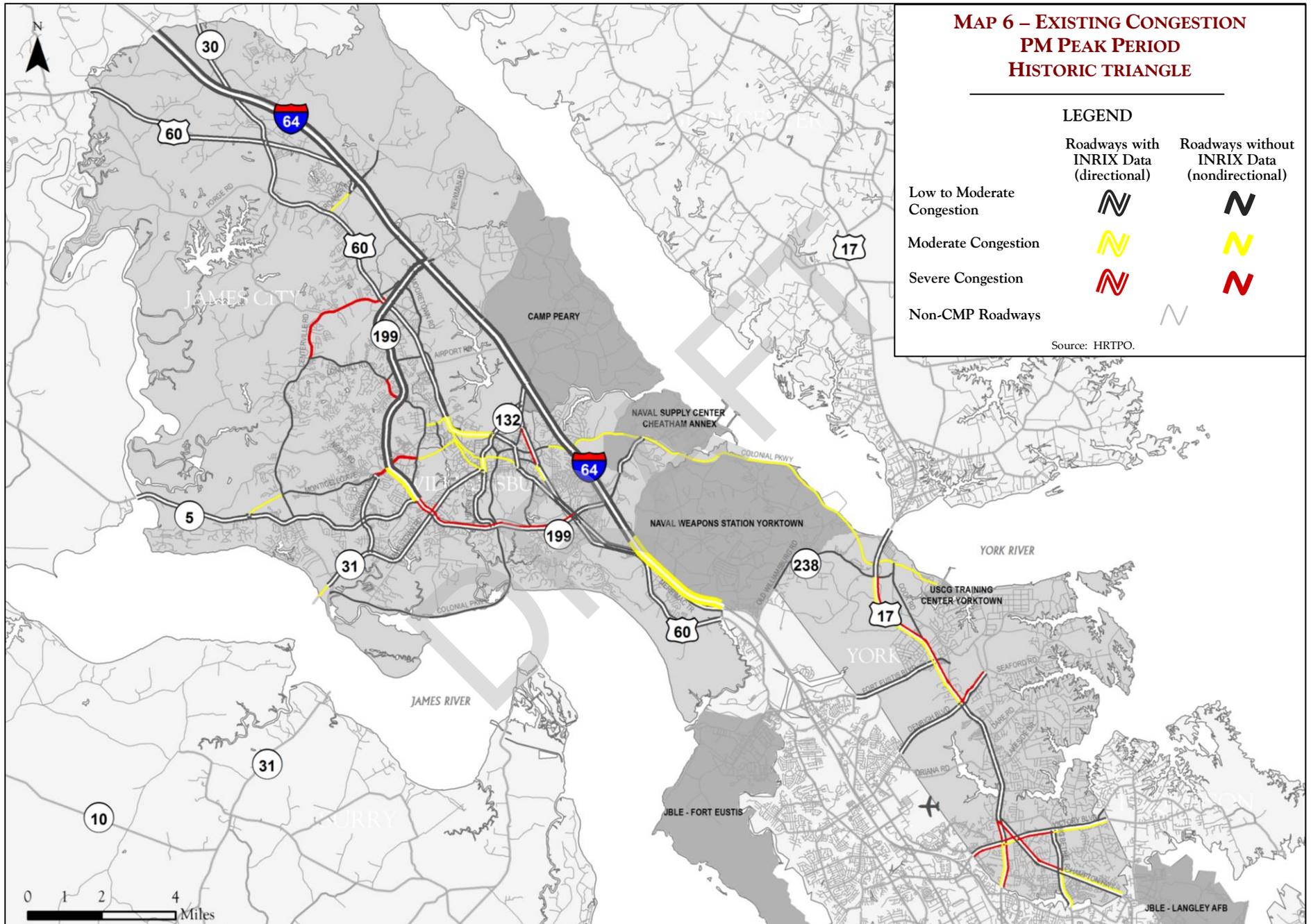
Speed represents the yearly average travel speed during the slowest 15-minute interval during each peak period.

Travel Time Index is the ratio of travel time in the peak period to travel time in free-flow conditions. A TTI of 1.20 means a 20-minute trip in free-flow conditions takes 24 minutes in the peak period.

Peak Time Start represents the starting time of the 15-minute period where the average speeds are the slowest during the peak period.

Congestion Duration represents the number of 15-minute intervals during each peak period when conditions are severely congested. Each roadway segment may be congested for up to 16 15-minute intervals during each peak period.





ROADWAY SAFETY

Roadway crashes have a wide range of impacts, not only on the transportation system but also on families, friends, and society as a whole. Because of these impacts, roadway safety must be one of the highest priorities in the transportation planning process.

There were over 2,300 traffic crashes in the Historic Triangle in 2017 (Figures 10 and 11), which resulted in 20 fatalities and 1,358 injuries. On a locality basis:

- James City County – 1,002 total crashes with 15 fatalities and 715 injuries
- Williamsburg – 209 total crashes with no fatalities and 139 injuries
- York County – 1,101 total crashes with 5 fatalities and 504 injuries

In James City County, the number of crashes, injuries, and fatalities were all at record-high levels in 2017. In fact, the number of crashes, injuries, and fatalities were all more than twice the level seen back in 2000. In Williamsburg, the number of crashes and injuries decreased from 2016 to 2017, but were still much higher than the levels seen throughout the early 2010s. The number of crashes in York County hit a 13-year high in 2017, but the number of injuries in 2017 was lower than most years since 2000.

Characteristics of crashes in the Historic Triangle for the last five years (2013-2017) are shown in Figure 12 on page 28. Notable among these characteristics – which are emphasis areas in the [Virginia Strategic Highway Safety Plan](#) – include:

Year	James City County			Williamsburg			York County		
	Fatalities	Injuries	Crashes	Fatalities	Injuries	Crashes	Fatalities	Injuries	Crashes
2000	7	324	499	0	103	185	9	549	857
2001	4	366	513	0	108	215	10	555	868
2002	6	383	558	1	103	222	9	592	896
2003	5	385	656	0	119	204	11	677	1089
2004	6	384	650	0	99	186	5	717	1137
2005	8	403	703	0	99	186	12	672	1053
2006	7	375	759	0	94	171	4	570	1052
2007	4	373	726	0	95	236	8	554	1063
2008	9	323	608	0	99	181	8	538	909
2009	4	451	660	1	76	141	2	479	778
2010	2	623	698	0	93	160	6	476	823
2011	6	654	703	2	113	162	5	539	905
2012	1	447	741	0	96	173	2	600	970
2013	8	438	770	0	117	194	4	523	947
2014	5	442	734	0	111	195	5	472	888
2015	8	482	819	0	94	215	5	515	938
2016	4	522	869	0	149	216	9	442	920
2017	15	715	1002	0	139	209	5	504	1101

FIGURE 10 – NUMBER OF FATALITIES, INJURIES, AND CRASHES IN THE HISTORIC TRIANGLE, 2000-2017

Source: HRTPO analysis of VDOT data.

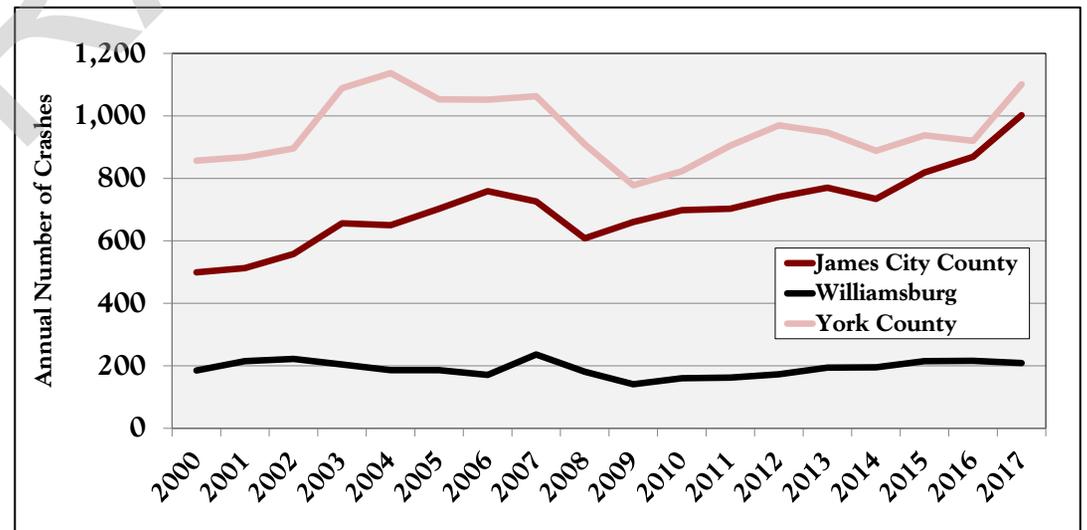
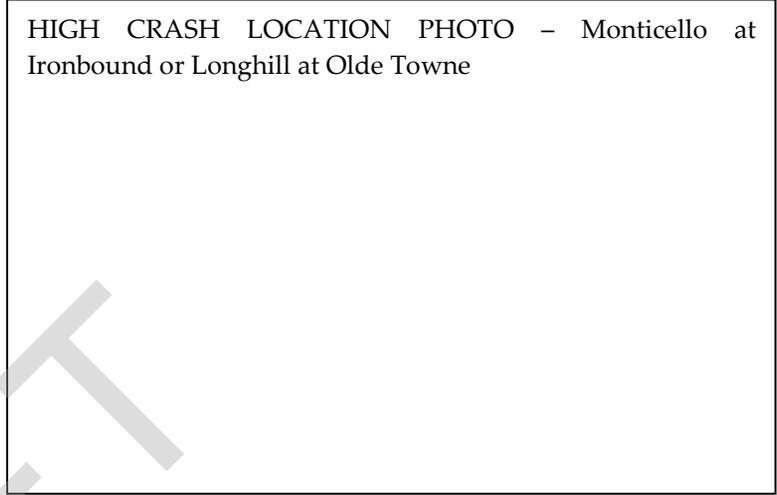


FIGURE 11 – NUMBER OF CRASHES IN THE HISTORIC TRIANGLE, 2000-2017

Source: HRTPO analysis of VDOT data.

- **Alcohol Use** – Although 6% of all crashes in the Historic Triangle involved alcohol use from 2013-2017, 29% of all fatalities resulted from traffic crashes involving alcohol use. This is especially an issue in James City County, where 38% of all fatalities in traffic crashes resulted from crashes that involve alcohol use.
- **Active Transportation** – Although only 2% of all crashes and 3% of all injuries in the Historic Triangle involved bicyclists or pedestrians, 19% of all fatalities in traffic crashes in the Historic Triangle from 2013-2017 were bicyclists or pedestrians.
- **Distracted Driving** – Nearly one out of four crashes (24%) and more than four out of every ten fatalities (44%) in the Historic Triangle resulted from distracted driving.
- **Roadway Departure** – Half of all fatalities in the Historic Triangle involved the vehicle departing the roadway. In York County, 61% of all fatalities involved roadway departure.
- **Speeding** – Between 2013 and 2017, four out of every ten fatalities (41%) in the Historic Triangle involved speeding.
- **Safety Belt Use** – Nearly half (47%) of all people killed in traffic crashes in the Historic Triangle between 2013 and 2017 were not using a safety belt. In James City County, this number is 60%.



- **EPDO Rate** - The Equivalent Property Damage Only (EPDO) Rate not only takes into account the rate of crashes but the severity of crashes as well. Priority should be given to those roadway segments with the highest EPDO Rates. EPDO Rates are calculated by first categorizing crashes into those that involve at least one fatality (FAT crashes), at least one injury but no fatalities (INJ crashes), and that only result in property damage (PDO crashes). Weighting factors are then applied to FAT and INJ crashes to account for the increased severity of these types of crashes. This analysis uses the same weighting factors (3 for INJ crashes, 12 for FAT) that HRTPO used in the Hampton Roads Regional Safety Study⁶, which results in the following formula:

$$\text{EPDO Rate} = \frac{1,000,000 \times \left[\begin{array}{l} \text{Annual PDO crashes} \\ + 3 \times \text{Annual INJ crashes} \\ + 12 \times \text{Annual FAT crashes} \end{array} \right]}{365 \times \text{AADT} \times \text{Segment Length}}$$

Roadway Segments

In order to determine the location of crashes on roadway segments throughout the Historic Triangle, HRTPO staff analyzed VDOT crash location data for the five-year period from 2013-2017. Based on this analysis, HRTPO produced two measures that evaluate the safety of each roadway segment:

- **Crash Rate** – The crash rate is the number of crashes on a roadway segment divided by the total amount of roadway travel, listed in terms of million vehicle-miles of travel (MVMT).

⁶ Hampton Roads Regional Safety Study 2013/2014 Update, HRTPO, October 2013.

	JAMES CITY COUNTY			WILLIAMSBURG			YORK COUNTY			HISTORIC TRIANGLE		
	% OF CRASHES	% OF INJURIES	% OF FATALITIES	% OF CRASHES	% OF INJURIES	% OF FATALITIES	% OF CRASHES	% OF INJURIES	% OF FATALITIES	% OF CRASHES	% OF INJURIES	% OF FATALITIES
 Alcohol	6.0%	7.0%	37.5%	6.0%	7.4%	N/A	5.4%	6.5%	17.9%	5.9%	6.8%	29.4%
 Bike/Pedestrian	2.1%	3.6%	17.5%	5.4%	9.7%	N/A	0.8%	1.6%	21.4%	1.8%	3.4%	19.1%
 Distracted Driving	24.4%	25.6%	50.0%	33.6%	34.8%	N/A	22.6%	23.8%	35.7%	24.5%	25.8%	44.1%
 Intersections	39.6%	41.1%	37.5%	34.6%	33.4%	N/A	45.1%	46.2%	25.0%	41.7%	42.5%	32.4%
 Road Departure	20.1%	17.9%	42.5%	8.0%	8.4%	N/A	16.7%	15.6%	60.7%	17.2%	15.8%	50.0%
 Speeding	14.7%	16.4%	45.0%	11.5%	12.3%	N/A	20.5%	21.1%	35.7%	17.1%	18.0%	41.1%
 Unbelted	4.1%	9.0%	60.0%	3.1%	7.9%	N/A	2.2%	7.1%	28.6%	3.1%	8.1%	47.1%
 Young Drivers	24.7%	24.7%	7.5%	22.8%	22.8%	N/A	24.7%	24.7%	17.9%	24.5%	24.5%	11.8%

FIGURE 12 – CHARACTERISTICS OF CRASHES IN THE HISTORIC TRIANGLE, 2013-2017

Source: HRTPO analysis of VDOT data. Image source: VDOT.

Figure 13 on pages 30-34 shows both the Crash Rate and EPDO Rate for 2013-2017 for all of the roadway segments in the Historic Triangle that are classified as minor collectors and above. **Map 7 on page 35** shows the EPDO Rate for each of these roadways.

The roadways in the Historic Triangle that are the most hazardous (based on having the highest EPDO Rates between 2013 and 2017) are shown below:

James City County

- Cranston's Mill Pond Road - Jolly Pond Road to Chickahominy Road (EPDO Rate = 34.16)
- Airport Road - Richmond Road to Mooretown Road (29.20)
- Brookwood Drive - Lake Powell Road to Route 199 (19.39)
- Longhill Road - Olde Towne Road to Route 199 (10.56)
- Richmond Road - Lightfoot Road to Route 199 (10.01)
- Jolly Pond Road - Cranston's Mill Pond Road to Centerville Road (9.89)
- Greensprings Road - Jamestown Road to John Tyler Highway (8.47)
- Monticello Avenue - Route 199 to Ironbound Road (8.28)

Williamsburg

- Jamestown Road - James City CL to Route 199 (33.79)
- Francis Street - Boundary street to Henry Street (24.34)
- Boundary Street - Jamestown Road to Francis Street (13.97)
- Henry Street - Lafayette Street to Route 132Y (13.53)
- Route 132 - Route 132Y to Bypass Road (12.05)
- Jamestown Road - Route 199 to John Tyler Highway (11.45)
- Ironbound Road - Longhill Road to Richmond Road (10.43)
- Bypass Road - Richmond Road to York CL (9.15)

York County

- Waller Mill Road - Bypass Road to Mooretown Road (19.11)
- Old York Hampton Highway - Fort Eustis Boulevard Ext to Hornsbyville Road (16.85)
- Merrimac Trail - Penniman Road to Second Street (12.17)
- Barlow Road - Skimino Road to Rochambeau Drive (12.17)
- Mooretown Road - Route 199 to Lightfoot Road (10.26)
- Goosley Road - George Washington Memorial Highway to Cook Road (8.20)
- Fort Eustis Boulevard Ext - George Washington Memorial Highway to Old York Hampton Highway (8.10)

JAMES CITY COUNTY

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
645	Airport Rd	US 60 - Richmond Rd	Rte 603 - Mooretown Rd/York CL	16	10	0	26	16.51	29.20
30	Barhamsville Rd	I-64	US 60 - Richmond Rd	26	13	2	41	1.34	2.90
700	Brookwood Dr	Rte 617 - Lake Powell Rd	SR 199	11	4	0	15	12.65	19.39
614	Centerville Rd	SR 5 - John Tyler Hwy	Rte 5000 - Monticello Ave	8	4	0	12	2.51	4.18
614	Centerville Rd	Rte 5000 - Monticello Ave	Rte 613 - News Road	10	11	0	21	1.35	2.77
614	Centerville Rd	Rte 613 - News Road	Rte 612 - Longhill Rd	27	10	1	38	0.80	1.45
614	Centerville Rd	Rte 612 - Longhill Rd	US 60 - Richmond Rd	53	47	1	101	1.78	3.63
631	Chickahominy Rd	Rte 632 - Cranstons Mill Pond Rd	US 60 - Richmond Rd	5	5	0	10	1.43	2.87
-	Colonial Pkwy	Jamestown Visitor Center	Williamsburg CL	0	3	0	3	0.09	0.27
632	Cranston's Mill Pond Rd	Rte 611 - Jolly Pond Rd	Rte 631 - Chickahominy Rd	17	11	0	28	19.13	34.16
607	Croaker Rd	US 60 - Richmond Rd	I-64	15	26	0	41	1.99	4.51
607	Croaker Rd	I-64	Rte 606 - Ware Creek Rd	7	15	0	22	1.70	4.02
615	Depue Dr	Rte 615 - Ironbound Rd	SR 322 - Ashbury Rd	4	5	0	9	0.99	2.08
615	Depue Dr	SR 322 - Ashbury Rd	Rte 612 - Longhill Rd	2	3	0	5	1.14	2.52
603	Diascund Rd	Rte 610 - Forge Rd	US 60 - Richmond Rd	7	5	1	13	2.83	7.39
610	Forge Rd	Rte 603 - Diascund Rd	US 60 - Richmond Rd	20	12	0	32	2.02	3.53
614	Greensprings Rd	SR 31 - Jamestown Rd	SR 5 - John Tyler Hwy	27	23	0	50	4.41	8.47
64	I-64	New Kent CL	SR 30 - Old Stage Rd	96	43	3	142	0.51	0.94
64	I-64	SR 30 - Old Stage Rd	Rte 607 - Croaker Rd	115	45	3	163	0.33	0.58
64	I-64	Rte 607 - Croaker Rd	York CL	52	30	1	83	0.40	0.74
64	I-64	York CL	SR 143 Merrimac Trail/NN CL	386	186	2	574	1.60	2.69
615	Ironbound Rd	SR 31 - Jamestown Rd	SR 5 - John Tyler Hwy	9	6	0	15	1.24	2.24
615	Ironbound Rd/News Rd	SR 5 - John Tyler Hwy	Rte 5000 - Monticello Ave	25	18	0	43	1.97	3.62
615	Ironbound Rd	SR 321 - Monticello Ave	Rte 616 - Strawberry Plains Rd	4	7	0	11	3.24	7.37
615	Ironbound Rd	Rte 616 - Strawberry Plains Rd	SR 321 - Monticello Ave	3	2	0	5	1.99	3.58
615	Ironbound Rd	SR 321 - Monticello Ave	Williamsburg CL	10	17	2	29	1.97	5.78
359	Jamestown Festival Pkwy	Colonial Pkwy	SR 31 - Jamestown Rd	0	0	0	0	0.00	0.00
31	Jamestown Rd	Jamestown Ferry	Rte 681 - Sandy Bay Rd	19	11	0	30	1.26	2.19
31	Jamestown Rd	Rte 681 - Sandy Bay Rd	Williamsburg CL	32	26	0	58	1.59	3.01
5	John Tyler Memorial Hwy	Charles City CL	Rte 5000 - Monticello Ave	6	8	1	15	1.79	5.01
5	John Tyler Memorial Hwy	Rte 5000 - Monticello Ave	Rte 614 - Centerville Rd	27	9	0	36	2.39	3.58
5	John Tyler Memorial Hwy	Rte 614 - Centerville Rd	Rte 615 - Ironbound Rd	20	15	0	35	1.16	2.15
5	John Tyler Memorial Hwy	Rte 615 - Ironbound Rd	SR 199	27	30	1	58	1.78	3.96
611	Jolly Pond Rd	Rte 632 - Cranston's Mill Pond Rd	Rte 614 - Centerville Rd	8	6	0	14	5.32	9.89
617	Lake Powell Rd	Treasure Island Rd	Rte 700 - Brookwood Dr	6	2	0	8	2.66	3.99
612	Longhill Rd	Rte 614 - Centerville Rd	Rte 658 - Olde Towne Rd	41	39	0	80	2.44	4.83
612	Longhill Rd	Rte 658 - Olde Towne Rd	SR 199	51	50	0	101	5.30	10.56
612	Longhill Rd	SR 199	Rte 615 - Depue Dr	13	7	0	20	2.31	3.93
612	Longhill Rd	Rte 615 - Depue Dr	Williamsburg CL	2	7	0	9	1.85	4.74
143	Merrimac Trail	York CL	Rte 641 - Penniman Rd/York CL	43	30	1	74	2.38	4.66
143	Merrimac Trail	Newport News CL	York CL	37	32	0	69	1.49	2.88
5000	Monticello Ave	SR 5 - John Tyler Hwy	Rte 614 - Centerville Rd	4	2	0	6	0.79	1.31
5000	Monticello Ave	Rte 614 - Centerville Rd	Rte 613 - News Road	22	20	0	42	0.97	1.89
5000	Monticello Ave	Rte 613 - News Road	SR 199	58	47	1	106	2.72	5.42
321	Monticello Ave	SR 199	Rte 615 - Ironbound Rd	93	79	0	172	4.32	8.28
646	Newman Rd	York CL	Rte 606 - Riverview Rd	4	2	0	6	1.58	2.63

FIGURE 13 – ROADWAY SEGMENT CRASH AND EPDO RATES IN THE HISTORIC TRIANGLE, 2013-2017

Source: HRTPO analysis of VDOT data.

JAMES CITY COUNTY

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
613	News Rd	Rte 614 - Centerville Rd	Powhatan Secondary	15	12	2	29	1.82	4.71
613	News Rd	Powhatan Secondary	Rte 5000 - Monticello Ave	10	11	0	21	2.13	4.35
30	Old Stage Hwy	New Kent CL	I-64	41	32	2	75	1.82	3.91
658	Olde Towne Rd	Rte 612 - Longhill Rd	US 60 - Richmond Rd	49	38	0	87	3.94	7.38
60	Pocahontas Trail	Williamsburg CL	SR 199	14	16	0	30	1.46	3.01
60	Pocahontas Trail	York CL	Newport News CL	39	46	2	87	1.26	2.92
60	Richmond Rd	New Kent CL	SR 30 - Barhamsville Rd	43	32	5	80	1.44	3.58
60	Richmond Rd	SR 30 - Barhamsville Rd	Rte 607 - Croaker Rd	42	33	1	76	0.88	1.76
60	Richmond Rd	Rte 607 - Croaker Rd	Rte 646 - Lightfoot Rd	86	66	0	152	1.61	3.00
60	Richmond Rd	Rte 646 - Lightfoot Rd	SR 199	43	30	0	73	5.49	10.01
60	Richmond Rd	SR 199	Williamsburg CL	67	66	0	133	2.41	4.80
30	Rochambeau Dr	US 60 - Richmond Rd	Rte 607 - Croaker Rd	21	24	0	45	0.99	2.04
199	SR 199	US 60 - Richmond Rd	Rte 612 - Longhill Rd	52	32	0	84	0.74	1.31
199	SR 199	Rte 612 - Longhill Rd	SR 321 - Monticello Ave	33	17	0	50	0.51	0.85
199	SR 199	SR 321 - Monticello Ave	SR 5 - John Tyler Hwy	35	19	0	54	0.70	1.19
199	SR 199	SR 5 - John Tyler Hwy	Williamsburg CL	15	18	0	33	2.40	5.02
199	SR 199	Williamsburg CL	Brookwood Dr	11	10	0	21	2.99	5.83
199	SR 199	Brookwood Dr	SR 132 - Henry St	29	23	1	53	0.62	1.28
199	SR 199	SR 132 - Henry St	Mounts Bay Rd	41	19	0	60	0.91	1.48
199	SR 199	Mounts Bay Rd	US 60 - Pocahontas Trail/York CL	36	21	0	57	0.84	1.46
681	Sandy Bay Rd	SR 31 - Jamestown Rd	Rte 615 - Ironbound Rd	2	2	0	4	1.74	3.48
616	Strawberry Plains Rd	SR 5 - John Tyler Hwy	Rte 615 - Ironbound Rd	16	15	0	31	1.75	3.44

WILLIAMSBURG

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
5	Boundary St	Jamestown Rd	Francis St	4	4	0	8	6.99	13.97
60	Bypass Rd	Richmond Rd	York CL	13	10	0	23	4.89	9.15
60	Bypass Rd	SR 132 - Henry St	SR 5 - Capitol Landing Rd	15	16	0	31	1.71	3.47
5	Capitol Landing Rd	US 60 - Bypass Rd	SR 143 - Merrimac Trail	7	16	0	23	3.01	7.21
-	Colonial Pkwy	James City CL	York CL	1	1	0	2	0.07	0.15
5	Francis St	Boundary St	SR 132 - Henry St	8	6	0	14	13.11	24.34
7075	Francis St	SR 132 - Henry St	US 60 - Page St	14	4	0	18	1.96	2.83
132	Henry St	SR 199	Francis St	9	6	0	15	1.54	2.78
5	Henry St	Francis St	SR 5 - Lafayette St	8	4	0	12	3.70	6.16
132	Henry St	SR 5 - Lafayette St	SR 132 Y	12	16	0	28	6.31	13.53
7081	Ironbound Rd	James City CL	Depue Dr	5	2	0	7	0.73	1.15
7081	Ironbound Rd	Depue Dr	Longhill Rd	20	9	0	29	3.04	4.92
7081	Ironbound Rd	Longhill Rd	Richmond Rd	3	3	0	6	5.22	10.43
31	Jamestown Rd	James City CL	SR 199	9	10	0	19	16.46	33.79
5	Jamestown Rd	SR 199	John Tyler Hwy	15	11	0	26	6.20	11.45
5	Jamestown Rd	John Tyler Hwy	College Creek	4	3	0	7	0.71	1.31

FIGURE 13 (CONTINUED) – ROADWAY SEGMENT CRASH AND EPDO RATES IN THE HISTORIC TRIANGLE, 2013-2017

Source: HRTPO analysis of VDOT data.

WILLIAMSBURG

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
5	Jamestown Rd	College Creek	Boundary St	23	16	0	39	2.48	4.52
7077	Lafayette St	Richmond Rd	SR 132 - Henry St	19	21	0	40	2.45	5.02
5	Lafayette St	SR 132 - Henry St	US 60 - Page St	20	14	0	34	1.86	3.40
7082	Longhill Rd	Ironbound Rd	James City CL	7	4	0	11	2.20	3.81
143	Merrimac Trail	York CL (South)	SR 5 - Capital Landing Rd	17	9	0	26	2.36	4.00
143	Merrimac Trail	SR 5 - Capital Landing Rd	York CL (North)	4	5	0	9	1.48	3.12
321	Monticello Ave	Rte 615 - Ironbound Rd	Richmond Rd	46	31	0	77	2.22	4.02
60	Page St	SR 5 - Capitol Landing Rd	Second St	8	7	0	15	1.30	2.51
60	Page St	Second St	Lafayette St	9	9	0	18	2.94	5.88
7086	Penniman Rd	Page St	York CL	4	4	0	8	3.10	6.21
-	Quarterpath Rd	SR 199	US 60 - York St	5	3	0	8	2.77	4.84
60	Richmond Rd	James City CL	Ironbound Rd	46	49	0	95	1.88	3.82
60	Richmond Rd	Ironbound Rd	Bypass Rd	27	11	0	38	2.75	4.35
7075	Richmond Rd	Bypass Rd	Monticello Ave	24	7	0	31	2.41	3.51
7075	Richmond Rd	Monticello Ave	Brooks St	12	10	0	22	3.20	6.10
7075	Richmond Rd	Brooks St	Boundary St	20	22	0	42	3.46	7.09
132	SR 132	SR 132 Y	US 60 - Bypass Rd	8	7	0	15	6.23	12.05
132	SR 132 Y	Colonial Parkway	SR 132 - Henry St	6	3	0	9	3.09	5.15
199	SR 199	James City CL (West)	SR 31 - Jamestown Rd	28	19	0	47	3.14	5.67
199	SR 199	SR 31 - Jamestown Rd	James City CL (East)	15	12	0	27	2.64	4.99
7079	Second St	Page St	York CL	18	15	0	33	3.34	6.37
-	Treyburn Dr	Monticello Ave	Ironbound Rd	6	0	0	6	1.50	1.50
60	York St	Lafayette St	James City CL	6	15	0	21	1.65	4.01

YORK COUNTY

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
645	Airport Rd	Rte 603 - Mooretown Rd	FR-137 - Rochambeau Dr	26	17	1	44	2.21	4.46
1012	Alexander Hamilton Blvd	US 17 - GW Mem Hwy	Rte 1020 - Ballard St	0	0	0	0	0.00	0.00
1020	Ballard St	Water St	Colonial Pkwy	2	0	0	2	0.92	0.92
1020	Ballard St	Colonial Pkwy	SR 238 - Cook Rd	1	2	0	3	2.03	4.74
238	Ballard St	SR 238 - Cook Rd	Coast Guard Training Center	1	0	0	1	0.13	0.13
604	Barlow Rd	Rte 646 - Newman Rd	Rte 797 - Skimino Rd	4	1	0	5	1.02	1.43
604	Barlow Rd	Rte 797 - Skimino Rd	Rte F-137 - Rochambeau Dr	4	3	0	7	6.55	12.17
600	Big Bethel Rd	Hampton CL	SR 134 - Hampton Hwy	14	14	0	28	1.53	3.06
600	Big Bethel Rd	SR 134 - Hampton Hwy	SR 171 - Victory Blvd	14	9	0	23	2.39	4.26
60	Bypass Rd	Williamsburg CL	Rte 713 - Waller Mill Rd	11	5	0	16	1.97	3.20
60	Bypass Rd	Rte 713 - Waller Mill Rd	SR 132 - Henry St	45	38	1	84	2.23	4.55
782	Carys Chapel Rd	Poquoson CL	SR 171 - Victory Blvd	7	2	0	9	0.77	1.12
-	Colonial Pkwy	Williamsburg CL	Ballard St	2	0	0	2	0.02	0.02
704	Cook Rd	US 17 - GW Mem Hwy	Rte 634 - Old York Hampton Hwy	15	10	0	25	3.71	6.68
704	Cook Rd	Rte 634 - Old York Hampton Hwy	SR 238 - Goosley Rd	15	9	1	25	1.61	3.47
238	Cook Rd	SR 238 - Goosley Rd	Ballard St	4	1	0	5	1.48	2.07
1763	Coventry Blvd	US 17 - GW Mem Hwy	Rte 1750 - Owen Davis Blvd	10	6	0	16	1.41	2.46
621	Dare Rd	US 17 - GW Mem Hwy	Rte 620 - Lakeside Dr	12	8	0	20	1.51	2.72

FIGURE 13 (CONTINUED) – ROADWAY SEGMENT CRASH AND EPDO RATES IN THE HISTORIC TRIANGLE, 2013-2017

Source: HRTPO analysis of VDOT data.

YORK COUNTY

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
173	Denbigh Blvd	Newport News CL	US 17 - GW Mem Hwy	39	24	1	64	1.07	2.06
782	E Yorktown Rd	SR 171 - Victory Blvd	Poquoson CL	1	2	0	3	1.06	2.48
105	Fort Eustis Blvd	Newport News CL	US 17 - GW Mem Hwy	27	11	0	38	0.55	0.87
1050	Fort Eustis Blvd Ext	US 17 - GW Mem Hwy	Rte 634 - Old York Hampton Hwy	10	4	0	14	5.16	8.10
17	George Washington Mem Hwy	Newport News CL	SR 171 - Victory Blvd	91	39	0	130	1.90	3.04
17	George Washington Mem Hwy	SR 171 - Victory Blvd	SR 134 - Hampton Hwy	110	39	0	149	2.52	3.84
17	George Washington Mem Hwy	SR 134 - Hampton Hwy	Rte 621 - Dare Rd	210	99	0	309	1.50	2.46
17	George Washington Mem Hwy	Rte 621 - Dare Rd	SR 173 - Denbigh Blvd	88	50	1	139	2.07	3.73
17	George Washington Mem Hwy	SR 173 - Denbigh Blvd	SR 105 - Fort Eustis Blvd	105	45	0	150	1.79	2.87
17	George Washington Mem Hwy	SR 105 - Fort Eustis Blvd	Rte 704 - Cook Rd	66	30	0	96	2.75	4.47
17	George Washington Mem Hwy	Rte 704 - Cook Rd	SR 238 - Goosley Rd	56	36	0	92	0.73	1.29
17	George Washington Mem Hwy	SR 238 - Goosley Rd	Colonial Pkwy	18	8	0	26	1.97	3.18
17	George Washington Mem Hwy	Colonial Pkwy	Gloucester CL	28	6	0	34	0.77	1.04
173	Goodwin Neck Rd	US 17 - GW Mem Hwy	Rte 630 - Wolf Trap Rd	14	8	0	22	1.29	2.23
173	Goodwin Neck Rd	Rte 630 - Wolf Trap Rd	Back Creek Rd	7	4	1	12	1.61	4.15
173	Goodwin Neck Rd	Back Creek Rd	Dandy Loop Rd	10	3	0	13	1.81	2.65
238	Goosley Rd	SR 238 - Old Williamsburg Rd	US 17 - George Washington Hwy	16	10	0	26	2.04	3.61
238	Goosley Rd	US 17 - GW Mem Hwy	Rte 704 - Cook Rd	5	2	0	7	5.22	8.20
134	Hampton Hwy	US 17 - GW Mem Hwy	SR 171 - Victory Blvd	39	35	1	75	2.59	5.38
134	Hampton Hwy	SR 171 - Victory Blvd	Rte 600 - Big Bethel Rd	61	39	4	104	1.59	3.46
134	Hampton Hwy	Rte 600 - Big Bethel Rd	Hampton CL	51	36	0	87	1.16	2.12
718	Hornsbyville Rd	Rte 634 - Old York Hampton Hwy	SR 173 - Goodwin Neck Rd	10	6	0	16	1.97	3.45
716	Hubbard Ln	Rte 641 - Penniman Rd	Colonial Pkwy	6	2	0	8	1.11	1.66
64	I-64	James City CL	SR 199/Rte 646 - Newman Rd	52	25	1	78	0.56	1.00
64	I-64	SR 199/Rte 646 - Newman Rd	SR 143 - Camp Peary Rd	156	86	3	245	0.49	0.90
64	I-64	SR 143 - Camp Peary Rd	SR 199	222	105	1	328	0.72	1.21
64	I-64	SR 199	Busch Gardens Interchange	137	49	2	188	1.11	1.82
64	I-64	Busch Gardens Interchange	James City CL	76	31	0	107	0.83	1.31
1800	Kiln Creek Pkwy	ECL Newport News; Edgewater Dr	SR 171 - Victory Blvd	8	4	1	13	0.83	2.04
620	Lakeside Dr	US 17 - GW Mem Hwy	Rte 614 - Showalter Rd	15	7	0	22	2.93	4.80
620	Lakeside Dr	Rte 614 - Showalter Rd	Rte 621 - Dare Rd	13	5	0	18	1.37	2.13
646	Lightfoot Rd	US 60 - Richmond Rd	Mooretown Rd	19	8	0	27	0.86	1.37
1001	Mathews St	US 17 - GW Mem Hwy	Water St	3	1	0	4	3.30	4.95
143	Merrimac Trail	James City CL	SR 199	46	44	0	90	1.17	2.32
143	Merrimac Trail	Penniman Rd	Second St	26	18	0	44	6.69	12.17
143	Merrimac Trail	Second St	Williamsburg CL	3	2	0	5	0.50	0.90
143	Merrimac Trail	Williamsburg CL	SR 132	7	1	0	8	2.21	2.77
143	Merrimac Trail	SR 132	I-64	46	24	0	70	3.47	5.85
143	Merrimac Trail	I-64	Camp Peary Main Gate	1	0	0	1	0.88	0.88
603	Mooretown Rd	Rte 713 - Waller Mill Rd	Rte 645 - Airport Rd	16	9	0	25	1.13	1.94
603	Mooretown Rd	Rte 645 - Airport Rd	Old Mooretown Rd	13	16	0	29	1.26	2.64
603	Mooretown Rd	Old Mooretown Rd	SR 199	30	15	0	45	3.04	5.06
603	Mooretown Rd	SR 199	Rte 646 - Lightfoot Rd	12	4	0	16	6.84	10.26
646	Newman Rd	I-64	James City CL	14	10	0	24	3.61	6.62

FIGURE 13 (CONTINUED) – ROADWAY SEGMENT CRASH AND EPDO RATES IN THE HISTORIC TRIANGLE, 2013-2017

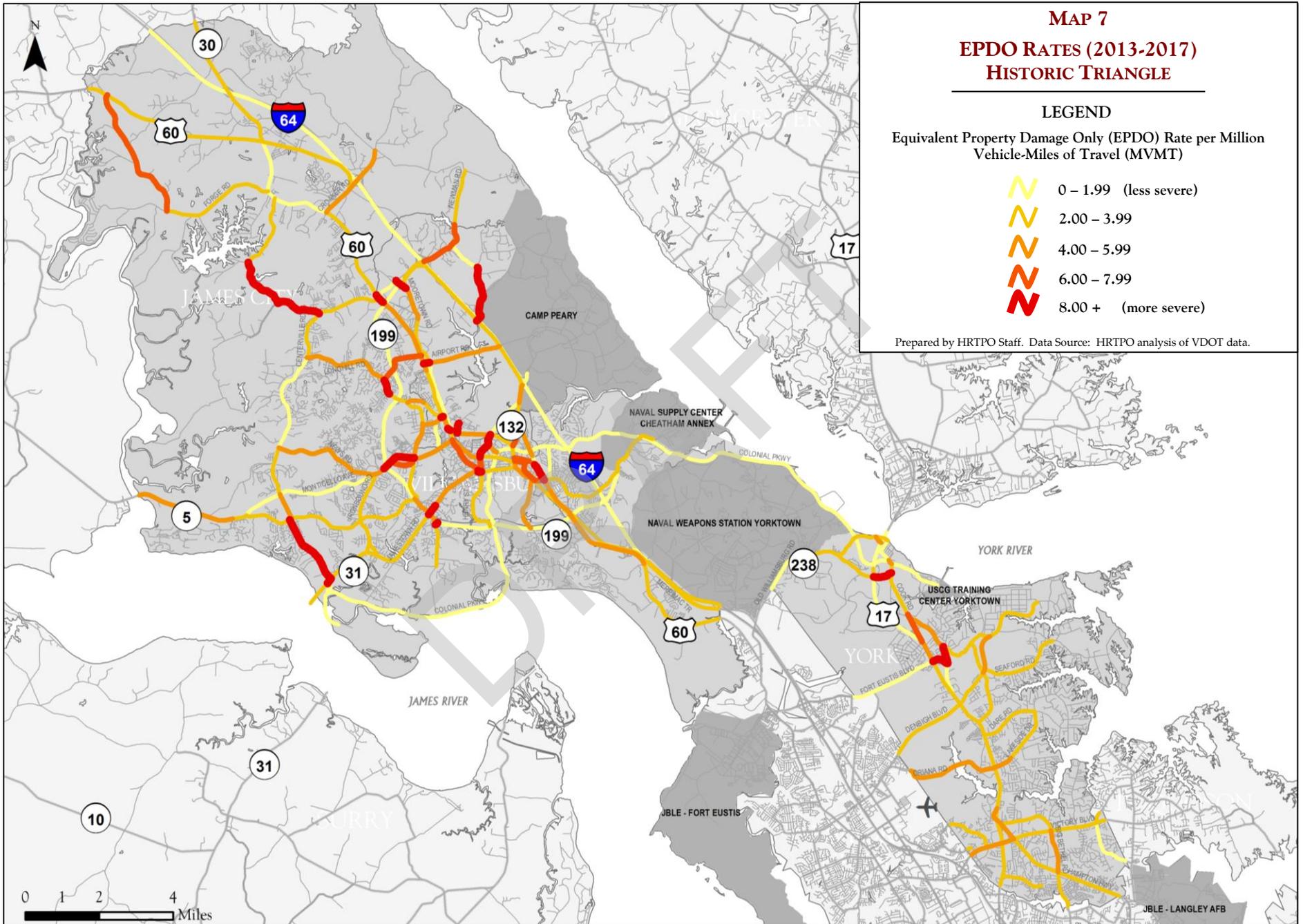
Source: HRTPO analysis of VDOT data.

YORK COUNTY

Route				PDO	INJ	FAT	Total	Crashes	EPDO
#	Facility	Segment From	Segment To	Crashes	Crashes	Crashes	Crashes	per MVMt	per MVMt
238	Old Williamsburg Rd	Newport News CL	Rte 660 - Baptist Rd	7	11	0	18	0.85	1.89
238	Old Williamsburg Rd	Rte 660 - Baptist Rd	SR 238 - Goosley Rd	11	12	0	23	1.63	3.34
1020	Old Williamsburg Rd	SR 238 - Goosley Rd	Colonial Pkwy	4	3	0	7	1.38	2.56
634	Old York Hampton Hwy	US 17 - GW Mem Hwy	Rte 1050 - Fort Eustis Blvd Ext	8	1	0	9	1.03	1.26
634	Old York Hampton Hwy	Rte 1050 - Fort Eustis Blvd Ext	Rte 718 - Hornsbyville Rd	3	2	0	5	9.36	16.85
634	Old York Hampton Hwy	Rte 718 - Hornsbyville Rd	Rte 704 - Cook Rd	6	6	0	12	2.30	4.60
620	Oriana Rd	Newport News CL	US 17 - GW Mem Hwy	41	25	0	66	2.31	4.05
641	Penniman Rd	Williamsburg CL	SR 143 - Merrimac Trail	10	4	0	14	4.34	6.82
641	Penniman Rd	SR 143 - Merrimac Trail	SR 199	23	12	0	35	1.34	2.26
641	Penniman Rd	SR 199	Colonial Pkwy	8	6	1	15	1.29	3.26
60	Pocahontas Trail	SR 199	James City CL	73	58	0	131	2.94	5.54
137	Rochambeau Dr	Rte 603 - Mooretown Rd	SR 143 Capitol Landing Rd	73	54	1	128	1.39	2.68
132	SR 132	US 60 - Bypass Rd	SR 143 - Merrimac Trail	16	3	0	19	0.95	1.25
199	SR 199	I-64	Rte 603 - Mooretown Rd	40	19	0	59	1.84	3.02
199	SR 199	Rte 603 - Mooretown Rd	US 60 - Richmond Rd/JCC CL	33	12	0	45	0.98	1.51
199	SR 199	SR 143 - Merrimac Trail/JCC CL	I-64	18	11	0	29	0.66	1.17
199	SR 199	I-64	Rte 641 - Penniman Rd	14	8	0	22	0.88	1.52
622	Seaford Rd	SR 173 - Goodwin Neck Rd	Rte 718 - Back Creek Rd	26	12	1	39	1.62	3.07
162	Second St	Williamsburg CL	SR 143 - Merrimac Trail	4	9	0	13	2.18	5.20
171	Victory Blvd	Newport News CL	US 17 - George Washington Hwy	122	74	0	196	3.13	5.50
171	Victory Blvd	US 17 - GW Mem Hwy	SR 134 - Hampton Hwy	36	20	0	56	3.13	5.36
171	Victory Blvd	SR 134 - Hampton Hwy	Rte 600 - Big Bethel Rd	61	20	0	81	2.39	3.57
171	Victory Blvd	Rte 600 - Big Bethel Rd	Poquoson CL	53	30	0	83	1.67	2.88
713	Waller Mill Rd	US 60 - Bypass Rd	Rte 603 - Mooretown Rd	11	5	0	16	11.76	19.11
1020	Water St	Colonial Pkwy	Ballard St	3	3	0	6	1.33	2.65
630	Wolf Trap Rd	US 17 - GW Mem Hwy	SR 173 - Goodwin Neck Rd	22	6	1	29	1.54	2.75
630	Wolf Trap Rd	SR 173 Goodwin Neck Rd	Rte 718 - Hornsbyville Rd	2	2	0	4	1.12	2.24
706	Yorktown Rd	SR 134 Hampton Hwy	Rte 600 - Big Bethel Rd	17	7	0	24	1.52	2.40

FIGURE 13 (CONTINUED) – ROADWAY SEGMENT CRASH AND EPDO RATES IN THE HISTORIC TRIANGLE, 2013-2017

Source: HRTPO analysis of VDOT data.



MAP 7
EPDO RATES (2013-2017)
HISTORIC TRIANGLE

LEGEND

Equivalent Property Damage Only (EPDO) Rate per Million Vehicle-Miles of Travel (MVMT)

- 0 – 1.99 (less severe)
- 2.00 – 3.99
- 4.00 – 5.99
- 6.00 – 7.99
- 8.00 + (more severe)

Prepared by HRTPO Staff. Data Source: HRTPO analysis of VDOT data.

Potential for Safety Improvement

In addition to analyzing the number and rate of crashes, new methods have been created recently to improve planning for roadway safety. One new method to determine the most hazardous locations is to examine the difference between the number of crashes that occurred at a location and compare it to the number of crashes that would be predicted to occur based on the location’s traffic volumes, area type, segment length, intersection control type, etc. This difference is referred to as the Potential for Safety Improvement (PSI).

VDOT has started using PSI as a method for network screening of locations for allocating Highway Safety Improvement Program (HSIP) funding. VDOT has prepared a list of the top intersections and top miles of roadway in terms of PSI for each VDOT District. The intersections in the Historic Triangle with the highest PSI for the years 2013-2017 are shown in **Figure 14**, and the roadway segments with the highest PSI are shown in **Figure 15**.

The intersections in the Historic Triangle with the highest PSI are Monticello Avenue at Casey Boulevard, George Washington Memorial Highway at Rich Road, Longhill Road at Olde Towne Road, and Jamestown Road at Route 199. The roadway segments with the highest PSI include two sections of I-64 near the Yorktown Naval Weapons Station, a section of Bypass Road east of Richmond Road, and a section of Monticello Avenue near the New Town development.

	Locality	Intersection	Hampton Roads District Rank - Intersections
1	James City	Monticello Ave at Ironbound Rd/Casey Blvd	33
2	York	George Washington Mem Hwy at Rich Rd	60
3	James City	Longhill Rd at Olde Towne Rd	67
4	Williamsburg	Jamestown Rd at Route 199	69
5	York	George Washington Mem Hwy at Theatre Rd	74
6	James City	Richmond Rd at Airport Rd	76
7	York	George Washington Mem Hwy at Burts Rd/Grafton Station Ln	94
8	Williamsburg	Route 132 at Route 132Y	105
9	York	Hampton Hwy at Yorktown Rd	108
10	JCC/York	Merrimac Trail at Penniman Rd	145
11	York	Richmond Rd at Lightfoot Rd	146
12	James City	John Tyler Hwy at Centerville Rd	161
13	James City	Richmond Rd at Olde Towne Rd	167
14	York	I-64 EB Off Ramp at Route 143 (Exit 238)	174
15	James City	I-64 EB Off Ramp at Route 143 (Exit 247)	179
16	York	Rochambeau Dr at Airport Rd	196

FIGURE 14 – INTERSECTIONS IN THE HISTORIC TRIANGLE WITH THE HIGHEST POTENTIAL FOR SAFETY IMPROVEMENT (PSI), 2013-2017

Source: VDOT.

	Locality	Facility	Hampton Roads District Rank - Segments
1	James City	I-64 WB from MM 244.66 to MM 247.04	93
2	James City	I-64 EB from MM 246.66 to MM 246.96	99
3	York	Bypass Rd from Commons Way to Chelsea Rd	154
4	James City	Monticello Ave from Ironbound Rd/Casey Blvd to New Town Ave	189
5	Williamsburg	Richmond Rd from WMB General Store to Ironbound Rd	235
6	York	Victory Blvd from Kiln Creek Pkwy/Village Ave to Wal-Mart Entrance	254
7	York	Pocahontas Trail from Route 199 to Busch Way	263
8	York	Victory Blvd from Wal-Mart Entrance to GW Hwy	291
9	York	Pocahontas Trail from Busch Gardens Interchange to Busch Rd	294
10	James City	Monticello Ave from New Town Ave to Ironbound Rd	300
11	James City	Route 199 from Halfway Creek to Mounts Bay Rd	309
12	Williamsburg	Richmond Rd from Yankee Candle to WMB General Store	311
13	York	George Washington Mem Hwy from Ella Talyor Rd to Sports Way	315
14	York	I-64 EB at the Route 199 South Interchange	354
15	Williamsburg	Monticello Ave from Mount Vernon Ave to Garrison Dr	367
16	James City	Richmond Rd from Ware Ln to Pottery Entrance	397

FIGURE 15 – ROADWAY SEGMENTS IN THE HISTORIC TRIANGLE WITH THE HIGHEST POTENTIAL FOR SAFETY IMPROVEMENT (PSI), 2013-2017

Source: VDOT.

COMMUTING PATTERNS

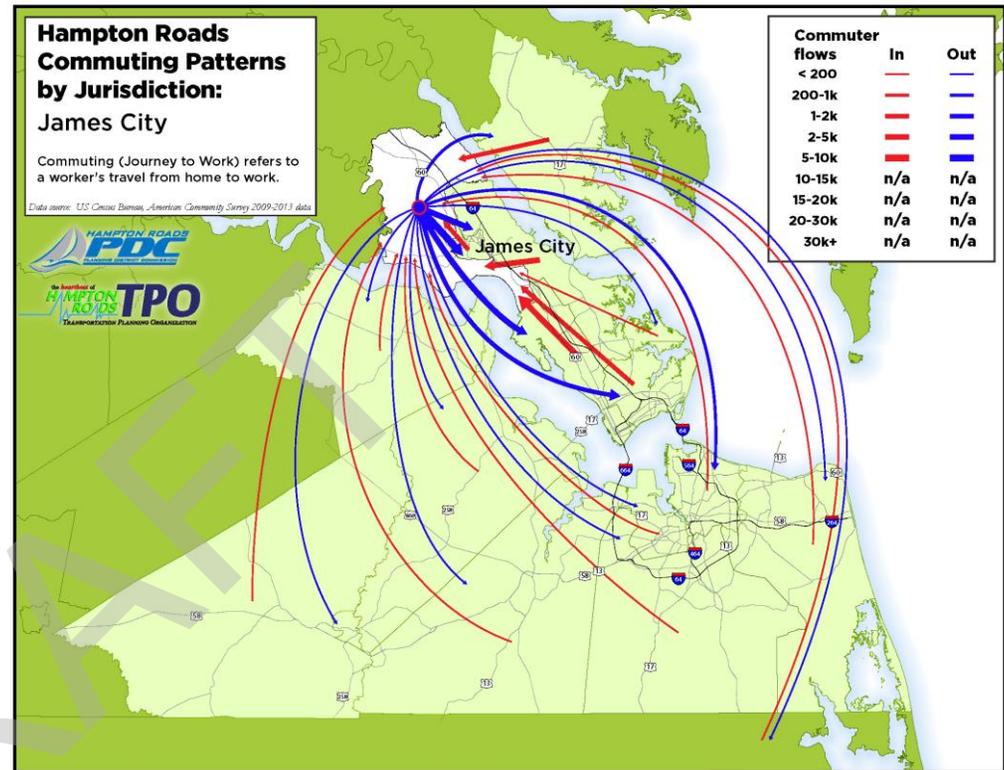
The U.S. Census Bureau’s American Community Survey (ACS) helps illustrate the degree to which localities are inter-connected by detailing commuting patterns between localities. **Maps 8, 9, and 10** illustrate the journeys commuters take to and from James City County, Williamsburg and York County respectively each day.

Approximately 30,100 residents of James City County commuted to work every day in the period between 2009 and 2013, and about 57% of these residents (17,300) commuted outside of County borders to work. The top three destinations residents of James City County commuted to were:

- Williamsburg – 5,047 commuters (17% of commuters outside of County borders)
- York County – 3,786 commuters (13% of commuters outside of County borders)
- Newport News – 3,561 commuters (12% of commuters outside of County borders)

Similarly, 26,212 people commuted to locations within James City County for work every day during this period and about 51% (13,463) were residents from other localities. The top three localities from which people commuted to James City County were:

- Newport News – 3,441 commuters (26% of commuters from other localities)
- York County – 2,114 commuters (16% of commuters from other localities)
- Williamsburg – 1,315 commuters (10% of commuters from other localities)



MAP 8 – JAMES CITY COUNTY COMMUTING PATTERNS (2009-2013)

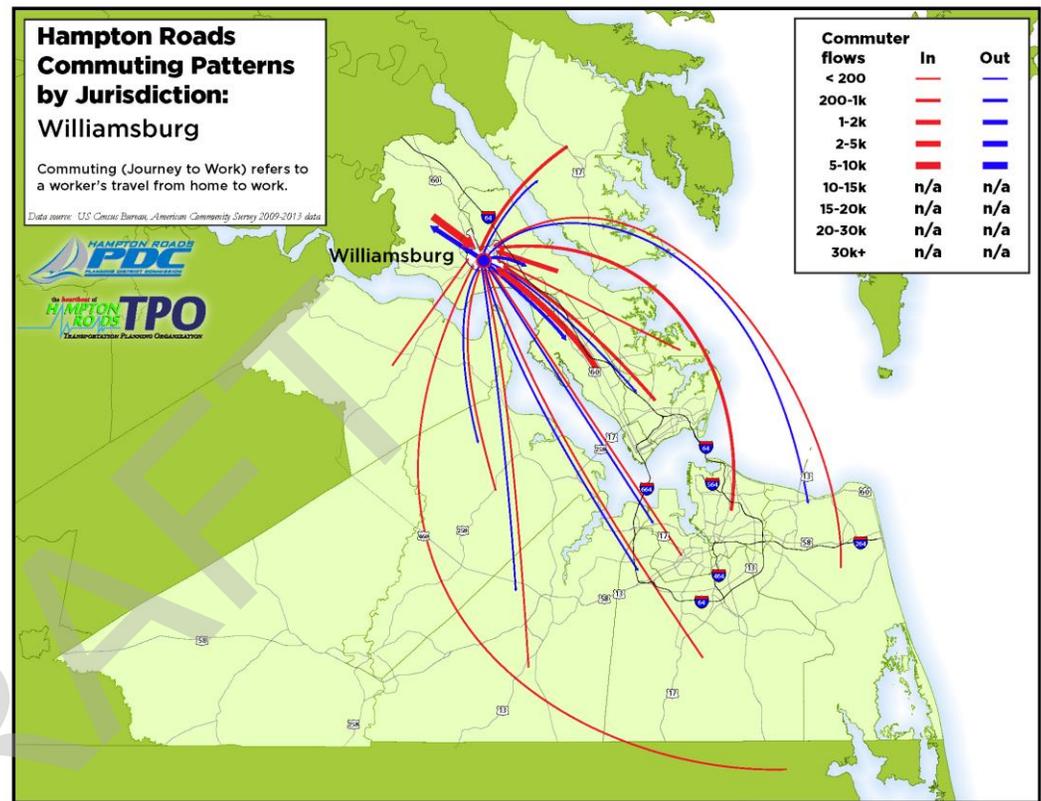
Source: HRTPO analysis of Census Bureau Data

For Williamsburg (Map 9), approximately 5,900 residents commuted to work every day in the period between 2009 and 2013, and about 49% of these residents (2,944) commuted outside of the city’s borders to work. The top three destinations residents of Williamsburg commuted to were:

- James City County – 1,315 commuters (45% of commuters outside of County borders)
- York County – 571 commuters (19% of commuters outside of County borders)
- Newport News – 494 commuters (17% of commuters outside of County borders)

Likewise, 14,445 people commuted to locations within Williamsburg for work every day during this period and about 79% (11,470) were residents from other localities. The top three localities from which people commuted to Williamsburg were:

- James City County – 5,047 commuters (44% of commuters from other localities)
- Newport News – 2,041 commuters (18% of commuters from other localities)
- York County – 1,480 commuters (13% of commuters from other localities)



MAP 9 – WILLIAMSBURG COMMUTING PATTERNS (2009-2013)

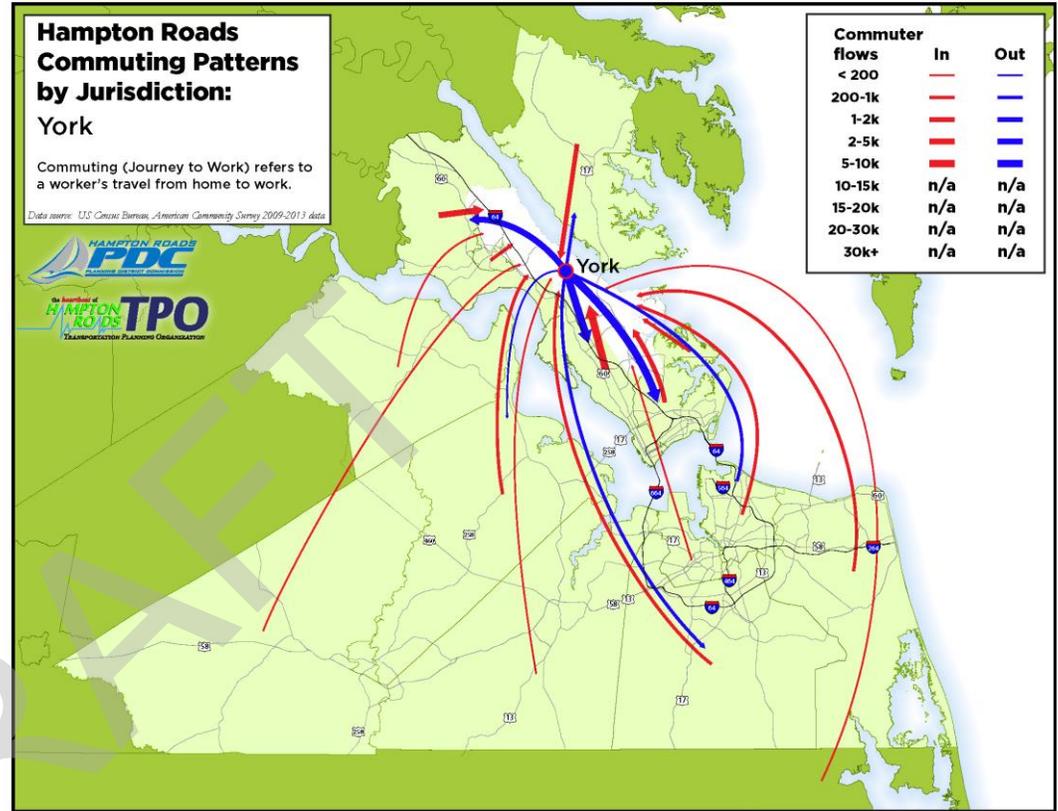
Source: HRTPO analysis of Census Bureau Data

Finally, around 32,300 York County residents commuted to work every day in the period between 2009 and 2013, and approximately 73% of these residents (23,604) commuted outside of County borders to work (**Map 10**). The top three destinations residents of York County commuted to were:

- Newport News – 8,947 commuters (38% of commuters outside of County borders)
- Hampton – 7,287 (31% of commuters outside of County borders)
- James City County – 2,114 commuters (9% of commuters outside of County borders)

Conversely, 25,039 people commuted to locations within York County for work every day during this period and about 65% (16,284) were residents from other localities. The top three localities from which people commuted to York County were:

- Newport News – 5,418 commuters (32% of commuters outside of County borders)
- James City County – 3,786 commuters (23% of commuters outside of County borders)
- Hampton – 1,402 commuters (9% of commuters outside of County borders)



MAP 10 – YORK COUNTY COMMUTING PATTERNS (2009-2013)

Source: HRTPO analysis of Census Bureau Data

ACTIVE TRANSPORTATION

Active transportation is popular in the Historic Triangle for both recreation and as an important way of commuting. According to the Census Bureau, around 3% of residents in the Historic Triangle walked or used a bicycle for commuting in 2013-2017. **Figure 16** details the percentages of residents biking or walking to work:

- James City County:
 - Bicycle: 0.3%
 - Walk: 1.2%
- Williamsburg:
 - Bicycle: 2.8%
 - Walk: 13.0%
- York County:
 - Bicycle: 0.1%
 - Walk: 2.1%

The Historic Triangle Bicycle Advisory Committee (HTBAC) was formed in 1993, in order to recommend bikeway projects for implementation in accordance with the adopted Regional Bikeways Plan, recommend amendments to this plan, and develop and implement promotional, informational and safety initiatives related to active transportation. The HTBAC, which meets quarterly, consists of citizen appointees, staff from each of the three localities, National Park Services staff, the Colonial Williamsburg Foundation and the College of William and Mary.

There are approximately 48 miles of bikeway facilities in the Historic Triangle, which are shown in **Map 11 on page 43**. These bikeways include:

- Multi-use paths – These facilities, which may be paved or unpaved, are physically separated from the roadway and are prohibited for use by motorized traffic.

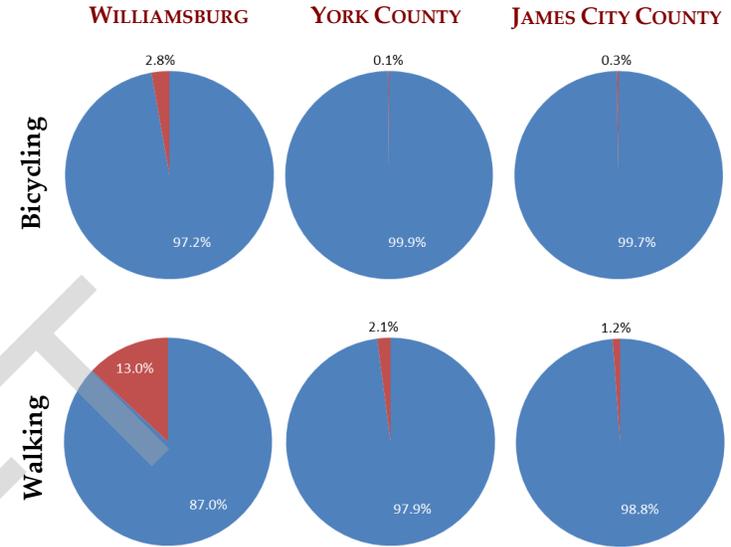


FIGURE 16 – PERCENTAGE OF RESIDENTS BICYCLING OR WALKING TO COMMUTE TO WORK IN THE HISTORIC TRIANGLE, 2013-2017

Source: HRTPO analysis of Census Bureau Data



- Bike Lanes – Roadways that have been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists.



Bike Lanes

Google

- Shared Roadways – Roadways that are signed as a bicycle route but do not have a portion of the roadway that is either reserved exclusively for bicyclists or can accommodate bicyclists and motorized traffic simultaneously.



Shared Roadway

Google

Of the 48 miles of bikeways in the Historic Triangle, 21 miles are in James City County, 10 miles are in Williamsburg, and 16 miles are in York County. In addition, there are 40 miles of shared roadway facilities on roads maintained by the National Park Service (NPS), including the Colonial Parkway, Jamestown Island Tour Road, and Yorktown Battlefield Tour Road, all heavily used by bicyclists.

Numerous high profile bicycle facilities are located in the area. The Virginia Capital Trail connects Richmond and Williamsburg, a 54 mile multi-use path. This trail is the product of a successful public-private partnership between the Virginia Department of Transportation (VDOT) and the Virginia Capital Trail Foundation (VCTF), which is a nonprofit organization with the mission to enhance, promote and advocate for the continued development of the Virginia Capital Trail.

Another high profile bicycle facility is Virginia Bicycle Route 76, which is part of U.S. Bicycle Route 76 (which runs from Illinois to Virginia) and the TransAmerica Bike Route (which connects Oregon with Virginia). Virginia Bicycle Route 76 follows the Virginia Capital Trail and the Colonial Parkway before ending in Yorktown.

There have been 10 bikeway projects completed in the study area since 2008 (Figure 17 on page 42). Four of these projects are in James City County, three in Williamsburg and three in York County.

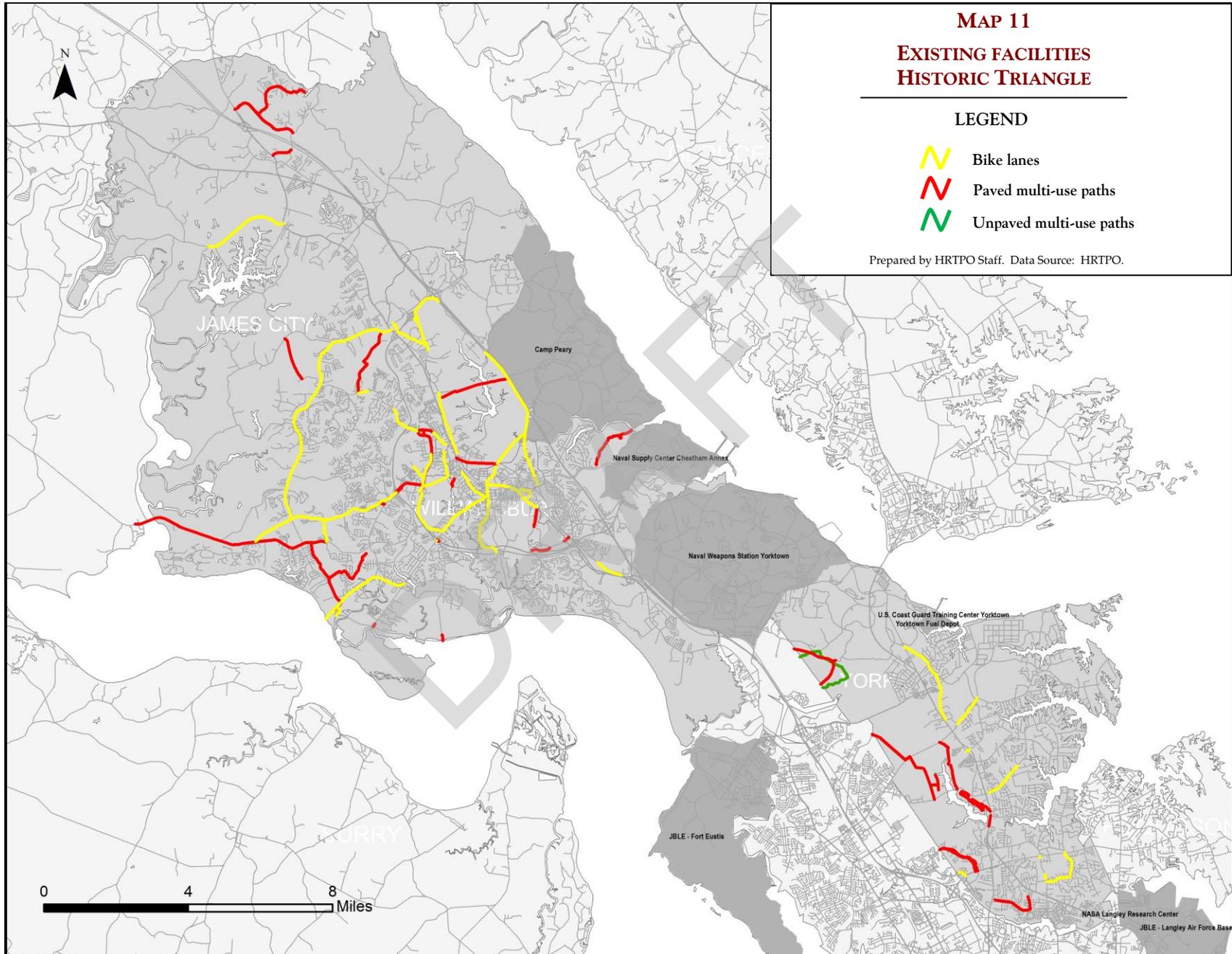
In addition to bikeways, sidewalks that accommodate pedestrians are present in all three localities. Popular locations for pedestrian activity include: Colonial Williamsburg, the College of William and Mary, New Town, Yorktown village, etc.

Jurisdiction	UPC	Project	Cost (\$000s)	Year Completed
JCC	104327	Bikeway - Capital Trail Access at John Tyler Hwy & Monticello Ave	\$35	2014
JCC	67584	Install Pedestrian Crossing And Curbcut Ramps - Longhill Rd (Rte 612) At Olde Towne Rd (Rte 658)	\$5	2013
JCC	67638	Install Pedestrian Crossing And Curbcut Ramps - Monticello Ave (Rte 5000) At News Rd (Rte 613)	\$8	2016
JCC	67637	Install Pedestrian Crossing And Curbcut Ramps - John Tyler Hwy (Rte 5) At Kings Way	\$5	2017
WMB	102777	Citywide Sidewalk Improvements	\$984	2013
WMB	91689	Citywide Sidewalk Improvements	\$104	2014
WMB	-	Shoulder Bike Lane - Longhill Road	\$3	2008
YC	84484	Bikeway - Capitol Landing Rd from Rochambeau Dr to Queen's Creek	\$290	2012
YC	101277	Construct Paved Shoulders - Rochambeau Dr East of Mooretown Road	\$40	2015
YC	94543	Construct Sidewalks - Hampton Hwy, Hubbards Ln, and Commons Way	\$499	2011

FIGURE 17 - RECENT ACTIVE TRANSPORTATION IMPROVEMENTS IN THE HISTORIC TRIANGLE, 2008 TO 2018

Source: VDOT.

DRAFT



RAIL

Amtrak provides intercity passenger rail services along the CSX corridor, which is a part of the Northeast Regional route between Boston and Newport News. There is one station in the Historic Triangle, at the Williamsburg Transportation Center on North Boundary Street in Downtown Williamsburg.

As of June 2018 there are two daily northbound trains passing through Williamsburg. One train leaves Williamsburg in the morning (reaching Washington D.C. midday and Boston by late evening) and the other leaves in the afternoon (reaching Washington D.C. in the evening and Boston the next morning). In the southbound direction there are two trains passing through Williamsburg – one in the morning and one in the evening – each day except for Friday. On Friday there are three trains that pass through Williamsburg: one in the morning, one in late afternoon and one in the evening.

Boardings and alightings, which represent the number of people getting on and off of the train at each station, are used to measure intercity rail passenger activity. In Federal Fiscal Year (FFY) 2017, there were 60,316 boardings and alightings at the Williamsburg Amtrak Station (Figure 18). The number of passengers at the Williamsburg station has slightly declined from its peak in FFY 2013, but is significantly higher than in FFY 2010.

All of the freight rail corridors in Virginia are privately owned and serve the Port of Virginia in Hampton Roads in some capacity. There is one primary freight corridor that passes through the Historic Triangle that is owned and operated by CSX Transportation. CSX is a Class I railroad that connects the Peninsula with cities and ports throughout the Eastern United States. Freight rail service from the Peninsula has been recently improved by the National Gateway project, which upgraded bridges and tunnels on CSX’s network to allow double-stack trains between Mid-Atlantic ports and the Midwest.

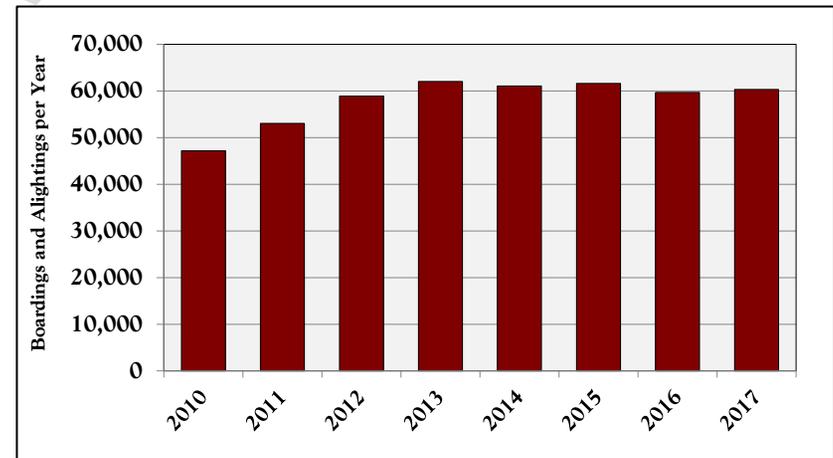
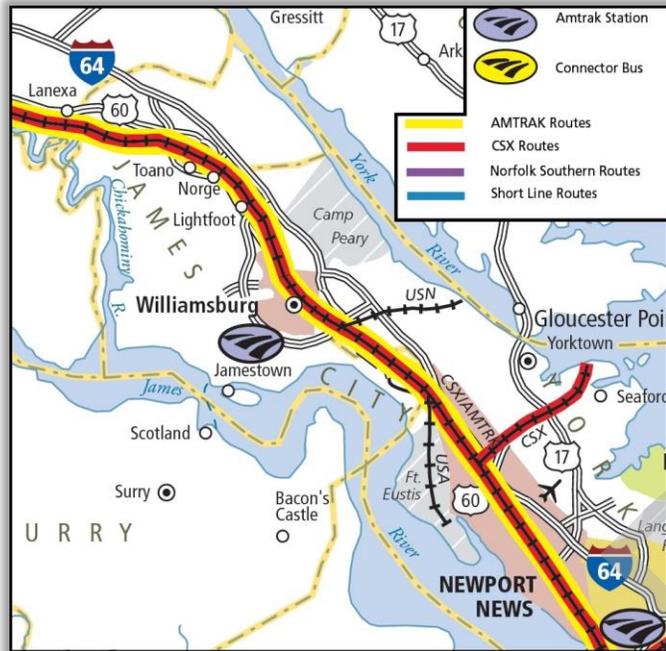


FIGURE 18 - AMTRAK PASSENGER ACTIVITY AT THE WILLIAMSBURG STATION, 2010-2017

Source: Amtrak. Based on Federal Fiscal Year, which run from October 1-September 30.

Map 11 shows the location of the CSX corridor in the Historic Triangle, which includes a spur from the mainline through York County to the Yorktown Power Station on the York River along with a spur to the Yorktown Naval Weapons Station. **Map 12** shows the Virginia Railroad Network, including the CSX railroad network and it’s connectivity with the Historic Triangle.



MAP 11 – HISTORIC TRIANGLE CSX CORRIDOR

Source: VDRPT 2012 Virginia State Rail Map



MAP 12 - VIRGINIA RAILROAD NETWORK

Source: VDRPT 2012 Virginia State Rail Map

PUBLIC TRANSPORTATION

This section includes details on the public transportation services that are currently provided throughout the Historic Triangle, as well as the Park and Ride lots that are maintained by the Virginia Department of Transportation.

TRANSIT

Transit services in James City County, Williamsburg, and northern York County are provided by the Williamsburg Area Transit Authority (WATA). These services are geared towards residents, William & Mary students, and tourists. According to the Census Bureau⁷, approximately 1.0% of residents (age 16 and older) in the Historic Triangle (0.8% in James City County, 6.2% in Williamsburg, 0.3% in York County) use public transportation to commute to work, which is below the Hampton Roads average of 1.6%.

Year round, WATA operates eight bus routes, on-demand paratransit service, the Surry County Connection, and the Williamsburg Trolley, which provides service to the Merchants Square, High Street, and New Town activity centers. WATA also provides bus service for the Colonial Williamsburg Foundation, which services Historic Triangle tourist destinations. From April through October, WATA also operates the Jamestown Area Shuttle and collaborates with York County in the operation of the Yorktown Trolley. The locations of WATA’s routes are shown on **Figure 20** on **page 47**.

WATA also provides connections to the Hampton Roads Transit (HRT) system at two locations. HRT Route 121 runs from the Newport News Transportation Center and Patrick Henry Mall to the Williamsburg Transportation Center. HRT Route 116, which ends at Patrick Henry Mall, connects to WATA's Route 1 (Gray Line) at Lee

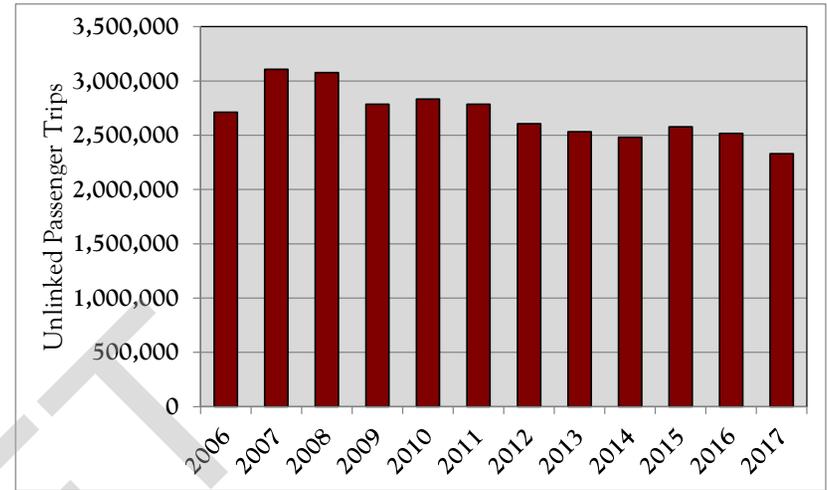


FIGURE 19 – WATA RIDERSHIP, 2006-2017

Data Sources: WATA, American Public Transportation Association.
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.

Hall in Newport News. Transfers can be made from the Newport News Transportation Center and Patrick Henry Mall to the rest of the HRT's system.

In 2017, 2,329,704 trips were served on WATA's system (**Figure 19**). The total number of trips on the WATA system has gradually decreased since 2007.



⁷ 2013-2017 American Community Survey 5-Year Estimates, US Census Bureau.

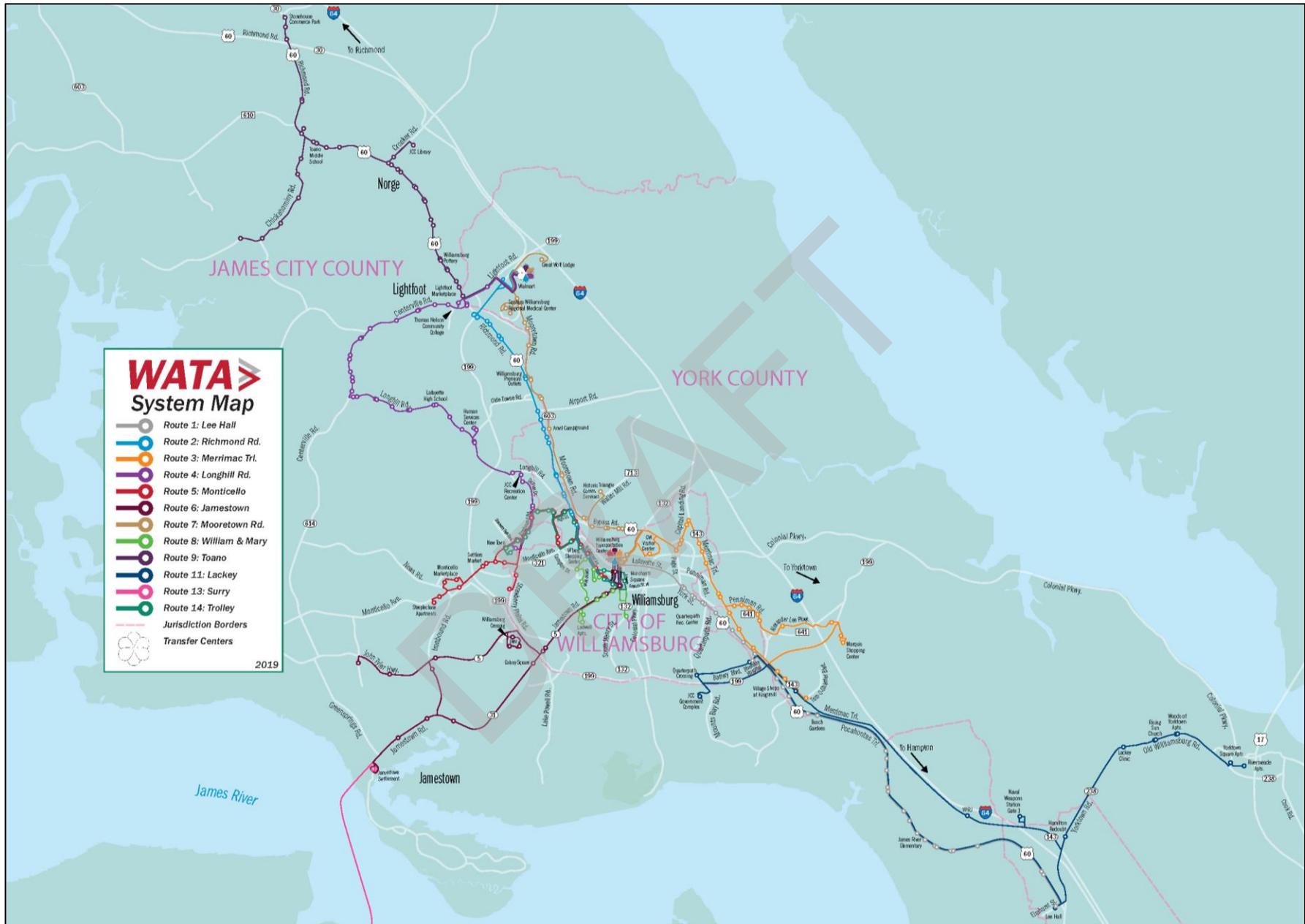


FIGURE 20 – WILLIAMSBURG AREA TRANSIT AUTHORITY ROUTE MAP

Source: WATA. The Surry County Connection route is not shown on this map.

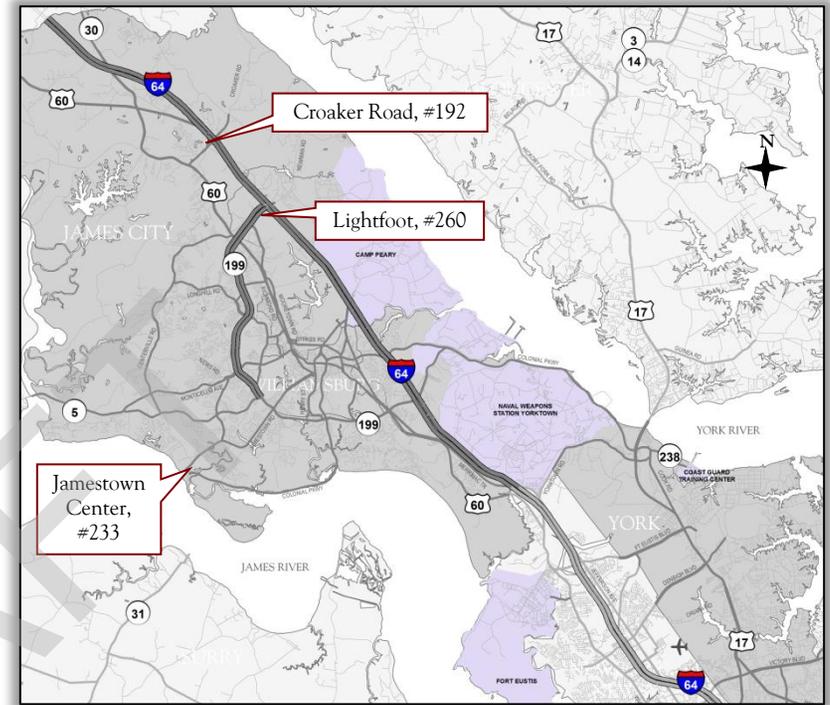
Intercity bus service is also provided in the study area, with Greyhound service available at the Williamsburg Transportation Center. Greyhound provides two buses that travel from Williamsburg toward Richmond and Norfolk each day.

PARK AND RIDE LOTS

A number of residents (age 16 and older) that live in the Historic Triangle use carpooling to travel to work. According to the Census Bureau, 5,234 residents in the study area carpooled to work on a regular basis in 2013-2017. This percentage (7.3%) is slightly below the regional carpooling average of 7.9%. The percentages of residents that carpool within each jurisdiction were: 8.4% in James City County, 8.4% in Williamsburg, and 6.0% in York County. The TRAFFIX program, which is funded by HRTPO and operated by Hampton Roads Transit, conducts various efforts to increase the use of transportation alternatives such as carpools, rideshares, and public transit throughout the region and in the Historic Triangle.

In order to assist with carpooling and ridesharing efforts, VDOT maintains Park and Ride lots throughout the state, including three lots in the Historic Triangle (**Map 13**). These Park and Ride include:

- **Lightfoot, #260** - This lot is located on East Rochambeau Drive just to the south of the interchange of I-64 and Route 199 north of Williamsburg. It has lights, bicycle racks, and transit service. The gravel lot has space available for 51 vehicles.



MAP 13 – PARK AND RIDE LOTS IN THE HISTORIC TRIANGLE

Data Sources: VDOT, TRAFFIX.

According to VDOT Hampton Roads District data⁸, the 2018 average utilization rate was 33% (17 out of 51 spaces).

- **Croaker Road, #192** - The Croaker Road Lot is located at the corner of Rochambeau Drive and Croaker Road just to the



⁸ HRTPO analysis of VDOT Hampton Roads District Park and Ride Occupancy, December 2018.

west of I-64. It has lights and bicycle racks. This partially-paved lot has space for vehicles. According to VDOT Hampton Roads District data, the 2018 average utilization rate was 73% (47 out of 64 spaces).

- **Jamestown Center, #233** - This lot is located on at Route 359 at Route 31, just to the north of the Jamestown-Scotland Ferry. It has lights, bicycle racks, and transit service. This paved lot has 516 spaces, which includes 12 handicap spaces. According to VDOT Hampton Roads District data, the 2018 average utilization rate was 21% (110 out of 516 spaces).

In 2013, VDOT completed a statewide Park and Ride Lot Inventory and Usage Study, including a full-scale audit of all Park and Ride lots in the state, an [interactive webpage](#) to help users find lots, and a list of recommendations for new, expanded or enhanced lots. This study determined that approximately 75% of Virginia's Park and Ride lot spaces were being used, with some lots not having enough spaces to accommodate all of the demand. In order to provide Park and Ride lots that were conveniently located and feasible for commuters, VDOT conducted a data-driven study to determine where investments in Park and Ride facilities were needed. The goal was to develop commuter Park and Ride investment strategies for specific locations within each VDOT construction district.

Within the Hampton Roads District, ten high priority Park and Ride investment projects were analyzed. One of the projects was to repave the existing Croaker Road lot (James City County) at a cost of \$700,000. This lot received the lowest technical score/ranking of 3.883 (10th out of 10 analyzed in Hampton Roads) based on commuter/roadway demand and the transportation network benefit. Even though this was the lowest rated Park and Ride investment projects in Hampton Roads, it was included as one of the 84 recommended priority investment projects in Virginia.

In December 2017, VDOT completed [Park and Ride Design Guidelines](#) to provide a user-friendly framework from which users can make informed decisions regarding Park and Ride lot layout,

services, amenities, and green infrastructure in developing or retrofitting Park and Ride lots throughout the Commonwealth.

BRIDGES

There are 124 bridges⁹ in the Historic Triangle. James City County is home to half of the bridges (62), while there are 12 bridges in Williamsburg and 50 bridges in York County. The most high-profile of these bridges – the George P. Coleman Memorial Bridge – connects York County and the Peninsula to Gloucester County on the Middle Peninsula.

Figure 21 shows the bridges in the Historic Triangle by year built. As of 2019, the median age of bridges in the Historic Triangle is 49.5 years. This is more than 8 years older than the regional median bridge age of 41 years. Looking at each locality, the median bridge age as of 2019 is 43.5 years in James City County, 59 years in Williamsburg, and 54 years in York County.



STRUCTURALLY DEFICIENT BRIDGES

A bridge is classified as structurally deficient if it has elements that need to be monitored and/or repaired. Structurally deficient bridges typically require maintenance and eventually need to be rehabilitated or replaced to address deficiencies.

In spite of these deficiencies, **structurally deficient bridges are not necessarily unsafe. Bridge inspectors will close or impose weight limits on bridges that they feel are unsafe.** In order to assure the safety of structurally deficient bridges, they are inspected more frequently (generally on an annual basis) and more thoroughly than other bridges.

Bridges are classified as structurally deficient if at least one of the following conditions is true:

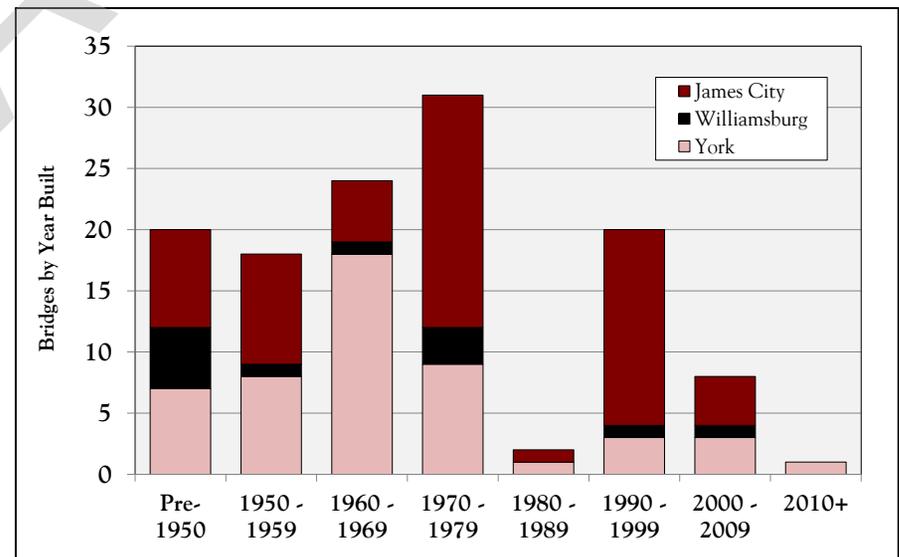


FIGURE 21 – HISTORIC TRIANGLE BRIDGES BY YEAR BUILT

Source: HRTPO analysis of VDOT data.

⁹ The definition of a “bridge” used in this analysis is based on National Bridge Inspection Standards (NBIS). The bridge must be located on a roadway open to the general public, be > 20 feet in length, and must carry a roadway.

- Deck Condition Rating ≤ 4
- Superstructure Condition Rating ≤ 4
- Substructure Condition Rating ≤ 4
- Culvert Condition Rating ≤ 4
- The Structural Condition and Waterway Adequacy Ratings were previously included in determining whether bridges were classified as structurally deficient. However, as of 2018, these ratings are no longer used in this determination.

There is only one bridge in the Historic Triangle that is classified as structurally deficient as of January 2019. This bridge – Route 143 over Queen Creek – is classified as structurally deficient due to a Superstructure Condition Rating of 4 (Map 14 on page 52).

FUNCTIONALLY OBSOLETE BRIDGES

A functionally obsolete bridge is a structure that was built to geometric standards that are no longer used today. Functionally obsolete bridges do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic volumes or meet current geometric standards. Functionally obsolete bridges also may occasionally be flooded or have difficult approaches to navigate.

Bridges are classified as functionally obsolete if at least one of the following conditions is true:

- Structural Condition Rating ≤ 3
- Waterway Adequacy Rating ≤ 3
- Deck Geometry Rating ≤ 3
- Underclearances Rating ≤ 3
- Approach Roadway Alignment Rating ≤ 3

By rule, any structure that is classified as structurally deficient cannot also be classified as functionally obsolete. Structures that have ratings that would qualify the bridge to be classified as both

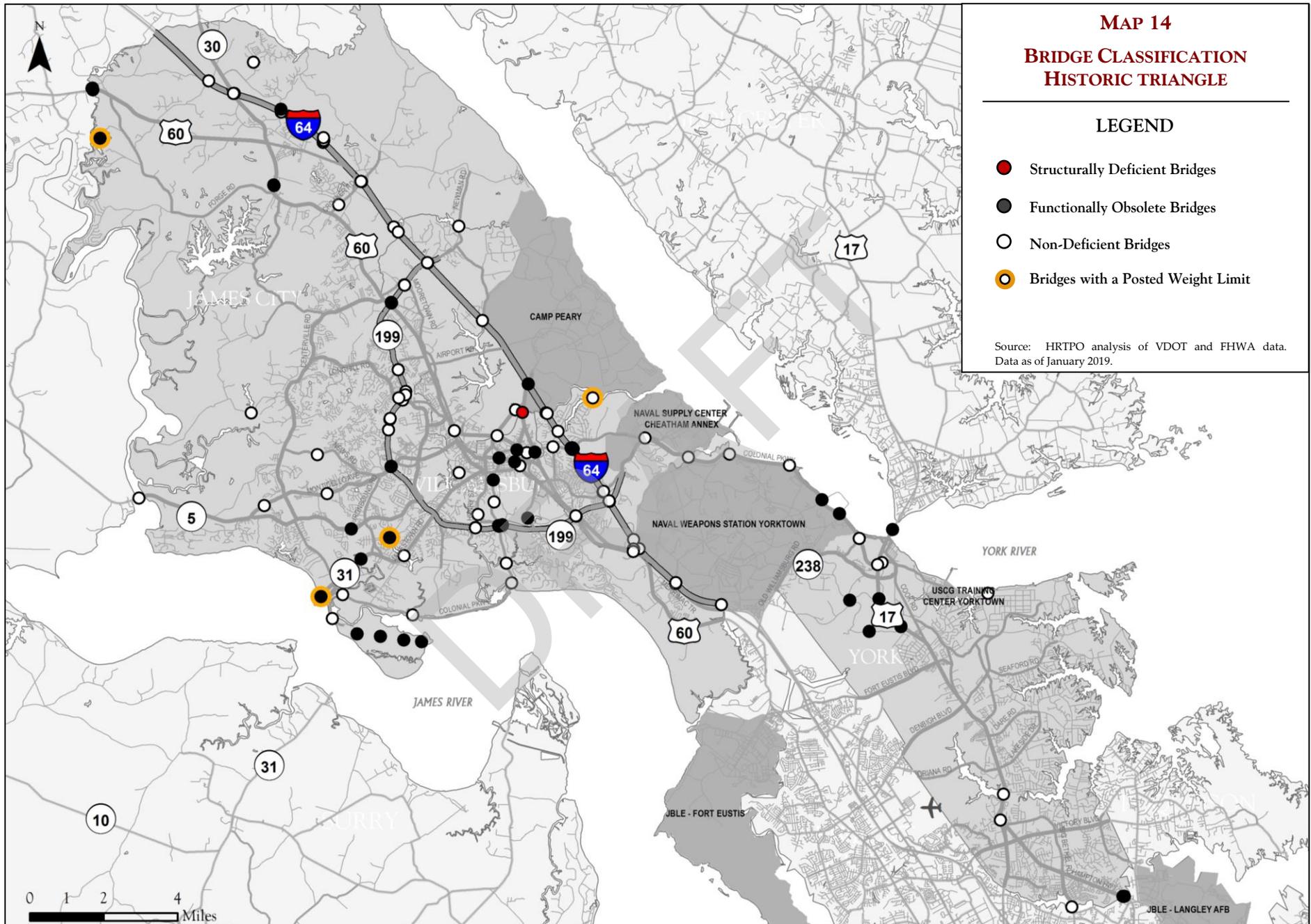
structurally deficient and functionally obsolete are classified as structurally deficient.

As shown in Figure 22, there are 36 bridges in the Historic Triangle that are classified as functionally obsolete as of January 2019.

Locality	Federal Bridge #	Facility	Crossing	Year Built
WMB	22328	Capitol Landing Rd	CSX Railroad	1977
YC	4290009P	Colonial Pkwy	Naval Weapons Rd	1931
YC	4290008P	Colonial Pkwy	North Pier Access Rd	1962
JCC	24057	Glass House Ferry (SR 31)	James River	1994
JCC	10533	Hickory Signpost Rd (Rte 629)	Mill Creek	1932
JCC	10516	Hicks Island Rd (Rte 601)	Diascund Creek	1932
YC	19836	I-64 WB	Lakeshead Dr (Rte 1314)	1965
JCC	10498	I-64 WB	Six Mount Zion Rd (Rte 600)	1975
JCC	10464	John Tyler Hwy (SR 5)	Powhatan Creek	1937
JCC	10476	Jamestown Rd (SR 31)	Powhatan Creek	1957
JCC	4290029P	Jamestown Island Tour Rd	Creek	1957
JCC	4290030P	Jamestown Island Tour Rd	Creek	1957
JCC	4290031P	Jamestown Island Tour Rd	Kingsmill Creek	1957
JCC	4290028P	Jamestown Island Tour Rd	Pitch And Tar Swamp	1957
WMB	4290019P	Lafayette St	Colonial Pkwy	1936
YC	19855	Magruder Blvd (SR 134)	Brick Kiln Creek	1930
WMB	22338	Merrimac Trail (SR 143)	Colonial Pkwy	1948
WMB	4290020P	Newport Ave	Colonial Pkwy	1957
WMB	4290018P	Page St	Colonial Pkwy	1936
WMB	23768	Quarterpath Rd	Tutters Neck Pond	1993
YC	19857	Route 143	I-64 at Camp Peary	1965
JCC	10508	Route 199 WB	Colonial Pkwy	1976
JCC	25513	Route 199 SB	Monticello Ave	1999
JCC	24228	Route 199 SB	Route 60, 603 & CSX R/R	1995
JCC	10511	Route 199 EB	Tour Road	1976
JCC	10513	Route 199 WB	Tour Road	1976
JCC	10531	Stewart Rd (Rte 622)	Branch Diascund Creek	1937
JCC	10532	Stewart Rd (Rte 622)	Diascund Creek	1937
YC	19824	US Route 17 (Coleman Bridge)	York River & Rte 1208	1952
YC	19820	US Route 17 NB	Colonial Park Service Rd	1968
YC	19822	US Route 17 SB	Colonial Park Service Rd	1968
JCC	10486	US Route 60 EB	CSX Railroad @ Toano	1964
JCC	10487	US Route 60 WB	CSX Railroad @ Toano	1968
YC	4290002P	Yorktown Battlefield Tour Rd	Beaverdam Creek	1975
YC	4290003P	Yorktown Battlefield Tour Rd	Crawford Rd	1956
YC	4290004P	Yorktown Battlefield Tour Rd	US Route 17	1959

FIGURE 22 – FUNCTIONALLY OBSOLETE BRIDGES

Source: HRTPO analysis of VDOT data. As of January 2019.



FEDERAL BRIDGE PERFORMANCE MEASURES

Recent federal legislation requires states and Metropolitan Planning Organizations (MPOs) to prepare and use a set of federally-established performance measures and set targets in a number of areas, including the condition of bridges. As part of this legislation, each bridge must be classified as being in good, fair, or poor condition based on recent inspections. This is determined using the deck, superstructure, and substructure ratings. Each of these three components is rated from 0 to 9, with 9 representing a component in excellent condition and 0 representing a failed condition or a closed bridge. For culverts, a single rating is given to assess the general condition of the entire culvert.

The lowest of these three condition ratings (or the culvert condition rating) is the rating used to determine whether the bridge is in good, fair, or poor condition. If the lowest condition rating is ≥ 7 , the bridge is considered to be in good condition. If the lowest condition rating is 5 or 6, the bridge is in fair condition. Those bridges with the lowest condition rating ≤ 4 are considered to be in poor condition.

Using the federal standards, 24 bridges (19%) in the Historic Triangle are in good condition, 99 bridges (80%) are in fair condition, and 1 bridge (1%) is in poor condition as of January 2019. On a locality level, bridges are:

- James City County - 21% good, 79% fair
- Williamsburg - 58% good, 42% fair
- York County - 8% good, 90% fair, 2% poor

By comparison, 30% of bridges in Hampton Roads are in good condition, 65% are in fair condition, and 5% are in poor condition.

Map 15 on page 54 shows those bridges in good, fair, and poor condition in the Historic Triangle as of January 2019.



PHOTO – MERRIMAC TRAIL BRIDGE OVER QUEEN CREEK

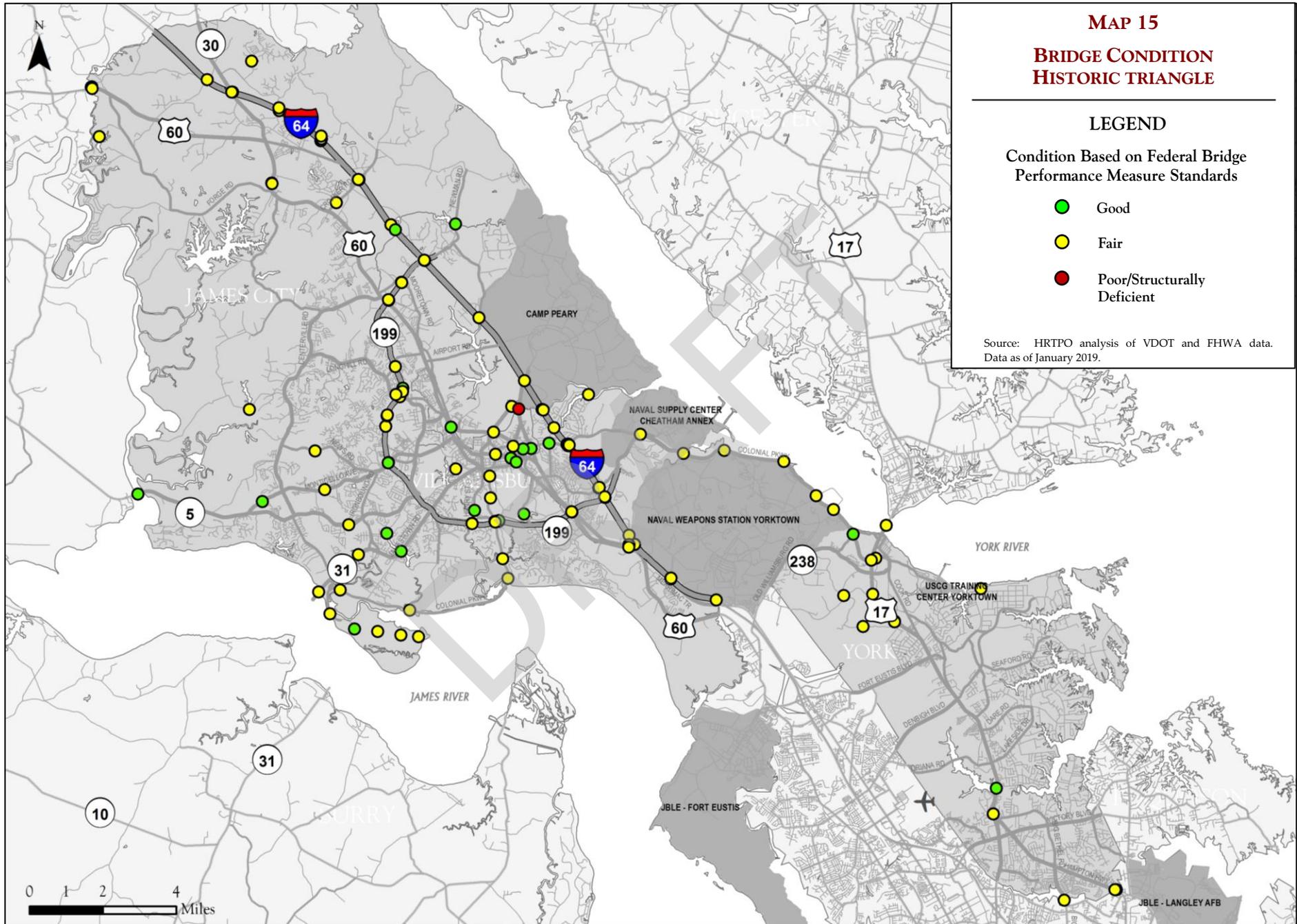
RECENT BRIDGE PROJECTS

There have been three bridges rehabilitated or replaced in the Historic Triangle since 2009 (**Figure 23**). The largest of these bridge projects was a replacement of the Dresser Bridge, which carries Route 5 over the Chickahominy River. A new fixed-span bridge with 52’ vertical clearance replaced the original swing span bridge that was constructed in 1939. The new Dresser Bridge – which was constructed at a cost of \$33.6 million – opened to traffic on January 24, 2009.

Locality	Federal		Type	Completion
	Bridge #	Facility		Date
YC	27508	George Washington Mem Hwy (US Route 17) over Poquoson River	Replacement	2015
JCC	28011	Route 5 over Chickahominy River	Replacement	2009
JCC	10511/10513	Route 199 over Tour Road	Rehabilitation	2014

FIGURE 23 – BRIDGES REHABILITATED OR REPLACED IN THE HISTORIC TRIANGLE, 2009-2018

Source: HRTPO analysis of VDOT data.

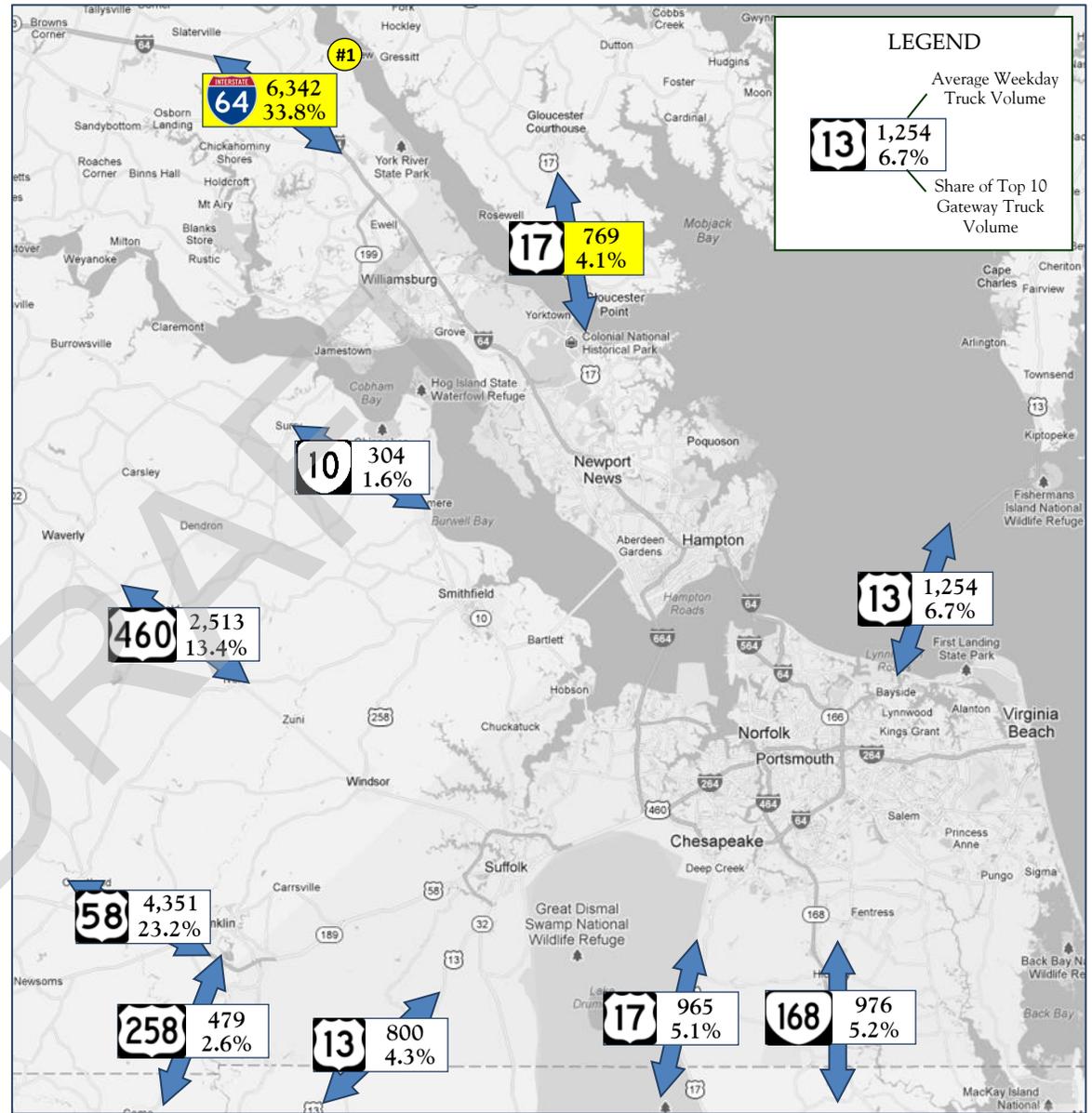


FREIGHT

Freight transportation influences every aspect of our daily lives and keeps our businesses and industries competitive in the local, state, and global economy. Hampton Roads is a multimodal region that includes ports, airports, rail, private trucking, shipping and warehouse distribution facilities, as well as a network of road and rail corridors for the delivery of freight, goods, and services. James City County, Williamsburg, and York County are a critical part of the freight community, serving as the northern gateway to the region and housing a number of distribution facilities and industrial sites. Since the predominant mover of freight is by trucks across highways for both Hampton Roads and the Historic Triangle, the focus of this section is on truck movement.

TRUCK MOVEMENTS THROUGH REGIONAL GATEWAYS

Within the HRTPO’s Regional Freight Study¹⁰, an analysis was completed that showed the Top 10 regional gateways for trucks each weekday. **Map 16** provides an updated version for the year 2017. I-64 through the Historic Triangle is the number one gateway for trucks in the region. A total of 6,342 trucks used the I-64 gateway (the VDOT count station is located in James City County) each weekday in 2017, up from 5,993 trucks in 2014. **Figure 24 on page 56** shows how the average weekday truck volume for the I-64 gateway has changed in recent years. The Coleman Bridge (Route 17) between Gloucester County and York County serves as a second major



MAP 16 – NUMBER AND SHARE OF TRUCKS PASSING THROUGH THE TOP 10 REGIONAL GATEWAYS EACH WEEKDAY, 2017

Source: HRTPO analysis of VDOT and CBBT data. Background map source: Google.

¹⁰ Hampton Roads Regional Freight Study: 2017 Update, HRTPO, July 2017.

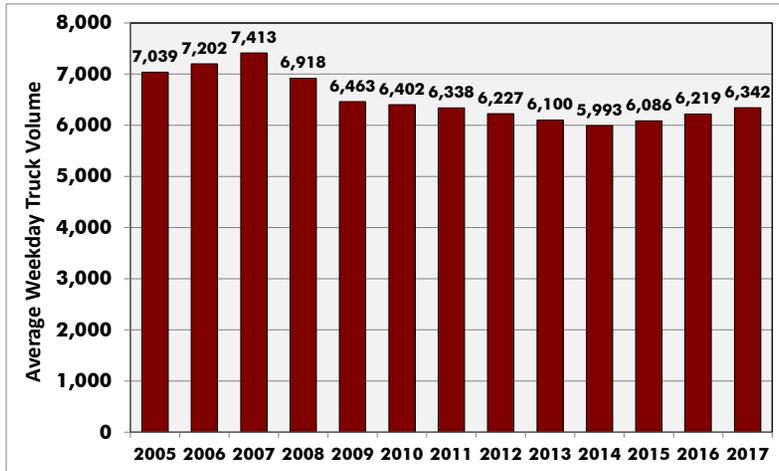


FIGURE 24 – I-64 GATEWAY (JAMES CITY COUNTY) AVERAGE WEEKDAY TRUCK VOLUMES, 2005 - 2017

Source: HRTPO analysis of VDOT data.

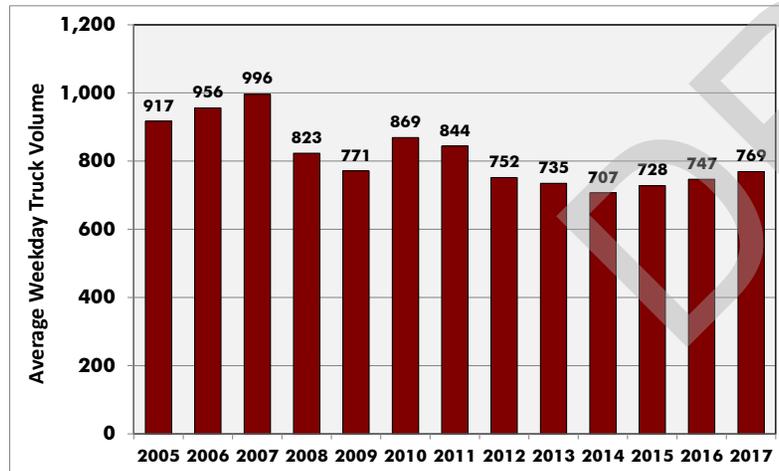


FIGURE 25 – COLEMAN BRIDGE (ROUTE 17) AVERAGE WEEKDAY TRUCK VOLUMES, 2005 - 2017

Source: HRTPO analysis of VDOT data.

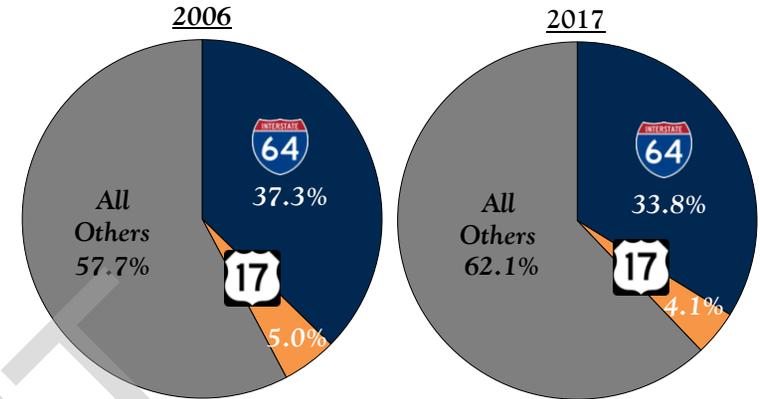


FIGURE 26 – SHARE OF TRUCKS PASSING THROUGH REGIONAL GATEWAYS EACH WEEKDAY, 2006 AND 2017

Source: HRTPO analysis of VDOT and CBBT data.

gateway for the Peninsula. **Figure 25** shows how the average weekday truck volumes have changed at the Coleman Bridge (Route 17) since 2005.

Combined, I-64 and Route 17 accounted for 38% of all trucks passing through the region’s major gateways in 2017. This is down from 42% in 2006 (**Figure 26**). The share of trucks using Hampton Roads gateways has been shifting over the last decade from I-64 towards Routes 58 and 460. More trucks now use the combination of Routes 58/460 to enter or exit the region than use I-64.

DAILY TRUCK MOVEMENTS

Figure 27 on pages 58-59 shows the 2017 existing weekday truck volumes and percentages for roadways within the Historic Triangle. **Maps 17 and 18** on pages 60-61 provide a geographic depiction of these 2017 existing weekday truck volumes and percentages within each locality.

James City County

I-64 carries the highest truck volumes in James City County with approximately 6,800 trucks each weekday between Croaker Road (Route 607) and the York County line. Old Stage Road (Route 30) carries the second highest weekday truck volumes with 1,199 trucks each weekday between the New Kent County line and I-64. Route 199 between Henry Street/Colonial Parkway and Route 60/Route 143/York County line carries the third highest volumes, ranging between 925 and 990 trucks each weekday.

Old Stage Road (Route 30) between the New Kent County line and I-64 has the highest percentage of trucks each weekday at 11.7%. The second highest truck percentage location during a typical weekday is I-64 between the New Kent County line and the York County line with 10.7% in the eastbound direction and 10.3% in the westbound direction. The third highest truck percentage location during a typical weekday is Pocahontas Trail between the York County line and the Newport News City line at 5.9%. The fourth highest truck percentage location during a typical weekday is Barhamsville Road (Route 30) between I-64 and Route 60 with 5.3%.

Williamsburg

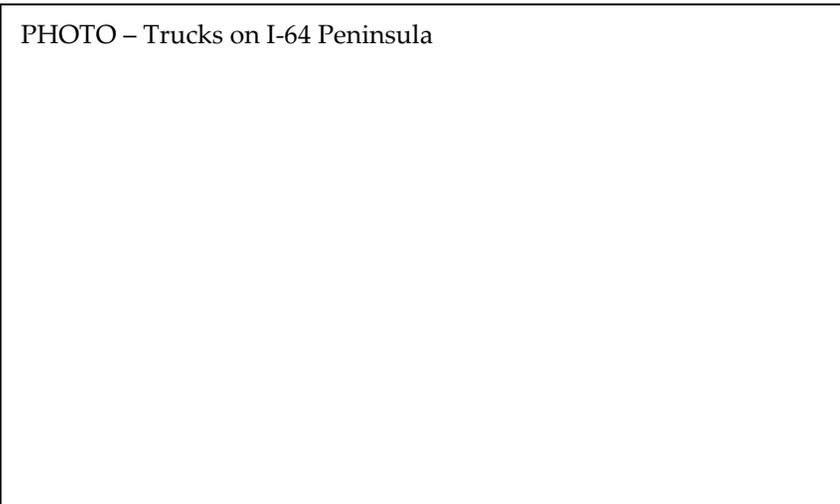
Route 199 carries the highest truck volumes in Williamsburg, ranging between 689 and 702 trucks each weekday. Merrimac Trail between the York County line (south) and Capitol Landing Road has the highest percentage of trucks each weekday at 2.3%.

York County

I-64 carries the highest truck volumes in York County with approximately 6,300-6,900 trucks each weekday between the James City County line and Route 199 (east of Williamsburg). Route 199 carries the second highest weekday truck volumes with 856 trucks

each weekday between I-64 and Route 60/Route 143/James City County line. George Washington Memorial Highway (Route 17) between Fort Eustis Boulevard (Route 105) and the Gloucester County line (Coleman Bridge) carries the third highest volumes, ranging between 606 and 811 trucks each weekday. Pocahontas Trail (Route 60) between Kingsmill Road and the James City County line carries the fourth highest truck volumes, ranging between 708 and 758 trucks each weekday.

The highest truck percentage location in York County during a typical weekday is I-64 between the James City County line and Route 199 (east of Williamsburg) with 10.7% in the eastbound direction and 10.3% in the westbound direction. Pocahontas Trail between the James City County line at Route 199 and the James City County line east of Busch Gardens has the second highest percentage of trucks each weekday at 5.9%. The third highest truck percentage location during a typical weekday is the Fort Eustis Boulevard Extension between Route 17 and Old York–Hampton Highway at 4.8%.



JAMES CITY COUNTY – ARTERIALS

Route Num	Facility	Segment From	Segment To	2017 Existing Weekday Trucks	2017 Existing Weekday Truck %
30	Barhamsville Rd	I-64	Route 60	546	5.3%
614	Centerville Rd	John Tyler Hwy	Monticello Ave	124	3.1%
614	Centerville Rd	Monticello Ave	News Rd	158	3.1%
614	Centerville Rd	News Rd	Longhill Rd	296	3.1%
614	Centerville Rd	Longhill Rd	Richmond Rd	334	3.1%
910	Colonial Natl Hist Pkwy	Jamestown/Rte 359	Williamsburg CL/Rte 199	14	0.7%
607	Croaker Rd	Route 60	Maxton Ln (Rte 760)	259	2.6%
607	Croaker Rd	Maxton Ln (Rte 760)	I-64	244	2.6%
607	Croaker Rd	I-64	Fenton Mill Rd	145	2.6%
607	Croaker Rd	Fenton Mill Rd	Riverview Rd	82	2.6%
615	Depue Dr	Longhill Rd (Rte 612)	Ironbound Rd	132	1.2%
615	Ironbound Rd	Strawberry Plains Rd	Monticello Ave	130	1.2%
615	Ironbound Rd	Monticello Ave	Williamsburg CL	148	1.2%
615	Ironbound Rd/News Rd	John Tyler Hwy	Monticello Ave	110	1.2%
615	Ironbound Rd/Sandy Bay Rd	Jamestown Rd	John Tyler Hwy	130	1.2%
31	Jamestown Rd	James River/Ferry	Colonial Parkway (Rte 359)	80	1.1%
31	Jamestown Rd	Colonial Parkway (Rte 359)	Sandy Bay Rd (Rte 681)	80	1.1%
31	Jamestown Rd	Sandy Bay Rd (Rte 681)	Neck-O-Land Rd	97	1.1%
31	Jamestown Rd	Neck-O-Land Rd	Williamsburg CL	97	1.1%
5	John Tyler Hwy	Charles City CL	Monticello Ave	71	1.6%
5	John Tyler Hwy	Monticello Ave	Centerville Rd (Rte 614)	96	1.6%
5	John Tyler Hwy	Centerville Rd (Rte 614)	Ironbound Rd (Rte 615)	130	1.6%
5	John Tyler Hwy	Ironbound Rd (Rte 615)	Stanley Dr (Rte 712)	175	1.6%
5	John Tyler Hwy	Stanley Dr (Rte 712)	Route 199	292	1.6%
612	Longhill Rd	Centerville Rd (Rte 614)	Olde Towne Rd (Rte 658)	95	1.2%
612	Longhill Rd	Olde Towne Rd (Rte 658)	Route 199	200	1.2%
612	Longhill Rd	Route 199	Depue Dr	240	1.2%
143	Merrimac Trl	Newport News CL @ I-64	York CL (South Of Grove Int)	225	1.9%
143	Merrimac Trl	York CL @ Route 199	Penniman Rd (York CL)	320	1.9%
900	Monticello Ave	John Tyler Hwy	Centerville Rd (Rte 614)	128	1.6%
900	Monticello Ave	Centerville Rd (Rte 614)	News Rd	158	1.3%
615	Monticello Ave	News Rd	Route 199	548	1.4%
930	Monticello Ave	Route 199	Ironbound Rd (Rte 615)	177	0.8%
30	Old Stage Rd	New Kent CL	Barnes Rd (Rte 601 S)	1,199	11.7%
30	Old Stage Rd	Barnes Rd (Rte 601 S)	I-64	1,199	11.7%
658	Olde Towne Rd	Longhill Rd	Richmond Rd	121	1.5%
60	Pocahontas Trl	Williamsburg CL	York CL @ 199	127	1.4%
60	Pocahontas Trl	York CL	Basf Rd/Route 60 Relocation	603	5.9%
60	Pocahontas Trl	Basf Rd/Route 60 Relocation	Newport News CL	735	5.9%
60	Richmond Rd	Route 199	Olde Towne Rd (Rte 658)	232	1.8%
60	Richmond Rd	Olde Towne Rd (Rte 658)	Williamsburg CL	198	0.9%
30	Rochambeau Dr	Route 60	0.7 Mi East Of Ashington Way	164	1.8%
30	Rochambeau Dr	0.7 Mi East Of Ashington Way	Croaker Rd (Rte 607)	164	1.8%
199	Route 199	John Tyler Hwy (Rte 5)	Williamsburg CL	689	1.9%
199	Route 199	Williamsburg CL	Henry St/Colonial Pkwy	648	1.9%
199	Route 199	Henry St/Colonial Pkwy	Mounts Bay Rd/Quarterpath Rd	990	2.9%
199	Route 199	Mounts Bay Rd/Quarterpath Rd	Rte 60/Rte 143/York CL	925	2.9%
60	Route 60	New Kent CL	Route 30	104	1.8%
60	Route 60	Route 30	Croaker Rd (Rte 607)	271	1.8%
60	Route 60	Croaker Rd (Rte 607)	Lightfoot Rd (Rte 646)	387	1.8%
60	Route 60	Lightfoot Rd (Rte 646)	Centerville Rd (Rte 614)	387	1.8%
60	Route 60	Centerville Rd (Rte 614)	Route 199	416	1.8%
616	Strawberry Plains Rd	John Tyler Hwy/Route 199	Ironbound Rd	90	0.9%

WILLIAMSBURG – ARTERIALS

Route Num	Facility	Segment From	Segment To	2017 Existing Weekday Trucks	2017 Existing Weekday Truck %
5	Boundary St	Jamestown Rd	Francis St	91	1.0%
60	Bypass Rd	Richmond Rd	York CL	233	0.9%
60	Bypass Rd	Route 132/York CL	Page St	224	1.5%
5	Capitol Landing Rd	Bypass Rd	Merrimac Trail	126	1.7%
970	Colonial Natl Hist Pkwy	James City CL/Rte 199	York CL	21	0.7%
5	Francis St	Boundary St	Henry St	67	1.0%
132	Henry St S.	Route 199	Francis St	37	1.2%
5	Henry St	Francis St	Lafayette St	53	1.0%
132	Henry St N.	Lafayette St	Rte 132Y	127	2.1%
915	Ironbound Rd	James City CL	Depue Dr	148	1.2%
915	Ironbound Rd	Depue Dr	Longhill Rd	93	0.9%
915	Ironbound Rd	Longhill Rd	Richmond Rd	115	0.9%
31	Jamestown Rd	James City CL	Rte 199	183	1.1%
5	Jamestown Rd	Rte 199	John Tyler Ln	88	1.0%
5	Jamestown Rd	John Tyler Ln	College Creek	94	1.0%
5	Jamestown Rd	College Creek	Boundary St	94	1.0%
900	Lafayette St	Richmond Rd	Henry St	202	2.0%
5	Lafayette St	Henry St	Capitol Landing Rd	204	2.0%
5	Lafayette St	Capitol Landing Rd	Page St	168	2.0%
143	Merrimac Trail	York CL (South)	Capitol Landing Rd	164	2.3%
143	Merrimac Trail	Capitol Landing Rd	York CL (North)	189	1.9%
321	Monticello Ave	Ironbound Rd	Richmond Rd	127	0.8%
60	Page St	Bypass Rd	Second St	151	1.0%
60	Page St	Second St	York St	152	1.0%
945	Quarterpath Rd	Route 199	York St	17	1.4%
60	Richmond Rd	James City CL	Ironbound Rd	198	0.9%
60	Richmond Rd	Ironbound Rd	Bypass Rd	234	0.9%
950	Richmond Rd	Bypass Rd	Monticello Ave	244	1.2%
950	Richmond Rd	Monticello Ave	Brooks St	182	1.7%
950	Richmond Rd	Brooks St	Boundary St	182	1.7%
132	Route 132	Route 132Y	Bypass Rd/York CL	193	2.1%
132	Route 132Y	Route 132	Colonial Pkwy	61	1.0%
199	Route 199	James City CL (West)	Jamestown Rd	689	1.9%
199	Route 199	Jamestown Rd	James City CL (East)	702	1.9%
900	Second St	Page St	York CL	184	1.3%
	Treyburn Dr	Monticello Ave	Ironbound Rd	28	0.9%
60	York St	Page St	James City CL	179	1.4%

FIGURE 27 – WEEKDAY TRUCK VOLUMES AND PERCENTAGES BY ROADWAY SEGMENT IN THE HISTORIC TRIANGLE, 2017

Source: HRTPO analysis of VDOT data.

YORK COUNTY – ARTERIALS

Route Num	Facility	Segment From	Segment To	2017 Existing Weekday Trucks	2017 Existing Weekday Truck %
1020	Ballard St	Colonial Pkwy	Cook Rd	81	1.2%
238	Ballard St	Cook Rd	Coast Guard Training Center	68	2.4%
600	Big Bethel Rd	Hampton CL	Hampton Hwy (Rte 134)	69	0.7%
600	Big Bethel Rd	Hampton Hwy (Rte 134)	Victory Blvd (Rte 171)	36	0.7%
60	Bypass Rd	Williamsburg CL	Waller Mill Rd	233	0.9%
60	Bypass Rd	Waller Mill Rd	Route 132/Williamsburg CL	233	0.9%
950	Colonial Nail Hist Pkwy	Williamsburg CL	Ballard St	42	0.7%
704	Cook Rd	George Washington Mem Hwy	Goosley Rd	46	0.6%
238	Cook Rd	Goosley Rd	Ballard St	51	0.6%
173	Denbigh Blvd	Newport News CL	George Washington Mem Hwy	210	1.4%
782	East Yorktown Rd	Victory Blvd	Poquoson CL	41	0.7%
105	Fort Eustis Blvd	Newport News CL	George Washington Mem Hwy	714	3.8%
1050	Fort Eustis Blvd Ext	George Washington Mem Hwy	Old York - Hampton Hwy	165	4.8%
17	George Washington Mem Hwy	Newport News CL	Victory Blvd (Rte 171)	476	1.4%
17	George Washington Mem Hwy	Victory Blvd (Rte 171)	Hampton Hwy (Rte 134)	514	1.4%
17	George Washington Mem Hwy	Hampton Hwy (Rte 134)	Dare Rd	757	1.4%
17	George Washington Mem Hwy	Dare Rd	Denbigh Blvd (Rte 173)	530	1.4%
17	George Washington Mem Hwy	Denbigh Blvd (Rte 173)	Fort Eustis Blvd (Rte 105)	511	1.4%
17	George Washington Mem Hwy	Fort Eustis Blvd (Rte 105)	Cook Rd	811	2.2%
17	George Washington Mem Hwy	Cook Rd	Goosley Rd (Rte 238)	606	2.2%
17	George Washington Mem Hwy	Goosley Rd (Rte 238)	Gloucester CL (Coleman Bridge)	763	2.2%
173	Goodwin Neck Rd	George Washington Mem Hwy	Wolf Trap Rd	395	4.0%
238	Goosley Rd	Old Williamsburg Rd	Crawford Rd	158	2.4%
238	Goosley Rd	Crawford Rd	George Washington Mem Hwy	158	2.4%
238	Goosley Rd	George Washington Mem Hwy	Cook Rd	38	2.4%
134	Hampton Hwy	George Washington Mem Hwy	Victory Blvd (Rte 171)	125	0.7%
134	Hampton Hwy	Victory Blvd (Rte 171)	Big Bethel Rd (Rte 600)	183	0.7%
134	Hampton Hwy	Big Bethel Rd (Rte 600)	NCL Hampton	177	0.7%
646	Lightfoot Rd	Route 60	Mooretown Rd	145	1.5%
143	Merrimac Trail	James City CL	Busch Gardens Interchange	210	1.9%
143	Merrimac Trail	Busch Gardens Interchange	Route 199/James City CL	345	1.9%
143	Merrimac Trail	Penniman Rd/James City CL	Second St	330	1.9%
143	Merrimac Trail	Second St	Williamsburg CL	147	1.9%
143	Merrimac Trail	Williamsburg CL	Route 132	182	1.9%
603	Mooretown Rd	Waller Mill Rd	Airport Rd	89	1.4%
603	Mooretown Rd	Airport Rd	Old Mooretown Rd	131	1.4%
603	Mooretown Rd	Old Mooretown Rd	Route 199	287	1.4%
603	Mooretown Rd	Route 199	Lightfoot Rd	144	1.4%
646	Newman Rd	I-64	Fenton Mill Rd	42	1.5%
238	Old Williamsburg Rd	Newport News CL	Baptist Rd/Main Rd	227	2.4%
238	Old Williamsburg Rd	Baptist Rd/Main Rd	Goosley Rd	228	2.4%
641	Penniman Rd (Rte 641)	Route 199	Colonial Pkwy	102	1.6%
60	Pocahontas Trail	Jcc Line @ Rte 199	Kingsmill Rd	507	5.9%
60	Pocahontas Trail	Kingsmill Rd	Busch Gardens Interchange	708	5.9%
60	Pocahontas Trail	Busch Gardens Interchange	James City CL	758	5.9%
132	Route 132	Bypass Rd/Williamsburg CL	Route 143	291	2.8%
143	Route 143	Route 132	I-64	366	1.9%
199	Route 199	Rte 60/Rte 143/Jcc Line	I-64	856	2.9%
199	Route 199	I-64	Marquis Pkwy	540	2.9%
199	Route 199	Marquis Pkwy	Rte 641 (Penniman Rd)	274	2.9%
162	Second St	Williamsburg CL	Merrimac Trail	184	1.3%
171	Victory Blvd	Newport News CL	George Washington Mem Hwy	586	1.2%
171	Victory Blvd	George Washington Mem Hwy	Hampton Hwy (Rte 134)	358	1.1%
171	Victory Blvd	Hampton Hwy (Rte 134)	Big Bethel Rd (Rte 600)	221	1.1%
171	Victory Blvd	Big Bethel Rd (Rte 600)	Carys Chapel Rd (Rte 782)	229	1.1%
171	Victory Blvd	Carys Chapel Rd (Rte 782)	Poquoson CL	151	1.1%
713	Waller Mill Rd	Route 60	Mooretown Rd	71	1.5%

JAMES CITY COUNTY – INTERSTATES AND FREEWAYS

Facility	Segment From	Segment To	DIR	2017 Existing Weekday Trucks	2017 Existing Weekday Truck %
I-64	New Kent CL	Rte 30	EB	2,772	10.7%
			WB	2,577	10.3%
I-64	Rte 30	Croaker Rd (Rte 607)	EB	3,115	10.7%
			WB	2,905	10.3%
I-64	Croaker Rd (Rte 607)	York CL	EB	3,553	10.7%
			WB	3,269	10.3%
I-64	York CL	Newport News CL	EB	2,007	5.1%
			WB	2,195	5.0%
Route 199	York CL	Richmond Rd (Rte 60)	EB	232	1.9%
			WB	237	1.9%
Route 199	Richmond Rd (Rte 60)	Longhill Rd (Rte 612)	EB	170	1.3%
			WB	164	1.3%
Route 199	Longhill Rd (Rte 612)	Monticello Ave (Rte 321)	EB	205	1.3%
			WB	208	1.4%
Route 199	Monticello Ave (Rte 321)	John Tyler Hwy (Rte 5)	EB	185	1.3%
			WB	190	1.3%

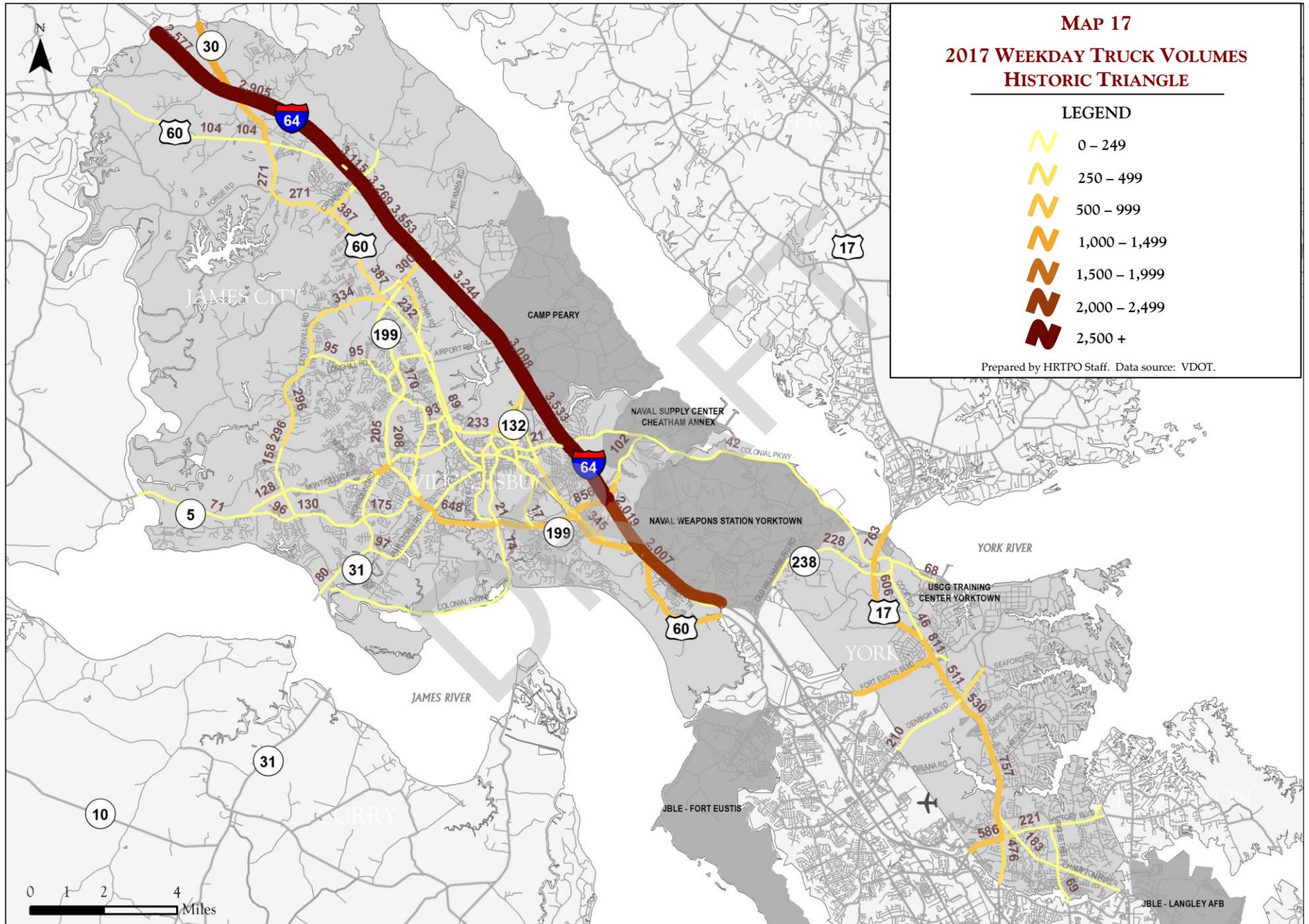
YORK COUNTY – INTERSTATES AND FREEWAYS

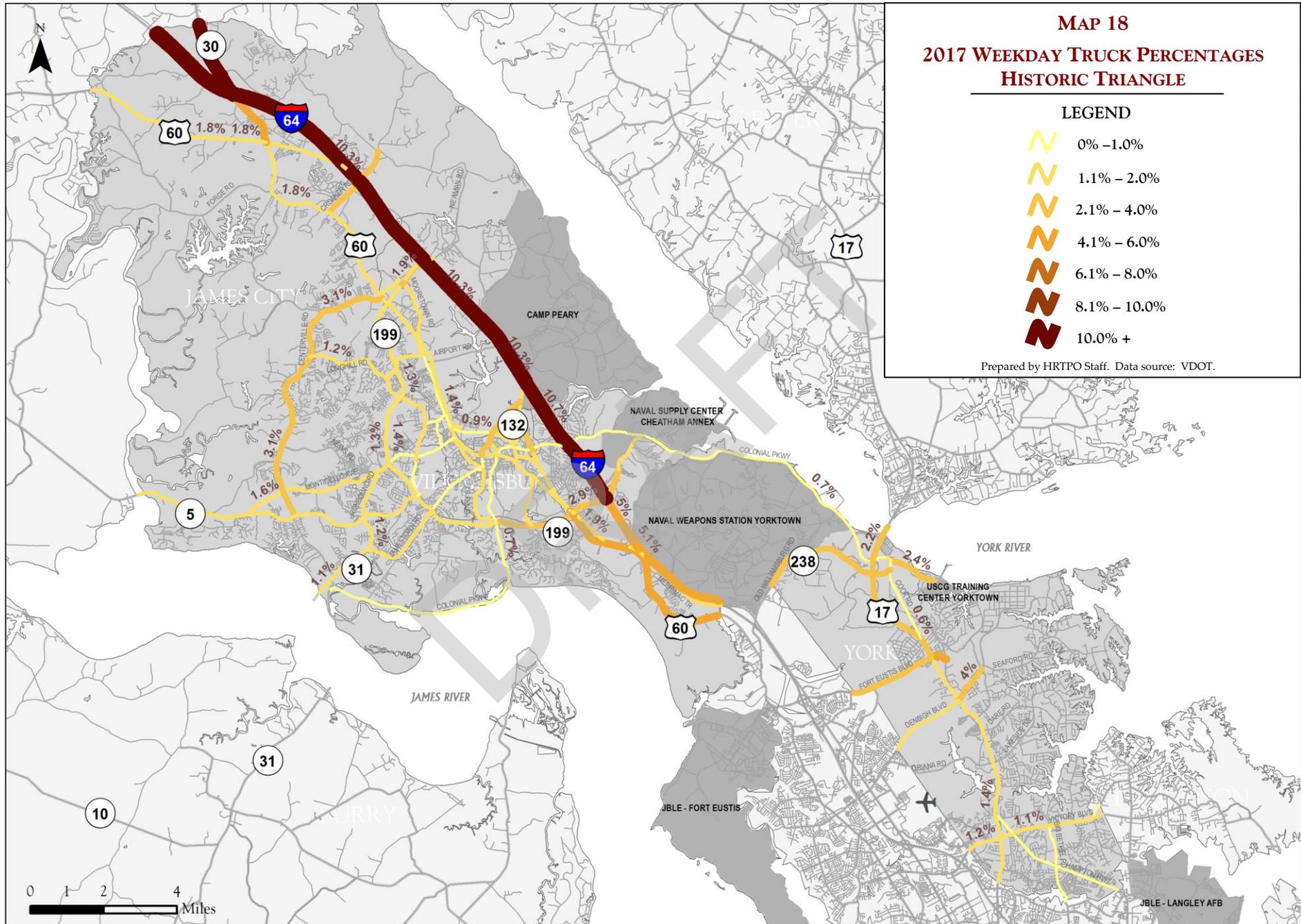
Facility	Segment From	Segment To	DIR	2017 Existing Weekday Trucks	2017 Existing Weekday Truck %
I-64	James City CL	Rte 199/646	EB	3,553	10.7%
			WB	3,269	10.3%
I-64	Rte 199/646	Rte 143	EB	3,244	10.7%
			WB	3,098	10.3%
I-64	Rte 143	Rte 199 (East Of Williamsburg)	EB	3,533	10.7%
			WB	3,397	10.3%
I-64	Rte 199 (East Of Williamsburg)	Busch Gardens Interchange	EB	2,122	5.1%
			WB	2,019	5.0%
I-64	Busch Gardens Interchange	James City CL	EB	2,007	5.1%
			WB	2,195	5.0%
Route 199	James City CL (Westside)	Mooretown Rd	EB	232	1.9%
			WB	237	1.9%
Route 199	Mooretown Rd	I-64	EB	300	1.9%
			WB	295	2.1%

FIGURE 27 (CONTINUED) – WEEKDAY TRUCK VOLUMES AND PERCENTAGES BY ROADWAY SEGMENT IN THE HISTORIC TRIANGLE, 2017

Source: HRTPO analysis of VDOT data.







HIGHWAY GATEWAYS USED BY PORT TRUCKS

The HRTPO’s Highway Gateways Used by Port Trucks Study¹¹ shows which highway routes are primarily used by port-related trucks. For this analysis, HRTPO staff analyzed StreetLight origin-destination data, which utilizes location-based services data and GPS-based fleet management data for truck travel. StreetLight was used to determine the highways used by trucks from Port-Related Distribution Centers.

Figure 28 shows the average weekday share of trucks passing through regional highway gateways from Port-Related Distribution Centers in Hampton Roads. This analysis shows that I-64 on the Peninsula is the primary gateway (57%) followed by US Route 460 (18%) and US Route 58 (16%).

Figure 29 shows the average weekday share of trucks passing through regional highway gateways from Port-Related Distribution Centers on the Peninsula. This analysis shows that I-64 on the Peninsula (93%) is the primary gateway for trucks.

Figure 30 on page 63 compares the average weekday share of all trucks versus port-related trucks passing through regional highway gateways in Hampton Roads. I-64 on the Peninsula appears to be even more important to port-related trucks than it is to all trucks, which highlights the importance of I-64 through the Historic Triangle as a major regional gateway for port-related truck traffic.

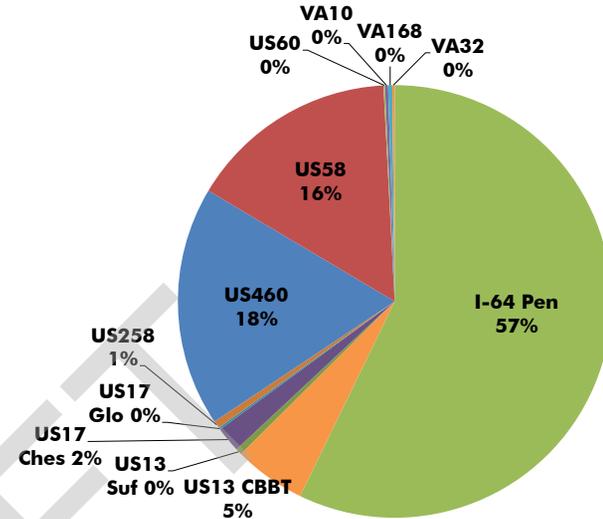


FIGURE 28 – TRUCK USAGE OF GATEWAYS BY HAMPTON ROADS PORT-RELATED DISTRIBUTION CENTERS, JULY 2016 - JUNE 2017
Source: HRTPO analysis of StreetLight data.

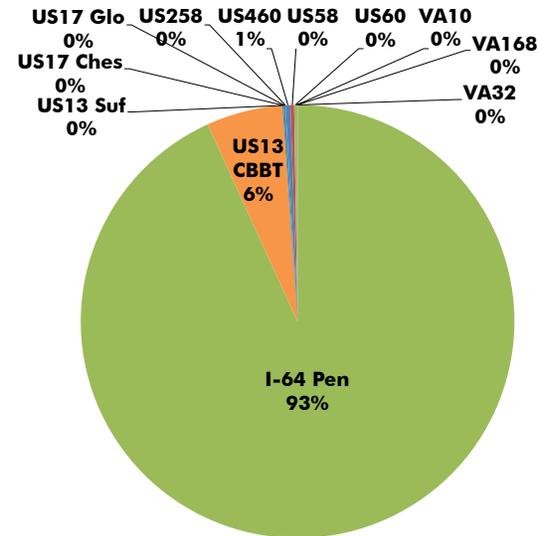


FIGURE 29 – TRUCK USAGE OF GATEWAYS BY PENINSULA PORT-RELATED DISTRIBUTION CENTERS, JULY 2016 - JUNE 2017
Source: HRTPO analysis of StreetLight data.

¹¹ Highway Gateways Used by Port Trucks, HRTPO, March 2018.

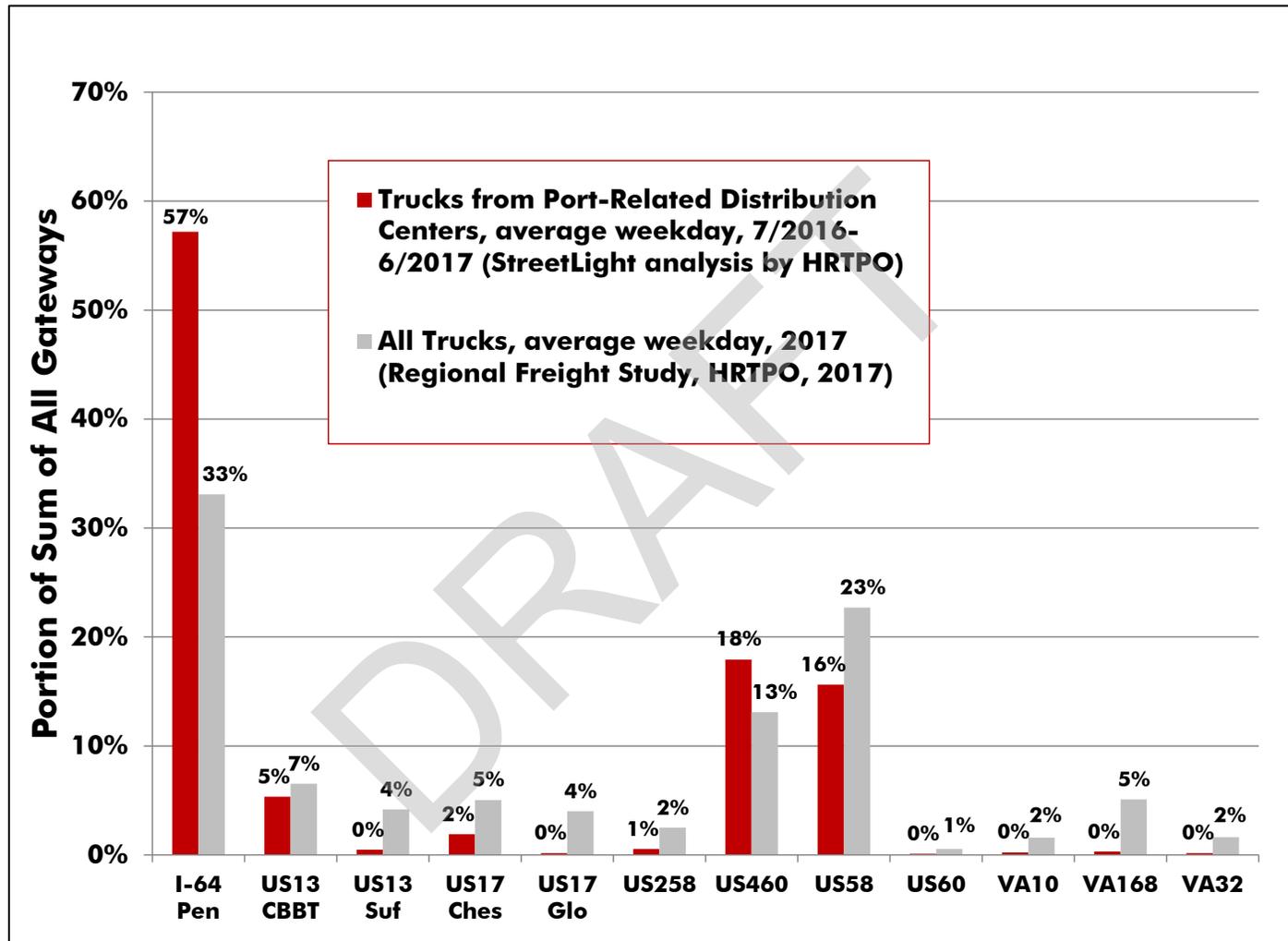


FIGURE 30 – COMPARISON OF TRUCK USAGE THROUGH REGIONAL GATEWAYS

Source: HRTPO analysis of StreetLight data. "All Trucks" from HRTPO Regional Freight Study was updated with 2017.

AIR SERVICE

Three commercial service airports are located within 50 miles of the Historic Triangle. The closest airport to the Historic Triangle is Newport News-Williamsburg International Airport (code PHF); however, residents and travelers also use Norfolk International Airport (ORF) and Richmond International Airport (RIC). Corporate aviation service is also provided at Williamsburg Jamestown Airport (JGG). Finally, there are military airport and heliport facilities located at Camp Peary and the Yorktown Naval Weapons Station in York County.

NEWPORT NEWS - WILLIAMSBURG INTERNATIONAL AIRPORT

The Newport News-Williamsburg International Airport (PHF) is located on the border of Newport News and York County. The airport, which is owned and operated by the Peninsula Airport Commission, is currently served by two commercial airlines - Delta Air Lines and American Airlines. These airlines provide non-stop service to Atlanta, Charlotte, and Philadelphia.

Figure 31 shows the enplanements or “passenger boardings” at the Newport News-Williamsburg, Richmond, and Norfolk International Airports from 2000 through 2017. Passenger activity at the Newport News-Williamsburg International Airport increased between 2001 and 2005 but has decreased annually since 2012. A majority of the growth between 2001 and 2005 occurred when low-cost carrier Airtran Airways introduced new and more frequent service. In March 2012, Airtran Airways ceased operations due to their merger with Southwest Airlines, which was already operating at Norfolk International Airport. The departure of Airtran Airways led to a substantial decline in passenger activity at the airport. Another contributor to passenger increases and decreases was Frontier Airlines, which began nonstop service at the airport in 2010 but withdrew service in January 2015.

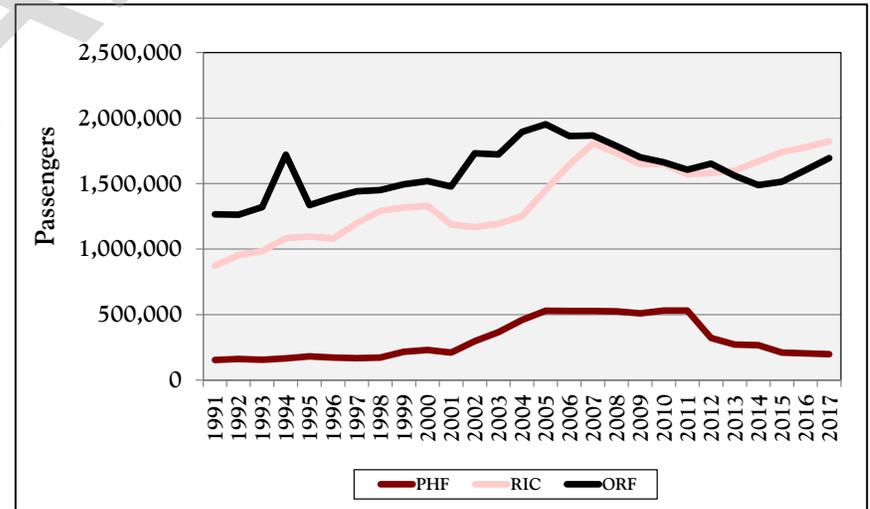


FIGURE 31 - ENPLANEMENTS AT NEWPORT NEWS-WILLIAMSBURG, RICHMOND AND NORFOLK INTERNATIONAL AIRPORTS, 2000-2017

Data Source: Federal Aviation Administration

NORFOLK INTERNATIONAL AIRPORT

Norfolk International Airport (ORF) is the second closest commercial passenger service airport to the Historic Triangle, located about 40 miles from Williamsburg. The airport is owned by the City of Norfolk and operated by the Norfolk Airport Authority. Norfolk International Airport is currently served by six commercial airlines (Allegiant, American, Delta, Frontier, Southwest, and United) that provide nonstop access to 26 airports.

As shown in **Figure 31**, Norfolk International Airport experienced a rise in enplanements between 2000 (1.5 million enplanements) and 2005 (2.0 million enplanements). Passenger levels at Norfolk International Airport decreased throughout the economic downturn but have increased in recent years, up to nearly 1.7 million enplanements in 2017.



Norfolk International Airport

NIA

RICHMOND INTERNATIONAL AIRPORT

Historic Triangle residents and travelers also frequently use Richmond International Airport (RIC), which is located about 45 miles from Williamsburg. Richmond International Airport is located in Sandston, Virginia, which is seven miles southeast of downtown Richmond. The airport is currently served by seven commercial airlines (Allegiant, American, Delta, JetBlue, Southwest, Spirit, and United) that provide service on nearly 170 flights each day.

Similar to Norfolk International Airport, Richmond International Airport experienced a decrease in passenger levels throughout the economic downturn. Since 2011, however, enplanements at RIC have increased every year. At 1.8 million enplanements in 2017, Richmond International Airport now carries more passengers than Norfolk International Airport and is the third-busiest airport in Virginia behind Washington D.C.’s two major airports, Dulles International and Ronald Reagan National.



Richmond International Airport

RICHMOND TIMES DISPATCH

WILLIAMSBURG JAMESTOWN AIRPORT

Located off of Lake Powell Road in James City County, the Williamsburg Jamestown airport is a small, privately owned and operated general aviation airport. It serves small private recreational and business aircraft without scheduled commercial passenger service available. The facility, which includes one 3,200 foot runway with full instrument landing capabilities, also serves as the base for a flight school. There are 52 aircraft based at the airport as of 2017, and an average of 49 operations occurs at the airport per day.

ADD PHOTO OF WILLIAMSBURG-JAMESTOWN AIRPORT

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