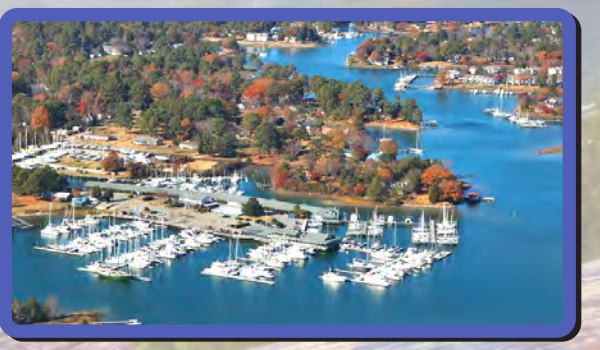
Gloucester County Transportation Study



the *heartbeat* of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

October 2021

T21-14

HAMPTON ROADS TRANSPORTATION PLANNING ORGANIZATION
VOTING MEMBERS
Robert A. Crum, Jr. – Executive Director

VOTING MEMBERS:

CHESAPEAKE
Rick West - Vice-Chair
Ella P. Ward - Alternate

FRANKLIN
Frank Rabil
Vacant - Alternate

GLOUCESTER COUNTY
Phillip Bazzani
Christopher A. Hutson - Alternate

HAMPTON
Donnie Tuck - Chair
Steve Brown - Alternate

ISLE OF WIGHT COUNTY
William McCarty
Rudolph Jefferson - Alternate

JAMES CITY COUNTY
James Icenhour
Vacant - Alternate

NEWPORT NEWS
McKinley L. Price
David H. Jenkins - Alternate

NORFOLK
Kenneth Alexander
Martin A. Thomas, Jr. - Alternate

POQUOSON
Gordon C. Helsel, Jr.
Herbert R. Green - Alternate

PORTSMOUTH
Shannon E. Glover
Lisa L. Lucas-Burke - Alternate

SOUTHAMPTON COUNTY
William Gillette
Vacant - Alternate

SUFFOLK
Michael D. Duman
Leroy Bennett - Alternate

VIRGINIA BEACH
Robert Dyer
Vacant - Alternate

WILLIAMSBURG
Douglas Pons
Pat Dent - Alternate

YORK COUNTY
Thomas G. Shepperd, Jr.
Sheila Noll - Alternate

MEMBERS OF THE VIRGINIA SENATE
The Honorable Mamie E. Locke
The Honorable Lionell Spruill, Sr.

MEMBERS OF THE VIRGINIA HOUSE OF DELEGATES
The Honorable Stephen E. Heretick
The Honorable Jeion A. Ward

TRANSPORTATION DISTRICT COMMISSION OF HAMPTON ROADS
William E. Harrell, President/Chief Executive Officer
Ray Amoruso – Alternate

VIRGINIA DEPARTMENT OF TRANSPORTATION
Christopher Hall , Hampton Roads District Engineer
Todd Halacy – Alternate

VA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION
Jennifer Mitchell, Director
Jennifer DeBruhl – Alternate

VIRGINIA PORT AUTHORITY
Stephen A. Edwards, CEO/Executive Director
Cathie Vick – Alternate

WILLIAMSBURG AREA TRANSIT AUTHORITY
Zach Trogdon, Executive Director
Joshua Moore – Alternate

HAMPTON ROADS TRANSPORTATION PLANNING ORGANIZATION

NON-VOTING MEMBERS:

CHESAPEAKE Christopher Price	**JAMES CITY COUNTY** Scott Stevens	**SOUTHAMPTON COUNTY** Michael W. Johnson
FRANKLIN Amanda Jarratt	**NEWPORT NEWS** Cynthia Rohlf	**SUFFOLK** Albert Moor
GLOUCESTER COUNTY Carol Steele	**NORFOLK** Larry Filer	**VIRGINIA BEACH** Patrick Duhaney
HAMPTON Mary Bunting	**POQUOSON** J. Randall Wheeler	**WILLIAMSBURG** Andrew Trivette
ISLE OF WIGHT COUNTY Randy Keaton	**PORTSMOUTH** Angel Jones	**YORK COUNTY** Neil A. Morgan

FEDERAL HIGHWAY ADMINISTRATION
Thomas Nelson, Jr., Acting Division Administrator – Virginia Division

FEDERAL TRANSIT ADMINISTRATION
Terry Garcia-Crews, Region 3 Administrator

FEDERAL AVIATION ADMINISTRATION
Jeffrey W. Breeden, Airport Planner, Washington Airports District Office

VIRGINIA DEPARTMENT OF AVIATION
Mark Flynn, Director

PENINSULA AIRPORT COMMISSION
Michael A. Giardino, Executive Director

NORFOLK AIRPORT AUTHORITY
Robert S. Bowen, Executive Director

COMMUNITY ADVISORY COMMITTEE
Theresa Danaher, Chair

FREIGHT TRANSPORTATION ADVISORY COMMITTEE
Robert Eveleigh, Chair

MILITARY LIAISONS
Harry Hung, Colonel, U.S. Air Force
Sam Stevens, Captain, U.S. Coast Guard
Gordon Meek, Captain, U.S. Navy
John Hewitt, Captain U.S. Navy - Alternate

INVITED PARTICIPANT
John Malbon, CTB
Stephen A. Johnsen, CTB
W. Sheppard Miller, CTB

HRTPO PROJECT STAFF
Pavithra Parthasarathi, Deputy Executive Director
Keith M. Nichols, Principal Transportation Engineer
Samuel S. Belfield, Senior Transportation Engineer
Uros Jovanovic, Transportation Engineer
Andrew Margason, General Service Manager
Christopher Vaigneur, Assistant General Services Manager
Kendall L. Miller, Administrator, Office of Community Affairs and Civil Rights

GLOUCESTER COUNTY TRANSPORTATION STUDY

PREPARED BY:

the *heartbeat* of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

OCTOBER 2021

T21-14

Report Documentation

TITLE:
Gloucester County Transportation Study

AUTHORS:
Samuel S. Belfield
Uros Jovanovic
Keith M. Nichols, PE

PROJECT MANAGER:
Keith M. Nichols, PE

ABSTRACT

This report is being prepared by HRTPO to assist Gloucester County officials with their transportation planning efforts, including future updates to their 2016 Comprehensive Plan. 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.

This report is broken down into separate sections for current and future conditions in Gloucester County. Roadway travel, safety, commuting patterns, public transportation, freight, bridges, active transportation facilities, air service, and resiliency are all examined in this report.

REPORT DATE:
October 2021

GRANT/SPONSORING AGENCY:
FHWA/VDOT/LOCAL FUNDS

ORGANIZATION NAME, ADDRESS, & TELEPHONE
Hampton Roads Transportation Planning Organization
723 Woodlake Drive
Chesapeake, Virginia 23320
757.420.8300
http://www.hrtpo.org

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

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

Table of Contents

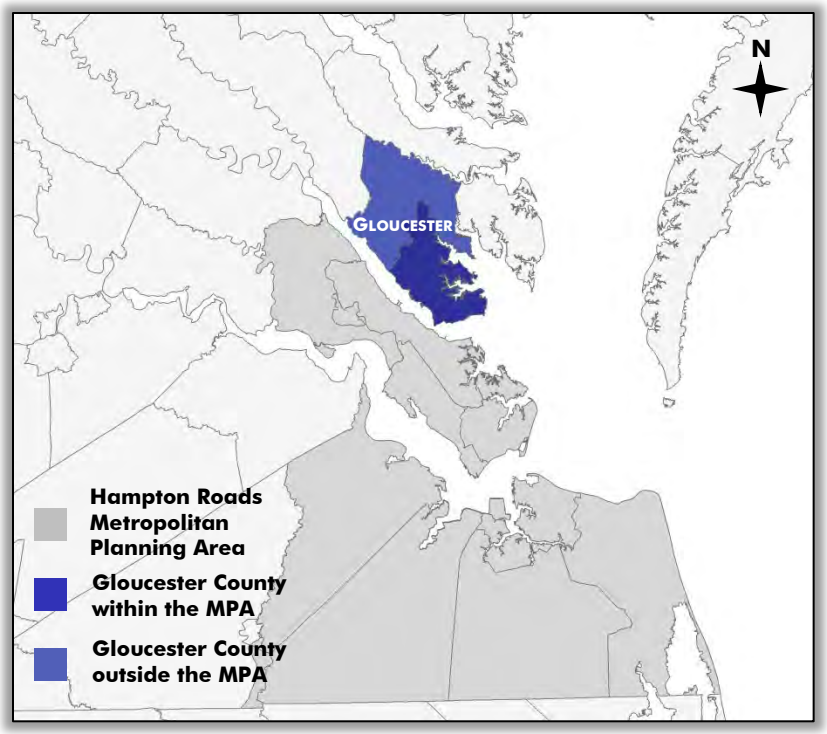
Table of Contents

List of Maps

List of Figures

INTRODUCTION

Gloucester County is located on the Middle Peninsula in the northern portion of the Hampton Roads region and serves as a gateway for residents and tourists to the Hampton Roads region via US Route 17 and the Coleman Bridge (**Map 1**). The southern portion of the county – which is where most of the development is currently located – is located within the Hampton Roads Metropolitan Planning Area (MPA). Gloucester County is a member of both the Hampton Roads Transportation Planning Organization (HRTPO) and the Middle Peninsula Planning District Commission (MPPDC).



MAP 1 - GLOUCESTER COUNTY

According to the county's Comprehensive Plan, "Maintaining and improving an efficient transportation network to serve residents, commuters, and visitors is important for Gloucester's future growth and quality of life and collaboration with local, regional, state, and federal partners as well as private stakeholders is necessary to achieve and maintain an adequate transportation system." A majority of Gloucester County's roadways are owned and maintained by the Virginia Department of Transportation (VDOT), while other roadways are privately owned and maintained by individual property owners.

This report is being prepared by HRTPO to assist Gloucester County officials with their transportation planning efforts, including future updates to their County Comprehensive Plan[1]. 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 to have a Comprehensive Plan.

This report includes sections on each of the following aspects of Gloucester County's transportation system:

- Highway
- VTrans
- Roadway Safety
- Commuting Patterns
- Public Transportation
- Freight
- Bridges
- Active Transportation
- Air Service
- Resiliency/Sea Level Rise
- Recommendations

For each of these sections both current and future conditions are analyzed.

[1] *2016 Gloucester County Comprehensive Plan*, February 2016.

HIGHWAY

This chapter looks at current roadway conditions in Gloucester County and how they compare to historical trends. In addition, future roadway conditions and projects are highlighted. This chapter is divided into the following sections:

- **Roadway Inventory** – This section includes an inventory of roadways in Gloucester County that are classified as minor collectors and above, including Corridors of Statewide Significance. A summary of the mileage of the roadway network is also included, as is a description of private roadways in the county.
- **Roadway Travel** – This section includes current and historical traffic volume data on roadways in the county, and a summary of the current and historical roadway travel levels in terms of vehicle-miles of travel.
- **Existing Roadway Congestion** – This section includes an analysis of roadway congestion levels and charateristics during the morning and afternoon peak travel periods, and an analysis of travel times and speeds.
- **Roadway Projects** - This section includes a description of roadway improvements that have occurred in Gloucester County over the last decade, upcoming programmed roadway projects, and projects included in the HRTPO and MPPDC Long-Range Transportation Plans.
- **Future Roadway Congestion** – This section includes an analysis of projected volumes and congestion levels based on the Hampton Roads 2040 Long-Range Transportation Plan.

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 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 Census Bureau. Most of Gloucester County is classified as rural. However, there are two areas of the county that are classified as urban: the Gloucester Court House Urban Cluster and the southern portion of the county (Gloucester Point/Hayes) that is within the Hampton Roads (Virginia Beach) Urbanized Area.

Figure 2 shows both the number of miles (centerline miles) and the number of lane-miles[2] of roadway in Gloucester County by roadway functional classification. **Map 2** on page 3 shows the functional classification for roadways in the county.

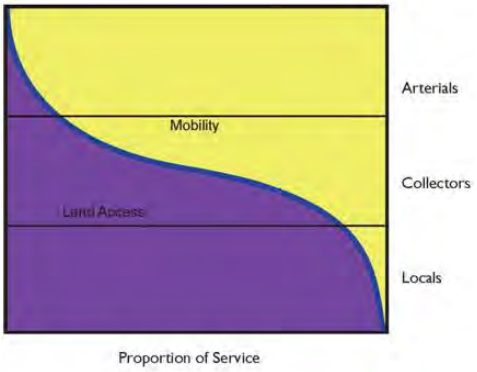


FIGURE 1 – ROADWAY FUNCTIONAL CLASS DEFINITION

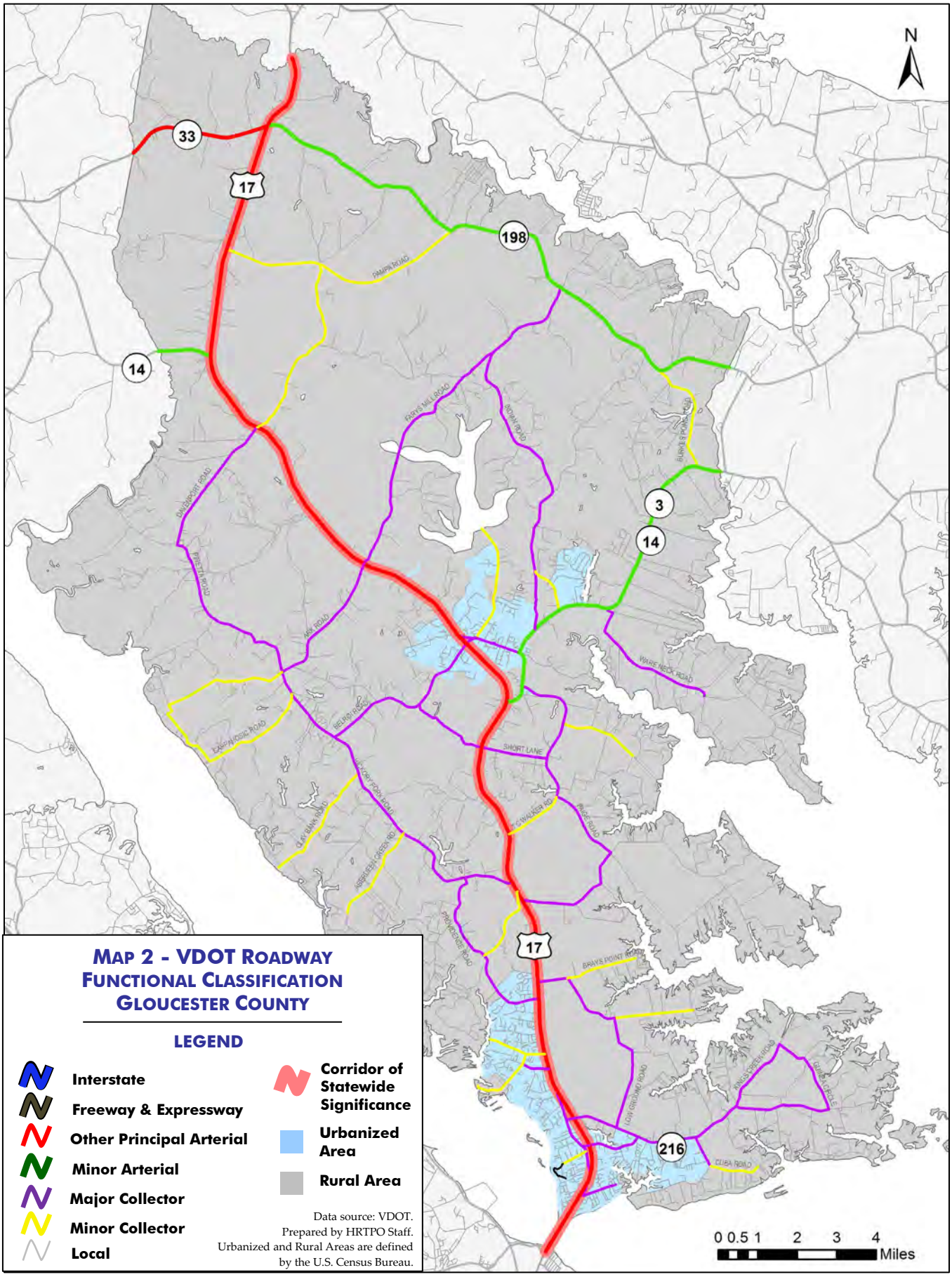
Source: FHWA.

Roadway Functional Class	Centerline Miles	Lane-Miles
Interstate	-	-
Freeway and Expressway	-	-
Other Principal Arterial	33.2	130.4
Minor Arterial	20.0	54.8
Collector - Major	70.3	140.6
Collector - Minor	37.6	75.2
Local	216.1	431.1
Gloucester Total	377.2	832.1

FIGURE 2 – GLOUCESTER COUNTY CENTERLINE MILES AND LANE-MILES OF PUBLIC ROADWAY BY VDOT FUNCTIONAL CLASSIFICATION (2018)

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

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



MAP 2 - VDOT ROADWAY FUNCTIONAL CLASSIFICATION GLOUCESTER COUNTY

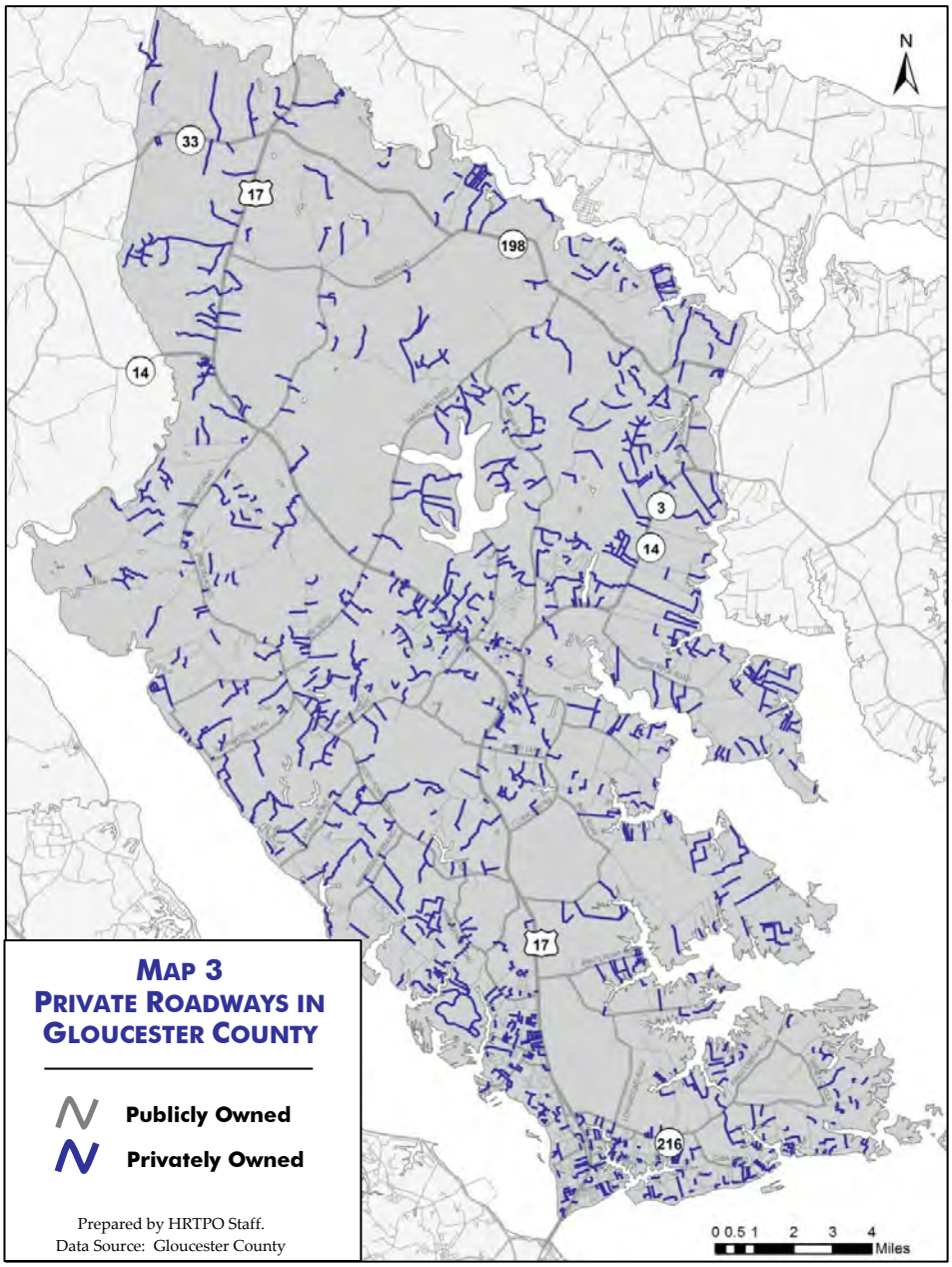
LEGEND

- Interstate
- Freeway & Expressway
- Other Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Corridor of Statewide Significance
- Urbanized Area
- Rural Area

Data source: VDOT.
Prepared by HRTPO Staff.
Urbanized and Rural Areas are defined by the U.S. Census Bureau.

Private Roadways

The mileage included in Figure 2 is based only on those roadways in the county that are maintained by VDOT. In addition to these publicly-owned roadways, there are many roadways in Gloucester County that are privately-owned, as shown in **Map 3**. There are 295 centerline miles (42% of total miles) of privately-owned roadways in the Gloucester County, only 80 miles less than the amount of VDOT-maintained mileage (375 miles). Of the 93 counties in Virginia with roadways maintained by VDOT, Gloucester County has the 6th highest percentage of privately-owned roadways. Only Dickenson County, Warren County, Buchanan County, Craig County, and King George County have a higher percentage of privately owned roadways. Gloucester County's high percentage of private roadways means that it carries a greater burden than many other counties across the Commonwealth of Virginia in terms of roadway maintenance. This burden is passed onto citizens who live on private roads and who are responsible for their maintenance. Furthermore, this burden may be exacerbated due to sea level rise and recurrent flooding, which deteriorate roads and may require more maintenance than roadways in other counties.



As part of Gloucester County's 2016 Comprehensive Plan update, issues related to private roadways are discussed – primarily the lack of maintenance and the inability to enforce upkeep provisions, particularly for older roadways. Many of the older private roads are in poor condition, which poses a safety risk both to residents and others that use these roadways.

While the County and some residents that live on private roads would like to have some of these roadways incorporated into VDOT's public roadway system, funding to do so is limited and many roadways may not be easily incorporated either due to right-of-way issues, regulations pertaining to roads created after 1990, construction not meeting VDOT standards, or lack of desire by the private road owners. The County has recommended preparing educational materials for private road owners to inform them of maintenance standards and establishing road maintenance agreements.

Gloucester County staff has updated their Subdivision Ordinance for private streets to ensure that all new private roads are built to state standards and maintenance agreements or other legal safeguards are in place. The County has expressed an interest in best management practices from other counties within Virginia that are also facing issues related to older private roads. As a result, HRTPO staff has collected private road maintenance agreements and subdivision ordinances from other counties and will share this information with County staff (see **Appendix A: Private Roads Research**).

VDOT Policy on Getting Roads into the Secondary System of State Highways

VDOT has established a policy for incorporating private roadways into the state-maintained system. The following policy information was obtained from VDOT's website[3].

In 1932, the General Assembly passed legislation that created the secondary system of state highways. The Virginia Department of Transportation (VDOT) was designated to manage and maintain the new highway system. Over the years, guidelines were established to ensure that qualifying roads could become eligible for acceptance into the state-maintained secondary system. The process to add existing roads that are not maintained by the state to this highway system begins with the local board of supervisors.

Developers of subdivisions build most of Virginia's new roads. Streets built to the standards in VDOT's secondary street acceptance requirements and The Pavement Design Guide are eligible to become state-maintained.

When work is complete and the land served is occupied, these roads quickly become state maintained through a process under which the county board of supervisors accepts the streets from the developer and requests VDOT to operate and maintain the streets. However, even after VDOT had prescribed minimum standards for new streets in 1949, some counties continued to allow subdivision streets to be built that were not eligible for addition to the secondary system of state highways and VDOT maintenance.

The responsibility for maintaining such roads remains the responsibility of the developer or homeowners. In many cases, when the cost of maintaining these roads becomes unaffordable, citizens seek public assistance to improve them to standards eligible for state maintenance. In addition, residents on older, rural roads outside of established subdivisions often maintain them. In some cases, these citizens want those roads added to the state-maintained system.

[3] http://www.virginiadot.org/info/faq-2ndaryroads.asp, webpage was updated on October 18, 2019.

Generally, to be eligible for state maintenance, older, privately maintained, public roads must:

- Have been in public use for at least for 20 years
- Be available for the public to use 24 hours a day
- Have a right of way that is available to be dedicated to public use and is:
  - Wide enough (usually 40 feet) to meet minimum safety standards
  - Sufficient to permit future maintenance
  - Be unencumbered by utility placement
- Serve at least three occupied homes
- Be able to safely handle the traffic volume
- Connect to other roads already maintained by VDOT or a locality

By law, the board of supervisors must take formal action to approve the addition of these roads to the secondary system of state highways and request VDOT to maintain them. They must also identify the source of funding that is to be used to finance any improvements that are needed.

State funds are very limited, but eligible counties may finance the cost of improving qualifying roads with funds from:

- The county's general fund
- A special assessment of the land owners served
- Revenue derived from the sale of bonds

Additionally, a percentage of telecommunication right-of-way use fees levied in accordance with §56-468.1 may be used for rural additions in counties where such fees are not reserved for other purposes.

Finally, pursuant to §33.2-357, Code of Virginia, every county, whether or not it has qualifying land development ordinances, may use revenue sharing program funds matched with county funding to bring subdivision streets used by motor vehicles for at least 20 years up to standards sufficient to qualify for state maintenance.

Other factors also affect the eligibility of a road and the amount of money that may be allocated for its improvement including:

- If deeds for the land served prohibit the use of state funds
- When the road was established
- If a locality authorizes the work
- If it connects to another street or road maintained by VDOT or a locality
- If developers still have a speculative interest that is served by the street
- If a county's subdivision ordinance is approved by VDOT and requires new streets to be built to a standard that would qualify for VDOT's acceptance for maintenance

The street acceptance process is initiated by contacting a representative on the county's board of supervisors to gain their support. Then, the following steps must occur in order:

1. The board of supervisors considers requests from citizens to add roads to the secondary system of state highways. The locality coordinates the eligibility review of proposed additions.
2. VDOT advises the locality of the requirements, improvement costs, and other issues related to the acceptance of proposed road additions.
3. The board of supervisors must guarantee the right of way for the road and take formal action to make the road part of the secondary system.
4. The board of supervisors formally requests VDOT to add the road to the secondary highway system for maintenance.
5. VDOT accepts the maintenance responsibility for the road as part of the secondary system.

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.

There are twelve Corridors of Statewide Significance throughout Virginia. One of these corridors – the Coastal Corridor (US Route 17) – is located within Gloucester County. This corridor is shown in **Map 2** on page 3. More information on this Corridor of Statewide Significance is included in the VTrans section of this report.

Roadway Travel

VDOT collects traffic volume data at hundreds of locations in Gloucester County, of which 94 locations are on roadways with functional classifications of minor collectors or above. At most of these locations, data is collected once every three years over a 48-hour period. These counts were most recently collected in Gloucester County in 2018.

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 4 on pages 8-9 includes historical weekday volumes for Gloucester County roadways classified as minor collectors and above based on the 48-hour counts, and VDOT's AADT volume estimates for those years where data was collected by VDOT. These AADTs are also shown on **Map 4** on page 10, and the change in AADTs from 2009 to 2018 are shown on **Map 5** on page 11. VDOT also produces AADT estimates for most local roadways 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 78 locations in Gloucester County that were counted in both 2009 and 2018, 46 locations (59%) experienced an increase in weekday volumes over this time period, with 17 locations experiencing an increase of 10% or more. Of the 32 locations that experienced a decrease in weekday volumes over this time period, 13 experienced a decrease of 10% 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 (VMT). **Figure 3** shows the average daily vehicle-miles of travel in Gloucester County between 2006 and 2018. In 2018, there were just over one million vehicle-miles of travel each day throughout the county. The amount of roadway travel in the county slightly decreased between 2006 and 2018, but has increased just over 3% from the levels seen in 2012.

Year	Countywide Daily VMT
2006	1,055,490
2009	1,036,579
2012	1,003,797
2015	1,027,256
2018	1,034,955

FIGURE 3 – DAILY VEHICLE-MILES OF TRAVEL IN GLOUCESTER COUNTY, 2006 TO 2018

Source: HRTPO analysis of VDOT data.

Route Num	Location	Segment From	Segment To	Weekday Volume 2009	2012	2015	2018	2018 COUNT DATE	Annual Average Daily Traffic (AADT) 2009	2012	2015	2018	Change in AADT 2009 to 2018	
632	Aberdeen Creek Rd	Rte 644 - Rosewell Plantation Rd	Rte 614 - Hickory Fork Rd	1,682	-	1,734	-	-	1,700	1,700	1,700	1,700	0	0.0%
14	Adner Rd	King & Queen County Line	US 17 - GW Mem Hwy	3,955	4,309	4,713	5,120	3/28-3/29	3,900	4,000	4,300	5,200	+1,300	+33.3%
662	Allmondsville Rd	Rte 606 - Ark Rd	Rte 618 - Cappahoosic Rd	268	-	135	104	3/20-3/22	270	270	140	110	-160	-59.3%
606	Ark Rd	Rte 662 - Almondsville Rd	Rte 610 - Old Pinetta Rd	-	491	437	377	3/20-3/22	460	460	400	390	-70	-15.2%
606	Ark Rd	Rte 610 - Old Pinetta Rd	Rte 614 - Hickory Fork Rd	818	966	919	907	3/14-3/15	790	900	840	920	+130	+16.5%
606	Ark Rd	Rte 614 - Hickory Fork Rd	Rte 1035 - White Oak Dr	2,112	1,873	1,755	2,041	7/11-7/12	2,000	1,800	1,600	1,900	-100	-5.0%
606	Ark Rd	Rte 1035 - White Oak Dr	US 17 - GW Mem Hwy	2,527	2,198	2,067	2,750	4/11-4/12	2,400	2,100	1,900	2,600	+200	+8.3%
616	Belroi Rd	Rte 614 - W. Hickory Fork Rd	Rte 615 - Chestnut Fork Rd	-	3,122	3,158	3,191	3/27-3/28	3,000	3,000	3,000	3,400	+400	+13.3%
616	Belroi Rd	Rte 615 - Chestnut Fork Rd	Rte 615 - Burleigh Rd	4,941	4,633	4,734	4,840	3/27-3/28	4,600	4,400	4,500	5,200	+600	+13.0%
616	Belroi Rd	Rte 615 - Burleigh Rd	US 17 - GW Mem Hwy	4,813	4,539	4,617	4,573	3/28-3/29	4,300	4,400	4,400	4,600	+300	+7.0%
616	Belroi Rd	US 17 - GW Mem Hwy	Bus US 17 - Main St	4,242	4,400	4,302	4,555	3/28-3/29	4,100	4,200	4,100	4,600	+500	+12.2%
636	Brays Point Rd	US 17 - GW Mem Hwy	Rte 656 - Glass Rd	1,652	1,633	1,602	1,952	7/11-7/12	1,700	1,500	1,500	1,700	0	0.0%
636	Brays Point Rd	Rte 656 - Glass Rd	Dead End	-	666	-	-	-	690	670	670	670	-20	-2.9%
602	Burkes Pond Rd	SR 3 - John Clayton Mem Hwy	SR 198 - Dutton Rd	948	1,064	-	-	-	930	990	1,100	930	0	0.0%
615	Burleigh Rd	Rte 616 - E. Belroi Rd	US 17 - GW Mem Hwy	1,948	1,927	2,005	2,019	3/20-3/22	1,900	1,900	2,000	2,200	+300	+15.8%
618	Cappahoosic Rd	Rte 662 - Almondsville Rd	Rte 614 - Hickory Fork Rd	1,275	-	1,074	927	3/20-3/22	1,300	1,300	1,100	970	-330	-25.4%
1303	Carmines Island Rd	Dead End	River Knoll Ln	138	-	195	-	-	140	140	200	200	+60	+42.9%
1303	Carmines Island Rd	River Knoll Ln	Rte 1304 - Powhatan Dr	1,166	-	1,155	-	-	1,200	1,200	1,200	1,200	0	0.0%
633	Cedar Bush Rd	Rte 636 - Providence Rd	Rte 614 - Hickory Fork Rd	1,244	1,236	1,141	1,259	3/20-3/22	1,200	1,200	1,000	1,300	+100	+8.3%
616	Clay Bank Rd	Dead End	Rte 631 - Gum Fork Rd	-	499	497	444	3/20-3/22	640	480	460	460	-180	-28.1%
616	Clay Bank Rd	Rte 631 - Gum Fork Rd	Rte 614 - E. Hickory Fork Rd	794	811	810	740	3/20-3/22	760	780	740	770	+10	+1.3%
605	Crab Thicket Rd	SR 3 - John Clayton Mem Hwy	Rte 604 - Indian Rd	-	2,612	2,534	2,725	3/13-3/15	2,600	2,500	2,300	2,800	+200	+7.7%
1307	Crewe Rd	Rte 1303 - Williams Landing Rd	US 17 - GW Mem Hwy	-	-	2,178	2,548	3/27-3/28	2,400	2,400	2,200	2,500	+100	+4.2%
643	Cuba Rd	Rte 642 - Little England Dr	Dead End	1,016	-	868	885	3/27-3/28	1,000	1,000	870	850	-150	-15.0%
610	Davenport Rd	Rte 617 - Tanyard Landing Rd	US 17 - GW Mem Hwy	1,008	1,021	1,041	848	3/20-3/22	970	950	950	880	-90	-9.3%
198	Dutton Rd	Rte 601 - Pampa Rd	Rte 606 - Harcum Rd	1,933	2,468	2,473	2,338	3/13-3/15	2,000	2,300	2,300	2,400	+400	+20.0%
198	Dutton Rd	Rte 606 - Harcum Rd	Mathews County Line	2,192	2,483	2,262	2,353	3/13-3/15	2,200	2,300	2,100	2,500	+300	+13.6%
606	Farys Mill Rd	US 17 - GW Mem Hwy	Rte 713 - Pikes Way	1,829	1,961	1,881	1,893	3/14-3/15	1,800	1,900	1,700	1,900	+100	+5.6%
606	Farys Mill Rd	Rte 713 - Pikes Way	Rte 1110 - Forest Grove Dr	1,447	740	1,439	1,513	3/14-3/15	1,400	1,400	1,300	1,500	+100	+7.1%
614	Featherbed Lane	Rte 629 - W. Warner Hall Rd	1.90 mi north of Rte 629	597	599	604	635	3/27-3/28	580	580	550	680	+100	+17.2%
614	Featherbed Lane	1.90 mi north of Rte 629	US 17 - GW Mem Hwy	652	697	698	717	3/27-3/28	620	650	630	690	+70	+11.3%
17	GW Mem Hwy	York County Line	SR 216 - Guinea Rd	34,208	33,523	34,285	34,507	All wkdys	32,000	31,000	32,000	32,000	0	0.0%
17	GW Mem Hwy	SR 216 - Guinea Rd	Rte 614 - Featherbed Lane	36,528	36,654	38,066	35,974	7/24-7/26	36,000	33,000	37,000	33,000	-3,000	-8.3%
17	GW Mem Hwy	Rte 614 - Featherbed Lane	Rte 628 - TC Walker Rd	34,587	34,351	35,761	34,557	7/24-7/26	33,000	31,000	34,000	32,000	-1,000	-3.0%
17	GW Mem Hwy	Rte 628 - TC Walker Rd	Bus US 17 South - Main St	30,100	30,279	31,708	29,129	7/24-7/26	29,000	28,000	31,000	27,000	-2,000	-6.9%
17	GW Mem Hwy	Bus US 17 South - Main St	Bus US 17 North - Main St	19,916	20,692	20,430	20,500	7/24-7/26	20,000	19,000	20,000	19,000	-1,000	-5.0%
17	GW Mem Hwy	Bus US 17 North - Main St	Rte 606 - Ark Rd	16,238	16,978	16,486	17,093	7/24-7/26	16,000	15,000	16,000	16,000	0	0.0%
17	GW Mem Hwy	Rte 606 - Ark Rd	Rte 615 - Willis Rd	13,782	14,286	13,931	13,902	7/25-7/26	13,000	13,000	13,000	12,000	-1,000	-7.7%
17	GW Mem Hwy	Rte 615 - Willis Rd	SR 14 - Adner Rd	12,380	12,970	12,583	11,444	7/24-7/26	12,000	12,000	12,000	10,000	-2,000	-16.7%
17	GW Mem Hwy	SR 14 - Adner Rd	SR 33/SR 198 - Glenns Rd	6,642	7,108	6,733	6,986	7/24-7/26	6,500	6,600	6,400	6,400	-100	-1.5%
17	GW Mem Hwy	SR 33/SR 198 - Glenns Rd	Middlesex County Line	12,024	13,596	12,937	12,419	7/25-9/27	12,000	12,000	12,000	12,000	0	0.0%
656	Glass Rd	Rte 636 - Brays Point Rd	Rte 641 - Low Ground Rd	1,217	1,138	1,001	1,183	7/24-7/25	1,200	1,100	930	1,200	0	0.0%
656	Glass Rd	Rte 641 - Low Ground Rd	Rte 620 - Stonewall Rd	668	693	582	767	7/11-7/12	640	670	540	720	+80	+12.5%
198	Glenns Rd	US 17 - GW Mem Hwy	Rte 601 - Pampa Rd	1,803	2,285	2,473	2,182	3/13-3/15	1,800	2,100	2,300	2,300	+500	+27.8%
1208	Greate Rd	Rte 1202 - Terrapen Cove Rd	US 17 - GW Mem Hwy	2,088	2,647	2,615	1,984	3/27-3/28	2,000	2,500	2,300	1,900	-100	-5.0%
652	Guinea Court	Rte 649 - Maryus Rd	Rte 653 - N. Kings Creek Rd	212	205	201	194	3/27-4/12	200	200	190	200	0	0.0%
216	Guinea Rd	US 17 - GW Mem Hwy	Rte 649 - Achilles	8,509	8,429	7,795	8,782	4/11-4/12	8,000	7,900	7,100	7,900	-100	-1.3%

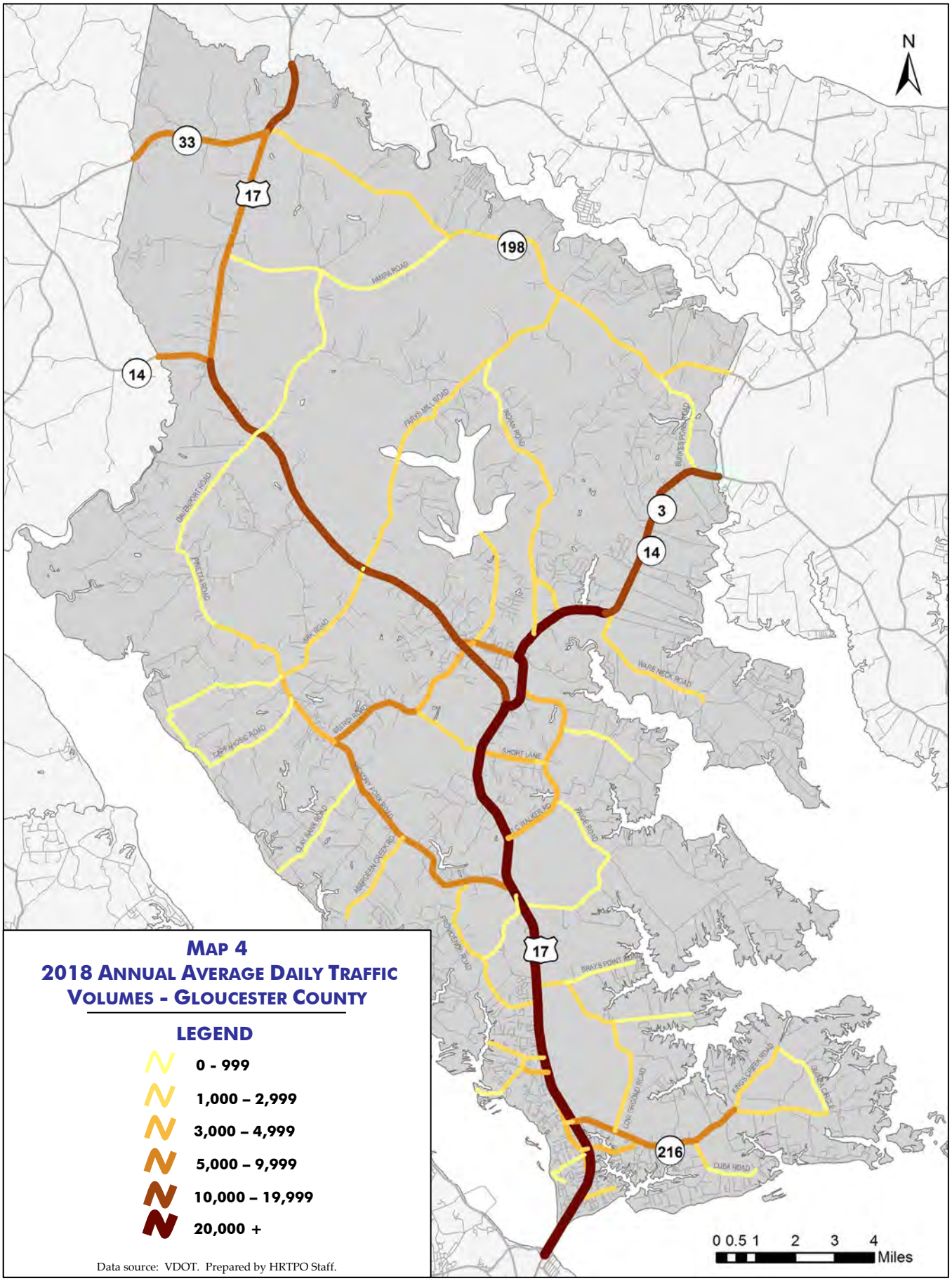
FIGURE 4 – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES IN GLOUCESTER COUNTY, 2009 TO 2018

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

Route Num	Location	Segment From	Segment To	Weekday Volume 2009	2012	2015	2018	2018 COUNT DATE	Annual Average Daily Traffic (AADT) 2009	2012	2015	2018	Change in AADT 2009 to 2018	
606	Harcum Rd	Rte 1110 - Forest Grove Dr	SR 198 - Dutton Rd	1,417	1,599	1,645	1,678	3/28-3/29	1,400	1,500	1,500	1,700	+300	+21.4%
1216	Hayes Rd	Rte 1250 - Bellehaven Dr	US 17 - GW Mem Hwy	3,697	3,525	3,307	3,451	7/11-7/12	3,500	3,200	3,000	3,100	-400	-11.4%
614	Hickory Fork Rd	US 17 - GW Mem Hwy	Rte 631 - Gum Fork Rd	5,760	5,826	5,772	6,038	3/27-3/28	5,500	5,500	5,300	6,500	+1,000	+18.2%
614	Hickory Fork Rd	Rte 631 - Gum Fork Rd	Rte 616 - N. Belroi Rd	4,770	4,774	4,473	4,942	3/27-3/28	4,600	4,500	4,100	5,300	+700	+15.2%
614	Hickory Fork Rd	Rte 616 - N. Belroi Rd	Rte 606 - Ark Rd	3,644	-	3,450	3,706	3/27-3/28	3,500	3,400	3,200	4,000	+500	+14.3%
614	Hickory Fork Rd	Rte 606 - Ark Rd	Rte 610 - Pinetta Rd	1,679	1,488	1,439	1,531	4/11-4/12	1,600	1,400	1,300	1,500	-100	-6.3%
1201	Hoefork Rd	Rte 1249 - Gloucester Rd	Rte 1216 - Hayes Rd	-	956	-	-	-	900	960	960	960	+60	+6.7%
1219	Hook Rd	Rte 1216 - Hayes Rd	US 17 - GW Mem Hwy	-	2,793	-	-	-	3,000	2,800	2,800	2,600	-400	-13.3%
604	Indian Rd	SR 3 - John Clayton Mem Hwy	Rte 605 - Indian Rd	2,326	2,447	2,130	2,413	3/13-3/15	2,200	2,400	2,000	2,500	+300	+13.6%
605	Indian Rd	Rte 604 - Indian Rd	Rte 603 - Figg Shop Rd	2,092	2,104	2,083	2,139	3/13-3/15	2,000	2,000	1,900	2,200	+200	+10.0%
605	Indian Rd	Rte 603 - Figg Shop Rd	Rte 1430 - Lake View Dr	1,156	1,211	1,122	1,223	3/13-3/15	1,100	1,200	1,000	1,300	+200	+18.2%
605	Indian Rd	Rte 1430 - Lake View Dr	Rte 606 - S. Harcum Rd	866	925	964	904	3/13-3/15	840	890	880	950	+110	+13.1%
3	John Clayton Mem Hwy	US 17 Bus - Main St	Rte 623 - Ware Neck Rd	17,551	18,092	18,778	19,906	3/28-3/29	17,000	17,000	17,000	20,000	+3,000	+17.6%
3	John Clayton Mem Hwy	Rte 623 - Ware Neck Rd	Mathews County Line	12,811	12,987	13,393	14,382	3/28-3/29	12,000	13,000	12,000	15,000	+3,000	+25.0%
653	Kings Creek Rd	SR 216 - Guinea Rd	Rte 652 - N. Guinea Circle	1,200	1,213	1,071	1,024	3/27-3/28	1,100	1,200	1,000	1,100	0	0.0%
33	Lewis Puller Mem Hwy	King & Queen County Line	US 17 - GW Mem Hwy	6,462	7,957	7,965	9,051	7/25-7/26	6,300	7,400	7,300	8,500	+2,200	+34.9%
641	Low Ground Rd	SR 216 - Guinea Rd	Rte 656 - Glass Rd	1,036	1,049	947	1,222	7/11-7/12	990	1,000	880	1,200	+210	+21.2%
17	Main St	US 17 South of Gloucester CH	SR 3 - John Clayton Mem Hwy	21,761	22,174	22,360	23,958	3/28-3/29	21,000	21,000	20,000	24,000	+3,000	+14.3%
17	Main St	SR 3 - John Clayton Mem Hwy	Rte 1007 - Cary Ave	11,121	10,653	10,733	8,657	3/28-3/29	11,000	10,000	9,800	8,800	-2,200	-20.0%
17	Main St	Rte 1007 - Cary Ave	US 17 North of Gloucester CH	7,403	6,743	6,883	6,512	3/28-3/29	7,100	6,500	6,300	6,600	-500	-7.0%
643	Mark Pine Rd	SR 216 - Guinea Rd	Rte 642 - Little England Dr	2,733	2,741	2,433	2,756	3/27-3/28	2,600	2,500	2,200	2,700	+100	+3.8%
649	Maryus Rd	SR 216 - Guinea Rd	Rte 652 - Guinea Circle	1,438	1,392	1,287	1,144	3/27-3/28	1,400	1,400	1,200	1,200	-200	-14.3%
629	Paige Rd	Rte 614 - W. Robins Neck Rd	Rte 628 - S. TC Walker Rd	700	691	774	748	3/13-3/15	680	670	740	780	+100	+14.7%
601	Pampa Rd	US 17 - GW Mem Hwy	Rte 610 - Salem Church Rd	651	794	698	685	3/14-3/15	640	740	640	700	+60	+9.4%
601	Pampa Rd	Rte 610 - Salem Church Rd	SR 198 - Dutton Rd; Glenns Rd	542	600	565	606	3/14-3/15	510	560	520	620	+110	+21.6%
610	Pinetta Rd	Rte 614 - Hickory Fork Rd	Rte 617 - Tanyard Landing Rd	1,308	1,121	1,072	953	3/20-3/22	1,300	1,000	980	990	-310	-23.8%
635	Piney Swamp Rd	Rte 636 - Providence Rd	US 17 - GW Mem Hwy	878	-	945	770	3/27-3/28	880	880	950	740	-140	-15.9%
1304	Powhatan Dr	Rte 1303 - Carmines Island Rd	US 17 - GW Mem Hwy	2,914	3,282	2,899	3,441	3/27-3/28	2,700	3,000	2,600	3,300	+600	+22.2%
636	Providence Rd	Rte 633 - Cedar Bush Rd	Rte 635 - S. Borden Rd	1,257	1,374	1,252	1,173	3/20-3/22	1,200	1,300	1,200	1,200	0	0.0%
636	Providence Rd	Rte 635 - S. Borden Rd	0.19 mi east of Rte 635	1,829	1,969	1,909	1,751	4/11-4/12	1,800	1,900	1,700	1,600	-200	-11.1%
636	Providence Rd	0.19 mi east of Rte 635	US 17 - GW Mem Hwy	2,552	2,676	2,689	2,447	4/11-4/12	2,500	2,500	2,300	2,200	-300	-12.0%
616	Roaring Springs Rd	Bus US 17 - Main St	0.45 mi north Rte 1016	2,836	3,037	2,763	2,393	3/20-3/22	2,700	2,900	2,600	2,600	-100	-3.7%
615	Short Lane	US 17 - GW Mem Hwy	Rte 1410 - Lamberth Lane	3,466	3,556	3,943	3,656	3/27-3/28	3,300	3,500	3,800	3,900	+600	+18.2%
615	Short Lane	Rte 1410 - Lamberth Lane	Rte 629 - TC Walker Rd	1,871	1,955	2,151	2,147	3/27-3/28	1,800	1,900	2,000	2,300	+500	+27.8%
629	T C Walker Rd	Bus US 17 - Main St	Rte 615 - Short Lane	2,494	2,512	2,517	2,970	3/13-3/15	2,400	2,400	2,300	3,100	+700	+29.2%
629	T C Walker Rd	Rte 615 - Short Lane	Rte 628 - S. Paige Rd	2,565	2,541	2,497	3,300	3/13-3/15	2,500	2,500	2,300	3,400	+900	+36.0%
628	T C Walker Rd	Rte 628 - S. Paige Rd	US 17 - GW Mem Hwy	1,986	-	3,220	-	-	2,000	2,000	3,200	3,200	+1,200	+60.0%
1202	Terrapen Cove Rd	Rte 1208 - Greate Rd	Rte 1214 - Azalea Point Rd	1,303	1,430	1,196	1,192	3/27-3/28	1,200	1,300	1,100	1,200	0	0.0%
641	Tidemill Rd	Rte 1216 - Hayes Rd	US 17 - GW Mem Hwy	1,547	-	1,570	-	-	1,500	1,500	1,600	1,300	-200	-13.3%
641	Tidemill Rd	US 17 - GW Mem Hwy	Rte 1254 - Tillage Lane	4,694	4,878	4,382	4,920	3/27-3/28	4,700	4,400	4,000	4,700	0	0.0%
641	Tidemill Rd	Rte 1254 - Tillage Lane	SR 216 - Guinea Rd	3,700	3,829	3,335	3,542	3/27-3/28	3,700	3,500	3,000	3,400	-300	-8.1%
623	Ware Neck Rd	Rte 625 - W. Ditchley Rd	SR 3 - John Clayton Mem Hwy	1,463	1,384	1,409	1,426	3/13-3/15	1,400	1,300	1,300	1,500	+100	+7.1%
1303	Williams Landing Rd	Dead End	Rte 1302 - Ambrose Rd	1,620	-	1,022	-	-	1,600	1,600	1,000	1,000	-600	-37.5%
1303	Williams Landing Rd	Rte 1302 - Ambrose Rd	Rte 1304 - Powhatan Dr	1,671	-	1,315	-	-	1,700	1,700	1,300	1,300	-400	-23.5%
610	Woods Cross Rd	US 17 - GW Mem Hwy	Rte 607 - Fletcher Rd	1,150	-	1,017	904	3/14-3/15	1,200	1,200	1,000	920	-280	-23.3%
610	Woods Cross Rd	Rte 607 - Fletcher Rd	Rte 601 - Pampa Rd	488	-	510	513	3/14-3/15	490	490	510	520	+30	+6.1%
626	Zanoni Rd	Rte 629 - T C Walker Rd	Rte 627 - White Hall Rd	583	573	554	502	3/13-3/15	570	560	520	530	-40	-7.0%

FIGURE 4 (CONTINUED) – WEEKDAY AND ANNUAL AVERAGE DAILY TRAFFIC VOLUMES IN GLOUCESTER COUNTY, 2009 TO 2018

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

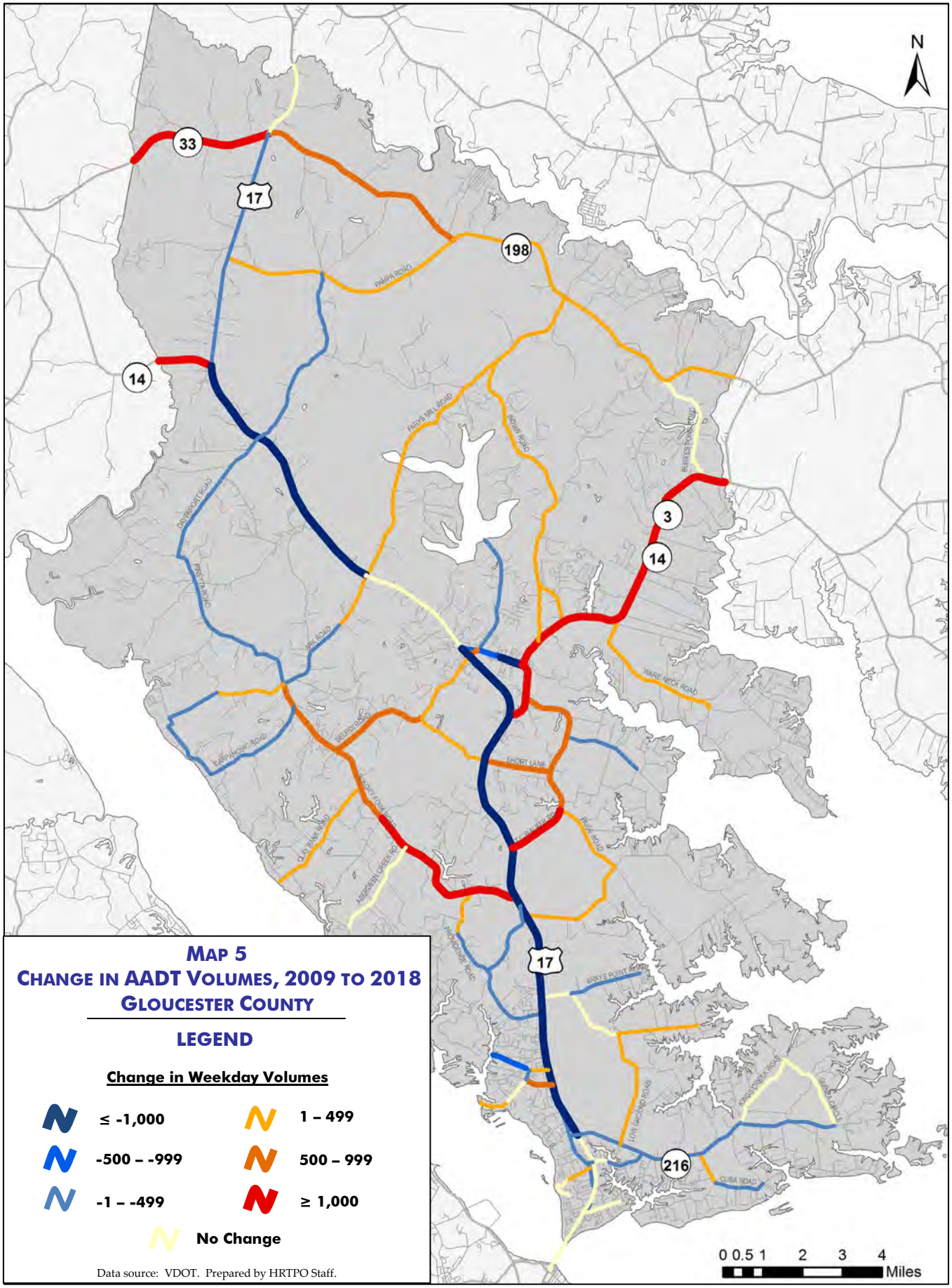


Map 4
2018 Annual Average Daily Traffic Volumes - Gloucester County

LEGEND

- 0 - 999
- 1,000 – 2,999
- 3,000 – 4,999
- 5,000 – 9,999
- 10,000 – 19,999
- 20,000 +

Data source: VDOT. Prepared by HRTPO Staff.



MAP 5
CHANGE IN AADT VOLUMES, 2009 TO 2018
GLOUCESTER COUNTY

LEGEND

Change in Weekday Volumes

- ≤ -1,000
- -500 – -999
- -1 – -499
- 1 – 499
- 500 – 999
- ≥ 1,000
- No Change

Data source: VDOT. Prepared by HRTPO Staff.

Existing Roadway Congestion

The roadway congestion analysis performed for this study is similar to the procedure used in the HRTPO Congestion Management Process (CMP).[4] 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 were determined using travel time and speed data and 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 MPOs throughout the state.

Congestion levels for roadways in Gloucester County where INRIX speed data is available were determined based on travel time index (TTI). The TTI represents the ratio of the actual travel time during the peak period 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 period.

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 table above.

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

TTI = Travel Time Index

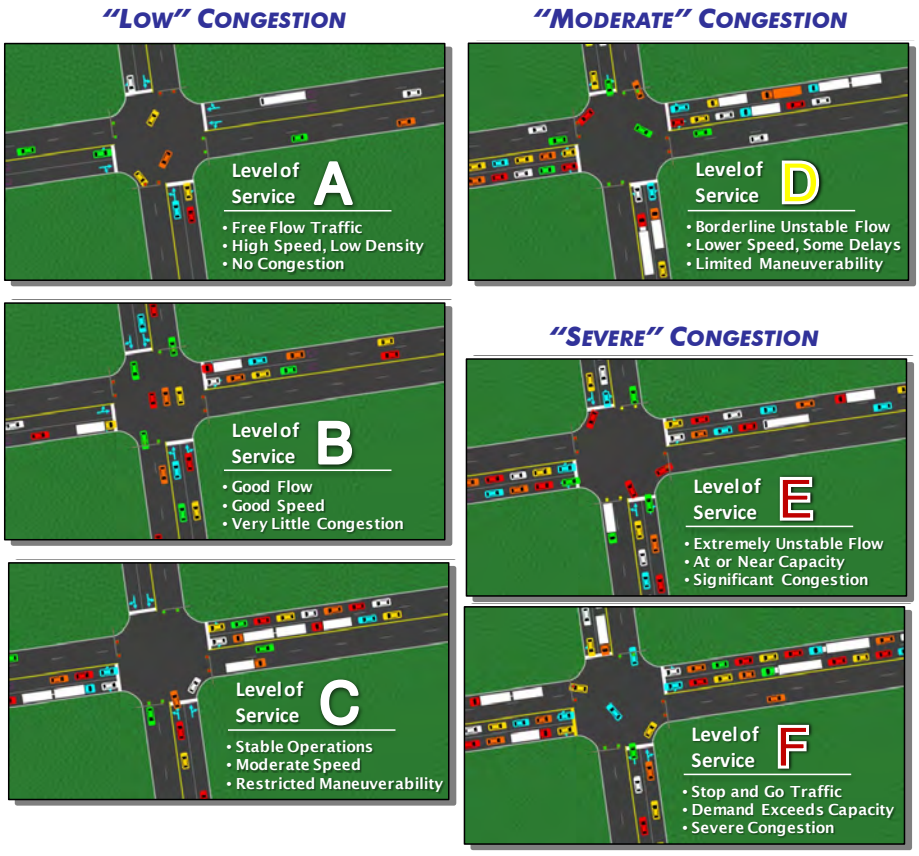


FIGURE 5 – LEVEL OF SERVICE DEFINITIONS
Source: HRTPO Congestion Management Process report.

[4] *Hampton Roads Congestion Management Process: System Performance and Mitigation Report*, HRTPO, October 2014.

Congestion levels for roadways without INRIX speed data were determined using traffic volumes and Highway Capacity Manual[5] (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.

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 5** on page 12). 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 unfavorable.

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 Gloucester County without INRIX speed data were calculated for both the AM Peak Period and PM Peak Period using weekday traffic volume data collected by VDOT in 2018. This analysis was done using the LOSPLAN software package[6] 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 am and 9 am) and the PM Peak Period (between 3 pm and 7 pm).

Figure 6 on page 14 shows the existing congestion levels during the AM Peak Period and PM Peak Period for those roadways that are part of the regional CMP Roadway Network in Gloucester County. These congestion levels are also shown on **Map 6** on page 15 and **Map 7** on page 16. **Figure 7** on page 14 shows the speeds and travel time indices for those roadways in the county where travel time and speed data is collected.

As shown in **Figure 6**, no roadway segments in Gloucester County currently operate at severely congested levels (LOS E or F) during the morning and afternoon peak travel periods. Roadways that operate at moderate levels of congestion (LOS D) during the morning peak period include Route 17 northbound between Short Lane (Route 615) and Main Street (Route 17 Business South) and Hickory Fork Road (Route 614) between Route 17 and Belroi Road (Route 616).

During the afternoon peak period, roadways that operate at moderate levels of congestion include northbound Route 17 between the Coleman Bridge and Guinea Road (Route 216), southbound Route 17 between Providence Road (Route 636) and Guinea Road (Route 216), northbound and southbound Route 17 between Short Lane (Route 615) and Main Street (Route 17 Business South), and Hickory Fork Road (Route 614) between Route 17 and Belroi Road (Route 616). Northbound Route 17 between Short Lane and Main Street has a travel time index (1.39) that is just below the threshold for being classified as severely congested.

[5] *Highway Capacity Manual*, Transportation Research Board, 2010.

[6] LOSPLAN Software, Florida Department of Transportation, 2012. Information on LOSPLAN Software is available at http://www.dot.state.fl.us/planning/systems/sm/los.

Facility	Segment From	Segment To	Existing Peak Period Congestion Level AM NB/EB	AM SB/WB	PM NB/EB	PM SB/WB
Belroi Rd (Rte 616)	Hickory Fork Rd (Rte 614)	Route 17	LOW		LOW	
Guinea Rd (Rte 216)	Route 17	Maryus Rd	LOW		LOW	
Hickory Fork Rd (Rte 614)	Route 17	Belroi Rd (Rte 616)	MOD		MOD	
Route 3/14	Route 17 Bus	Cow Creek	LOW		LOW	
Route 3/14	Cow Creek	Mathews CL	LOW		LOW	
Route 14	King And Queen CL	Route 17	LOW		LOW	
Route 17	Coleman Bridge	Guinea Rd (Rte 216)	LOW	LOW	MOD	LOW
Route 17	Guinea Rd (Rte 216)	Providence Rd (Rte 636)	LOW	LOW	LOW	MOD
Route 17	Providence Rd (Rte 636)	Hickory Fork Rd (Rte 614)	LOW	LOW	LOW	LOW
Route 17	Hickory Fork Rd (Rte 614)	Short Ln (Rte 615)	LOW	LOW	LOW	LOW
Route 17	Short Ln (Rte 615)	Main St (Rte 17 Bus S)	MOD	LOW	MOD	MOD
Route 17	Main St (Rte 17 Bus S)	Rte 17 Bus N	LOW	LOW	LOW	LOW
Route 17	Rte 17 Bus N	Ark Rd (Rte 606)	LOW	LOW	LOW	LOW
Route 17	Ark Rd (Rte 606)	Route 14	LOW	LOW	LOW	LOW
Route 17	Route 14	Routes 33/198	LOW	LOW	LOW	LOW
Route 17	Routes 33/198	Middlesex CL	LOW	LOW	LOW	LOW
Route 33	King And Queen CL	Route 17	LOW	LOW	LOW	LOW
Route 198	Route 17	Pampa Rd (Rte 601)	LOW		LOW	
Route 198	Pampa Rd (Rte 601)	Harcum Rd (Rte 606)	LOW		LOW	
Route 198	Harcum Rd (Rte 606)	Mathews CL	LOW		LOW	
Main St (Bus Rte 17)	Rte 17 (South Intersection)	Rte 3/14E	LOW		LOW	

FIGURE 6 – EXISTING WEEKDAY AM AND PM PEAK PERIOD CONGESTION LEVELS

Source: HRTPO analysis of VDOT and INRIX data. Existing congestion levels represent 2017 data for those roadways where speed data is available and 2018 data for those locations where speed data is not available.

AM PEAK PERIOD

Facility	Segment From	Segment To	Northbound Speed (mph)	Northbound Travel Time Index	Northbound Peak Time Start	Northbound Congestion Level	Southbound Speed (mph)	Southbound Travel Time Index	Southbound Peak Time Start	Southbound Congestion Level
Route 17	Coleman Bridge	Guinea Rd (Rte 216)	38.3	1.12	8:30	LOW	40.4	1.12	7:15	LOW
Route 17	Guinea Rd (Rte 216)	Providence Rd (Rte 636)	49.3	1.04	7:45	LOW	43.7	1.13	8:45	LOW
Route 17	Providence Rd (Rte 636)	Hickory Fork Rd (Rte 614)	50.9	1.04	7:30	LOW	50.9	1.03	8:45	LOW
Route 17	Hickory Fork Rd (Rte 614)	Short Ln (Rte 615)	42.2	1.22	7:30	LOW	46.8	1.10	7:45	LOW
Route 17	Short Ln (Rte 615)	Main St (Rte 17 Bus S)	33.0	1.30	7:45	MOD	36.3	1.21	7:45	LOW
Route 17	Main St (Rte 17 Bus S)	Rte 17 Bus N	43.8	1.14	7:45	LOW	44.1	1.10	8:45	LOW
Route 17	Rte 17 Bus N	Ark Rd (Rte 606)	48.0	1.10	7:45	LOW	46.7	1.11	8:45	LOW
Route 17	Ark Rd (Rte 606)	Route 14	54.9	1.06	7:45	LOW	52.5	1.10	8:45	LOW
Route 17	Route 14	Routes 33/198	52.6	1.08	8:15	LOW	56.3	1.03	6:15	LOW
Route 17	Routes 33/198	Middlesex CL	50.7	1.08	5:00	LOW	49.3	1.12	8:00	LOW
Route 33	King And Queen CL	Route 17	53.4	1.06	6:00	LOW	56.2	1.02	5:00	LOW

PM PEAK PERIOD

Facility	Segment From	Segment To	Northbound Speed (mph)	Northbound Travel Time Index	Northbound Peak Time Start	Northbound Congestion Level	Southbound Speed (mph)	Southbound Travel Time Index	Southbound Peak Time Start	Southbound Congestion Level
Route 17	Coleman Bridge	Guinea Rd (Rte 216)	33.8	1.27	16:30	MOD	40.6	1.12	17:15	LOW
Route 17	Guinea Rd (Rte 216)	Providence Rd (Rte 636)	45.4	1.13	16:45	LOW	38.9	1.27	17:45	MOD
Route 17	Providence Rd (Rte 636)	Hickory Fork Rd (Rte 614)	50.1	1.06	16:15	LOW	47.3	1.11	17:45	LOW
Route 17	Hickory Fork Rd (Rte 614)	Short Ln (Rte 615)	42.0	1.22	17:15	LOW	46.8	1.10	16:15	LOW
Route 17	Short Ln (Rte 615)	Main St (Rte 17 Bus S)	30.8	1.39	15:15	MOD	34.8	1.26	16:15	MOD
Route 17	Main St (Rte 17 Bus S)	Rte 17 Bus N	42.7	1.17	16:15	LOW	40.6	1.19	15:45	LOW
Route 17	Rte 17 Bus N	Ark Rd (Rte 606)	48.3	1.10	15:30	LOW	44.7	1.15	17:15	LOW
Route 17	Ark Rd (Rte 606)	Route 14	56.4	1.03	16:15	LOW	53.3	1.09	16:00	LOW
Route 17	Route 14	Routes 33/198	52.3	1.09	16:45	LOW	55.7	1.04	18:45	LOW
Route 17	Routes 33/198	Middlesex CL	52.8	1.04	15:45	LOW	51.3	1.08	15:45	LOW
Route 33	King And Queen CL	Route 17	54.6	1.04	16:30	LOW	57.1	1.01	15:15	LOW

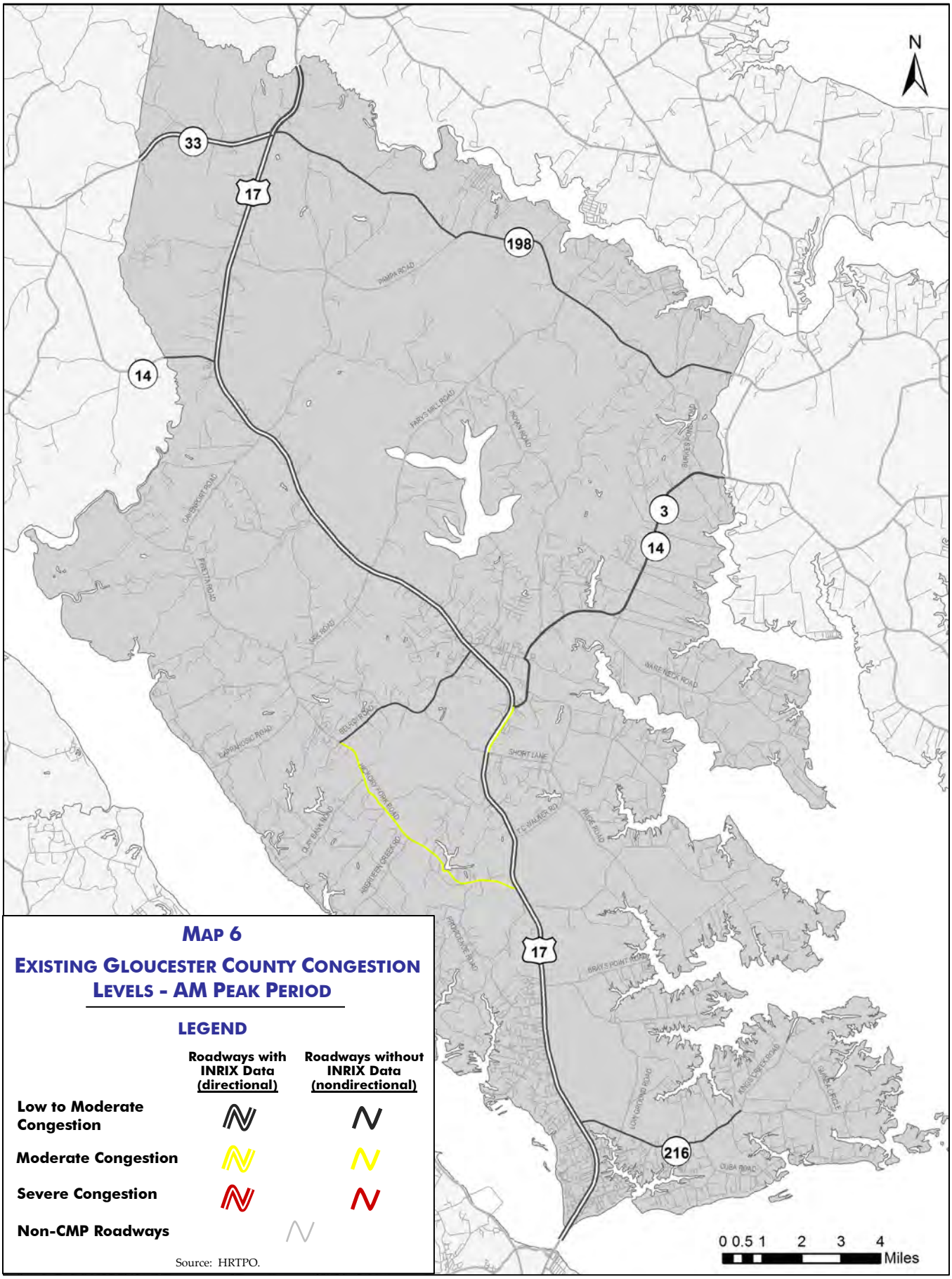
FIGURE 7 – ROADWAY SEGMENTS SPEED AND TRAVEL TIME DATA (2017)

Source: HRTPO analysis of INRIX data.

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



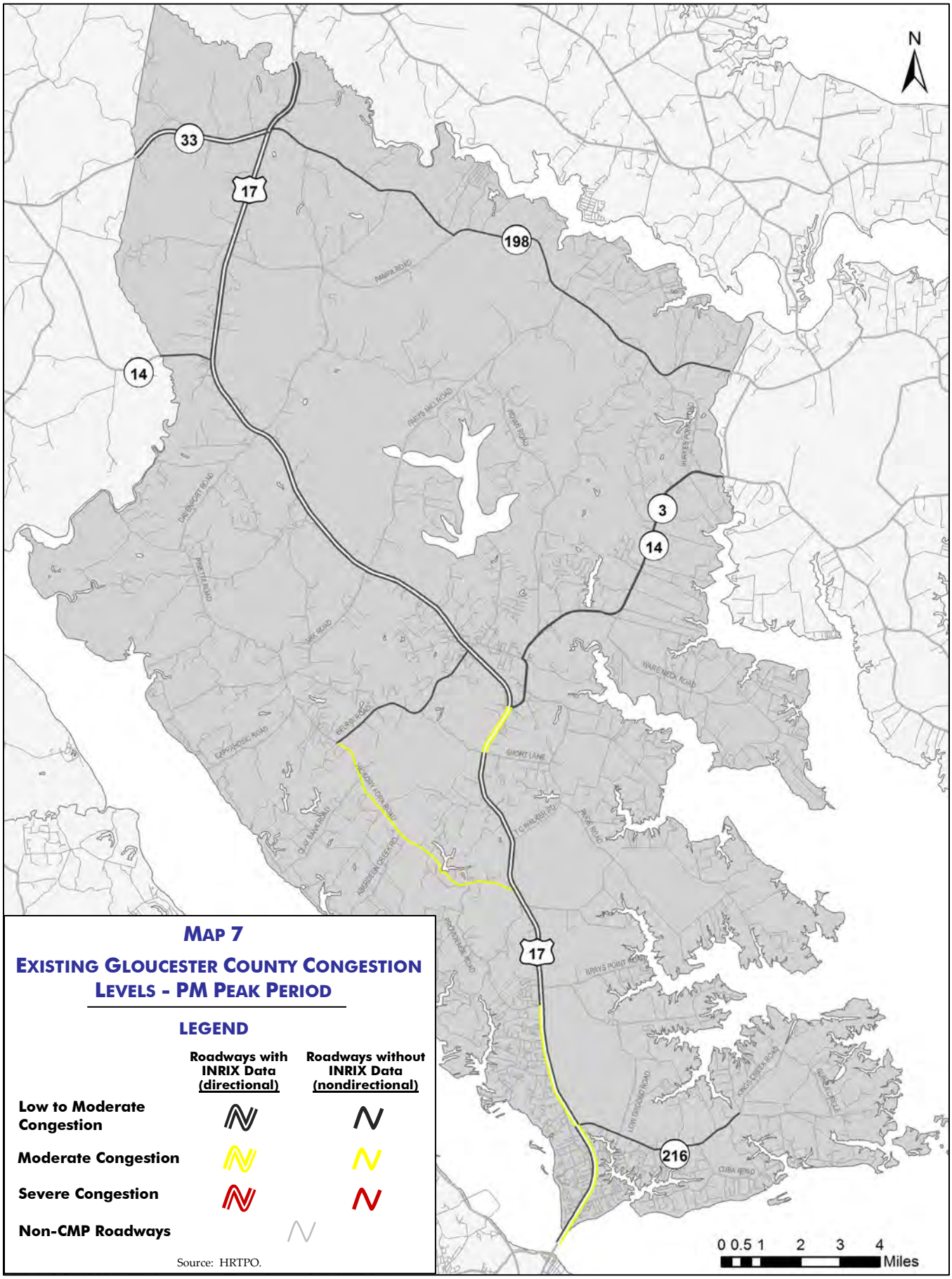
MAP 6

EXISTING GLOUCESTER COUNTY CONGESTION LEVELS - AM PEAK PERIOD

LEGEND

	Roadways with INRIX Data (directional)	Roadways without INRIX Data (nondirectional)
Low to Moderate Congestion		
Moderate Congestion		
Severe Congestion		
Non-CMP Roadways		

Source: HRTPO.



MAP 7

EXISTING GLOUCESTER COUNTY CONGESTION LEVELS - PM PEAK PERIOD

LEGEND

	Roadways with INRIX Data (directional)	Roadways without INRIX Data (nondirectional)
Low to Moderate Congestion		
Moderate Congestion		
Severe Congestion		
Non-CMP Roadways		

Source: HRTPO.

Roadway Projects

This section looks at roadway improvement projects in Gloucester County, including improvements that have been completed in the county over the last decade, projects that are programmed for construction over the next six years, and projects that are included in the Hampton Roads and Middle Peninsula Regional Long-Range Transportation Plans.

Recent Roadway Improvements

Sixteen roadway improvements have occurred in Gloucester County over the last decade (**Figure 8**). These improvements include bridge replacements, median improvements, signal upgrades, pedestrian improvements, roadway reconstruction, and new intersection turn bays. The combined cost of these 16 projects is $33 million. More information on recent bridge rehabilitation and replacement projects and recent projects that improved active transportation facilities is included in later sections of this report.

Programmed Roadway Projects

Programmed roadway improvement projects in Hampton Roads are primarily included in two documents, the Virginia Six-Year Improvement Program (SYIP) and the Hampton Roads Transportation Improvement Program (TIP).

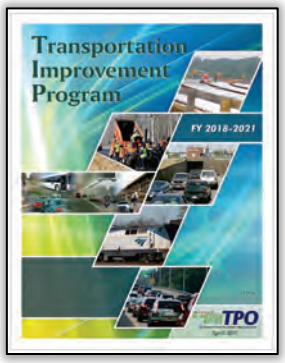
UPC	Project	Project Completion Date	Project Cost
56934	Route 17 - **Widening and Install Raised Median** between Coleman Bridge and Bellehaven Dr (Rte 1250)	2011	$12,876,000
55039	Route 17 - **Bridge Replacement** over Fox Mill Run	2012	$3,248,000
102701	Old Pinetta Road (Rte 610) over Coffee Creek - **Bridge Replacement**	2013	$1,282,000
84478	Route 17 - **Crossover Removal/Turn Lane Improvements** at Fields Landing Rd (Rte 1301)	2013	$1,673,000
104686	Route 17 at T C Walker Rd (Rte 628) - **Install Traffic Signal**	2014	$329,000
104163	Route 17 at T C Walker Rd (Rte 628) - **Intersection Improvements**	2014	$2,297,000
100626	Route 17 from Coleman Bridge to Farmwood Rd (Rte 1237) - **Pedestrian Improvements**	2014	$649,000
96681	Burkes Pond Road (Rte 602) - **Bridge Replacement** at Burkes Pond	2015	$2,027,000
7909	Burleigh Rd (Rte 615) - **Reconstruction and Minor Widening** at Fox Mill Run	2015	$1,720,000
98807	Allmondsville Road (Rte 662) - **Bridge Replacement** over Fox Creek	2018	$2,470,000
100625	Guinea Road (Rte 216) - **Pedestrian Improvements** east of Route 17	2018	$1,949,000
100624	Hayes Road (Rte 1216) - **New Sidewalk** between Route 17 (South) and Route 17 (North)	2018	$1,559,000
109578	Rappahannock Community College - **Improvements** to existing entrance, park and ride lot and bus service area	2018	$625,000
103763	Route 17 Corridor - **Signal System Upgrades**	2018	$358,000
110047	Route 17 at Brays Point Rd (Rte 636) - **Turn Lane Improvements**	2018	$274,000
110205	Owl Trap Road (Rte 611) - **Reconstruction** between Route 17 and Pampa Rd (Rte 601) (Rural Rustic)	2019	$94,000

FIGURE 8 – ROADWAY IMPROVEMENTS IN GLOUCESTER COUNTY, 2009-2019

Source: HRTPO analysis of VDOT data.

Developed annually, the Six-Year Improvement Program[7] is a statewide document through which the Virginia Commonwealth Transportation Board (CTB) allocates funds for the construction, development, or study of transportation projects. The projects included in the SYIP not only encompass major projects such as new roadway construction and widening existing facilities but also smaller projects such as adding traffic signals, paving shoulders, installing guardrail, and adding or extending intersection turn lanes. In addition, non-roadway projects such as improvements to bike lanes, sidewalks, rail, and public transportation are also included in the SYIP.

Per its name, the Six-Year Improvement Program includes information on funding allocations for each project over the course of the upcoming six state fiscal years. The SYIP also includes dates for the expected initiation of preliminary engineering design, right-of-way acquisition, and construction phases of each project.



In addition to the SYIP, the Hampton Roads Transportation Improvement Program[8] is also a multi-year document detailing the implementation of transportation projects. The TIP is a federally-mandated, regional document that identifies the programming of transportation funds over a four-year period. It lists all projects for which federal funds are anticipated, along with non-federally funded projects that are determined to be regionally significant.

The TIP is a financially-constrained document, which means that the amount of funding programmed in the TIP cannot exceed the expected amount of available funding. Before any federally-funded and/or regionally significant surface transportation project can be constructed, it must be included in the most recent TIP approved by the HRTPO board. The TIP must also be consistent with the current Hampton Roads Long-Range Transportation Plan, which is described further later in this report.

The Hampton Roads TIP may be revised as needed in order to add new projects, delete projects, and update or change project information. Similar to the SYIP, the TIP not only includes roadway projects but transit, bicycle and pedestrian, enhancement, and freight-related projects as well. Although the TIP (a federally mandated, regional document that covers a 4-year time horizon) and the SYIP (a statewide document that covers a 6-year time horizon) are separate documents, most of the projects included in the TIP are also included in the SYIP and vice-versa.

Many of the projects that are included in the TIP and SYIP are chosen through the SMART SCALE process. Signed into law in 2014, Virginia House Bill (HB) 2 was created to ensure that limited tax dollars are invested in the projects that meet the most critical transportation needs in Virginia. Starting with the FY 2017 SYIP, candidate transportation projects throughout the Commonwealth have been scored biennially using a prioritization process – now referred to as SMART SCALE – that is based on an objective analysis of the congestion mitigation, economic development, safety, environmental quality, accessibility, and land use impacts of each project.

Each screened candidate project that is submitted by an eligible applicant (which includes localities and regional entities such as Planning District Commissions, Metropolitan Planning Organizations, and transit agencies) is scored and ranked, and the Commonwealth Transportation Board (CTB) uses this information as guidance when selecting projects for inclusion in the Six-Year Improvement Program. This process is used to allocate funding from the construction District Grants Program (DGP) and the High-Priority Projects Program (HPPP), and projects

[7] *FY 2020-2025 Six-Year Improvement Program*, Commonwealth Transportation Board, June 2019.

[8] *Hampton Roads Transportation Improvement Program FY 2018-2021*, HRTPO, April 2017, with amendments through July 2018.

must meet an identified need in the VTrans statewide long-range multimodal transportation plan (described later in this report).

As part of the SMART SCALE process, different weights are applied to each of the six factors in different parts of the state. Gloucester County is located in Weighting Category D. The primary factors in Category D areas are economic development (accounting for 35% of a candidate project's SMART SCALE Project Score) and safety (30%). Most of Hampton Roads is in Weighting Category A, where congestion mitigation is a priority. Congestion mitigation accounts for 45% of a candidate project's SMART SCALE Project Score in most of Hampton Roads, whereas in Gloucester County and other Category D areas it accounts for only 10%.

One project was submitted by Gloucester County in the FY 2020 SMART SCALE process for bicycle and pedestrian improvements on Main Street (Business Route 17) from Route 3/14 to Fox Mill Centre. In January 2019, the CTB was presented with a list of projects recommended by staff for SMART SCALE funding and the Gloucester County project was included on the list. The project was included in the final FY 2020-2025 Six-Year Improvement Program approved by the CTB in June 2019, with funding being allocated in the last two years of the six-year time horizon.

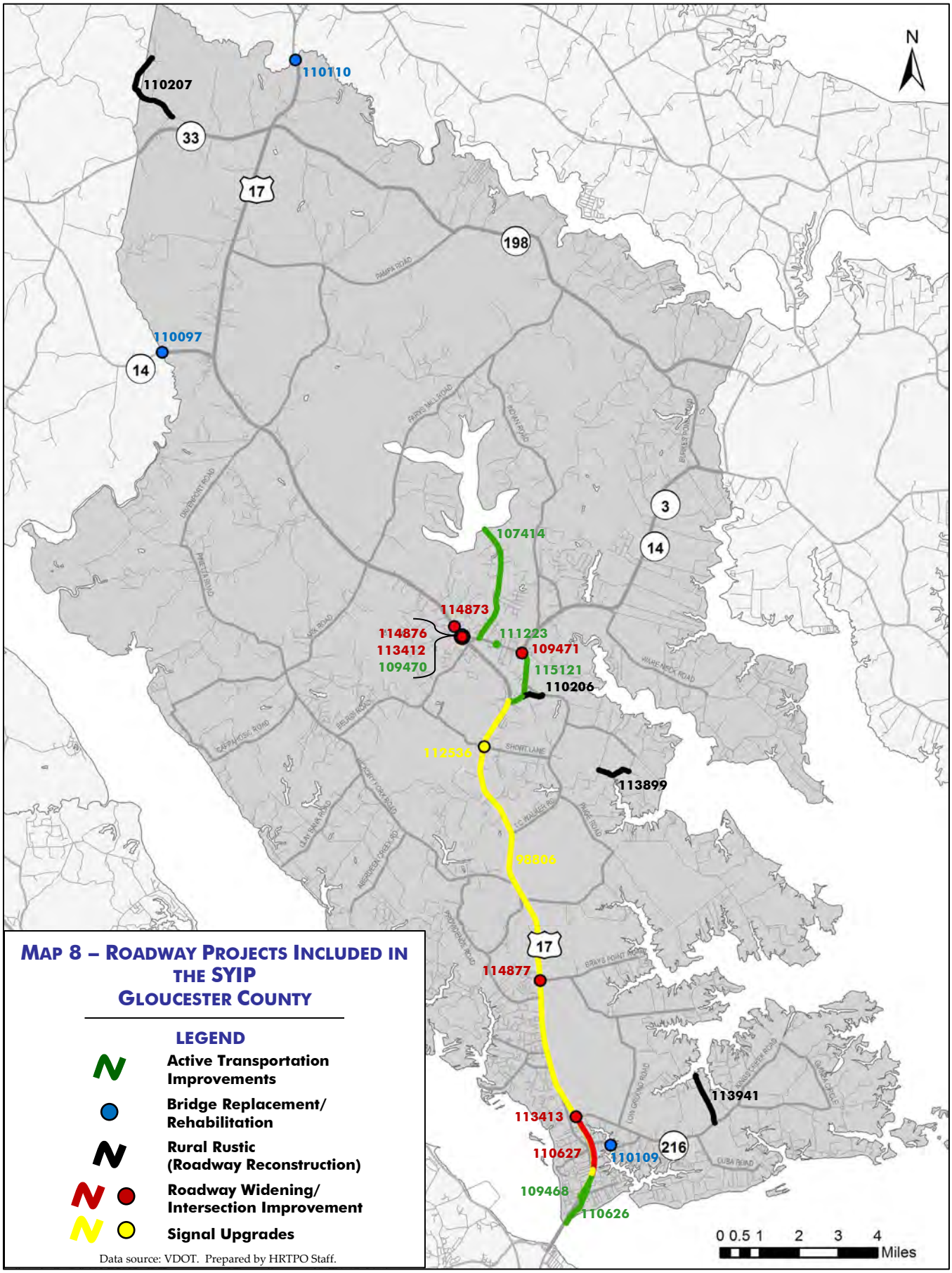
Figure 9 details the 22 projects in Gloucester County that are included in the current SYIP and/or TIP, and **Map 8** on page 20 shows the location of these projects. Each project's projected construction start date and estimated cost are also included. Combined, these projects account for a total cost of $65 million, of which $52 million in funding has been allocated over the next six years. The largest of these projects involves the widening of 1.5 miles of Route 17 from 4 to 6 lanes in the Gloucester Point area. The $31 million project is currently expected to begin construction in 2027.

More information on upcoming bridge replacement and rehabilitation projects is included in the Bridge section of this report, and more information on active transportation improvement projects is included in the Active Transportation section.

UPC	Project	Projected Construction Start	Project Cost
110207	Batt Road (Rte 600) - **Rural Rustic (Reconstruction)** between Pierce Road (Rte 647) and Dead End	Underway	$120,000
114877	Brays Point Road (Rte 626) at Route 17 - **Intersection Improvements**	2021	$198,000
113899	Cunningham Lane (Rte 627) - **Rural Rustic (Reconstruction)** between Crockett Ln (Rte 628) and White Hall Rd (Rte 668)	Underway	$76,000
110206	Enfield Road (Rte 671) - **Rural Rustic (Reconstruction)** between Business Route 17 and T C Walker Road (Rte 629)	Underway	$55,000
114876	Fiddlers Green Road (Rte 619) at Route 17 - **Intersection Improvements**	2021	$400,000
110626	Greate Road (Rte 1208) - **Pedestrian Improvements** between Route 17 and Gloucester Boat Ramp	2026	$2,120,000
111223	Historic Gloucester Court Circle - **Sidewalk Improvements**	2020	$297,000
115121	Main Street (Business Rte 17) between Route 17 and Route 3/14 - **Bicycle and Pedestrian Improvements**	2027	$7,300,000
109471	Main Street (Business Rte 17) at Routes 3/14 - **Intersection Improvements**	2020	$1,500,000
107414	Roaring Springs Road (Rte 616) from Main Street (Business Rte 17) to Beaverdam Park - **Bike Lane Improvements**	2026	$2,990,000
10588	Route 14 over Porpotank Creek - **Bridge Replacement**	2021	$3,452,000
12086	Route 17 Southbound over Dragon Run - **Bridge Rehabilitation**	2021	$6,200,000
113413	Route 17 at Guinea Road (Rte 216) - **Intersection Improvements**	2022	$930,000
113412	Route 17 at Main Street (Business Rte 17) north of Gloucester Court House - **Intersection Improvments**	2024	$880,000
114873	Route 17 NB at Meredith Drive (Rte 1019) - **Intersection Improvements**	2021	$102,000
109470	Route 17 at Business Route 17 north of Gloucester Court House - **Pedestrian Improvements**	2020	$950,000
110627	Route 17 from Farmwood Road (Rte 1237) to Guinea Road (Rte 216) - **Roadway Widening to 6 lanes**	2027	$31,202,000
109468	Route 17 SB between Lafayette Heights Dr (Rte 1206) and Bellehaven Dr (Rte 1250) - **Sidewalk addition**	2020	$800,000
98806	Route 17 Corridor between Coleman Bridge and Business Route 17 - **Signal Upgrades**	Underway	$2,801,000
112536	Route 17 at Short Lane (Rte 615) - **Signal Upgrades**	Underway	$470,000
113941	Thornton Lane (Rte 732) - **Rural Rustic (Reconstruction)** between Guinea Road (Rte 216) and Dead End	Underway	$51,000
8548	Tidemill Road over branch of Sarah Creek - **Bridge Rehabilitation**	2019	$2,154,000

FIGURE 9 – ROADWAY IMPROVEMENTS IN GLOUCESTER COUNTY PROGRAMMED IN THE SYIP FOR CONSTRUCTION

Data source: HRTPO analysis of the Virginia FY 2020-2025 SYIP. UPC is the Universal Project Code number.



Map 8 – Roadway Projects Included in the SYIP
Gloucester County

LEGEND

- Active Transportation Improvements
- Bridge Replacement/ Rehabilitation
- Rural Rustic (Roadway Reconstruction)
- Roadway Widening/ Intersection Improvement
- Signal Upgrades

Data source: VDOT. Prepared by HRTPO Staff.

Long-Range Planning

The HRTPO is responsible for producing the regional Hampton Roads Long-Range Transportation Plan (LRTP). The LRTP is a comprehensive and multimodal transportation blueprint that identifies and plans for critically important transportation improvements that impact the region's economic vitality and every citizen's quality of life. The Hampton Roads LRTP is designed to meet the transportation goals of the HRTPO, which include enhancing mobility and accessibility for all users, increasing reliability across modes, improving safety, minimizing negative impacts to the environment, and identifying funding to maintain and improve the transportation system.

In addition, the Middle Peninsula Planning District Commission (MPPDC) produces the Regional Long-Range Transportation Plan for the Middle Peninsula. The HRTPO LRTP reflects those areas in the southern portion of Gloucester County within the Metropolitan Planning Area (MPA), while the MPPDC LRTP reflects those rural areas in the northern part of the county outside of the MPA (see Map 1 on page 1).

The Hampton Roads LRTP contains a list of transportation projects that are expected to be constructed based on the anticipated funding available during the time horizon, while the Middle Peninsula PDC LRTP contains a list of recommended improvements based on safety and congestion assessments. Several modes of surface transportation projects are included in the Hampton Roads LRTP; however, only roadway projects that add capacity to the regional roadway network, fixed-guideway transit projects (which are those that use exclusive right-of-way such as trains), and certain active transportation projects are typically individually identified in the HRTPO plan. The HRTPO LRTP also contains a number of "studies" as well as a "Vision Plan" – these include projects that were submitted for consideration but not included for construction due to insufficient funding over the horizon period. Smaller projects, such as traffic signals and turn bays, are not individually identified in the Hampton Roads LRTP but are identified in the Middle Peninsula LRTP.

The LRTP must be updated every five years in metropolitan areas such as Hampton Roads that are in attainment of all applicable National Ambient Air Quality Standards. The LRTP must encompass a minimum of a 20-year time horizon, which is much longer than the 6-year time horizon of the SYIP and the 4-year time horizon of the TIP. Many stakeholders are involved in the preparation of the Hampton Roads LRTP including transportation planners and engineers from each city and county, VDOT, the military, the Port, local transit officials, and the public.

Projects included in the 2040 Hampton Roads Long-Range Transportation Plan – which was approved by the HRTPO Board in July 2016 – were chosen based on a variety of factors, including the results of a project prioritization process. This prioritization process ranked candidate projects by type based on each project's utility in terms of capacity and operational effectiveness; viability in terms of progress in design, funding, and permitting; and economic vitality in terms of its potential to stimulate economic growth.

The current Middle Peninsula PDC Regional LRTP was produced in conjunction with VDOT and the PDC's member localities in 2012 and has a horizon year of 2035. The plan includes an evaluation of the transportation system in the MPPDC including the rural areas of Gloucester County. The LRTP also includes recommendations for a range of roadway, rail, transit, air, and active transportation improvements that are expected to satisfy existing and future transportation needs.

An update to the MPPDC LRTP is currently under development and should be completed in 2020. Similar to the HRTPO LRTP, the upcoming Middle Peninsula PDC LRTP will have a horizon year of 2040.

2040 Hampton Roads LRTP Projects

There is one roadway project in Gloucester County – Route 17 from one mile north of the Coleman Bridge to Main Street (Business Route 17 South of Gloucester Court House) – that is included in the 2040 Hampton Roads LRTP for construction. To the north of this segment, the widening of Route 17 from Main Street to Ark Road is included in the 2040 Regional Vision Plan. More information on these projects is included below. No projects in Gloucester County were included as a Study in the 2040 LRTP.

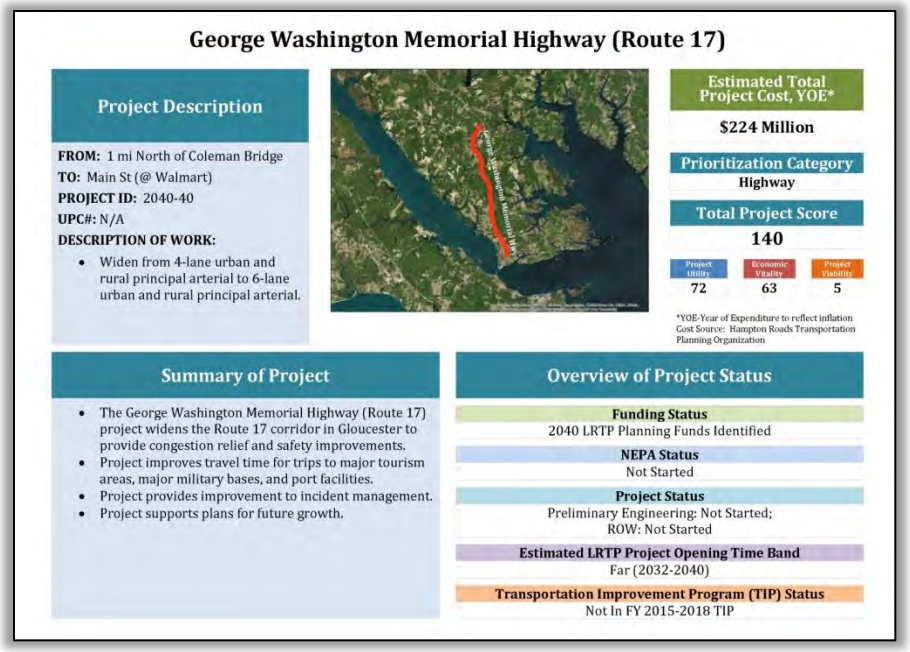


FIGURE 10 – ROUTE 17 WIDENING LRTP PROJECT
Source: HRTPO.

Route 17 Widening

George Washington Memorial Highway (Route 17) is the primary arterial corridor in Gloucester County. Currently, Route 17 carries 35,000 vehicles per weekday just to the north of the Coleman Bridge. Between Guinea Road (Route 216) and the Gloucester Court House area, Route 17 carries between 29,000 and 36,000 vehicles per weekday. To the north of the Court House area, Route 17 volumes range between 7,000 and 17,000 vehicles per weekday.

Weekday volumes on Route 17 are projected to grow significantly in future years. By 2040, weekday volumes just north of the Coleman Bridge are expected to increase 43%, up to 50,000 vehicles per weekday. From Guinea Road to the Gloucester Court House area, volumes are expected to increase to between 49,000 and 53,000 vehicles per weekday, and to the north of the Court House area volumes on Route 17 are forecasted to be between 15,000 and 29,000 vehicles per weekday in 2040.

Although congestion is not currently prevalent on Route 17, increased volumes are expected to lead to severe congestion during peak periods on Route 17 between the Coleman Bridge and the Gloucester Court House area by 2040.

A candidate project to widen Route 17 from 4 to 6 lanes was submitted by Gloucester County officials for consideration in the 2040 Hampton Roads LRTP Project Prioritization Process. The corridor was submitted in two sections – from one mile north of the Coleman Bridge to Main Street (Business Route 17 south of the Gloucester Court House area) and from Main Street to Ark Road (Route 606).

The southern segment between one mile north of the Coleman Bridge and Main Street scored high enough – 140 points – in the process to be included in the fiscally-constrained plan for construction (**Figure 10**). The expected cost of widening this section of Route 17 from 4 to 6 lanes is $224 million (in year of expenditure dollars). A portion of this segment between Farmwood Road (Route 1237) to Guinea Road (Route 216) is included in the current SYIP for construction, which is currently scheduled to begin in 2027.

The northern segment between Main Street and Ark Road – with a score of 76 in the 2040 LRTP Project Prioritization Process – did not score as well as the southern segment. The northern segment was not included in the 2040 fiscally-constrained Hampton Roads LRTP for construction; however, it was

included in the 2040 Regional Vision Plan. Widening this segment is projected to cost $82 million (in year of expenditure dollars).

Middle Peninsula LRTP Projects

While the Hampton Roads Transportation Planning Organization is responsible for regional long-range transportation planning in the southern, more urban part of Gloucester County, regional long-range transportation planning in the northern part of the county is the responsibility of the Middle Peninsula Planning District Commission (MPPDC).

The Middle Peninsula PDC 2035 Regional Long-Range Transportation Plan includes a number of recommendations for fourteen corridors and intersections within the northern section of Gloucester County, as shown in **Figure 11** on page 24. These recommendations are based on information provided by local officials and an analysis of roadway safety, geometry, bridge, and congestion data. Recommendations are classified based on short-term, mid-term, and long-term time horizons. Short-term improvements include new or refreshed pavement markings and speed limit reductions. Mid-term improvements include adding turn lanes, installing traffic signals, and applying access management standards. Long-term improvements include upgrading and reconstructing roadways to current standards, relocating roadways, and adding additional roadway capacity. No cost information on these recommendations was included in the 2035 LRTP report. Many of these recommendations don't rank high enough in the district to be funded with state transportation dollars other than the County's Secondary Six-Year Plan (SSYP) funding, which is very limited.

Although the 2040 Middle Peninsula PDC Long-Range Transportation Plan is currently under development, it is expected that many of the recommendations included in the 2035 Regional LRTP will also be included in the 2040 Plan.

GLOUCESTER COUNTY RECOMMENDATIONS

1 VA 606 (Farys Mill Rd.) from US 17 (George Washington Memorial Hwy.) to VA 198 (Dutton Rd.)
Short-term refresh pavement markings; Mid-term add southbound left turn lane on VA 678; Long-term upgrade VA 606/678 to design standards and relocate Indian Road.

2 VA 610 (Pinetta Rd.) from VA 610 (Davenport Rd.) to VA 616 (Belroi Rd.)
Mid-term consider adding turn lanes; Long-term upgrade to design standards.

3 VA 198 (Glenns Rd.) from US 17 (George Washington Memorial Hwy.) to Mathews Co. Line
Short-term consider reducing speed limit; Mid-term add turn lanes; Long-term upgrade VA 198 to design standards and consider adding additional capacity.

4 VA 617/VA 610
Mid-term lengthen northbound and southbound left turn lanes and implement access management.

5 US 17/VA 198
Short-term install puppy tracks for northbound left turns and improve southbound right turn movement; Mid-term apply access management.

6 US 17/VA 601
Mid-term install northbound right turn lane.

7 US 17/VA 610
Short-term replace stop bar on westbound approach and add advance intersection warning advisors; Mid-term signalize intersection.

8 US 17/VA 606
Deficiency with low priority; Continue to monitor for potential improvements.

9 US 17 (George Washington Memorial Hwy.) from VA 606 (Ark Rd.) to Hampton Rd. TPO boundary
Long-term reconstruct to urban six-lane roadway with median.

10 VA 616 (Belroi Rd.) from VA 614 (Hickory Fork Rd.) to VA 615 (Burleigh Rd.)
Long-term widen to rural four-lane roadway with median.

11 VA 602 (Burkes Pond Rd.) from VA 3 (John Clayton Memorial Hwy.) to VA 198 (Dutton Rd.)
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).

12 VA 605 (Indian Rd.) from VA 603 (Figg Shop Rd.) to VA 606 (Farys Mill Rd.)
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).

13 VA 616 (Clay Bank Rd.) from VA 631 (Gum Fork Rd.) to VA 616 (Hickory Fork Rd.)
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).

14 VA 3 (John Clayton Memorial Hwy)/VA 623 (Ware Neck Rd.)
Short-term add advisory speed plate to eastbound intersection ahead sign; Long-term relocate eastbound right-turn lane and add "Vehicles Entering When Flashing" sign.

FIGURE 11 – GLOUCESTER COUNTY RECOMMENDATIONS IN THE MPPDC 2035 REGIONAL LRTP
Source: Middle Peninsula Planning District Commission (MPPDC)

Future Roadway Congestion

As part of long-range transportation planning efforts, HRTPO staff forecasts horizon year traffic volumes on the Congestion Management Process (CMP) roadway network. These forecasted volumes are based on output from the regional travel demand model, which estimates raw traffic volumes based on socioeconomic projections and the future regional roadway network, with the assumption that all of the fiscally-constrained projects included in the LRTP are constructed. For Gloucester County, this includes the widening of Route 17 from one mile north of the Coleman Bridge to the southern intersection with Main Street/Business Route 17 (which was described previously in this report). However, LRTP projects included as studies or in the Vision Plan are not included in the model's analysis.

HRTPO staff used these forecasted 2040 weekday traffic volumes to estimate future PM Peak Period congestion levels. The methodology used to determine these future congestion levels is largely similar to the methodology used to analyze existing congestion levels on those roadways without speed data.

Figure 12 shows the forecasted 2040 weekday traffic volumes and PM Peak Period congestion levels for

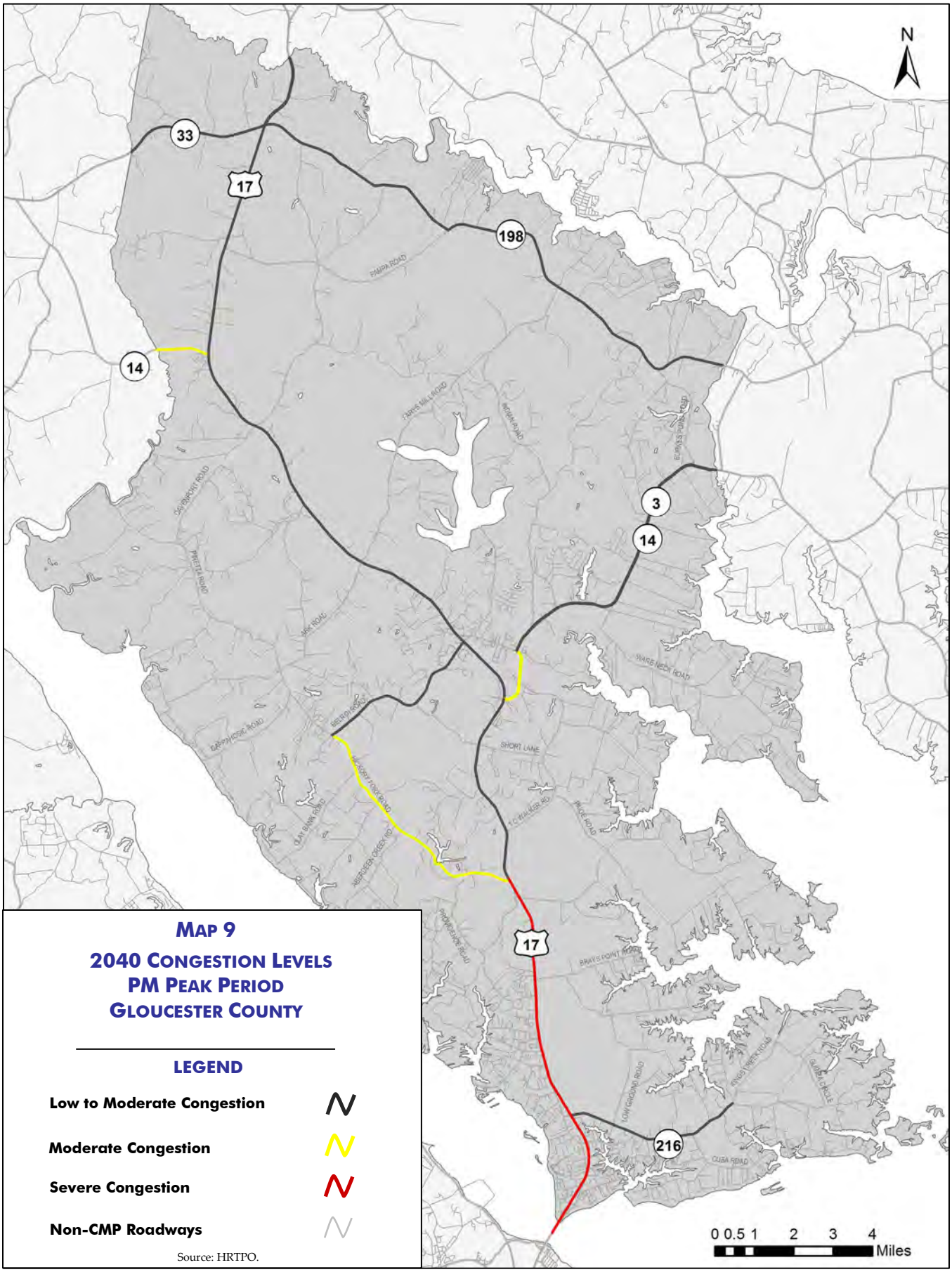
CMP roadway segments in Gloucester County. **Map 9** on page 26 shows the projected 2040 PM Peak Period congestion levels.

Route 17 between the Coleman Bridge and Hickory Fork Road (Route 614) is projected to be severely congested in 2040 during the PM Peak Period. This congestion – which is largely due to the high directional distribution of traffic during the peak periods – is despite the widening project included in the LRTP for this corridor. Roadways that are projected to be moderately congested in 2040 during the PM Peak Period include Main Street (Business Route 17) between Route 17 (south intersection) and Route 3/14, Route 14 between the King and Queen County Line and Route 17, and Hickory Fork Road (Route 614) between Route 17 and Belroi Road (Route 616).

Facility	Segment From	Segment To	2040 Weekday Volume	2040 PM Peak Period Congetion Level
Belroi Rd (Rte 616)	Hickory Fork Rd (Rte 614)	Route 17	5,000	LOW
Guinea Rd (Rte 216)	Route 17	Maryus Rd	8,000	LOW
Hickory Fork Rd (Rte 614)	Route 17	Belroi Rd (Rte 616)	6,000	MOD
Route 3/14	Route 17 Bus	Cow Creek	25,000	LOW
Route 3/14	Cow Creek	Mathews CL	19,000	LOW
Route 14	King And Queen CL	Route 17	7,000	MOD
Route 17	Coleman Bridge	Guinea Rd (Rte 216)	50,000	SEV
Route 17	Guinea Rd (Rte 216)	Hickory Fork Rd (Rte 614)	53,000	SEV
Route 17	Hickory Fork Rd (Rte 614)	Main St (Rte 17 Bus S)	49,000	LOW
Route 17	Main St (Rte 17 Bus S)	Rte 17 Bus N	33,000	LOW
Route 17	Rte 17 Bus N	Ark Rd (Rte 606)	29,000	LOW
Route 17	Ark Rd (Rte 606)	Route 14	24,000	LOW
Route 17	Route 14	Routes 33/198	15,000	LOW
Route 17	Routes 33/198	Middlesex CL	19,000	LOW
Route 33	King And Queen CL	Route 17	9,000	LOW
Route 198	Route 17	Pampa Rd (Rte 601)	2,000	LOW
Route 198	Pampa Rd (Rte 601)	Harcum Rd (Rte 606)	2,000	LOW
Route 198	Harcum Rd (Rte 606)	Mathews CL	3,000	LOW
Main St (Bus Rte 17)	Rte 17 (South Intersection)	Rte 3/14E	28,000	MOD

FIGURE 12 – 2040 WEEKDAY TRAFFIC VOLUMES AND PM PEAK PERIOD CONGESTION LEVELS

Data sources: VDOT, HRTPO.



Map 9
2040 Congestion Levels
PM Peak Period
Gloucester County

LEGEND

- Low to Moderate Congestion
- Moderate Congestion
- Severe Congestion
- Non-CMP Roadways

Source: HRTPO.

VTRANS

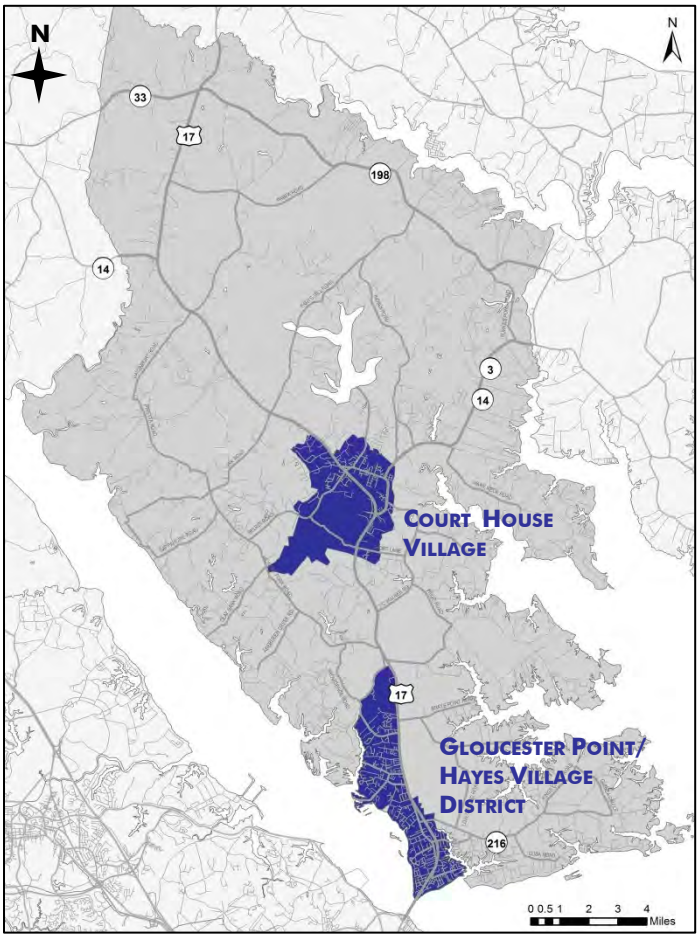
VTrans is the Commonwealth of Virginia's statewide long-range multimodal transportation plan. VTrans – which is prepared by Virginia's Office of Intermodal Planning and Investment (OIPI) in cooperation with a variety of stakeholders – identifies the overarching vision and goals for transportation in the state. VTrans also identifies transportation investment priorities and provides direction on strategies and programs that can be incorporated into locality and MPO plans. Recent legislation passed by the General Assembly mandates that the transportation component of each locality's Comprehensive Plan must be consistent with VTrans.

VTrans focuses on the transportation needs on three levels: 1) Interregional travel through Corridors of Statewide Significance, 2) Intraregional travel through Regional Networks, and 3) Travel in local activity centers through Urban Development Areas.

As part of the original VTrans effort, the state developed a network of Corridors of Statewide Significance (CoSS). VTrans defines these CoSS 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." The Coastal Corridor (US Route 17), which is one of the twelve Virginia Corridors of Statewide Significance, is located within Gloucester County.

In addition to the Corridors of Statewide Significance, VTrans focuses on Regional Networks. Regional Networks are defined in VTrans as multimodal networks that facilitate intraregional travel within urbanized areas. While Corridors of Statewide Significance serve statewide objectives, Regional Networks focus on the transportation network needed to support each region's economic competiveness.

VTrans also focuses on the needs of local activity centers referred to as Urban Development Areas (UDAs). UDAs can be any area designated by a locality for higher density development that incorporates traditional neighborhood development principles in their Comprehensive Plan. UDAs cover a wide variety of community types, including small towns, village centers, suburban activity areas, and urban downtown areas. UDAs were created to help localities and regional entities focus investments that attract both businesses and workers.



MAP 10 – URBAN DEVELOPMENT AREAS IN GLOUCESTER COUNTY

Data source: Virginia OIPI.

There are two UDAs designated in Gloucester County – Court House Village and Hayes Village District. The locations of these UDAs are shown in **Map 10**.

VTrans2040

OIPI recently led the development of the VTrans2040 plan. The plan was developed in two phases: the VTrans2040 Vision and the VTrans2040 Multimodal Transportation Plan.

The VTrans2040 Vision was adopted by the Commonwealth Transportation Board in December 2015. The VTrans2040 Vision is:

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

In addition to the vision, the VTrans2040 Vision document includes guiding principles, goals, and objectives to direct investment decisions over the horizon of the plan. These guiding principles, goals, and objectives are shown in **Figure 13**. The Vision also includes an analysis of the trends and impacts in demographic changes, commuting and mobility, economic trends, climate change, rural areas, transportation technology, and freight movement. Stakeholder input and a public survey were also included in the Vision document.

The VTrans2040 Multimodal Transportation Plan is comprised of two components: (1) 2025 Transportation Needs Assessment and (2) 2040 Scenario Analysis. The 2025 Transportation Needs Assessment addresses statewide transportation needs at the three levels listed previously – Corridors of Statewide Significance (CoSS), Regional Networks, and Urban Development Areas (UDAs). One of the key purposes of the Transportation Needs Assessment is to serve as a screen for projects applying for consideration in the SMART SCALE project prioritization process.

The VTrans 2025 Transportation Needs Assessment includes the following needs for Gloucester County.

Corridors of Statewide Significance

The Coastal Corridor follows US Route 17 and passes through Gloucester County. There are

Guiding Principles

1 **Optimize Return on Investments**

Implement the right solution at the right price, striving to meet current needs while advancing long-term prosperity and livability.

2 **Ensure Safety, Security, and Resiliency**

Provide a transportation system that is safe for all users, responds immediately to short-term shocks such as weather events or security emergencies, and adapts effectively to long-term stressors such as sea level rise.

3 **Efficiently Deliver Programs**

Deliver high-quality projects and programs in a cost-effective and timely manner.

4 **Consider Operational Improvements and Demand Management First**

Maximize capacity of the transportation network through increased use of technology and operational improvements as well as managing demand for the system before investing in major capacity expansions.

5 **Ensure Transparency & Accountability, & Promote Performance Management**

Work openly with partners and engage stakeholders in project development and implementation, and establish performance targets that consider the needs of all communities, measure progress towards targets, and adjust programs and policies as necessary to achieve the established targets.

6 **Improve Coordination Between Transportation and Land Use**

Encourage local governments to plan and manage transportation-efficient land development by providing incentives, technical support, and collaborative initiatives.

7 **Ensure Efficient Intermodal Connections**

Provide seamless connections between modes of transportation to harness synergies.

Goals and Objectives

A **Economic Competitiveness and Prosperity**

Invest in a transportation system that supports a robust, diverse, and competitive economy.

A.1 - Reduce the amount of travel that takes place in severe congestion.

A.2 - Reduce the number and severity of freight bottlenecks.

A.3 - Improve reliability on key corridors for all modes.

B **Accessible and Connected Places**

Increase the opportunities for people and businesses to efficiently access jobs, services, activity centers, and distribution hubs.

B.1 - Reduce average peak-period travel times in metropolitan areas.

B.2 - Reduce average daily trip lengths in metropolitan areas.

B.3 - Increase the accessibility to jobs via transit, walking and driving in metropolitan areas.

C **Safety for All Users**

Provide a safe transportation system for passengers and goods on all travel modes.

C.1 - Reduce the number and rate of motorized fatalities and severe injuries.

C.3 - Reduce the number and rate of non-motorized fatalities and severe injuries.

D **Proactive System Management**

Maintain the transportation system in good condition and leverage technology to optimize existing and new infrastructure.

D.1 - Improve the condition of all bridges based on deck area.

D.2 - Increase the lane miles of pavement in good or fair condition.

D.3 - Increase percent of transit vehicles and facilities in good or fair condition.

E **Healthy Communities and Sustainable Transportation Communities**

Support a variety of community types promoting local economies and healthy lifestyles that provide travel options, while preserving agricultural, natural, historic, and cultural resources.

E.1 - Reduce per-capita vehicle miles traveled.

E.2 - Reduce transportation related NOX, VOC, PM and CO emissions.

E.3 - Increase the number of trips traveled by active transportation.

FIGURE 13 – GUIDING PRINCIPLES, GOALS, AND OBJECTIVES OF VTRANS2040

Source: Virginia OIPI.

two needs listed for the Coastal Corridor in the county, as shown in **Figure 14**. Both of these needs – one related to congestion and the other related to reliability – are listed as issues at the intersection of Route 17 and Main Street (Business Route 17 south of the Court House area). This is due to the amount of daily delay per mile on Route 17 between Short Lane and Main Street. In addition, this section of Route 17 also has weekday peak period and weekend reliability issues based on the analysis done for the Needs Assessment.

FIGURE 14 – VTRANS2040 SUMMARY OF NEEDS – COASTAL CORRIDOR
Source: Virginia OIPI.

Regional Networks

Regional Networks – introduced as part of VTrans2040 – are multimodal networks that facilitate intraregional travel within urbanized areas and focus on the transportation network needed to support each region's economic competiveness. They fill in a gap between Corridors of Statewide Significance that serve statewide objectives and UDAs which serve local objectives.

As part of this effort, Regional Needs Assessments were done for 15 metropolitan areas throughout the state, including Hampton Roads. The Hampton Roads Regional Network Needs Assessment identified 17 needs throughout the region. However, none of these needs are located within Gloucester County.

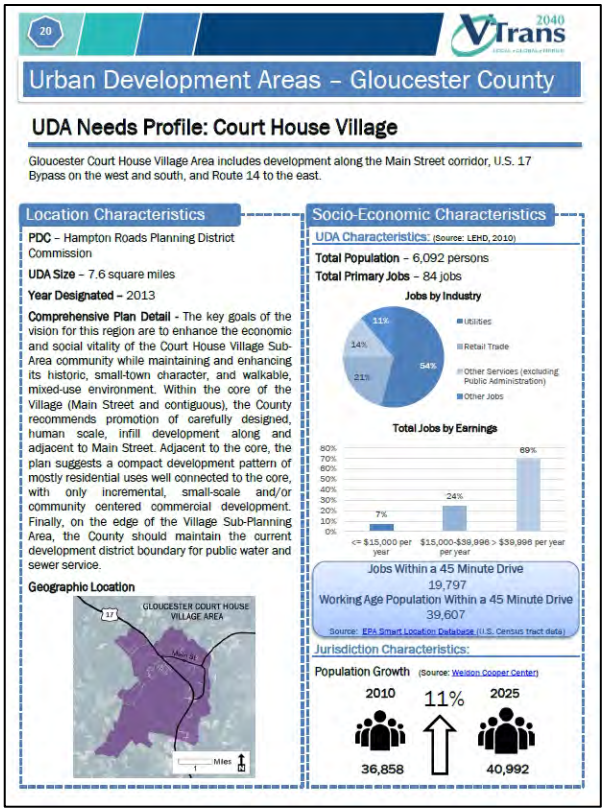
Urban Development Areas

There are two designated UDAs – Court House Village and Hayes Village District – in Gloucester County. For each UDA, the VTrans 2025 Transportation Needs Assessment includes a description of location characteristics, socioeconomic characteristics, the current and planned place type, and gaps in the transportation system. The future internal and external transportation needs for each UDA are also included, as are the highest rated overall needs.

Figure 15 on page 30 includes the UDA Needs Assessment for Court House Village and **Figure 16** on page 30 includes the UDA Needs Assessment for the Gloucester Point/Hayes Village District. There are a number of internal UDA needs for the Court House Village, including bicycle and pedestrian infrastructure, complete streets, safety features, intersection design, signage/wayfinding, traffic calming, and improvements to the natural environment. High external UDA needs include bicycle and pedestrian infrastructure, complete streets, and signage/ wayfinding.

High internal UDA needs for the Gloucester Point/Hayes Village District include street grid, bicycle and pedestrian infrastructure, complete streets, safety features, and signage/wayfinding. High external UDA needs include bicycle infrastructure, intersection design, and signage/wayfinding.

The VTrans2040 Multimodal Transportation Plan also includes a 2040 Scenario Analysis. This addresses the uncertainty of long-range planning by testing the potential impacts of alternative future trends. Four scenarios were analyzed in VTrans2040: Industrial Renaissance, Techtopia, Silver Age, and General Slowdown. More information is available on the VTrans2040 website at http://www.vtrans.org/archive/vtrans2040.



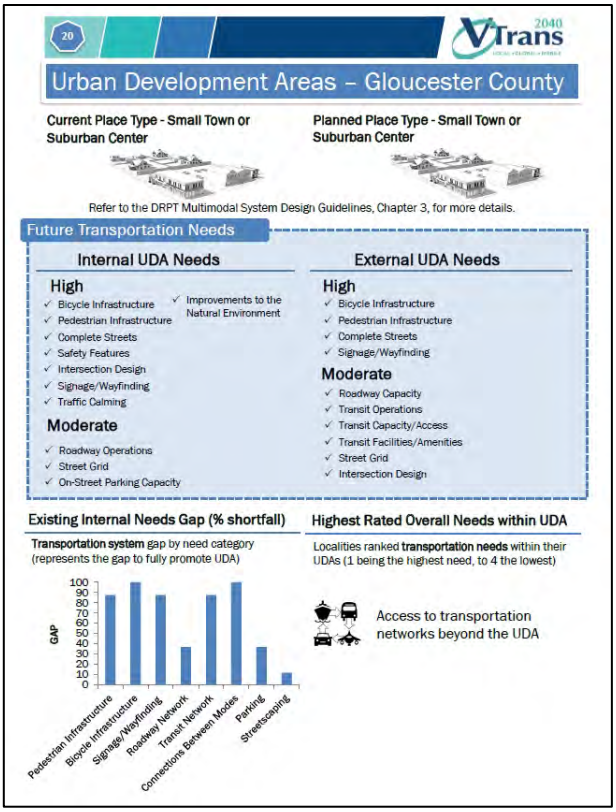
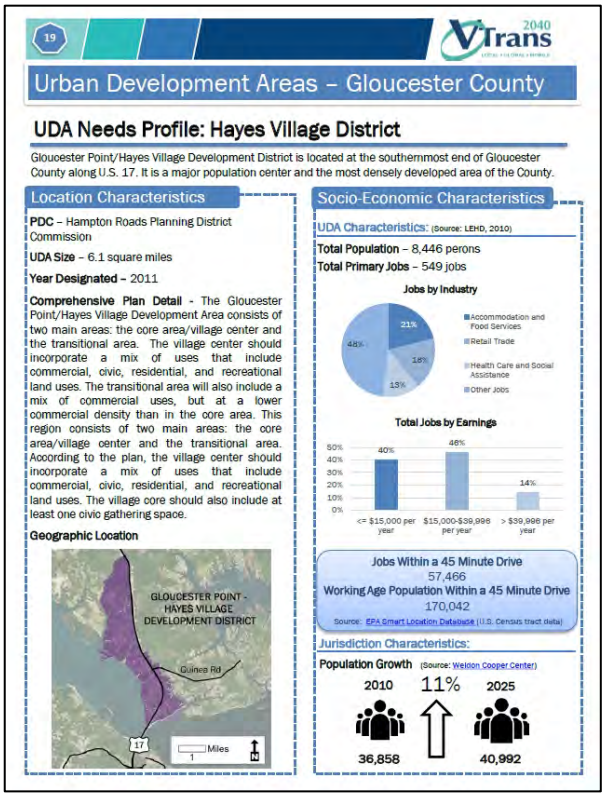


FIGURE 15 – UDA NEEDS ASSESSMENT – COURT HOUSE VILLAGE

Source: Virginia OIPI.



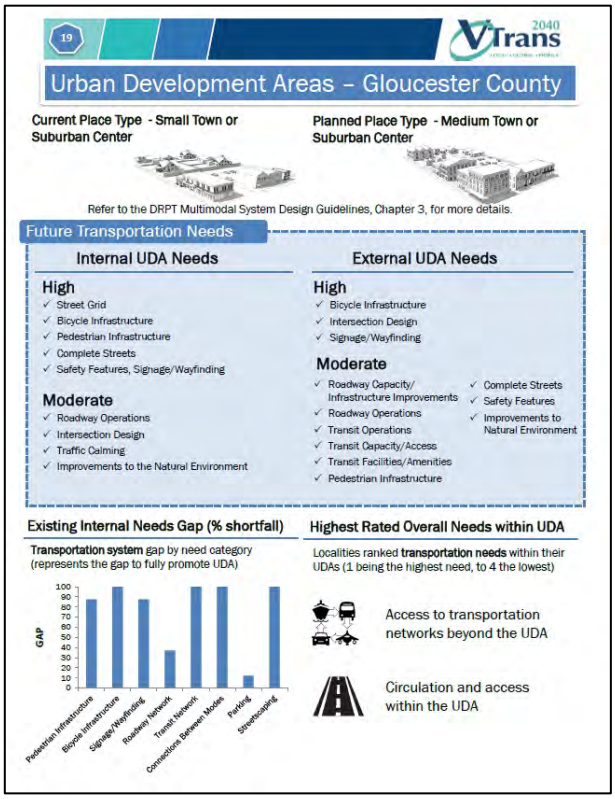


FIGURE 16 – UDA NEEDS ASSESSMENT – GLOUCESTER POINT/HAYES VILLAGE DISTRICT

Source: Virginia OIPI.

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 413 traffic crashes in Gloucester County in 2019 (**Figure 17**), which resulted in 1 fatality and 277 injuries. The number of crashes in Gloucester County has increased throughout this decade after largely decreasing throughout the decade of the 2000s (**Figure 18**). The number of crashes in Gloucester County is 16% lower in 2019 than the number experienced in 2000 (490), but is 17% higher than the low seen in 2010 (352).

While the number of crashes in Gloucester County has increased throughout this decade, the number of injuries resulting from these crashes has decreased in recent years. The number of injuries in Gloucester County in 2019 (277) is 30% lower than the number of injuries experienced in 2000, and is 25% lower than the recent high experienced in 2014.

Year	Number of Fatalities	Number of Injuries	Number of Crashes
2000	3	396	490
2001	9	347	466
2002	5	407	494
2003	4	365	505
2004	3	360	475
2005	7	317	419
2006	11	327	440
2007	5	345	461
2008	12	355	436
2009	4	333	428
2010	15	288	352
2011	6	268	357
2012	7	323	392
2013	3	324	402
2014	4	370	413
2015	5	285	436
2016	5	275	408
2017	7	253	425
2018	5	260	427
2019	1	277	413

Figure 17 – Number of Fatalities, Injuries, and Crashes in Gloucester County, 2000-2019
Source: HRTPO analysis of VDOT data.

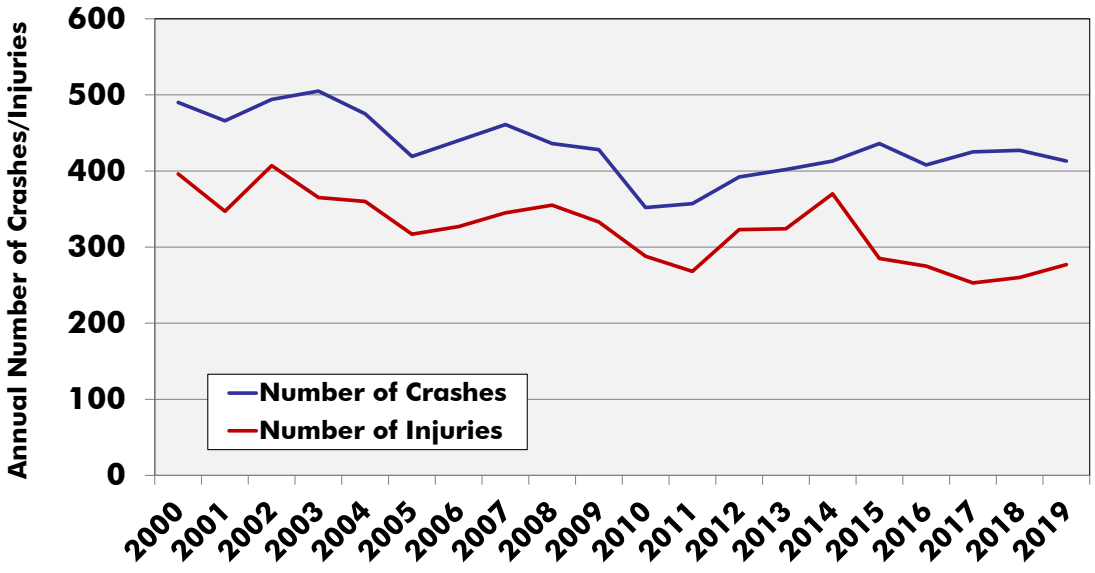


Figure 18 – Number of Crashes and Injuries in Gloucester County, 2000-2019
Source: HRTPO analysis of VDOT data.

Looking over the five-year period from 2013 to 2017, there was an average of 417 crashes each year in Gloucester County with 5 fatalities and 301 injuries. Characteristics of the crashes over this time period are shown in **Figure 19**. Notable among these characteristics – which are emphasis areas in the current Virginia Strategic Highway Safety Plan – include:

- **Alcohol Use** – Although 11% of all crashes in the county involved alcohol use, 29% of all fatalities resulted from traffic crashes involving alcohol use.
- **Distracted Driving** – Nearly one out of six crashes (17%) and one out of every three fatalities (33%) resulted from distracted driving.
- **Roadway Departure** – In over half of all fatalities that occurred in Gloucester County (54%), the vehicle departed the roadway.
- **Speeding** – Half of all fatalities in the county (50%) resulted from crashes that involved speeding.
- **Safety Belt Use** – Three out of every eight people killed in crashes in Gloucester County (38%) were not using a safety belt.

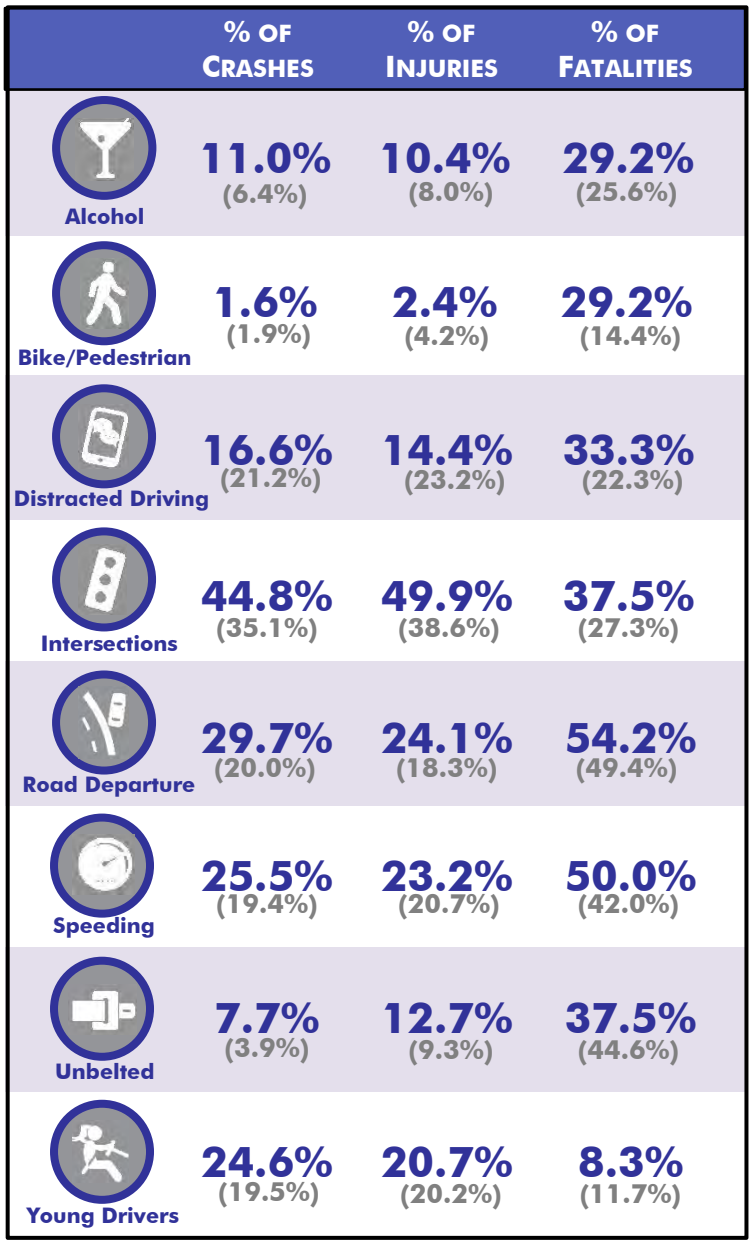


FIGURE 19 – CHARACTERISTICS OF CRASHES IN GLOUCESTER COUNTY, 2013-2017

Source: HRTPO analysis of VDOT data. Image source: VDOT. The numbers in parenthesis represent the percentages throughout the state during this time period.

Roadway Segments

In order to determine the location of crashes on roadway segments throughout Gloucester County, HRTPO staff analyzed VDOT crash location data for the five-year period from 2013-2017. Based on this analysis, HRTPO produced two measures that are used to 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. This roadway travel is listed in terms of million vehicle-miles of travel (MVMT).
- **EPDO Rate** - The Equivalent Property Damage Only (EPDO) Rate not only takes into account the number or 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 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 (1 for PDO crashes, 3 for INJ crashes, and 12 for FAT crashes) that HRTPO used in the Hampton Roads Regional Safety Study[9], which results in the following formula:

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

Figure 20 on pages 34-35 shows both the Crash Rate and EPDO Rate for 2013-2017 for all of the roadway segments in Gloucester County that are classified as minor collectors or above. In addition, **Map 11** on page 36 shows the EPDO Rate for these roadways.

The roadways in Gloucester County with the highest EPDO Rates between 2013 and 2017 are:

- Low Ground Road (Route 641) between Guinea Road (Route 216) and Glass Road (Route 656).
- Cedar Bush Road (Route 633) between Providence Road (Route 636) and Hickory Fork Road (Route 614).
- Hoefork Lane (Route 1201) between Hill Road and Hayes Road (Route 1216).
- Featherbed Lane (Route 614) between W. Warner Hall Road (Route 629) and Route 17.
- Burleigh Road (Route 615) between Belroi Road (Route 616) and Route 17.
- Cappahoosic Road (Route 618) between Allmondsville Road (Route 662) and Hickory Fork Road (Route 614).

Most of the locations with the highest EPDO Rates in Gloucester County are roadways with low traffic volumes. Burleigh Road (Route 615) has the highest volume of these six locations with a volume of 2,200 vehicles per day.

By comparison, the EPDO Rate and Crash Rate on Primary roadways in Gloucester County – such as US Route 17 and Virginia Routes 3 and 14 – are lower than many of the less-traveled roadways throughout the county. This is typical, as rural collectors statewide have crash rates that are nearly 3 times higher than the rate on rural principal arterials according to VDOT[10].

These higher EPDO rates for rural collectors are not only due to lower traffic volumes but also are due to the geometric characteristics that are typical of low-volume rural roadways. These characteristics include narrow travel lanes, deep and unforgiving ditches close to the pavement surface, trees and other fixed objects close to the pavement surface, pavement in poor condition, few pavement markings and signs, poor drainage, and lack of lighting. All of these roadways with the highest EPDO Rates shown to the left have many of these characteristics.

[9] *Hampton Roads Regional Safety Study 2013/2014 Update*, HRTPO, October 2013.

[10] *2016 Summary of Crash Data*, VDOT, May 2017.

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
632	Aberdeen Creek Rd	Rte 644 Rosewell Plantation Rd	Rte 614 Hickory Fork Rd	9	8	0	17	2.67	5.19
14	Adner Rd	King & Queen County Line	US 17 GW Mem Hwy	3	2	0	5	0.62	1.12
662	Allmondsville Rd	Rte 606 Ark Rd	Rte 618 Cappahosic Rd	0	0	0	0	0.00	0.00
606	Ark Rd	Rte 662 Almondsville Rd	Rte 614 Hickory Fork Rd	3	6	0	9	2.04	4.76
606	Ark Rd	Rte 614 Hickory Fork Rd	US 17 GW Mem Hwy	9	9	0	18	1.73	3.46
616	Belroi Rd	Rte 614 W. Hickory Fork Rd	Rte 615 Chestnut Fork Rd	3	3	0	6	0.97	1.95
616	Belroi Rd	Rte 615 Chestnut Fork Rd	Rte 615 Burleigh Rd	1	6	0	7	0.90	2.45
616	Belroi Rd	Rte 615 Burleigh Rd	US 17 GW Mem Hwy	7	7	0	14	1.09	2.19
616	Belroi Rd	US 17 GW Mem Hwy	Bus US 17 W. Main St	3	1	0	4	2.60	3.89
636	Brays Point Rd	US 17 GW Mem Hwy	Dead End	6	7	0	13	1.89	3.93
602	Burkes Pond Rd	SR 3 John Clayton Mem Hwy	SR 198 Dutton Rd	11	4	0	15	3.51	5.39
615	Burleigh Rd	Rte 616 E. Belroi Rd	US 17 S. GW Mem Hwy	7	10	1	18	3.14	8.56
618	Cappahosic Rd	Rte 662 Allmondsville Rd	Rte 614 Hickory Fork Rd	6	12	0	18	3.63	8.48
1303	Carmines Island Rd	Dead End	Crewe Rd	1	2	0	3	1.14	2.66
633	Cedar Bush Rd	Rte 636 Providence Rd	Rte 614 Hickory Fork Rd	7	5	0	12	6.67	12.22
616	Clay Bank Rd	Dead End	Rte 614 E. Hickory Fork Rd	2	3	0	5	1.34	2.94
605	Crab Thicket Rd	SR 3 John Clayton Mem Hwy	Rte 604 Indian Rd	3	2	0	5	0.97	1.74
1307	Crewe Rd/Williams Landing Rd	Dead End	US 17 GW Mem Hwy	7	4	0	11	2.47	4.27
643	Cuba Rd	Rte 643 Mark Pine Rd	Rte 695 Railway Rd	0	0	0	0	0.00	0.00
610	Davenport Rd	Rte 617 Tanyard Landing Rd	US 17 GW Mem Hwy	3	3	0	6	1.13	2.26
198	Dutton Rd	Rte 601 Pampa Rd	Rte 606 Harcum Rd	5	11	0	16	1.29	3.07
198	Dutton Rd	Rte 606 Harcum Rd	Mathews County Line	13	16	0	29	1.76	3.70
606	Farys Mill Rd	US 17 GW Mem Hwy	Rte 607 Fletcher Rd	8	15	0	23	1.61	3.71
614	Featherbed Lane	Rte 629 W. Warner Hall Rd	US 17 GW Mem Hwy	7	6	0	13	4.53	8.72
17	GW Mem Hwy	York County Line	Rte 1208 Greate Rd	45	29	0	74	0.88	1.57
17	GW Mem Hwy	Rte 1208 Greate Rd	SR 216 Guinea Rd	53	54	1	108	1.26	2.64
17	GW Mem Hwy	SR 216 Guinea Rd	Rte 636 Providence Rd	83	88	3	174	1.06	2.34
17	GW Mem Hwy	Rte 636 Providence Rd	Rte 614 Hickory Fork Rd	66	63	0	129	0.87	1.72
17	GW Mem Hwy	Rte 614 Hickory Fork Rd	Rte 628 TC Walker Rd	19	29	1	49	0.82	1.97
17	GW Mem Hwy	Rte 628 TC Walker Rd	Rte 615 Short Lane	52	39	2	93	0.91	1.88
17	GW Mem Hwy	Rte 615 Short Lane	Bus US 17 Main St. South	45	45	1	91	1.61	3.39
17	GW Mem Hwy	Bus US 17 Main St. South	Bus US 17 Main St. North	28	28	2	58	0.97	2.29
17	GW Mem Hwy	Bus US 17 Main St. North	Rte 606 Ark Rd	33	37	2	72	1.03	2.41
17	GW Mem Hwy	Rte 606 Ark Rd	Rte 615 Willis Rd	12	9	0	21	0.54	1.00
17	GW Mem Hwy	Rte 615 Willis Rd	SR 14 Adner Rd	22	35	0	57	0.72	1.61
17	GW Mem Hwy	SR 14 Adner Rd	SR 33. SR 198 Glenns Rd	23	17	0	40	0.71	1.31
17	GW Mem Hwy	SR 33. SR 198 Glenns Rd	Middlesex County Line	9	11	0	20	0.59	1.24
656	Glass Rd	Rte 636 Brays Point Rd	Rte 641 Low Ground Rd	2	3	0	5	1.99	4.37
656	Glass Rd	Rte 641 Low Ground Rd	Rte 620 Stonewall Rd	0	0	0	0	0.00	0.00
198	Glenns Rd	US 17 GW Mem Hwy	Rte 601 Pampa Rd	18	17	1	36	1.96	4.41
1208	Greate Rd	Rte 1202 Terrapen Cove Rd	US 17 GW Mem Hwy	0	0	0	0	0.00	0.00
652	Guinea Circle	Rte 649 Maryus Rd	Rte 653 N. Kings Creek Rd	1	1	0	2	3.29	6.57
216	Guinea Rd	US 17 GW Mem Hwy	Rte 641 Tidemill Rd	16	19	1	36	1.90	4.49
216	Guinea Rd	Rte 641 Tidemill Rd	Rte 649 Achilles	11	20	1	32	1.08	2.81
606	Harcum Rd	Rte 607 Fletcher Rd	SR 198 Dutton Rd	4	7	0	11	1.28	2.91
1216	Hayes Rd	Rte 1250 Bellehaven Dr	US 17 GW Mem Hwy	9	11	0	20	2.00	4.20
614	Hickory Fork Rd	US 17 GW Mem Hwy	Rte 636 Providence Rd	5	11	0	16	1.90	4.52
614	Hickory Fork Rd	Rte 636 Providence Rd	Rte 631 Gum Fork Rd	11	8	0	19	0.75	1.38
614	Hickory Fork Rd	Rte 631 Gum Fork Rd	Rte 616 N. Belroi Rd	16	11	0	27	1.99	3.62
614	Hickory Fork Rd	Rte 616 N. Belroi Rd	Rte 606 Ark Rd	11	11	0	22	2.09	4.17
614	Hickory Fork Rd	Rte 606 Ark Rd	Rte 610 Pinetta Rd	5	7	0	12	2.44	5.29
1201	Hoefork Ln	Hill Rd	Rte 1216 Hayes Rd	1	3	0	4	3.51	8.78
604	Indian Rd	SR 3 John Clayton Mem Hwy	Rte 605 Indian Rd	2	4	0	6	1.52	3.55
605	Indian Rd	Rte 604 Indian Rd	Rte 603 Figg Shop Rd	5	6	0	11	1.70	3.56
605	Indian Rd	Rte 603 Figg Shop Rd	Rte 606 S. Harcum Rd	12	6	0	18	2.69	4.49
3	John Clayton Mem Hwy	US 17 Bus - Main St	Rte 623 Ware Neck Rd	43	29	0	72	1.03	1.86
3	John Clayton Mem Hwy	Rte 623 Ware Neck Rd	Mathews County Line	30	16	0	46	0.49	0.83
653	Kings Creek Rd	SR 216 Guinea Rd; Rte 649	Rte 652 N. Guinea Circle	6	3	0	9	2.89	4.81
33	Lewis Puller Mem Hwy	King & Queen County Line	US 17 GW Mem Hwy	10	8	2	20	0.50	1.45
641	Low Ground Rd	SR 216 W. Guinea Rd	Rte 656 Glass Rd	4	9	2	15	3.56	13.05
17	Main St	US 17 South of Gloucester	SR 3. SR 14 John Clayton Mem H	44	35	1	80	1.74	3.50
17	Main St	SR 3 John Clayton Mem Hwy	Rte 1007 Cary Ave	14	8	0	22	1.67	2.88
17	Main St	Rte 1007 Cary Ave	US 17 North of Gloucester CH	2	4	0	6	0.90	2.11
643	Mark Pine Rd	SR 216 Guinea Rd	Rte 642 Little England Dr	2	1	0	3	1.07	1.79
649	Maryus Rd	SR 216 Guinea Rd; Rte 653	Rte 652 Guinea Circle	3	7	0	10	2.23	5.35
629	Paige Rd	Rte 614 W. Robins Neck Rd	Rte 628 T C Walker Rd	2	0	0	2	0.93	0.93
601	Pampa Rd	US 17 GW Mem Hwy	Rte 610 Woods Cross Rd	3	2	0	5	2.03	3.66

FIGURE 20 – ROADWAY SEGMENT CRASH AND EPDO RATES IN GLOUCESTER COUNTY, 2013-2017

Source: HRTPO analysis of VDOT data. PDO = Property Damage Only Crashes. INJ = A crash with at least one injury but no fatalities. FAT = A crash with at least one fatality.

Route #	Facility	Segment From	Segment To	PDO Crashes	INJ Crashes	FAT Crashes	Total Crashes	Crashes per MVMT	EPDO per MVMT
601	Pampa Rd	Rte 610 Wood Cross Rd	SR 198 Dutton Rd; Glenns Rd	3	2	0	5	1.65	2.97
610	Pinetta Rd	Rte 614 Hickory Fork Rd	Rte 617 Tanyard Landing Rd	4	6	0	10	2.94	6.46
635	Piney Swamp Rd	Rte 636 Providence Rd	US 17 GW Mem Hwy	6	4	0	10	3.67	6.60
1304	Powhatan Dr	Rte 1303 Carmines Island Rd	US 17 GW Mem Hwy	0	3	1	4	1.47	7.72
636	Providence Rd	Rte 633 Cedar Bush Rd	Rte 635 S. Borden Rd	5	2	0	7	2.45	3.86
636	Providence Rd	Rte 635 S. Borden Rd	US 17 GW Mem Hwy	4	4	0	8	1.21	2.41
616	Roaring Springs Rd	Bus US 17 Main St	Dead End	4	4	0	8	0.63	1.26
615	Short Lane	US 17 GW Mem Hwy	Rte 629 T C Walker Rd	19	11	0	30	3.25	5.64
629	T C Walker Rd	Bus US 17 Main St	Rte 615 Short Lane	12	7	1	20	2.12	4.78
629	T C Walker Rd	Rte 615 Short Lane	Rte 628 S. Paige Rd	0	2	0	2	0.54	1.61
628	T C Walker Rd	Rte 629 S. Paige Rd	US 17 GW Mem Hwy	5	6	0	11	1.70	3.56
1202	Terrapen Cove Rd	Rte 1208 Greate Rd	Rte 1214 Azalea Point Rd	2	0	0	2	1.35	1.35
641	Tidemill Rd	US 17 GW Mem Hwy	SR 216 E. Guinea Rd	7	13	0	20	2.41	5.53
623	Ware Neck Rd	Rte 625 W. Ditchley Rd	SR 3 John Clayton Mem Hwy	10	8	0	18	2.33	4.41
610	Woods Cross Rd	US 17 GW Mem Hwy	Rte 601 Pampa Rd	11	4	0	15	1.95	2.99
626	Zanoni Rd	Rte 629 T C Walker Rd	Rte 627 White Hall Rd	2	1	0	3	1.87	3.12

FIGURE 20 (CONTINUED) – ROADWAY SEGMENT CRASH AND EPDO RATES IN GLOUCESTER COUNTY, 2013-2017

Source: HRTPO analysis of VDOT data. PDO = Property Damage Only Crashes. INJ = A crash with at least one injury but no fatalities. FAT = A crash with at least one fatality.

High Risk Rural Roads

High Risk Rural Roads (HRRR) are defined in federal legislation as "any roadway functionally classified as a rural major or minor collector or a rural local road with significant safety risks, as defined by a State in accordance with an updated State strategic highway safety plan."

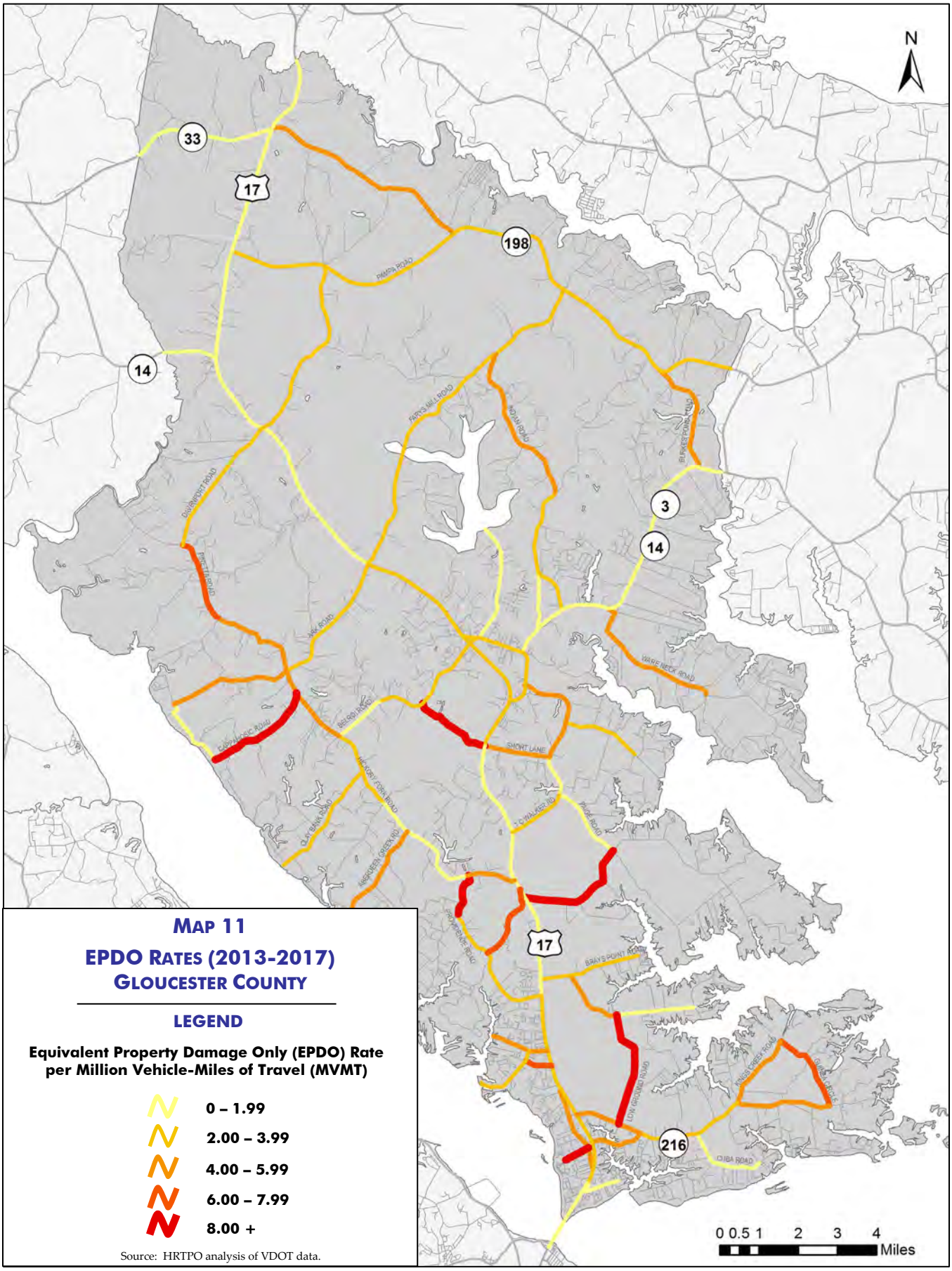
While the FAST Act (the current surface transportation legislation program) no longer includes a set-aside for High Risk Rural Roads, it does include a special rule for high risk rural road safety that can trigger required obligations. States must obligate a certain amount of funds to HRRRs if the fatality rate on its rural roads increases. Virginia experienced an increase in the fatality rate on rural roads over the most recent two-year period, so Virginia must obligate funds (equal to 200 percent of its FY 2009 HRRR set-aside) specifically toward HRRR safety projects in the next fiscal year.

For a project to be eligible for HRRR funds, the roadway targeted for improvement must have a functional classification of rural major collector, rural minor collector, or rural local roadway, and the roadway must have a rate of fatalities and severe injuries that exceeds the statewide average rate for those functional classes of roadways.

VDOT completed a study of High Risk Rural Roads in 2009. The study included an analysis of 71 intersections throughout the state that were eligible for HRRR funds. Five of these 71 intersections are in Gloucester County. These locations are:

- Route 17 at Davenport Road/Woods Cross Road (Route 610)
- Route 3/14 at Ware Neck Road (Route 623)
- Route 17 at T C Walker Road (Route 628)
- Route 17 at Burleigh Road/Short Lane (Route 615)
- Route 17 at Business 17 South/Main Street

Recommendations for these locations included replacing stop bars, adding advanced intersection warning signs, relocating turn lanes, providing signage, installing warning lights, and reducing speed limits. Improvements have been made at the intersections of Route 17 at Davenport Road/Woods Cross Road and Route 17 at T C Walker Road.



MAP 11
EPDO RATES (2013-2017)
GLOUCESTER COUNTY

LEGEND

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

- 0 – 1.99
- 2.00 – 3.99
- 4.00 – 5.99
- 6.00 – 7.99
- 8.00 +

Source: HRTPO analysis of VDOT data.

Potential for Safety Improvement (PSI)

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

VDOT uses PSI as a network screening tool to determine locations for prioritizing Highway Safety Improvement Program (HSIP) funding. VDOT has prepared a list of the top intersections and roadway segments in terms of PSI for each VDOT District. The intersections in Gloucester County with the highest PSI for the years 2013-2017 are shown in **Figure 21**, and the roadway segments with the highest PSI are shown in **Figure 22**. Both are also shown in **Map 12** on page 38.

The intersections in Gloucester County that are included in VDOT Fredericksburg District's Top PSI list are Main Street (Business Route 17) at T C Walker Road (#50), Route 17 at Davenport Road/Woods Cross Road (#59), and Route 17 at Fields Landing Road (#104). Most of the roadway segments in Gloucester County on the District's top PSI list are on Route 17, with the top five segments all in the Gloucester Point area between the Coleman Bridge and Guinea Road (Route 216).

	Intersection	Fredericksburg District Rank - Intersections
1	Bus Route 17 (Main St) at T C Walker Rd	50
2	Route 17 at Davenport Rd/Woods Cross Rd (Rte 610)	59
3	Route 17 at Fields Landing Rd (Rte 1301)	104

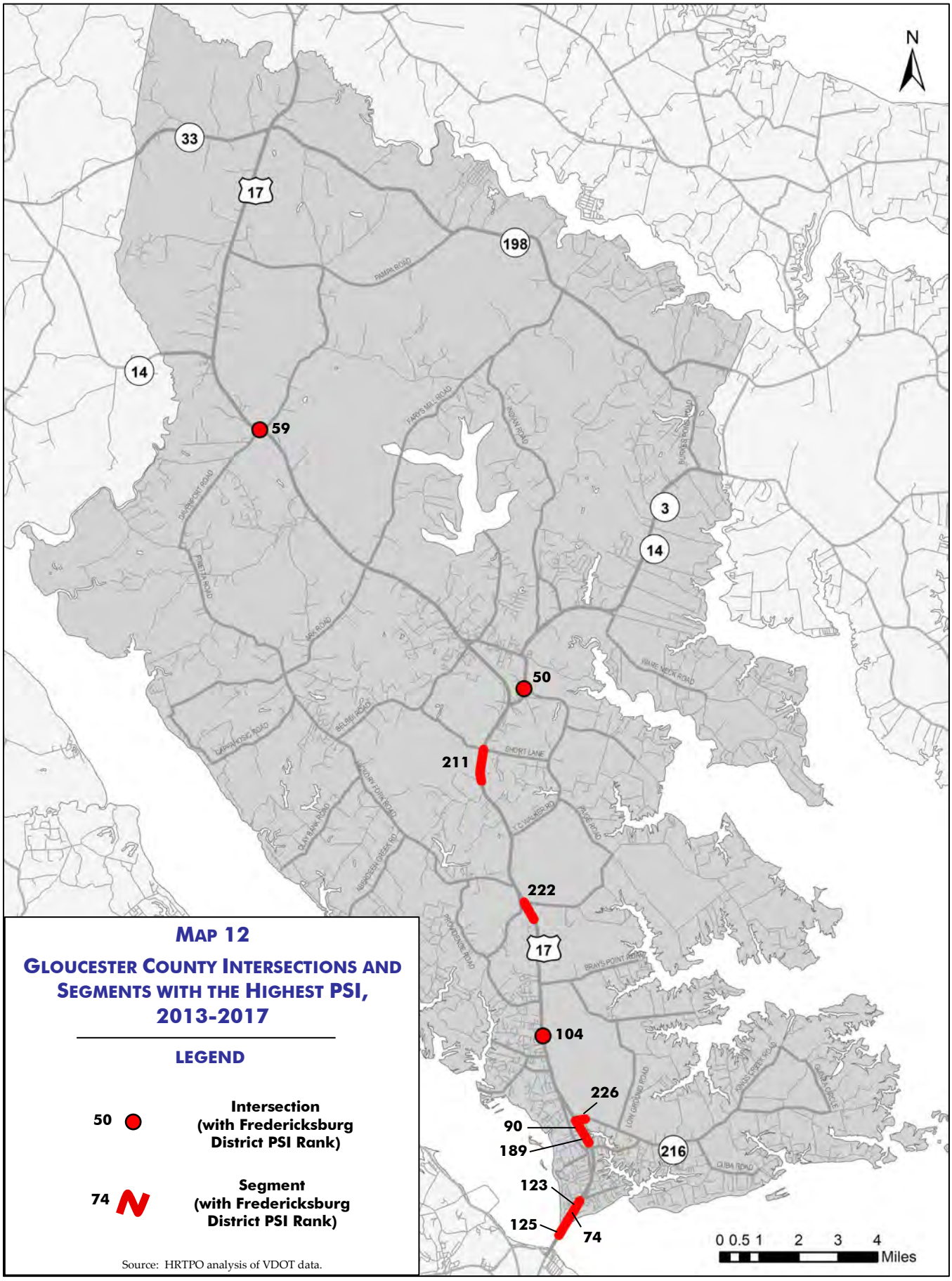
FIGURE 21 – GLOUCESTER COUNTY INTERSECTIONS WITH THE HIGHEST PSI, 2013-2017

Source: HRTPO analysis of VDOT data.

	Facility	Fredericksburg District Rank - Segments
1	Route 17 from End of Coleman Bridge to Gloucester Point Post Office	74
2	Route 17 from York River Crossing Entrance to Guinea Rd (Rte 216)	90
3	Route 17 from Gloucester Point Post Office to Lafayette Heights Rd (Rte 1206)	123
4	Route 17 from York CL to End of Coleman Bridge	125
5	Route 17 from Mainsail Ct to York River Crossing Entrance	189
6	Route 17 from Abingdon Glebe Ln to Short Ln (Rte 615)	211
7	Route 17 from White Marsh Village to Feather Bed Ln (Rte 614)	222
8	Guinea Rd (Route 216) from Route 17 to Park and Ride Lot	226

FIGURE 22 – GLOUCESTER COUNTY ROADWAY SEGMENTS WITH THE HIGHEST PSI, 2013-2017

Source: HRTPO analysis of VDOT data.



Map 12

Gloucester County Intersections and Segments with the Highest PSI, 2013-2017

LEGEND

50 — Intersection (with Fredericksburg District PSI Rank)

74 — Segment (with Fredericksburg District PSI Rank)

Source: HRTPO analysis of VDOT data.

This study includes an analysis of five Gloucester County intersections with safety concerns. The list includes the top three intersections within the county that are included in the VDOT Fredericksburg District's Top PSI list and two other locations – Route 3/14 at Ware Neck Road and Business Route 17 (Main Street) at Ware House Road – that were noted by Gloucester County staff as having safety issues. These five intersections are described below:

Business Route 17 (Main Street) at T C Walker Road (Route 629)
The intersection of Business Route 17 (Main Street) at T C Walker Road is located near the Gloucester Court House area. The location ranked #50 in the VDOT Fredericksburg District's Top PSI list. The intersection experienced 24 crashes between 2014 and 2018 that resulted in 1 fatality, 5 serious injuries, and 23 non-severe injuries.

Route 17 at Davenport Road/Woods Cross Road (Route 610)
The intersection of Route 17 at Davenport Road/Woods Cross Road is located in the northern part of the county. The location ranked #59 in the VDOT Fredericksburg District's Top PSI list. The intersection experienced 27 crashes between 2014 and 2018 that resulted in 11 serious injuries and 24 non-severe injuries.

Route 17 at Fields Landing Road (Route 1301)
The intersection of Route 17 at Fields Landing Road is located in the southern part of Gloucester County. The location ranked #104 in the VDOT Fredericksburg District's Top PSI list. The intersection experienced 5 crashes between 2014 and 2018 that resulted in 5 non-serious injuries.

Route 3/14 at Ware Neck Road (Route 623)
The intersection of Route 3/14 at Ware Neck Road is located in the eastern part of Gloucester County. According to Gloucester County staff, the intersection is regularly identified as a safety concern by citizens of the county. The intersection experienced 9 crashes between 2014 and 2018 that resulted in 5 severe injuries and 5 non-serious injuries.

Business Route 17 (Main Street) at Ware House Road (Route 621)
The intersection of Business Route 17 (Main Street) and Ware House Road is also regularly identified as a safety concern by citizens of Gloucester County. The intersection – located in the Gloucester Court House area – experienced 6 crashes between 2014 and 2018 that resulted in 2 non-serious injuries.

Figures 23-32 on pages 40-49 include an analysis of each of the five intersections for the years 2014-2018. For each location, the analysis includes a collision diagram that graphically represents each individual crash, a summary of characteristics of crashes at the intersection, a number of observations noted from a site visit, a list of primary issues impacting the safety of the intersection, details on any safety improvements that have recently been implemented, and a list of potential countermeasures to improve the safety of the intersection.

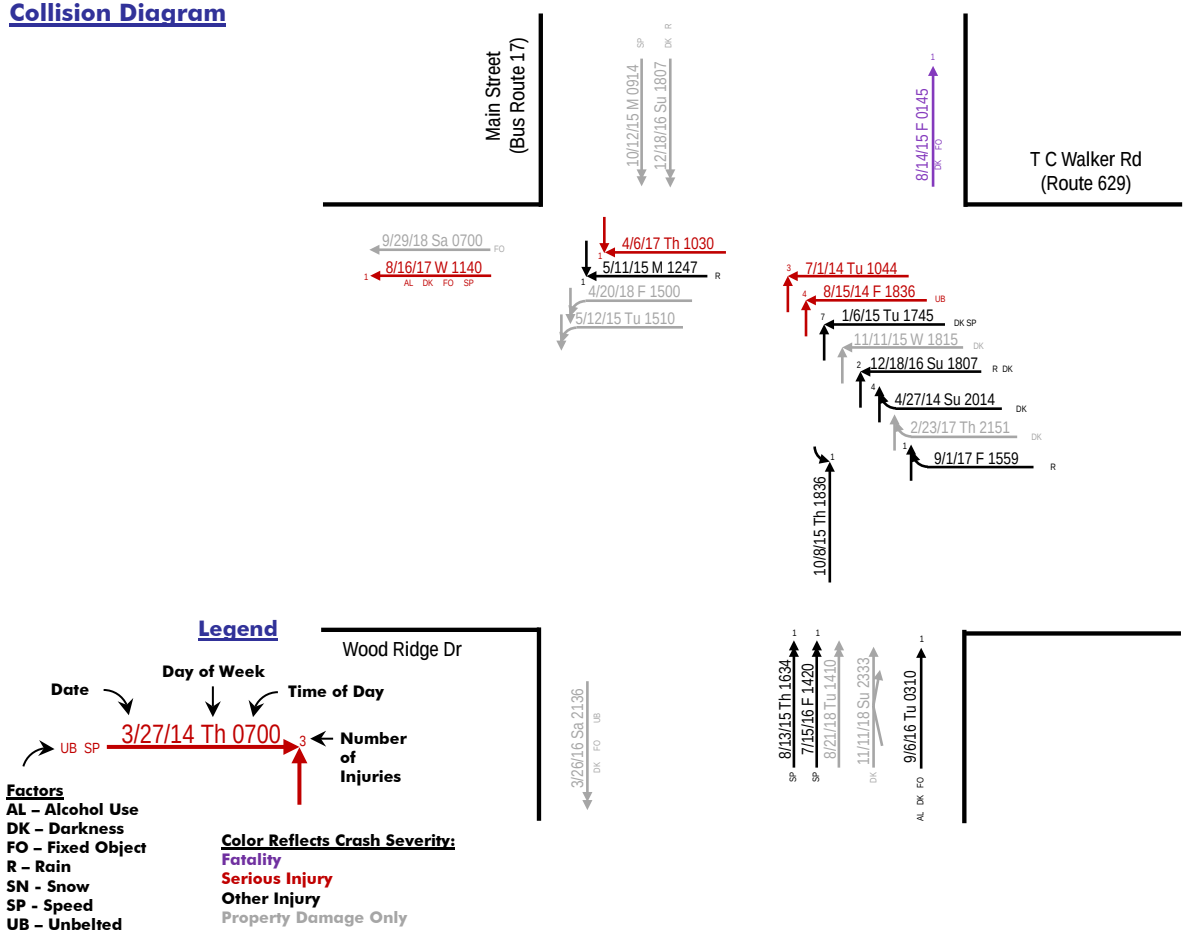
Safety Funding

The primary mechanism for funding safety improvements is the Highway Safety Improvement Program (HSIP). To be eligible for HSIP funding, a project must be a strategy, activity, or project on a public road that corrects or improves a hazardous road location or feature, or addresses a highway safety problem.

Although $64 million in HSIP funding is allocated annually by VDOT based on the PSI data shown in this report, these funds will largely be dedicated to systemic improvements (such as rumble strips and reflective signal backplates) rather than spot improvements over the next few years. However, some HSIP funds must be allocated by VDOT to High Risk Rural Roads due to a statewide increase in the fatality rate on rural roads.

In addition to HSIP funds dedicated to specific projects, each VDOT District is allocated a portion of HSIP funds to improve safety at locations throughout the District. Safety improvements are also commonly implemented during maintenance activities, such as improving pavement markings after repaving or increasing sight distance through mowing and trimming trees and bushes.

Collision Diagram



Crash Characteristics (2014-2018)

Crash Totals

Number of Crashes	24
Number of Fatalities	1
Number of Severe Injuries	5
Number of Non-Severe Injuries	23

Crash Type

Right Angle	13 (54%)
Rear End	5 (21%)
Fixed Object	5 (21%)

Crash Action

Did Not Have Right of Way	10 (42%)
Fail to Maintain Proper Control	5 (21%)
Following Too Close	4 (17%)

Figure 23 - Crash Analysis (2014-2018) Business Route 17 at T C Walker Rd

- Located in the northern part of the county, the intersection of Business Route 17 (Main Street) at T C Walker Road (Route 629) has the second highest Potential for Safety Improvement (PSI) in Gloucester County, ranking #50 in the VDOT Fredericksburg District.
- Improvements were made to this intersection in 2020, including advance warning signs in both directions on Main Street, lengthening the NB left-turn lane, and adding pavement markings in the middle of the intersection.

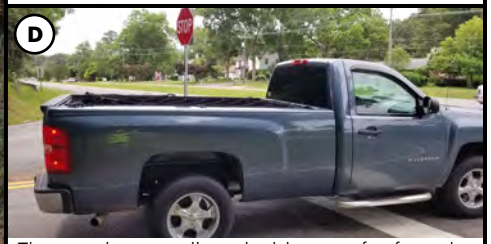
Primary Issues

- One-third (8) of the crashes that occurred at the intersection involved vehicles from T C Walker Road colliding with vehicles on northbound Business Route 17.
- Sight distance from T C Walker Road to the left is compromised by a mound and vegetation.
- There is no lighting at the intersection. Nearly half (46%) of the crashes occurred during dark conditions.
- There is no right turn bay on northbound Business Route 17 at the intersection.
- The left-turn lane along SB Business Route 17 (including lane change and deceleration and storage distances) is below AASHTO design standards.

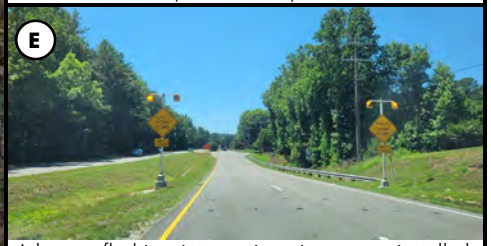
Potential Countermeasures

- Remove the mound/vegetation that blocks visibility to the left from T C Walker Road.
- Move the stop sign and stop bar on T C Walker Road closer to Route 17 to improve visibility.
- Add lighting to the intersection.
- Perform an analysis to determine if a signal is warranted.
- Consider adding flashing intersection ahead signs along Business Route 17 (COMPLETED IN 2020).
- Extend SB left-turn bay along Business Route 17 to AASHTO design standards (NB COMPLETED IN 2020).
- Install a right turn bay along NB Business Route 17.

FIGURE 24
INTERSECTION OBSERVATIONS
BUS ROUTE 17 AT T C WALKER RD



The stop bar is well marked but too far from the intersection. Vehicles often stop in front of the stop bar in order to improve visibility.



Advance flashing intersection signs were installed on Main Street in both directions in 2020.

The Southbound left-turn lane (lane change and deceleration and storage distances) is below AASHTO design standards.

Stop bar on T C Walker Rd is about 20' back.

There is no northbound right turn bay on Bus Route 17

The mound/vegetation blocks visibility to the left from T C Walker Road.

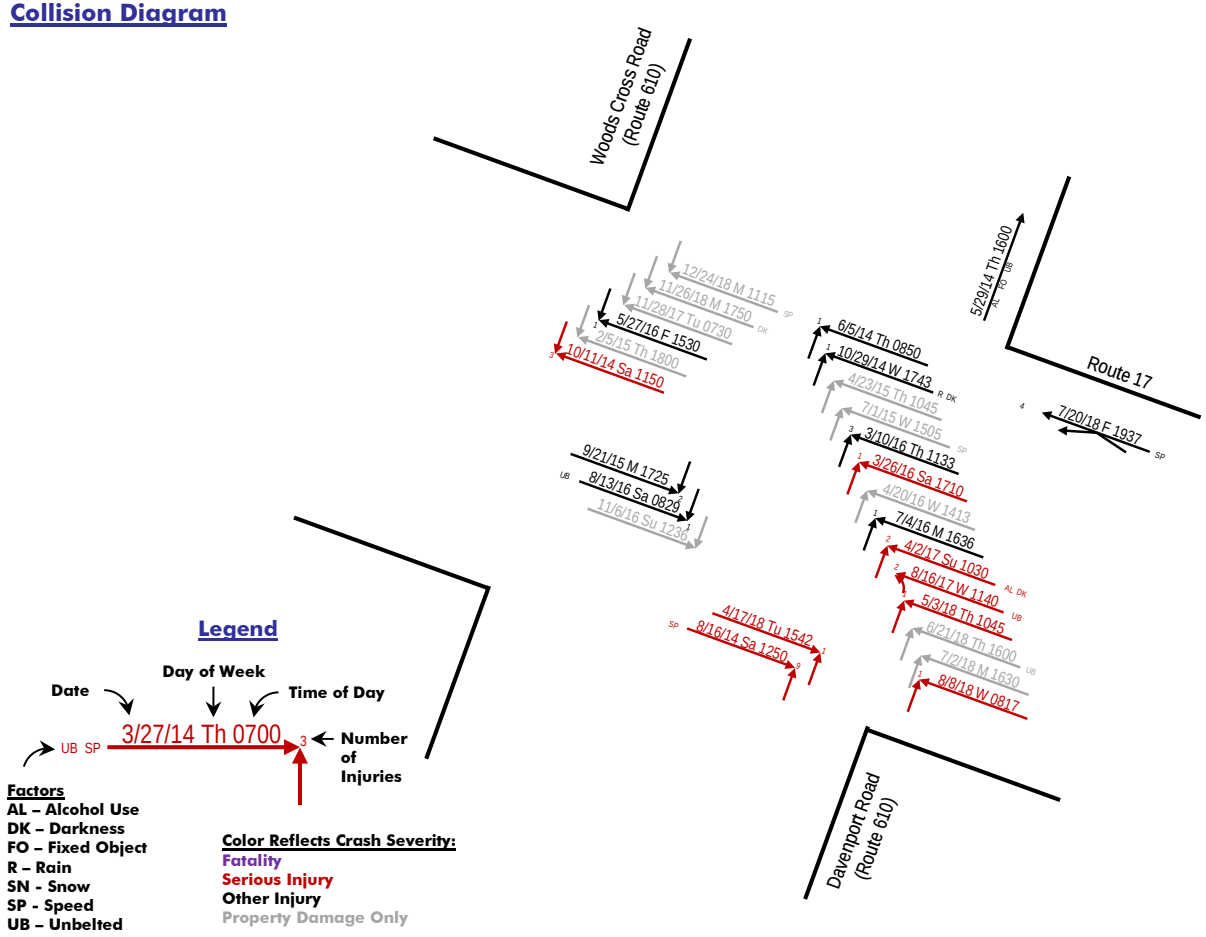
Other Observations:

No lighting at the intersection – several crashes occurred during dark conditions.

Speeding is likely prevalent on Business Route 17.

A traffic signal may be warranted for this intersection.

Collision Diagram



Crash Characteristics (2014-2018)

Crash Totals

Number of Crashes	27
Number of Fatalities	0
Number of Severe Injuries	11
Number of Non-Severe Injuries	24

Crash Type

Right Angle	26 (96%)
Fixed Object	1 (4%)

Crash Action

Did Not Have Right of Way	23 (85%)
Disregarded Stop/Yield Sign	2 (7%)

Figure 25 - Crash Analysis (2014-2018) Route 17 at Davenport Rd/Woods Cross Rd

- Located in the northern part of the county, the intersection of Route 17 at Davenport Road/Woods Cross Road (Route 610) has the second highest Potential for Safety Improvement (PSI) in Gloucester County, ranking #59 in the VDOT Fredericksburg District.
- Improvements were made earlier this decade using High Risk Rural Roads funding, including advance signs with warning lights on both Route 17 approaches.

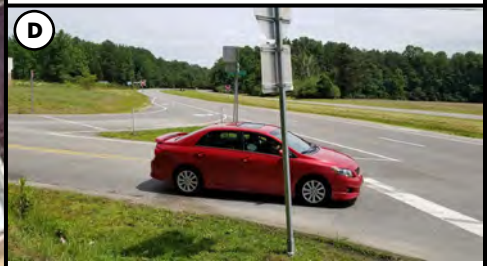
Primary Issues

- Most crashes involve travelers from northbound Davenport Road and northbound Route 17. Of the 27 crashes that occurred at the intersection, 14 crashes (52%) involved these movements.
- Right angle crashes are by far the most prevalent type of crash (96%).
- The intersection is skewed, which makes it difficult to see vehicles on Route 17 from both the Davenport Road and Woods Cross Road approaches.
- Left turn bays on Route 17 are short for deceleration according to AASHTO design standards.
- Most crashes (85%) involved drivers not having the right of way.

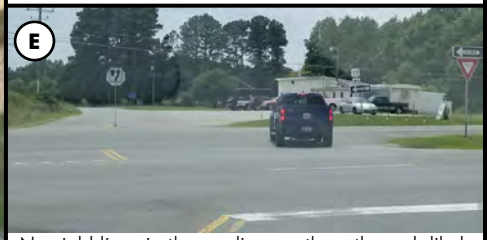
Potential Countermeasures

- Redesign the intersection by aligning Woods Cross Road with Davenport Road to fix the intersection skew.
- Trim back vegetation from the Woods Cross Road stop sign, and add an additional stop sign on the left-hand side of the roadway on the same approach.
- Reduce the turn radius for Wood Cross Road so right-turning vehicles can see Route 17 traffic better.
- Reinstall a yield line in the median for southwestbound travelers.
- Extend left-turn bays along Route 17 to AASHTO design standards.
- Consider installing a traffic signal. While this would decrease the number of severe right angle crashes, the number of rear end crashes on Route 17 would likely increase.

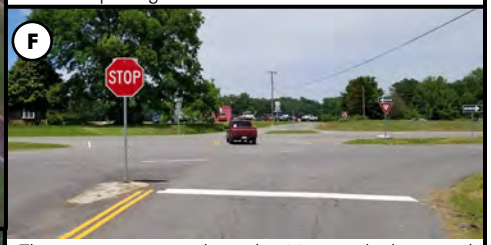
FIGURE 26
INTERSECTION OBSERVATIONS
ROUTE 17 AT DAVENPORT RD/ WOODS CROSS RD



From Woods Cross Rd, it is a skewed angle to see traffic from the left on northbound Route 17.



No yield lines in the median southwestbound, likely due to repaving.



The intersection is skewed. Many vehicles travel straight through the intersection on Davenport Rd/Woods Cross Rd.

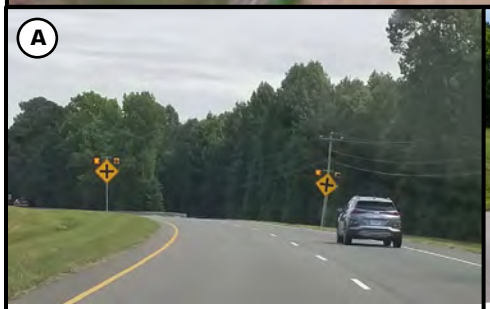
Other Observations:

High speeds on Route 17.

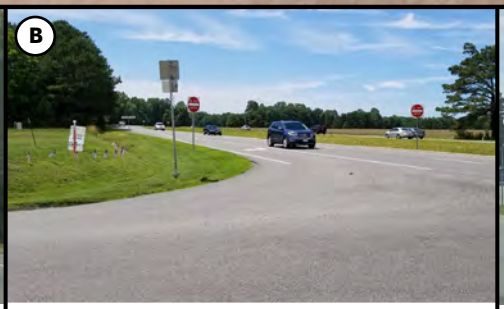
Both Route 17 left-turn lanes (lane change and deceleration and storage distances) are below AASHTO design standards.

Traffic stops in the median.

There are yield signs in the median.



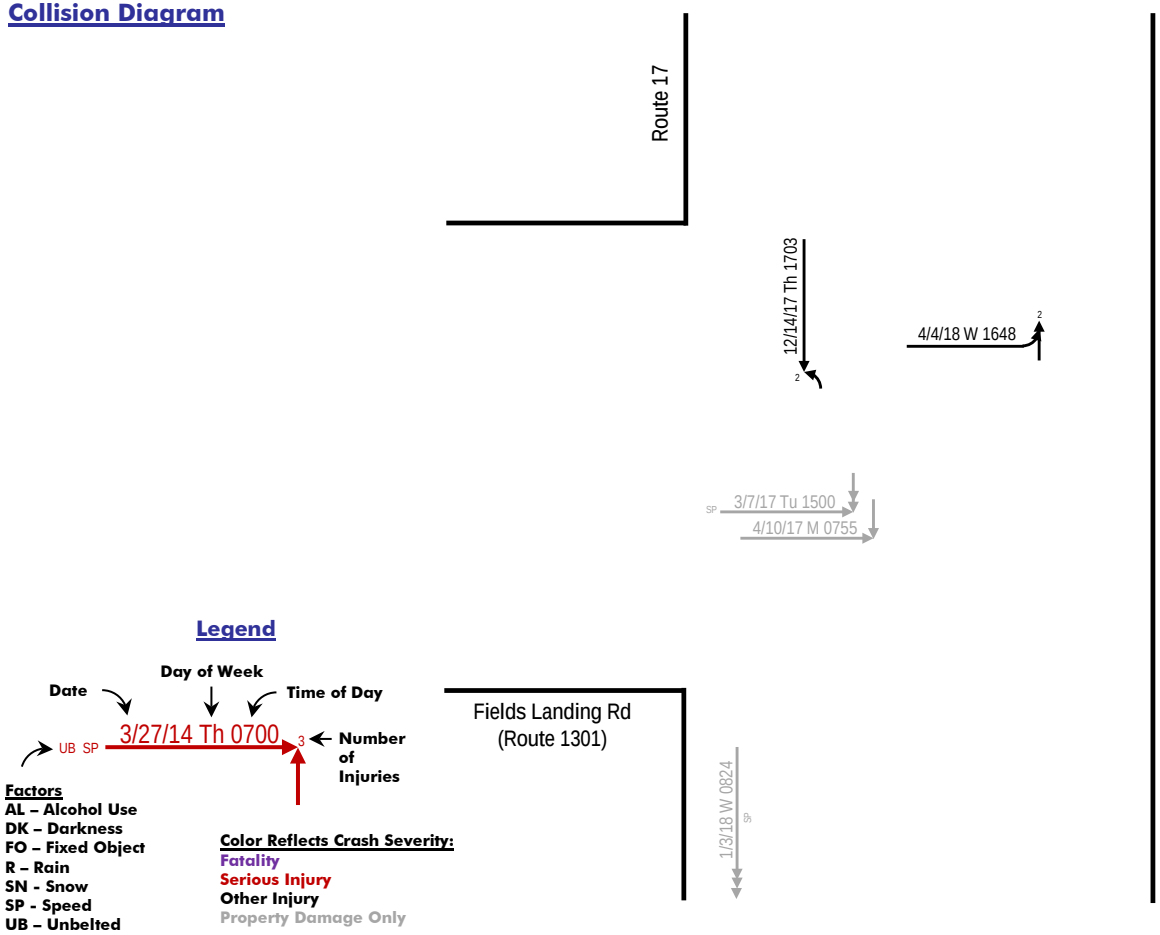
Advance flashing intersection signs are in place on Route 17 in both directions.



The skew of intersection impacts visibility from Davenport Rd to southbound Route 17.

Woods Cross stop sign is blocked by vegetation. No additional stop sign on the left-hand side.

Collision Diagram



Crash Characteristics (2014-2018)

Crash Totals

Number of Crashes	5
Number of Fatalities	0
Number of Severe Injuries	0
Number of Non-Severe Injuries	5

Crash Type

Right Angle	4 (80%)
Rear End	1 (20%)

Crash Action

Did Not Have Right of Way	3 (60%)
Exceeded Speed Limit	1 (20%)
Following Too Close	1 (20%)

Figure 27 - Crash Analysis (2014-2018)
Route 17 at Fields Landing Road

- Located in the southern part of the county, the intersection of Route 17 at Fields Landing Road (Route 1301) has the third highest Potential for Safety Improvement (PSI) in Gloucester County, ranking #104 in the VDOT Fredericksburg District.

Primary Issues

- In spite of ranking on VDOT Fredericksburg District's PSI list, there appears to be very few issues with safety at the intersection based on the collision diagram and field observations.

Potential Countermeasures

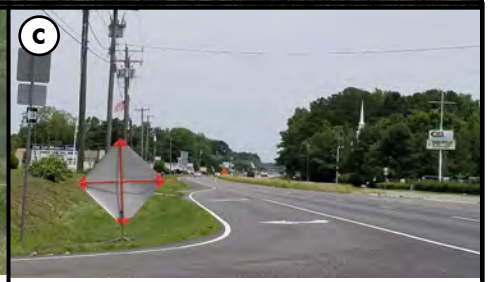
- Add an additional stop sign on the right side on the Fields Landing Road approach.

FIGURE 28
INTERSECTION OBSERVATIONS
ROUTE 17 AT FIELDS LANDING RD

The median and left-turn area along Route 17 is narrow for larger left-turning vehicles from Fields Landing Rd to Route 17 north.

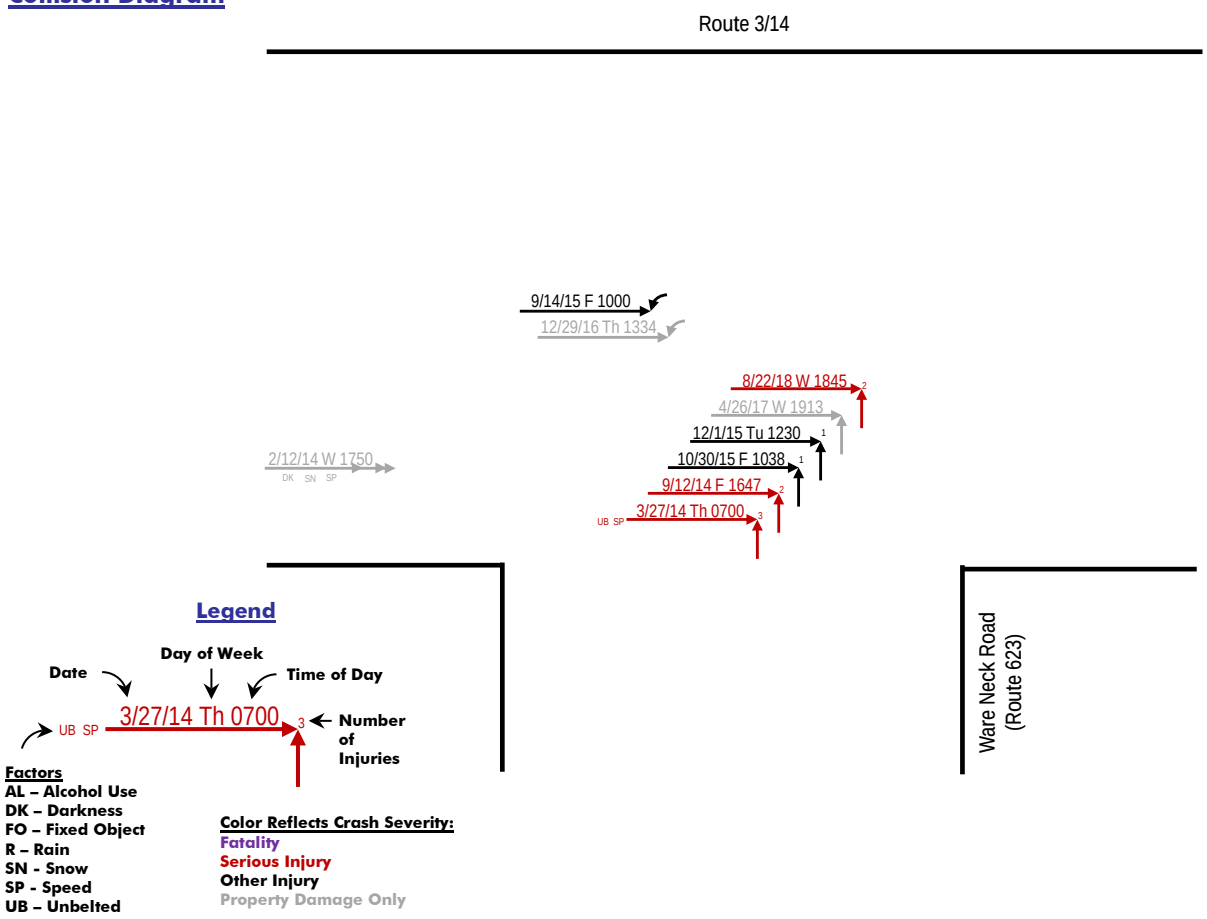
The Route 17 northbound left-turn lane has been extended.

There is a stop sign in the channelizing island of the Fields Landing Rd approach. However, there is no stop sign on the right side.



The sight distance from Fields Landing Rd appears to be adequate except for a slight curve north of the intersection. Speeding is likely prevalent on Route 17.

Collision Diagram



Crash Characteristics (2014-2018)

Crash Totals

Number of Crashes	9
Number of Fatalities	0
Number of Severe Injuries	5
Number of Non-Severe Injuries	5

Crash Type

Right Angle	8 (89%)
Rear End	1 (11%)

Crash Action

Did Not Have Right of Way	8 (89%)
Following Too Close	1 (11%)

Figure 29 - Crash Analysis (2014-2018) Route 3/14 at Ware Neck Road

- Located in the eastern part of the county, the intersection of Route 3/14 at Ware Neck Road (Route 623) is regularly identified as a safety concern by Gloucester County citizens according to County staff.

Primary Issues

- Most crashes (67%) at the intersection involve travelers turning left from Ware Neck Road to Route 3/14. All of these crashes involved drivers failing to yield the right-of-way.
- The intersection is located within a curve on Route 3/14. Based on field observations, sight distance from Ware Neck Road is acceptable to the left but is an issue to the right.
- Right and left turn bays on Route 3/14 are short for deceleration according to AASHTO design standards.
- The stop bar on Ware Neck Road is approximately 25 feet behind the traffic lane, and drivers are pulling ahead of the stop bar to improve sight distance.
- The stop sign on Ware Neck Road is blocked by vegetation.
- There is no lighting at the intersection.

Potential Countermeasures

- Repaint/move Ware Neck Road stop bar closer to the intersection.
- Redesign intersection as a Restricted Crossing U-Turn (RCUT) intersection, which would prohibit left turns from Ware Neck Road at the intersection. Instead, this movement would be made by making a right turn onto Route 3/14, and then making a U-turn at Route 676.
- Trim back vegetation from the stop sign and right side for the Ware Neck Road approach.
- Add lighting to intersection.
- Reduce speed limit along Route 3/14.
- Add second stop sign/channelizing island for the Ware Neck Road approach.
- Extend right and left-turn bays along Route 3/14 to AASHTO design standards.

FIGURE 30
INTERSECTION OBSERVATIONS
ROUTE 3/14 AT WARE NECK RD

There is a stop sign ahead sign for the Ware Neck Road approach.

Intersection is located in a curve on Route 3/14. Intersection ahead signs are in place for both Route 3/14 approaches.

The Ware Neck Road stop sign is partially blocked by vegetation.

The Ware Neck Road stop bar is ~25' behind the traffic lane. Vehicles are stopping 4-6' ahead of the stop bar to see to the left. No additional stop sign on the left-hand side.

The Ware Neck Road stop bar is worn. It appears that vegetation to the left may have been cleared recently.

Other Observations:

Sight distance from Ware Neck Road to the left is acceptable. There is over 10 seconds of sight distance available when looking to the left.

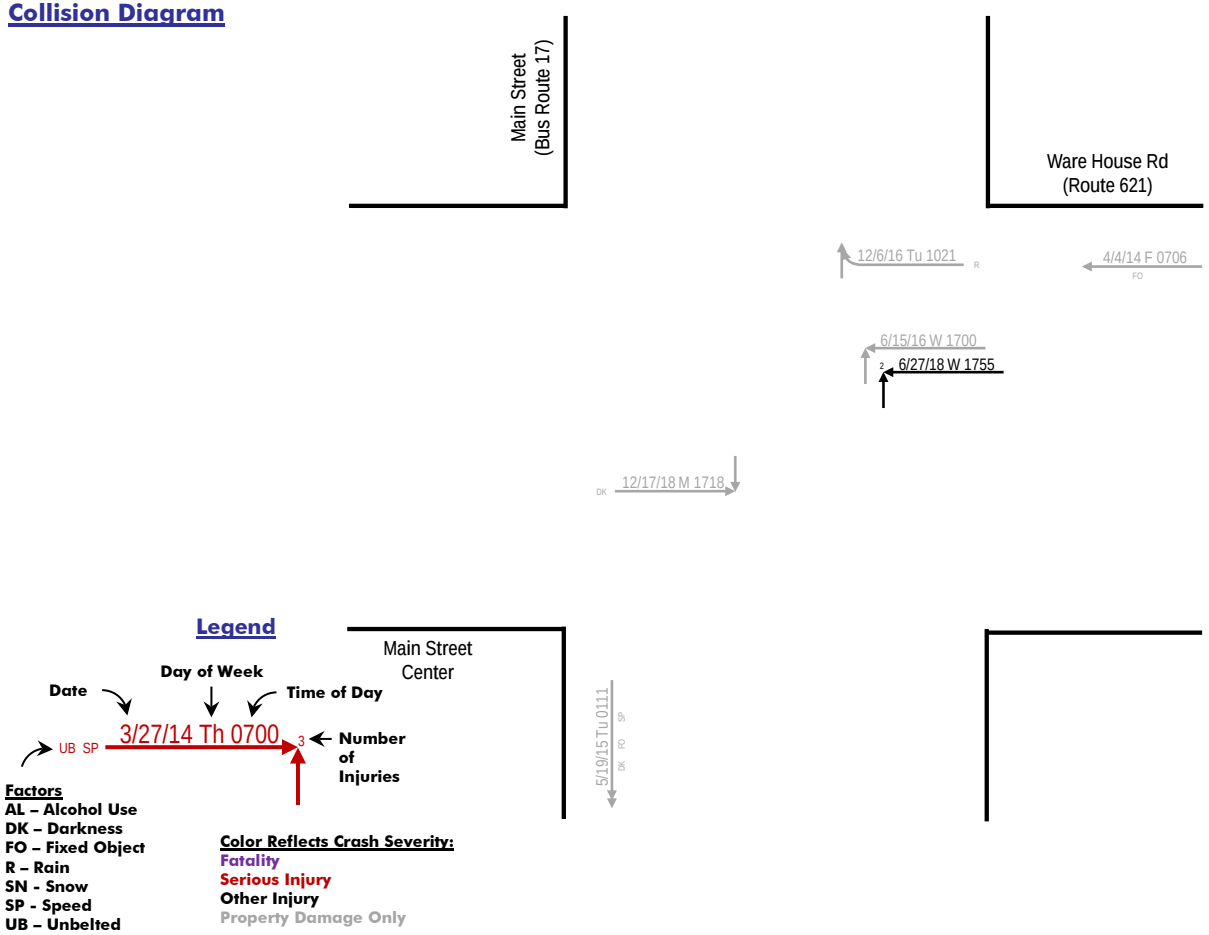
Sight distance from Ware Neck Road is a bigger issue to the right than to the left due to the curve. Sight distance to the right is acceptable if you pull ahead of the stop bar.

There is no lighting at the intersection.

The eastbound right turn bay is below AASHTO design standards for the prevailing speed (55 mph).

Speeds appear to be high on Route 3/14.

Collision Diagram



Crash Characteristics (2014-2018)

Crash Totals

Number of Crashes	6
Number of Fatalities	0
Number of Severe Injuries	0
Number of Non-Severe Injuries	2

Crash Type

Right Angle	4 (67%)
Fixed Object	2 (33%)

Crash Action

Did Not Have Right of Way	4 (67%)
Other Improper Turn	1 (17%)
Over Correction	1 (17%)

Figure 31 - Crash Analysis (2014-2018)
Bus Route 17 at Ware House Road

- Located in the Gloucester Court House area, the intersection of Business Route 17 (Main Street) at Ware House Road (Route 621) is regularly identified as a safety concern by citizens of Gloucester County according to County staff.
- The intersection of Main Street at Route 3/14, which is located just to the north of Ware House Road, will be improved beginning in 2020, with a second northbound right turn lane being constructed.

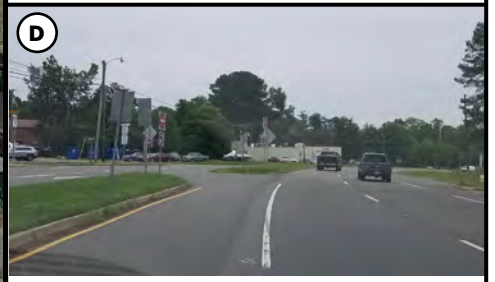
Primary Issues

- Traffic from the signalized intersection at Route 3/14 backs up into this intersection. This is expected to be improved by the intersection improvement project at the Route 3/14 intersection.
- There are many signs in the area, which can be confusing for drivers.
- There is little lighting at the intersection. Two of the six crashes at this intersection occurred in dark conditions.
- The stop bar on Ware House Road is faded.

Potential Countermeasures

- Consolidate signage in the area and remove unnecessary signage.
- Repaint stop bar for Ware House Road.
- Add lighting to the intersection.
- Although there are "Do Not Block Intersection" signs in place, Do Not Block Intersection cross-hatching pavement markings would ensure that vehicles remain clear of the intersection.

Figure 32
Intersection Observations
Bus Route 17 at Ware House Rd



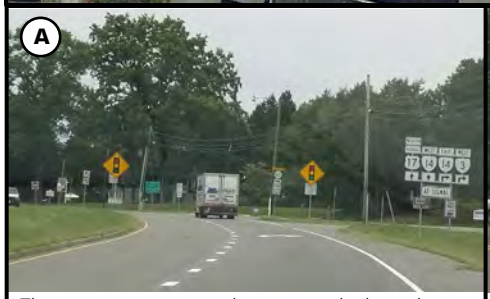
There is very little lighting in the area. The median is somewhat narrow.

Other Observations:

Speeds are slow on Main Street due to adjacent intersections.

Traffic backs up into the intersection from the intersection with Routes 3/14.

There are no sidewalks south of Ware House Road.



There many signs in the area, which makes it confusing for drivers.

The stop bar is faded for Ware House Road. There is an additional stop sign in the channelizing island of the roadway.

Do Not Block Intersection signs are in place, however there are no related pavement markings.

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. **Map 13** illustrates the journeys commuters take to and from Gloucester County each day.

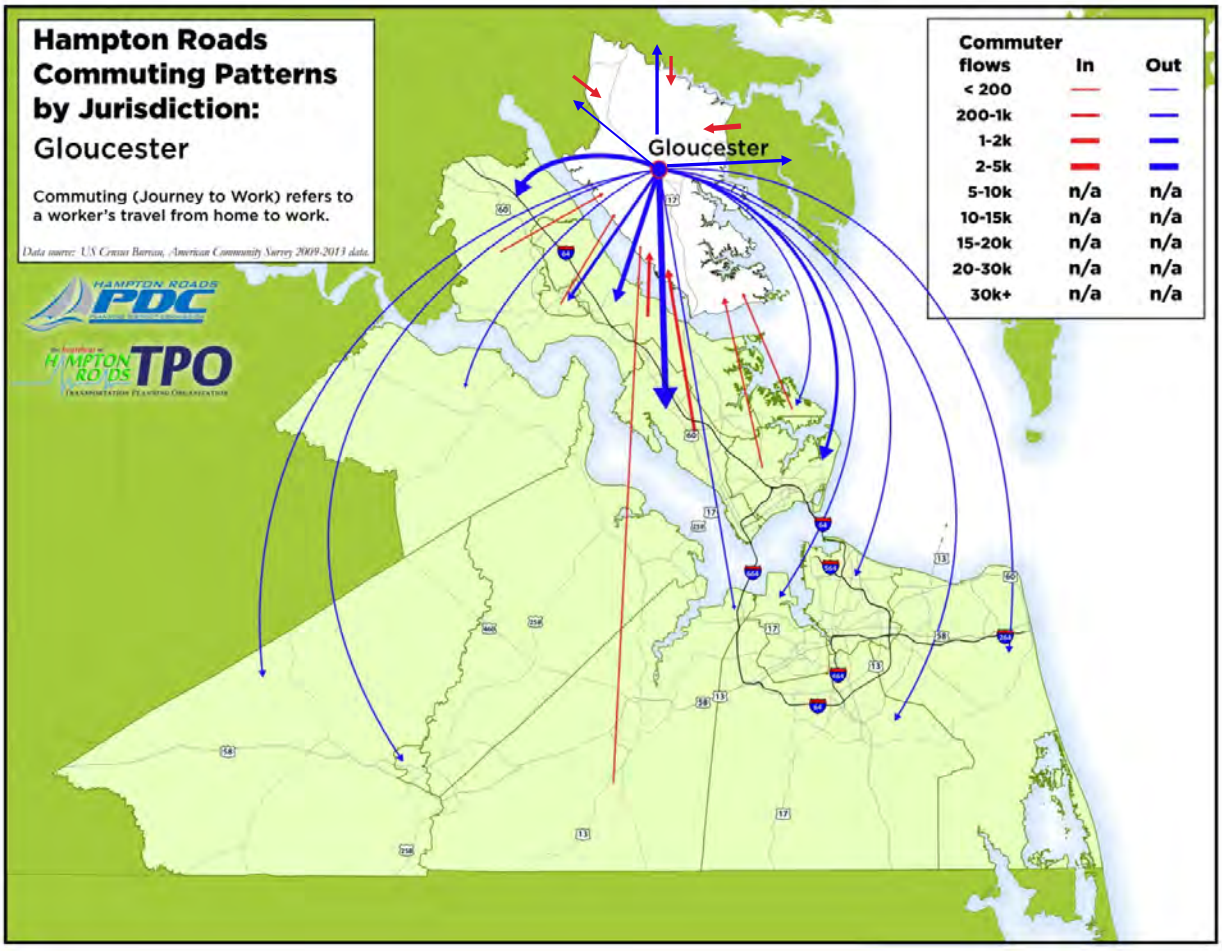
Approximately 17,800 residents of Gloucester County commuted to work every day in the period between 2009 and 2013, and about 58% of these residents (10,300) commuted outside of County borders to work. The top three destinations residents of Gloucester County commuted to were:

- Newport News – 3,096 commuters (38% of commuters outside of County borders)
- York County – 1,402 commuters (14%)
- James City County – 1,152 commuters (11%)

Similarly, 10,531 residents commuted to locations within Gloucester County for work every day during this period and about 29% (3,062) are residents from other localities. The top three localities where people commute to Gloucester County from are:

- Mathews County – 1,128 commuters (37% of commuters from other localities)
- Middlesex County – 408 commuters (13%)
- York County – 385 commuters (13%)

Hampton Roads is home to many U.S. military and supporting sites that are important to the defense and security of our nation as well as to the regional economy. Approximately 300,000 or almost 20% of Hampton Roads total population is comprised of active duty military, reserves, retirees and family members. Currently there are approximately 120 military jobs in Gloucester County according to the



Map 13 – Gloucester County Commuting Patterns (2009-2013)
Source: HRTPO analysis of Census Bureau Data.

Bureau of Economic Analysis, and 362 Gloucester County residents are employed by the armed forces in a non-civilian position according to the U.S. Census Bureau.

Because of the importance of military to Hampton Roads the HRTPO has conducted the Military Transportation Needs Study. The purpose of this effort is to determine military transportation needs and to provide an efficient and safe transportation network for the military in Hampton Roads. As part of this effort the HRTPO conducted a survey of local military personnel and military-related commuters in 2012 to identify the challenges that they routinely face during their daily commutes. The survey was developed by the HRTPO, in concert with the commands of the region's military installations and various other transportation stakeholders.

Of the nearly 11,000 survey responses received by the HRTPO, 82 were from Gloucester County residents. **Figure 33** shows the military sites where each of these Gloucester County residents worked. The top three military sites for responses from Gloucester County residents were the NASA Langley Research Center in Hampton (26 commuters, or 32% of Gloucester County respondents), Naval Station Norfolk (12 commuters, 15%), and the Naval Weapons Station Yorktown in York County (12 commuters, 15%).

Military Site	Gloucester County Responses	Total Survey Responses
Chesapeake – Naval Support Activity Northwest Annex		24
Chesapeake – St. Julien's Creek Annex - Norfolk Naval Shipyard		29
Hampton – Langley Air Force Base	2	60
Hampton – NASA Langley Research Center	26	693
Newport News – Fort Eustis	5	26
Newport News – Newport News Shipyard (Huntington Ingalls Industries)		65
Norfolk – Lafayette River Annex - Naval Support Activity Norfolk	1	131
Norfolk – Naval Station Norfolk (NAVSTA Norfolk)	12	4,746
Norfolk – Naval Support Activity Norfolk (NSA)	1	1,026
Norfolk – Saint Helena Annex - Norfolk Naval Shipyard		1
Norfolk – US Army Corps of Engineers - Norfolk District		52
Other Military-Related Site		98
Portsmouth – Naval Medical Center (NMC) Portsmouth	5	1,145
Portsmouth – Norfolk Naval Shipyard (NSY)	3	337
Portsmouth – US Coast Guard - Atlantic Area and Fifth District (Portsmouth Federal Building)	1	94
Portsmouth – US Coast Guard - Base Portsmouth	3	94
Suffolk – Joint Coalition Warfighting (JCW)	1	49
Virginia Beach – Camp Pendleton		1
Virginia Beach – Joint Expeditionary Base Little Creek - Fort Story (East) (formerly "Fort Story")	3	105
Virginia Beach – NAS Oceana Dam Neck Annex	1	527
Virginia Beach – Naval Air Station Oceana		827
Virginia Beach/Norfolk – Joint Expeditionary Base Little Creek - Fort Story (West) (formerly "Little Creek")	3	647
York County – Camp Peary		1
York County – Naval Supply Center Cheatham Annex	1	56
York County – Naval Weapons Station (NWS) Yorktown	12	141
York County – US Coast Guard Training Center Yorktown	1	12
York County – Yorktown Fuel Depot - Naval Weapons Station Yorktown	1	5
TOTAL	82	10,994

FIGURE 33 – HRTPO 2012 MILITARY COMMUTER SURVEY EMPLOYMENT SITES

Source: HRTPO analysis

PUBLIC TRANSPORTATION

Gloucester residents currently have public transportation services available to them through Bay Transit, a non-profit community transit service that operates in rural areas of eastern Virginia. With over 40,000 riders annually, Gloucester County's ridership levels are more than two times higher than any of Bay Transit's 12 communities.

According to the Census Bureau[10], approximately 0.4% of residents (age 16 and older) in Gloucester County use public transportation to commute to work, which is below the Hampton Roads average of 1.6%.

Bay Transit

Bay Transit was created in September 1996 and now serves twelve counties in the Northern Neck and Middle Peninsula. Bay Transit, whose services are open to people of all ages, has the mission: "We believe that that every citizen must be assured accessible and safe transportation to the local destination of their choice without regard for disability, age, or economic status." Bay Transit provides demand-response and deviated fixed-route services in Gloucester County. Bay Transit's current cost to the county is approximately $150,000 per year, which is used to provide a match for federal and state funding. Bay Transit service is currently provided with approximately 35% county funding and 65% state and federal funding.

Demand-Response

From the beginning, Bay Transit has offered demand-response service that takes passengers from point=to-point locations. This service still remains the most active transit service in the agency. Riders must call at least 24 hours in advance of the scheduled appointment. Riders may speak directly with the dispatcher when making an appointment. Bay Transit offers demand-response service outside of the deviated fixed route areas in the county using three buses.

- Service Hours: 6am-6pm, Monday – Friday

Beginning July 1, 2021, Bay Transit will begin a pilot program for on demand service within the Court House area using a smart phone app.

Court House Circulator

The Court House Circulator route operates around the Gloucester Court House area and has permanent stops at Daffodil Gardens Senior Apartments, Walter Reed Riverside Hospital, along the Main Street corridor, and the Route 17 corridor near the Court House area. It operates as a deviated fixed-route, and therefore has permanent stops and a set schedule but will deviate up to ¾ mile to pick up riders. For deviations to occur, riders must call one day in advance to schedule a pick up. See **Map 14** on the following page for the route and transit stops.

- Service Hours: 8am-4pm, Monday – Friday
- Fare: $0.50/ride

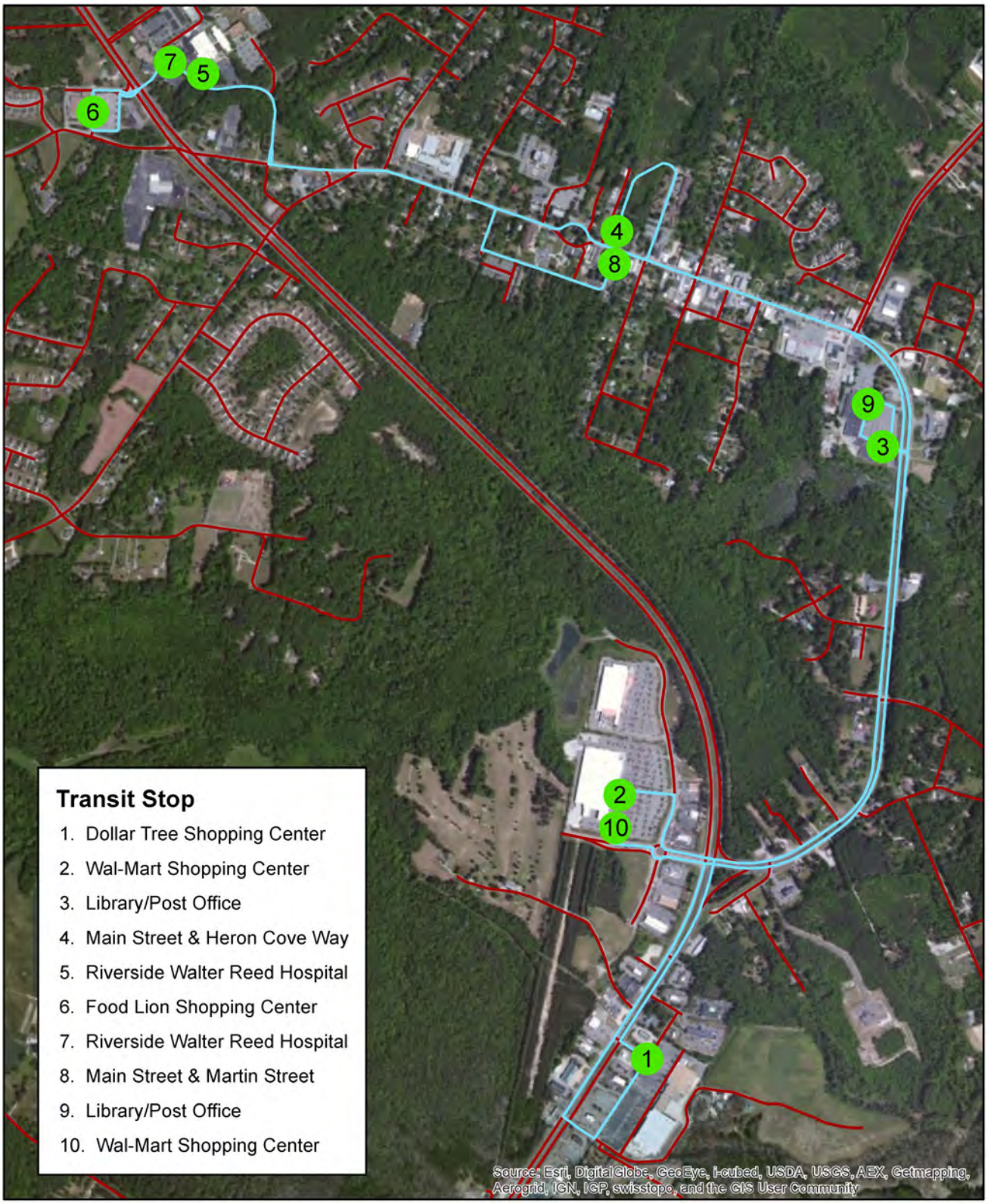
Gloucester HiveXpress

The Gloucester HiveXpress route provides service from the Gloucester Court House area to/from Gloucester Point (see **Map 15** on page 54). It also operates as a deviated fixed-route and may deviate up to ¾ of a mile off the route with an advanced reservation. It operates along Route 17 with permanent stops at Walmart, Gloucester-Mathews Care Clinic, White Marsh Shopping Center, Hayes Shopping Center, Hayes Plaza, Gloucester Point Shopping Center, York River Crossing, Plaza 17, and Big Lots.

- Service Hours: 9am-5pm, Monday – Friday
- Fare: $0.50/ride

[10] *2013-2017 American Community Survey 5-Yaer Estimates*, US Census Bureau.

BayTransit Courthouse Circulator-Bus Route



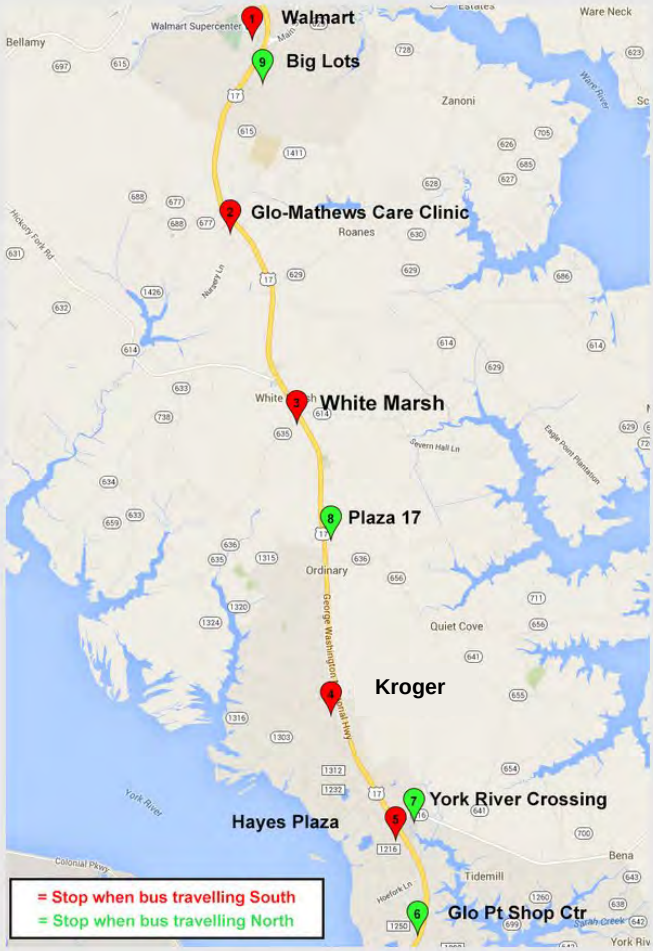
MAP 14 – BAY TRANSIT – COURT HOUSE CIRCULATOR

Source: Bay Transit.

Stops are listed on the hour as follows:

Stop #	Destination	Time
1	Walmart 6819 Walton Lane Gloucester, VA 23061	:00
2	Gloucester-Mathews Care Clinic 6031 Industrial Drive Gloucester, VA 23061	:05
3	White Marsh Shopping Center 4834 George Washington Hwy, Hayes, VA 23072	:15
4	Hayes Shopping Center "Kroger" 7254 George Washington Hwy, Hayes, VA 23072	:20
5	Hayes Plaza 2344 George Washington Hwy, Hayes, VA 23072	:25
6	Gloucester Point Shopping Center 1725 George Washington Hwy, Gloucester Point, VA 23062	:30
7	York River Crossing "Food Lion" 2292 York Crossing Dr, Hayes, VA 23072	:35
8	Plaza 17 4137 George Washington Hwy, Hayes, Virginia	:40
9	Big Lots 6571 Market Drive Gloucester, VA 23061	:50

hiveXpress



MAP 15 – BAY TRANSIT – GLOUCESTER HIVEXPRESS
Source: Bay Transit.

Medical Rides

MEDCARRY provides non-emergency medical transportation to persons 60 years and older that live in the Northern Neck and Middle Peninsula, including Gloucester County. MEDCARRY relies on volunteers and donations for this service. MEDCARRY is a service of Bay Aging, a non-profit organization.

- Fare: $5.00 (round trip) – 50 miles or less
- Fare: $10.00 (round trip) – 51 miles or more
- Requires a 48-hour notice for all trip requests.
- **UPDATE: Due to the Covid-19 pandemic, MEDCARRY is currently on hold.**

New Freedom Program

This program provides transportation services for seniors and people with disabilities to social and recreational events, retail shopping, medical appointments, and work to residents within the Bay Transit service area including Gloucester County. Eligible riders must have a disability, no matter the age (including short-term and long-term disabilities) or persons 60 years and older. Medicaid recipients are not eligible for medical transportation under the New Freedom program, however they may be eligible for non-medical transportation.

- Fare: $5.00 (round trip) – 50 miles or less
- Fare: $10.00 (round trip) – 51 to 90 miles
- Requires a 72-hour notice for all trip requests.


New Freedom Van BAY TRANSIT

Intercity Bus Service

The nearest intercity bus service to Gloucester County, provided by Greyhound Lines, runs through the Virginia (Lower) Peninsula, with stations in Williamsburg (Williamsburg Transportation Center) and Hampton (2 West Pembroke Ave).

Newton's Bus Service, Inc., a private charter service based in Gloucester, provided service to and from Northrup-Grumman Shipbuilding (Newport News), a major employer of many Gloucester residents. This service has been discontinued. Hampton Roads Transit (HRT), however, has received funding to provide a similar service between the Guinea Road Park & Ride Lot and Newport News Shipbuilding. The Gloucester MAX service is expected to begin in 2024 or 2025.


Williamsburg Transportation Center: Greyhound Bus Stop
HRTPO

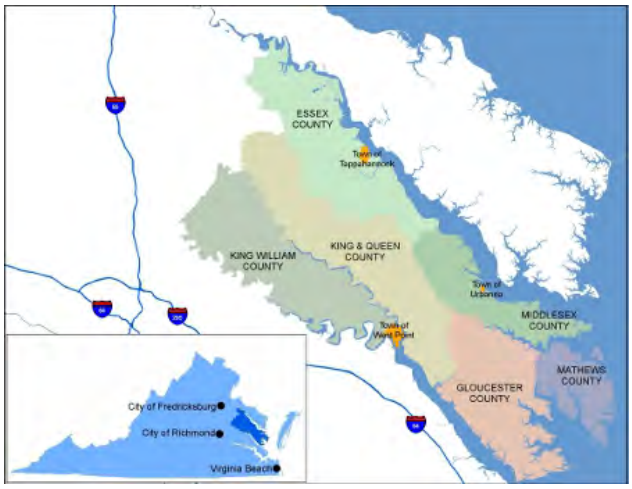
Newton's Bus Service, Inc. www.charteredbus.com

Transportation Demand Management

Middle Peninsula Rideshare is the designated Transportation Demand Management (TDM) agency within the Middle Peninsula Planning District Commission (MPPDC) region and provides ridesharing services to destinations outside the Middle Peninsula. Middle Peninsula Rideshare Commuter Services are provided by the MPPDC's Transportation Demand Management Program in conjunction with the Virginia Department of Rail and Public Transportation. This program exists to assist persons who are seeking transportation alternatives to commuting within and from the Middle Peninsula area. For more information, visit www.midpenridshare.org.

Gloucester is also served by TRAFFIX, the TDM agency for the Hampton Roads region. The TRAFFIX program, which is funded by HRTPO and operated by Hampton Roads Transit in conjunction with the Virginia Department of Rail and Public Transit, conducts various efforts to increase the use of transportation alternatives such as carpools, rideshares, and public transit throughout the region and study area. For more information, visit www.gotraffix.com.

Both the Middle Peninsula Rideshare and TRAFFIX provide carpool and vanpool assistance, Guaranteed Ride programs, public transportation, employer services, and special needs transportation to Gloucester residents.

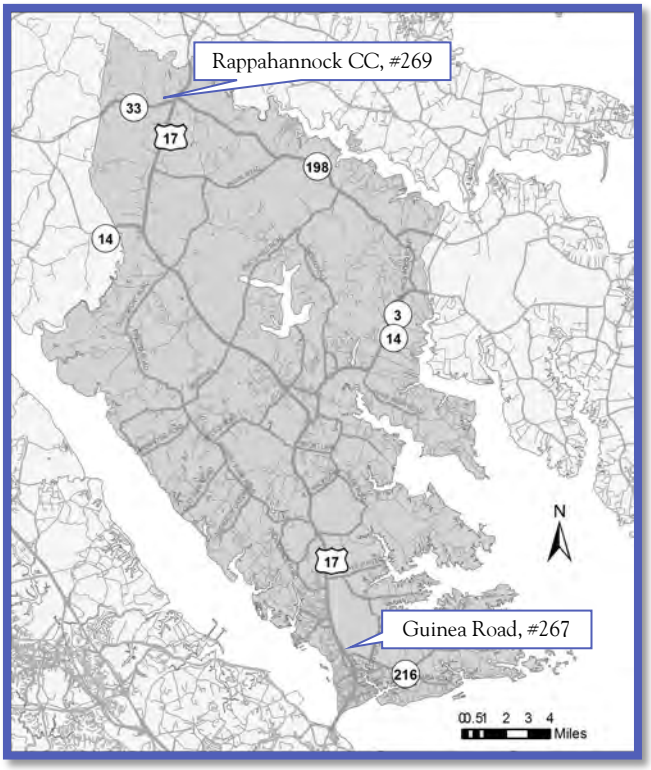


Map 16 – Middle Peninsula Rideshare Coverage Area
Source: Middle Peninsula Rideshare

Park and Ride Lots

A number of residents (age 16 and older) in Gloucester County use carpooling to travel to work. According to the Census Bureau, 1,679 residents in the county carpooled to work on a regular basis in 2013-2017. This percentage (9.4%) is above the regional carpooling average of 7.9%.

In order to assist with carpooling and ridesharing efforts, VDOT maintains Park and Ride lots throughout the state, including two lots in the Gloucester County (**Map 17**). These Park and Ride lots include:



Map 17 – Park and Ride Lots in Gloucester County
Source: VDOT.

- **Rappahannock Community College, #269 -** This lot is located on Route 33 (General Puller Highway) near US Route 17 (George Washington Memorial Highway). It has lights and bicycle racks. The paved lot has space available for 483 vehicles, which includes 18 handicap spaces. According to VDOT Hampton Roads District data[11], the 2018 average utilization rate was 1% (6 out of 483 spaces).
- **Guinea Road, #267** - This lot is located on Guinea Road (Route 216) just to the east of US Route 17 near the York River Crossing Shopping Center. It has lights and transit shelters/service. The paved lot has space available for 215 vehicles, which includes 7 handicap spaces. According to VDOT Hampton Roads District data, the 2018 average utilization rate was 5% (11 out of 215 spaces).

In 2013, VDOT completed a statewide Park and Ride Lot Inventory and Usage Study, which included 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. The two Park and Ride lots in Gloucester County were not included in the investment list.

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.

[11] *HRTPO analysis of VDOT Hampton Roads District Park and Ride Occupancy, December 2018.*

Future Public Transportation Needs

Gloucester County is one of the counties within the Commonwealth that was identified in the Virginia Department of Rail and Public Transportation's Statewide Public Transportation and Transportation Demand Management Plan (January 2014) for expanded rural transit service by the year 2040. As the population increases and ages, providing travel options will require new transit services in areas of the Commonwealth that are currently without service as well as expanding and diversifying the services of existing transit systems. Smaller public transportation operators are expected to see demand grow, especially for demand-response and human services transportation. Providing public transportation services for special populations, such as the elderly, will be critical to the County going forward. For some areas of the County, these services are an economic lifeline, providing the only means to get to jobs, receive medical care, and remain vital members of the community.

As discussed in the earlier Public Transportation section of this report for current conditions, Gloucester County currently has the following public transportation services:

- Bay Transit – non-profit community transit services
- Greyhound lines (via the Peninsula) – intercity bus services
- Newton's bus services – private charter

In order for the county to continue to serve the public transportation needs of its residents into the future, these services and routes should be maintained and potentially expanded as growth continues.

Transit Vision Plan

The Virginia Department of Rail and Public Transportation, Hampton Roads Transit, and Williamsburg Area Transit Authority developed the *Hampton Roads Regional Transit Vision Plan* from 2008 to 2011. The Hampton Roads Transportation Planning Organization, its member localities, and the Hampton Roads Partnership also participated in this effort. The purpose of the Hampton Roads Regional Transit Vision Plan is to provide a concept for a regional rapid transit network that connects major employment and population centers in Hampton Roads. This, in turn, will allow the region to advance transit enhancements in the future guided by a strategic regional plan.

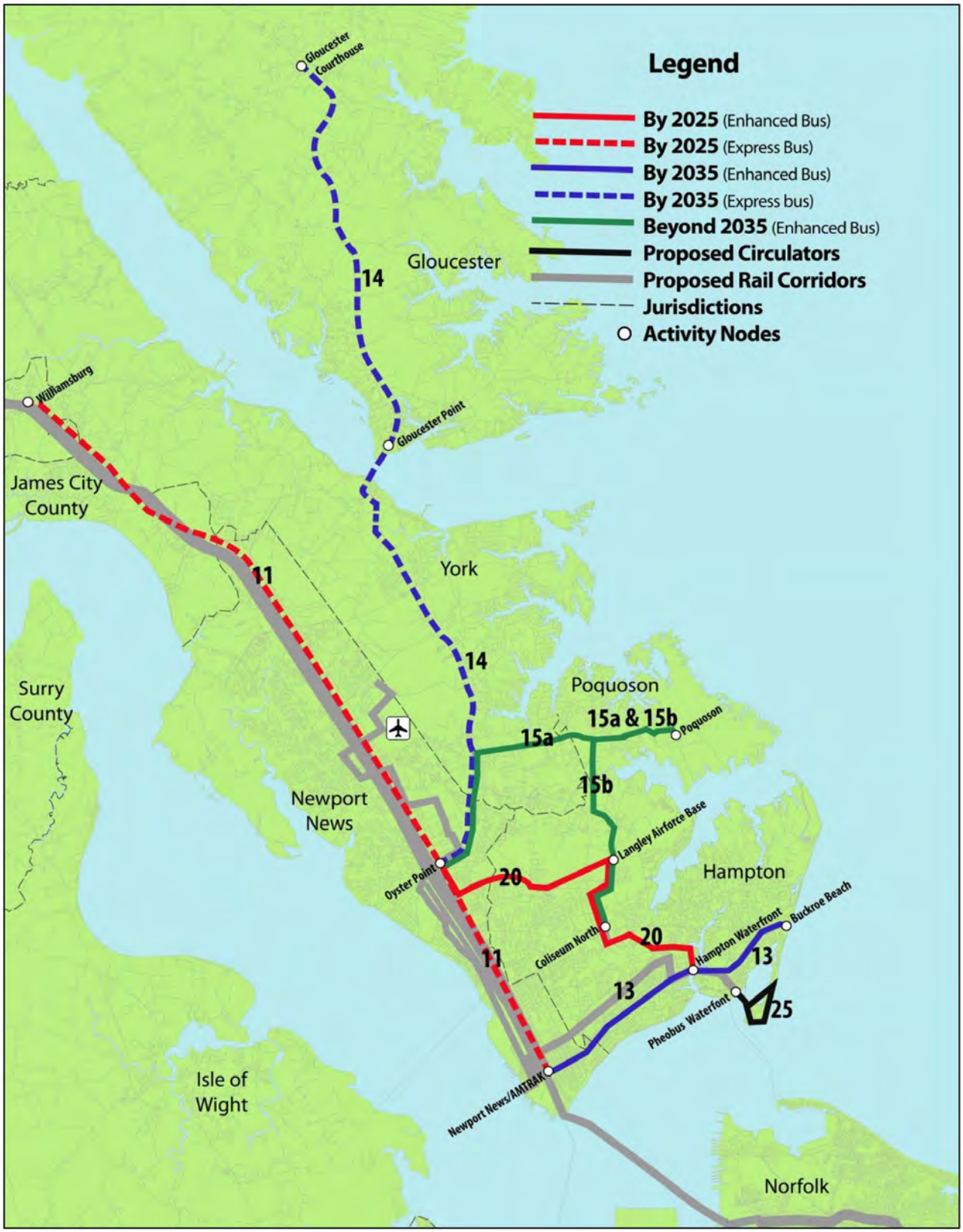
This long-term framework for transit development includes a number of proposed corridors and projects. These projects — which include light rail, commuter rail, streetcar, enhanced bus service, express bus, bus rapid transit, and ferry — are grouped by time frame. Projects were developed by corridors for various time frames—short-term (by 2025), long-term (by 2035), and extended-term (beyond 2035).

Within the Hampton Roads Regional Transit Vision Plan's long-term recommendations (by 2035), there is an express bus corridor recommendation for Gloucester County (shown in **Map 18**). Line 14 would connect Gloucester County to the Oyster Point area of Newport News. The corridor—which spans 26 miles—has a capital cost estimate between $2.5 million and $4 million. The average weekday ridership forecast for this express bus corridor with the assumptions of continued population and employment growth in the county is 25.

Rail

There is no rail service in Gloucester County, however, freight and passenger rail options are available in Newport News and Williamsburg. CSX provides service on the Peninsula and the Norfolk Southern serves industries in West Point.

Amtrak offers direct passenger rail transportation to Richmond, Washington D.C., New York and Boston from stations in Williamsburg and Newport News.



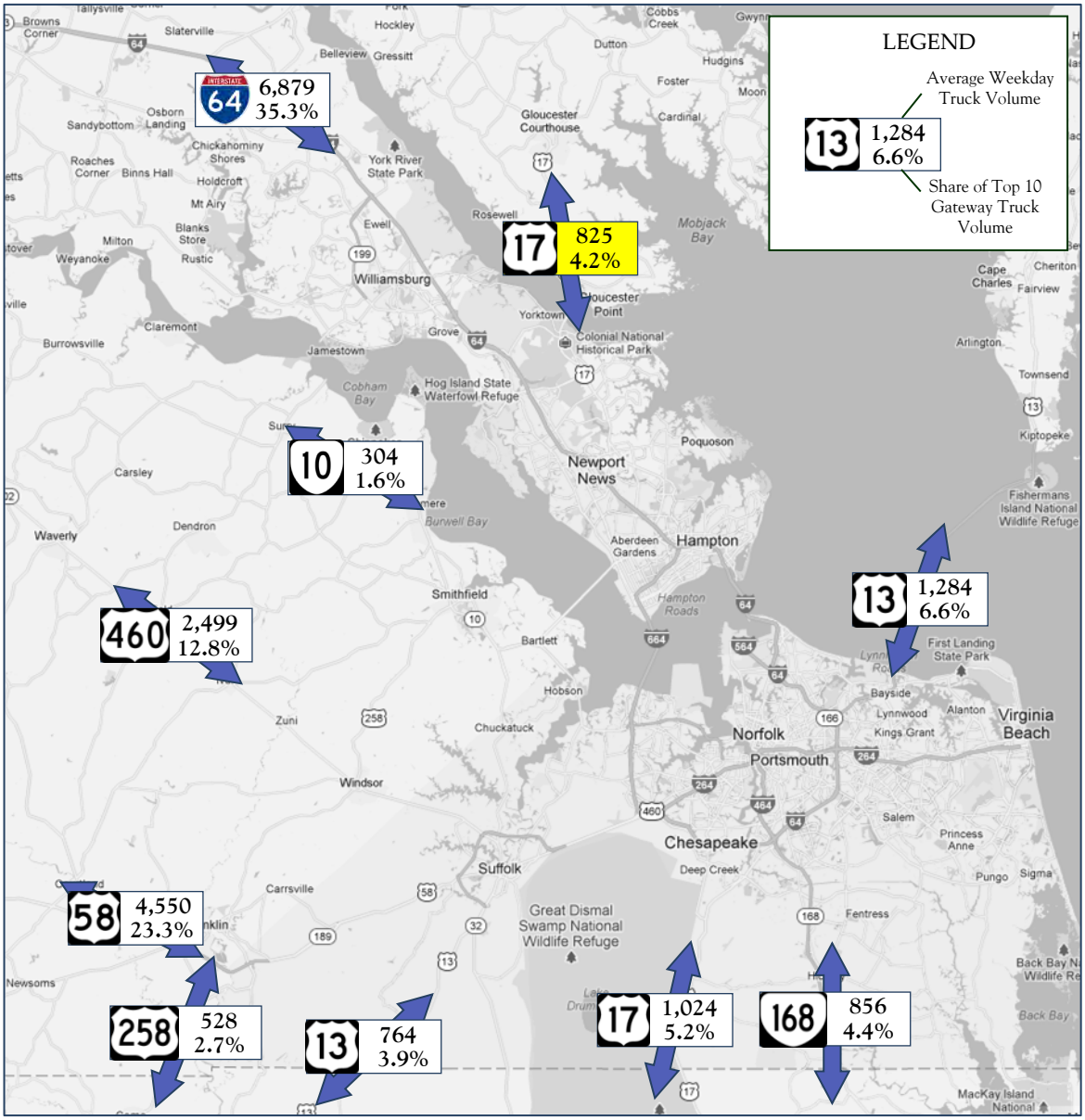
MAP 18 – PENINSULA BUS NETWORK RECOMMENDATIONS

Source: Hampton Roads Regional Transit Vision Plan Final Report, 2011

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. Gloucester County is an important part of the freight community, serving as one of the northern gateways to the region. Since the predominant mover of freight is by trucks across highways for both Hampton Roads and Gloucester County, the focus of this section is on truck movement.

Truck Movements through Regional Gateways



MAP 19 – NUMBER AND SHARE OF TRUCKS PASSING THROUGH THE TOP 10 REGIONAL GATEWAYS EACH WEEKDAY, 2019

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

Within the HRTPO's Regional Freight Study[12], an analysis was completed that showed the Top 10 regional gateways for trucks each weekday. **Map 19** provides an updated version for the year 2019. While I-64 is the predominant northern gateway, Route 17 in Gloucester County across the Coleman Bridge is the other primary gateway to/from the Peninsula. A total of 825 trucks use the Route 17 (Coleman Bridge) gateway each weekday. **Figure 34** shows how the average weekday truck volume for the Route 17 (Coleman Bridge) gateway has changed since 2006. While truck volumes gradually decreased throughout the economic downturn in the late 2000s and early 2010s, truck volumes have increased at the Coleman Bridge nearly each year since 2014.

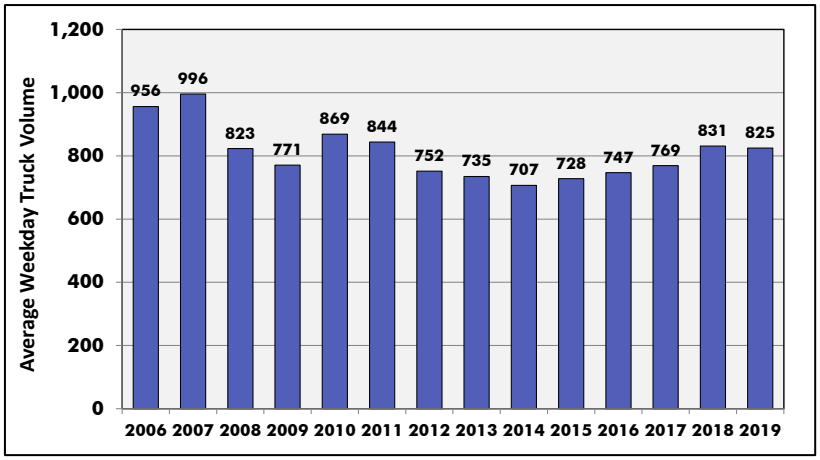


FIGURE 34 – ROUTE 17 (COLEMAN BRIDGE) AVERAGE WEEKDAY TRUCK VOLUMES, 2006 - 2019
Source: HRTPO analysis of VDOT data.

The share of trucks using Hampton Roads gateways has been shifting over the last decade from I-64 and Route 17 towards Routes 58 and 460. Combined, I-64 and Route 17 accounted for 39.5% of all trucks passing through the region's gateways in 2019. This is down from over 42% in 2006 (**Figure 35**).

This shift is likely due to multiple reasons, including congestion on I-64 and at the Hampton Roads Bridge-Tunnel, additional distribution centers opening in the Route 58 and Route 460 corridors, and additional freight traveling by truck to and from southeastern markets. The amount of trucks passing through Gloucester County on Route 17, however, may increase when the widening of the Harry Nice Memorial Bridge crossing the Potomac River between Virginia and Maryland is completed. Currently the new bridge is expected to open to traffic in the mid-2020s.

Daily Truck Movements

Figure 36 shows the 2018 existing weekday truck volumes and percentages for roadways within Gloucester County. **Maps 20 and 21** on pages 63-64 provide a geographic depiction of these 2018 existing weekday truck volumes and percentages within the county.

Route 17 between the Coleman Bridge/York County line and the Court House area and Route 33 west of Route 17 carry the highest truck volumes within Gloucester County. Route 17 carries the highest truck volumes, ranging from 699 to 863 trucks each weekday between the Coleman Bridge and the Court House area. Route 33 carries the second highest weekday truck volumes with 686 trucks each weekday between Route 17 and the King and Queen County line.

Route 33 between Route 17 and the King and Queen County line has the highest percentage of trucks for the 2018 existing during each weekday at 7.6%. The second highest truck percentage location during a typical weekday is Route 14 at 5.8%. The third highest roadway segment is Route 198 between Route 17 and Route 601 (Pampa Road) carrying 4.1% trucks each weekday.

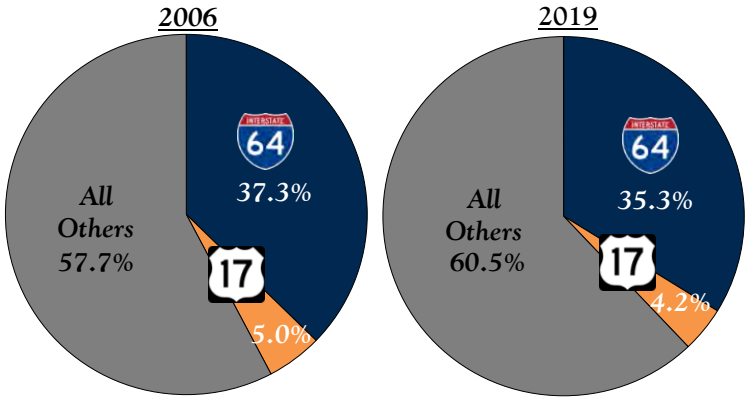


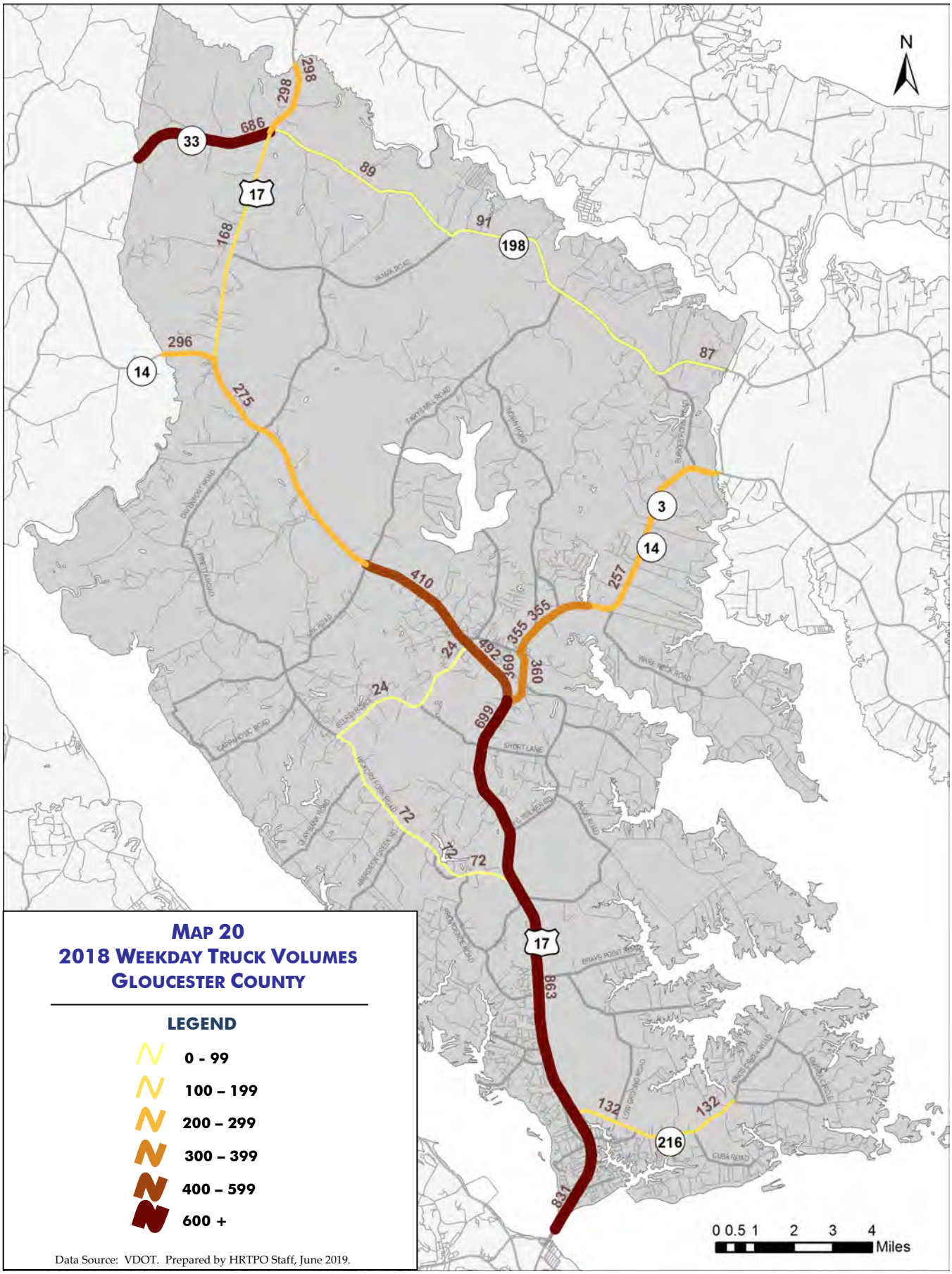
FIGURE 35 – SHARE OF TRUCKS PASSING THROUGH REGIONAL GATEWAYS EACH WEEKDAY, 2006 AND 2019
Source: HRTPO analysis of VDOT and CBBT data.

[12] *Hampton Roads Regional Freight Study: 2017 Update*, HRTPO, July 2017.

Route Num	Facility	Segment From	Segment To	2018 Existing Weekday Trucks	2018 Existing Weekday Truck %
616	Belroi Rd	Hickory Fork Rd	Route 17	24	0.5%
216	Guinea Rd	Route 17	Maryus Rd	132	1.5%
614	Hickory Fork Rd	Route 17	Belroi Rd	72	1.2%
3	Route 3/14	Route 17 Bus	Cow Creek	355	1.8%
3	Route 3/14	Cow Creek	Mathews CL	257	1.8%
14	Route 14	King And Queen CL	Route 17	296	5.8%
17	Route 17 (Coleman Bridge)	York CL	Route 216 (Guinea Rd)	831	2.4%
17	Route 17	Route 216 (Guinea Rd)	Route 614 (Hickory Fork Rd)	863	2.4%
17	Route 17	Route 614 (Hickory Fork Rd)	Route 17 Bus S (Main St)	699	2.4%
17	Route 17	Route 17 Bus S (Main St)	Route 17 Bus N (Main St)	492	2.4%
17	Route 17	Route 17 Bus N (Main St)	Route 606 (Ark Rd)	410	2.4%
17	Route 17	Route 606 (Ark Rd)	Route 14	275	2.4%
17	Route 17	Route 14	Routes 33/198	168	2.4%
17	Route 17	Routes 33/198	Middlesex CL	298	2.4%
33	Route 33	King And Queen CL	Route 17	686	7.6%
198	Route 198	Route 17	Route 601 (Pampa Rd)	89	4.1%
198	Route 198	Route 601 (Pampa Rd)	Route 606 (Harcum Rd)	91	3.9%
198	Route 198	Route 606 (Harcum Rd)	Mathews CL	87	3.7%
17	Main St (Bus Route 17)	Route 17 (South Intersection)	Route 3/14E	360	1.5%

FIGURE 36 – WEEKDAY TRUCK VOLUMES AND PERCENTAGES BY ROADWAY SEGMENT IN GLOUCESTER COUNTY, 2018

Source: HRTPO analysis of VDOT data.

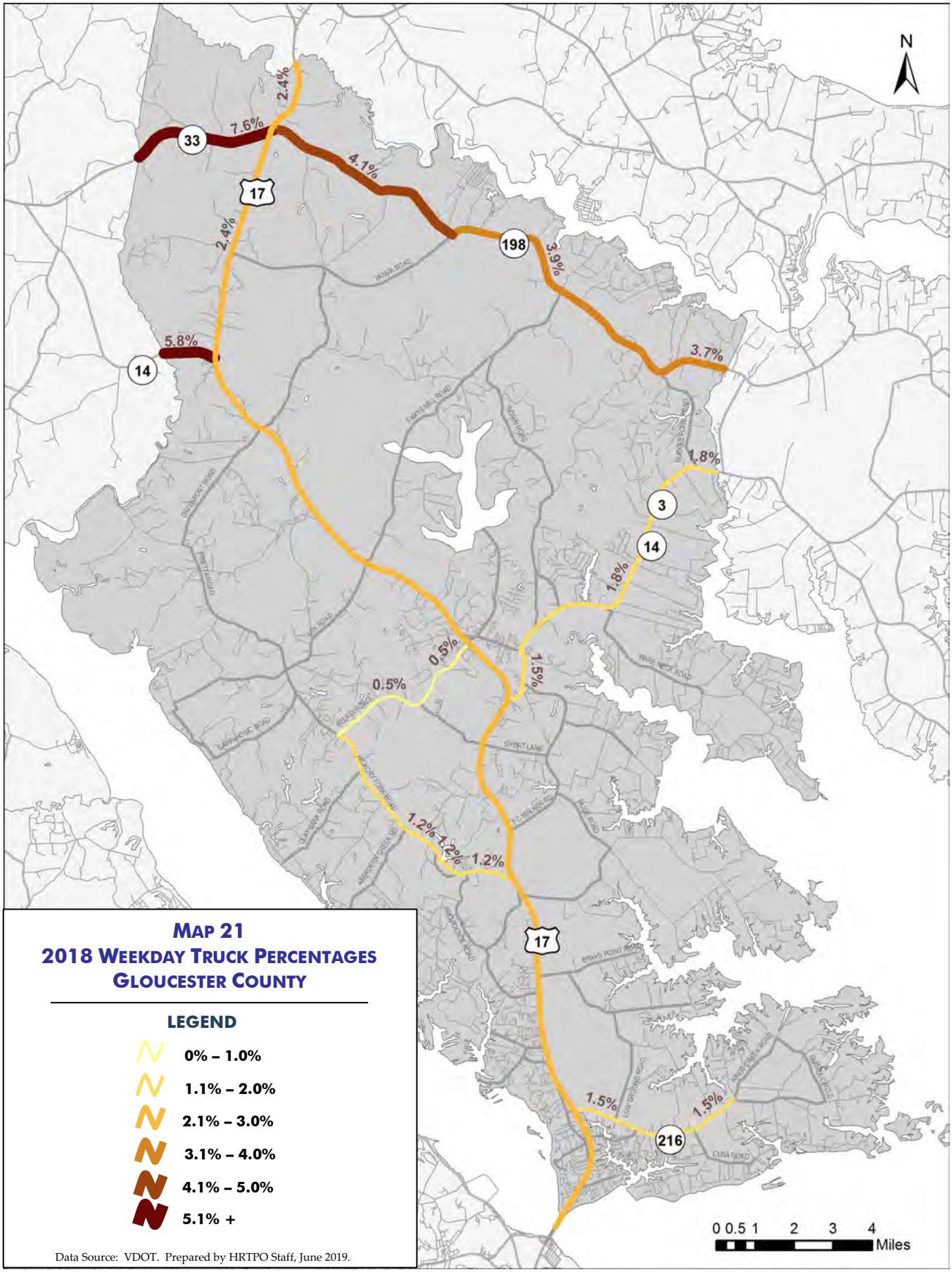


MAP 20
2018 WEEKDAY TRUCK VOLUMES
GLOUCESTER COUNTY

LEGEND

- 0 - 99
- 100 – 199
- 200 – 299
- 300 – 399
- 400 – 599
- 600 +

Data Source: VDOT. Prepared by HRTPO Staff, June 2019.



MAP 21
2018 WEEKDAY TRUCK PERCENTAGES
GLOUCESTER COUNTY

LEGEND

- 0% – 1.0%
- 1.1% – 2.0%
- 2.1% – 3.0%
- 3.1% – 4.0%
- 4.1% – 5.0%
- 5.1% +

Data Source: VDOT. Prepared by HRTPO Staff, June 2019.

Projected Growth in Freight

Since the predominant mover of freight is by trucks across highways for both Hampton Roads and Gloucester County, the focus of this section is on truck movements. Using IHS Transearch from the Regional Freight Study[13], HRTPO summarized all truck freight transported in the Commonwealth of Virginia for 2012 and 2040. This analysis includes all freight moved by truck in Virginia, which includes inbound, outbound, through Virginia, and within Virginia.

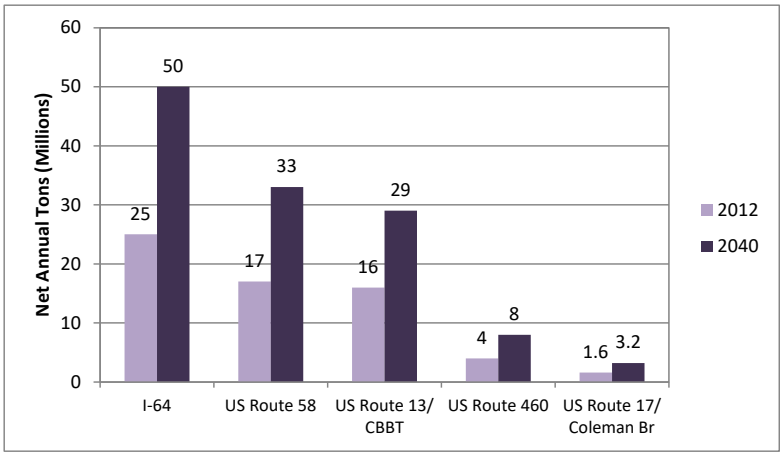


FIGURE 37 – NET ANNUAL TONNAGE CARRIED BY TRUCK AT HAMPTON ROADS REGIONAL GATEWAYS, 2012 AND 2040

Source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.

IHS Transearch

IHS Transearch is a unique planning tool that helps transportation planners, transportation providers, and government agencies analyze current and future freight flows by origin, destination, commodity, and transport mode[14]. IHS Transearch is the most widely recognized and used commercial freight data source in the United States and has been used extensively over the last three decades to support freight decision-making.

IHS Transearch was purchased by the Virginia Department of Transportation (VDOT) and distributed to Metropolitan Planning Organizations and Planning District Commissions within the Commonwealth of Virginia. The Virginia dataset includes all commodity flows that travel through the state of Virginia or have origins or destinations of cities/counties in Virginia. The HRTPO obtained the 2012 IHS Transearch data in January 2016.

Future Truck Movements through Regional Gateways

Within the HRTPO's 2017 Regional Freight Study, an analysis was completed that shows the net annual tonnage carried by truck at major regional gateways in 2012 and 2040 (**Figure 37**). In 2012, the highest amount of freight that was moved in Hampton Roads in terms of weight (annual tonnage) was along the I-64 corridor through the Historic Triangle. Freight tonnage along the I-64 corridor is expected to double from 25 to 50 million annual tons from 2012 to 2040. The US Route 17 (Coleman Bridge) gateway between York County and Gloucester County is expected to double, from 1.6 million annual tons in 2012 up to 3.2 million annual tons in 2040.

[13] *Hampton Roads Regional Freight Study: 2017 Update*, HRTPO, July 2017.

[14] *Transearch 2012 Modeling Methodology Documentation: Prepared for Virginia DOT*, IHS Inc., May 2014.

Net Annual Tonnage Carried by Truck – Gloucester County

Maps 22 and 23 on pages 67-68 show the net annual tonnage carried by truck in 2012 and 2040 for primary routes within Gloucester County. See **Figure 38** below for the anticipated growth in weight (annual tonnage) carried by trucks for specific roadway segments.

Net Annual Dollars Carried by Truck – Gloucester County

Maps 24 and 25 on pages 69-70 show the net annual dollars carried by truck in 2012 and 2040 for primary routes within Gloucester County. See **Figure 39** below for the anticipated growth in value (annual dollars) carried by trucks for specific roadway segments.

Route Num	Facility	Segment From	Segment To	2012 Net Annual Tons (millions)	2040 Net Annual Tons (millions)	Percent Change
3	Route 3/14	Route 17 Bus	Mathews CL	0.37	1.49	303%
14	Route 14	King And Queen CL	Route 17	0.72	2.28	218%
17	Route 17 (Coleman Bridge)	York CL	Route 216 (Guinea Rd)	1.60	3.20	99%
17	Route 17	Route 216 (Guinea Rd)	Route 17 Bus S (Main St)	1.36	2.62	94%
17	Route 17	Route 17 Bus S (Main St)	Route 17 Bus N (Main St)	2.26	4.44	96%
17	Route 17	Route 17 Bus N (Main St)	Route 14	2.54	5.77	127%
17	Route 17	Route 14	Routes 33/198	1.82	3.49	91%
17	Route 17	Routes 33/198	Middlesex CL	2.12	4.10	93%
33	Route 33	King And Queen CL	Route 17	0.30	0.62	104%
17	Main St (Bus Route 17)	Route 17 (South Intersection)	Route 3/14E	0.13	0.34	156%
17	Main St (Bus Route 17)	Route 3/14E	Route 17	0.28	1.33	380%

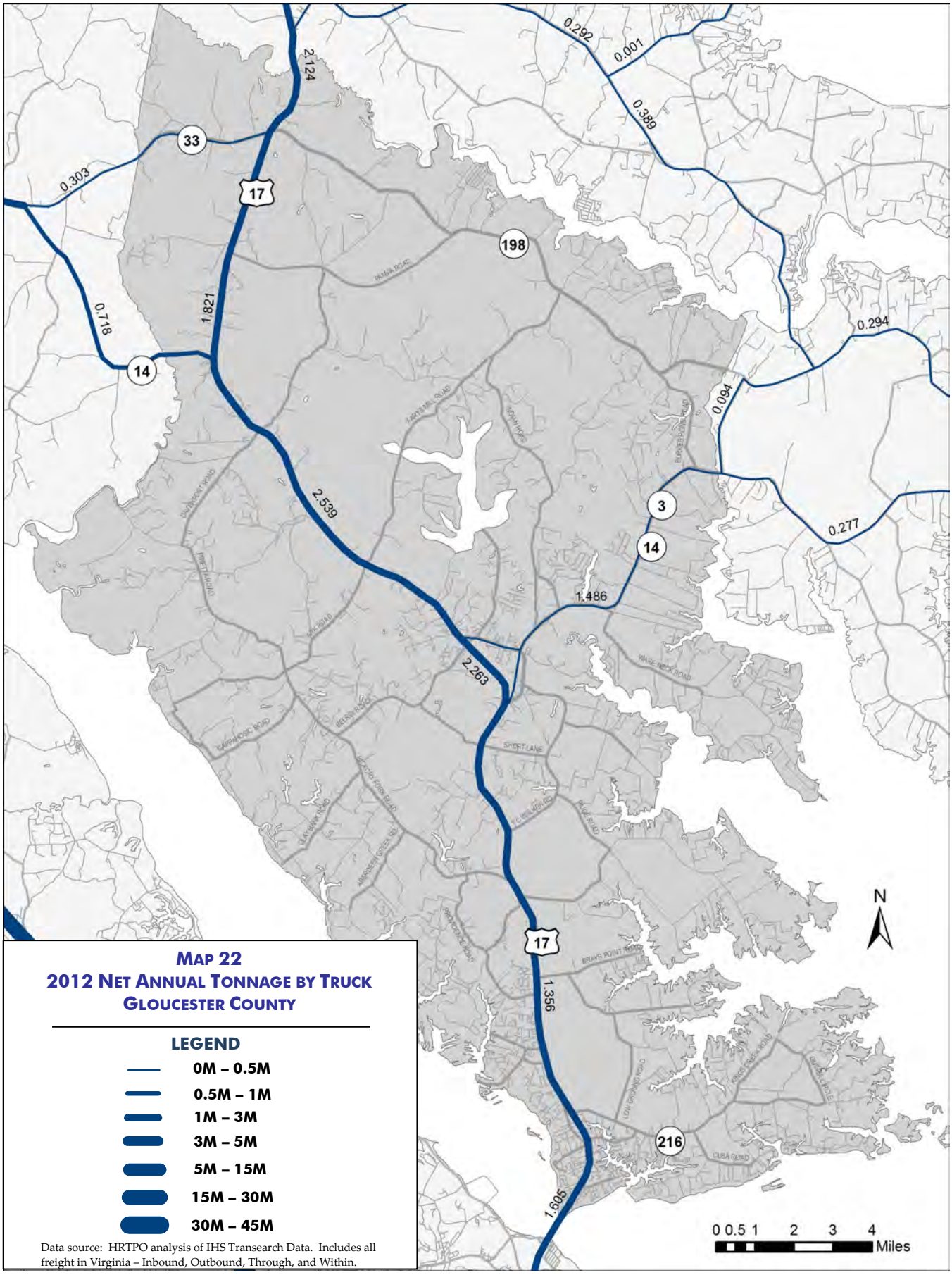
FIGURE 38 – NET ANNUAL TONNAGE CARRIED BY TRUCK, 2012 AND 2040

Source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.

Route Num	Facility	Segment From	Segment To	2012 Net Annual Dollars ($millions)	2040 Net Annual Dollars ($millions)	Percent Change
3	Route 3/14	Route 17 Bus	Mathews CL	$245	$423	73%
14	Route 14	King And Queen CL	Route 17	$890	$1,426	60%
17	Route 17 (Coleman Bridge)	York CL	Route 216 (Guinea Rd)	$1,659	$3,120	88%
17	Route 17	Route 216 (Guinea Rd)	Route 17 Bus S (Main St)	$1,508	$2,861	90%
17	Route 17	Route 17 Bus S (Main St)	Route 17 Bus N (Main St)	$2,373	$4,345	83%
17	Route 17	Route 17 Bus N (Main St)	Route 14	$2,542	$4,762	87%
17	Route 17	Route 14	Routes 33/198	$1,652	$3,336	102%
17	Route 17	Routes 33/198	Middlesex CL	$2,005	$3,784	89%
33	Route 33	King And Queen CL	Route 17	$352	$448	27%
17	Main St (Bus Route 17)	Route 17 (South Intersection)	Route 3/14E	$118	$150	27%
17	Main St (Bus Route 17)	Route 3/14E	Route 17	$169	$416	147%

FIGURE 39 – NET ANNUAL DOLLARS CARRIED BY TRUCK, 2012 AND 2040

Source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.

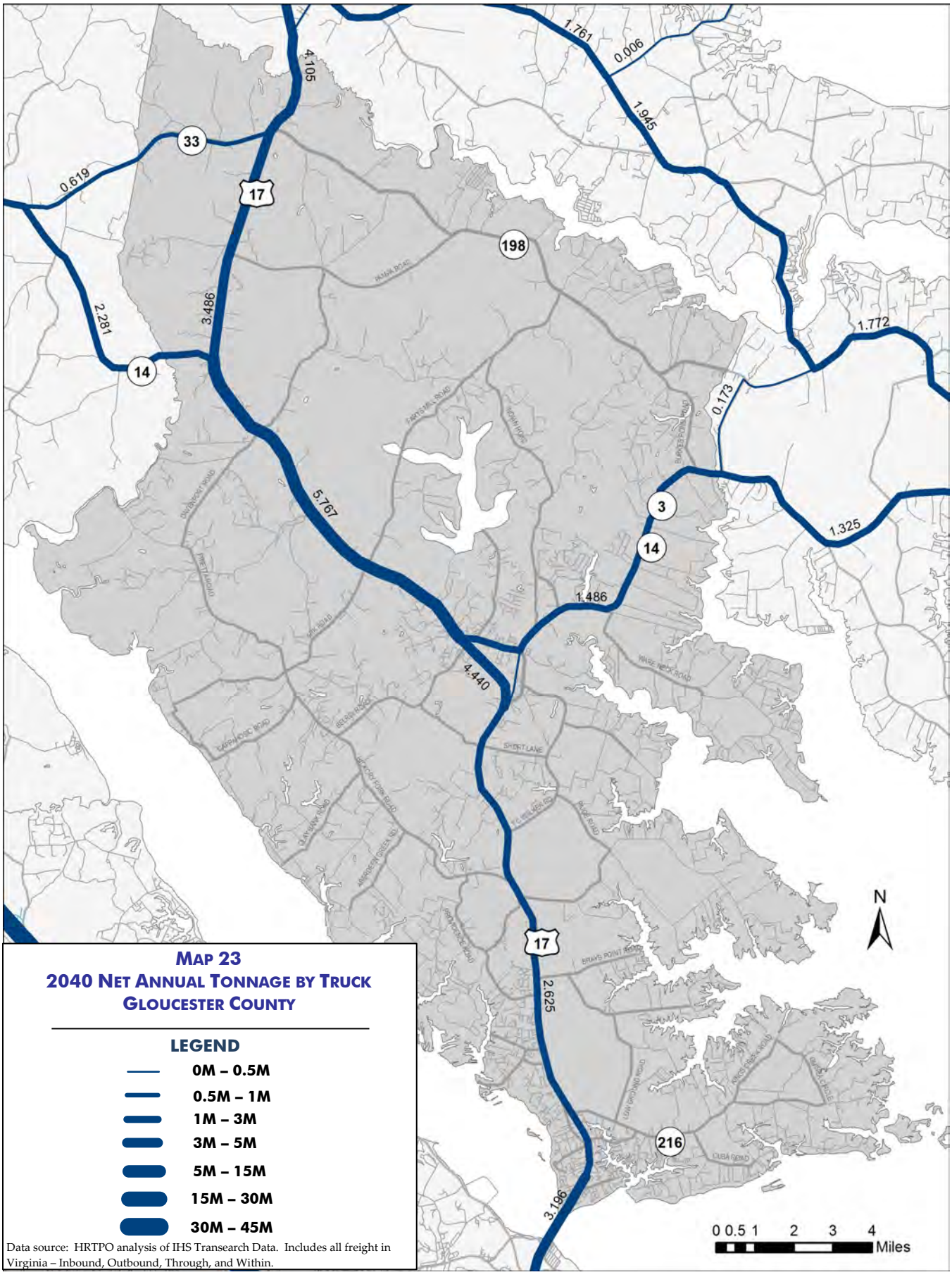


Map 22
2012 Net Annual Tonnage by Truck
Gloucester County

LEGEND

- 0M – 0.5M
- 0.5M – 1M
- 1M – 3M
- 3M – 5M
- 5M – 15M
- 15M – 30M
- 30M – 45M

Data source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.

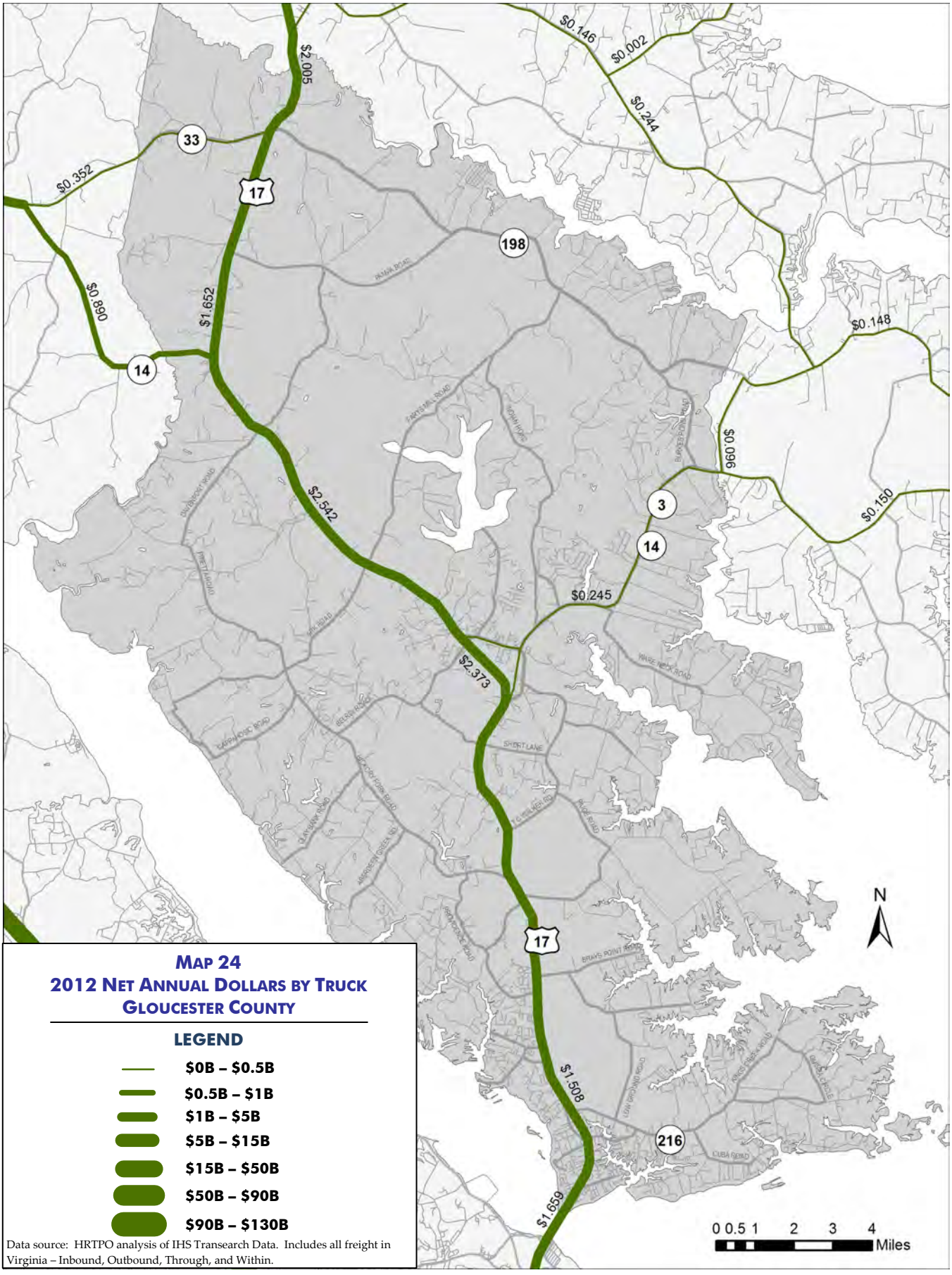


Map 23
2040 Net Annual Tonnage by Truck
Gloucester County

LEGEND

- 0M – 0.5M
- 0.5M – 1M
- 1M – 3M
- 3M – 5M
- 5M – 15M
- 15M – 30M
- 30M – 45M

Data source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.

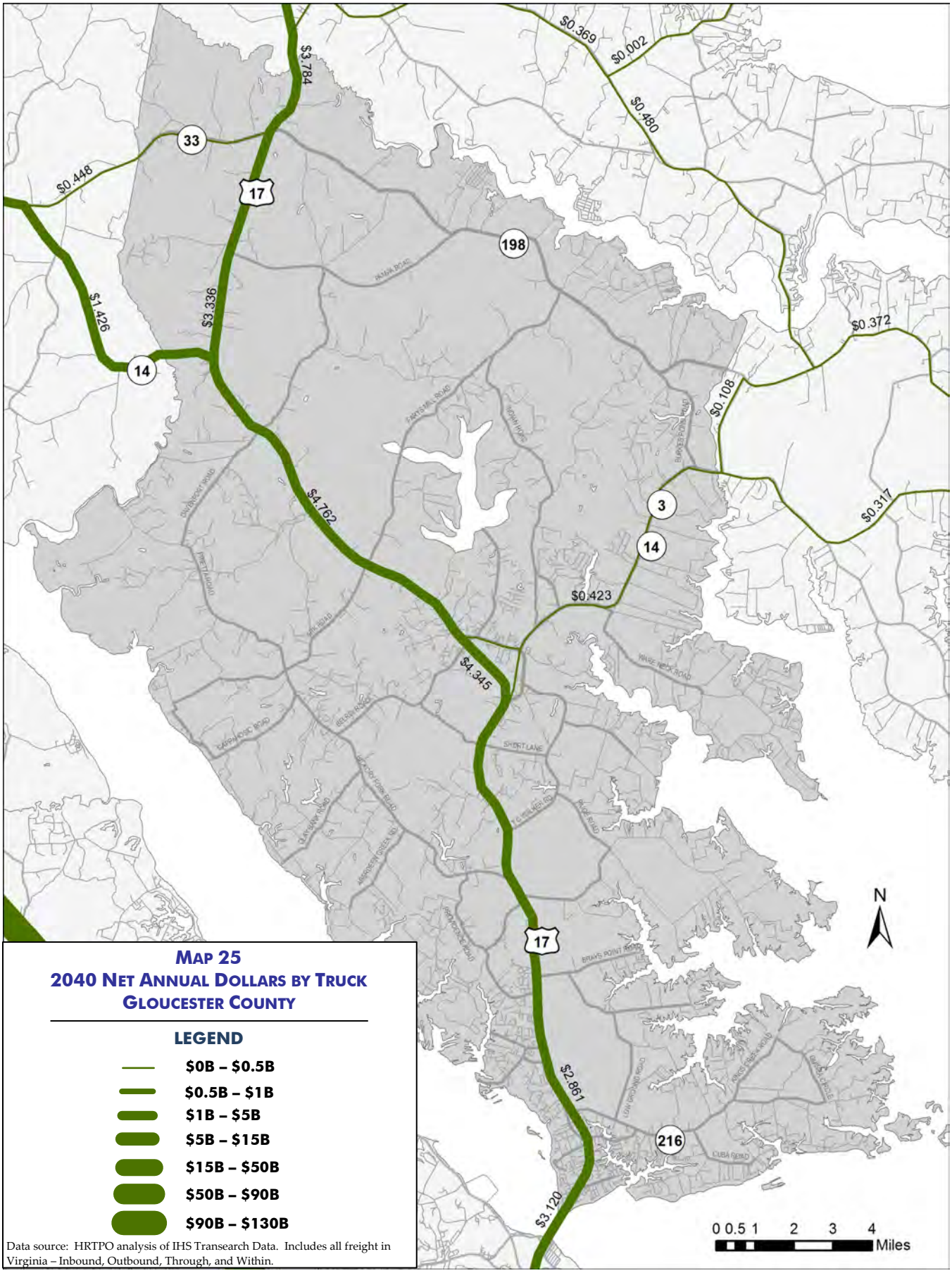


MAP 24
2012 NET ANNUAL DOLLARS BY TRUCK
GLOUCESTER COUNTY

LEGEND

- $0B – $0.5B
- $0.5B – $1B
- $1B – $5B
- $5B – $15B
- $15B – $50B
- $50B – $90B
- $90B – $130B

Data source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.



MAP 25
2040 NET ANNUAL DOLLARS BY TRUCK
GLOUCESTER COUNTY

LEGEND

- $0B – $0.5B
- $0.5B – $1B
- $1B – $5B
- $5B – $15B
- $15B – $50B
- $50B – $90B
- $90B – $130B

Data source: HRTPO analysis of IHS Transearch Data. Includes all freight in Virginia – Inbound, Outbound, Through, and Within.

BRIDGES

There are 25 bridges[15] in Gloucester County. The most prominent of these bridges – the George P. Coleman Memorial Bridge – connects Gloucester County with the Peninsula and the Hampton Roads region. Other bridges span the many small streams throughout the county.

Figure 40 shows the bridges in Gloucester County by year built. As of 2019, the median age of bridges in Gloucester County is 47 years. This is 6 years older than the Hampton Roads median age of 41 years but is similar to the Virginia median age.

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, it must be noted that **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:

- 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 the Structural Condition Rating and Waterway Adequacy Rating are no longer used in this determination.

There are three bridges in Gloucester County that are classified as structurally deficient as of January 2019. These bridges are:

- Route 17 Southbound over Dragon Run (Superstructure Condition Rating = 4)
- Route 14 over Poropotank River (Deck and Superstructure Condition Ratings = 4)
- Tidemill Road over a branch of Sarah Creek (Superstructure Condition Rating = 4)

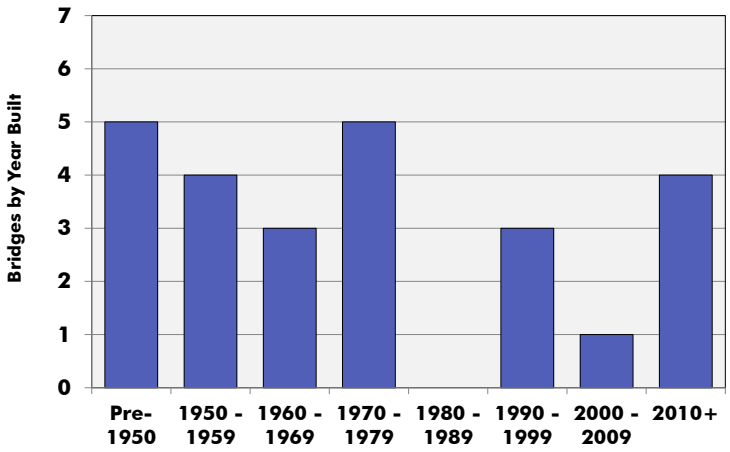


FIGURE 40 – BRIDGES IN GLOUCESTER COUNTY BY YEAR BUILT

Source: HRTPO analysis of VDOT data.

[15] The definition of a "bridge" used in this analysis is based on the National Bridge Inspection Standards (NBIS). The bridge must be located on a roadway open to the general public, be more than 20 feet in length, and must carry a roadway.

In addition, the Coleman Bridge is included as a Gloucester County bridge in this analysis, although it is included under York County in VDOT records.

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 approaches that are difficult 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.

There are two bridges in Gloucester County – the Coleman Bridge and Route 17 Northbound over Dragon Run – that are classified as functionally obsolete as of January 2019. The Dragon Run bridge is classified as functionally obsolete due to the geometry of the bridge's deck, and the Coleman Bridge is due to a low Minimum Lateral Underclearance for a roadway under the bridge based on the inspections done by VDOT (or their consultants).

Federal Bridge Performance Measures

Recent federal legislation established that states and Metropolitan Planning Organizations (MPOs) must 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. This is determined using the deck, superstructure, and substructure ratings, which are all 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.


Bridge Replacement – Allmondsville Rd (Route 662) over Fox Creek HRTPO

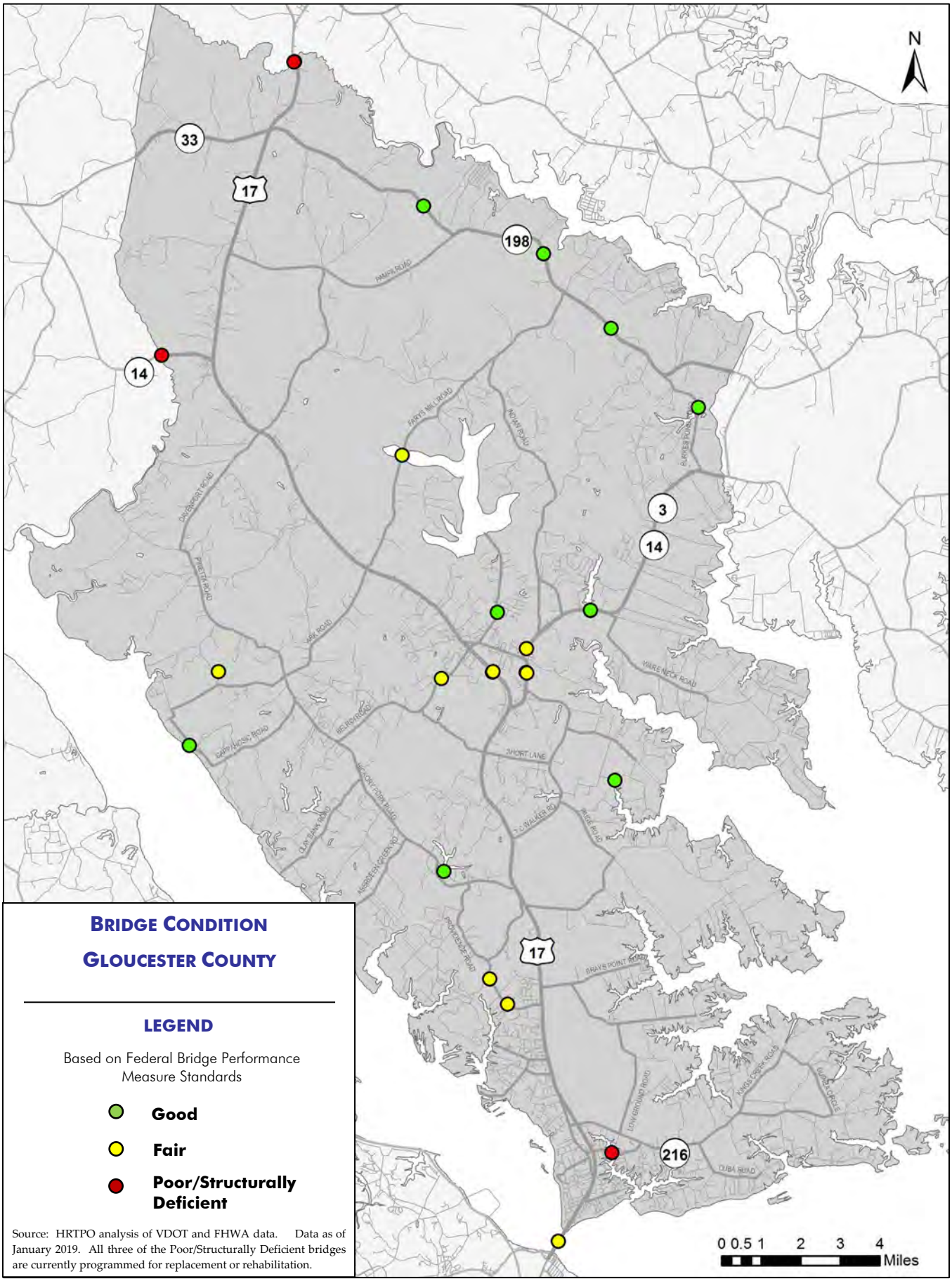
The lowest of these three condition ratings (or the culvert condition rating) is the rating used to determine whether the bridge is in good, fair, or poor condition. If the lowest condition rating is ≥ 7, the bridge is considered to be in good condition. If the lowest condition rating is 5 or 6, the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

Using the federal standards, 12 bridges (48%) in Gloucester County are in good condition, 10 bridges (40%) are in fair condition, and 3 bridges (12%) are in poor condition as of January 2019. By comparison, 30% of bridges in Hampton Roads and 35% of bridges in Virginia are in good condition, and 5% of bridges in both Hampton Roads and in Virginia are in poor condition.

Map 26 on page 73 shows those bridges in good, fair, and poor condition in Gloucester County as of January 2019.

Recent Bridge Projects

There have been six bridges replaced or rehabilitated in Gloucester County since 2008. These bridges are shown in **Figure 41 on page 74**. The combined cost of these six bridge projects is over $10 million.



Bridge Condition
Gloucester County

LEGEND

Based on Federal Bridge Performance Measure Standards

- **Good**
- **Fair**
- **Poor/Structurally Deficient**

Source: HRTPO analysis of VDOT and FHWA data. Data as of January 2019. All three of the Poor/Structurally Deficient bridges are currently programmed for replacement or rehabilitation.

Upcoming Bridge Projects

As structures continue to age, allocating adequate funding to maintain bridges will continue to be difficult. The Virginia General Assembly passed House Bill 1887 in 2015 to provide a dedicated funding source for improving the condition of Virginia's bridges and pavements.

HB 1887 – also referred to as the State of Good Repair (SGR) program – requires that 45% of the state's construction program be allocated to improve deficient bridges and pavements. The Commonwealth Transportation Board approved a resolution that states that structures will be selected for SGR program funds based on a prioritization formula. Bridge projects will be eligible for SGR funding if they meet the following criteria:

- The bridge is structurally deficient
- The bridge meets the definition required to be included in the National Bridge Inventroy (public roadway, > 20 feet in length)
- The project meets the definition of bridge rehabiliation and replacement in FHWA's Bridge Preservation Guide
- The proposed project must take the bridge out of structurally deficient status
- Inspections on the structure must be current

Bridges are prioritized for rehabilitation or replacement based on a formula that includes factors that take into account the bridge's importance, condition, design redundancy, structure capacity, and improvement cost-effectiveness. An SGR Score is calculated for each bridge using this formula, and those bridges with higher SGR Scores are generally prioritized over those with lower SGR Scores.

There are three bridges in Gloucester County that are currently classified as structurally deficient as of January 2019. Rehabilitation or replacement of each of these three bridges is funded in VDOT's current Six-Year Improvement Program (SYIP). Details on these projects are shown in **Figure 42**.

Federal Bridge #	Facility	Type	Completion Date
29888	Allmondsville Road (Rte 662) over Fox Creek	Replacement	2018
29427	Burke Pond Road (Rte 602) over Burkes Pond	Replacement	2015
30573	Cunningham Lane (Rte 627) Bridge over Wilson Creek	Replacement	2017
8533	Dutton Road (Rte 198) over Harpers Creek	Rehabilitation	2016
27069	Main Street Southbound (Rte 17 Bus) over Fox Mill Run	Replacement	2012
8538	Old Pinetta Road (Rte 610) over Bland Creek	Rehabilitation	2013

FIGURE 41 – BRIDGES REHABILITATED OR REPLACED IN GLOUCESTER COUNTY, 2008-2018

Source: HRTPO analysis of VDOT data.

Federal Bridge #	Facility	Type	UPC Code	Construction Start	Estimated Project Cost
8548	Tidemill Road over branch of Sarah Creek	Rehabilitation	110109	2019	$2,154,000*
10588	Route 14 over Poropotank River	Replacement	110097	2021	$3,452,000
12086	Route 17 Southbound over Dragon Run	Rehabilitation	110110	2021	$6,200,000

FIGURE 42 – PROGRAMMED BRIDGE PROJECTS IN GLOUCESTER COUNTY

Source: HRTPO analysis of VDOT data. Figure includes those bridges in the FY 2019-2024 Six-Year Improvement Program.
* Project #110109 includes multiple bridges throughout the VDOT Fredericksburg District.

Coleman Bridge

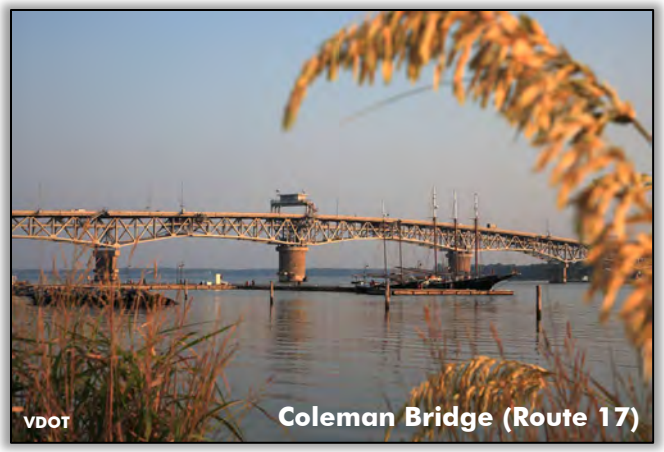
The Coleman Bridge spans the York River between Gloucester and York Counties. The bridge – which carries US Route 17 – provides a crucial gateway from the north to Hampton Roads.

The original two-lane double-swing span Coleman Bridge was opened to traffic on May 8, 1952. Designed for 15,000 vehicles per day, the Coleman Bridge replaced the ferry service between Yorktown and Gloucester Point. A toll was initially charged to cross the bridge but was removed in 1976 when the debt was paid. By 1994, the bridge was carrying up to 27,000 vehicles per day. With traffic increasing, the bridge was reconstructed in 1995 to widen the bridge from 2 to 4 lanes with a design for up to 6 lanes. The new bridge was opened as a tolled facility in 1996 at a cost of $73 million.

Tolls are collected at the Coleman Bridge in the northbound direction. As of 2019 these tolls are:

- E-ZPass user with transponder: $0.85
- Two-axles: $2
- Three-axles: $3
- Four or more axles: $4

In 2017, the chair of the Gloucester County Board of Supervisors worked with local and state leaders and sought congressional support to find ways to help reduce tolls on the Coleman Bridge. As of 2019 no toll changes have been implemented, and any change to the toll rate must be approved by the Commonwealth Transportation Board. However, Gloucester County officials have received a commitment from VDOT to stop using toll revenues to pay for bridge maintenance, which will lessen the time needed to pay off the construction debt.



Volumes at the Coleman Bridge increased after it was widened in 1996, but have largely leveled off over the last decade and a half. In 1996, 28,000 vehicles crossed the Coleman Bridge each day. Volumes grew each year until 2002, when 32,900 vehicles crossed each day. Volumes reached a high of 33,700 vehicles per day in 2007, but decreased throughout the economic downturn down to 31,200 vehicles per day in 2014. Volumes have increased since then, up to 31,800 vehicles per day in 2019.

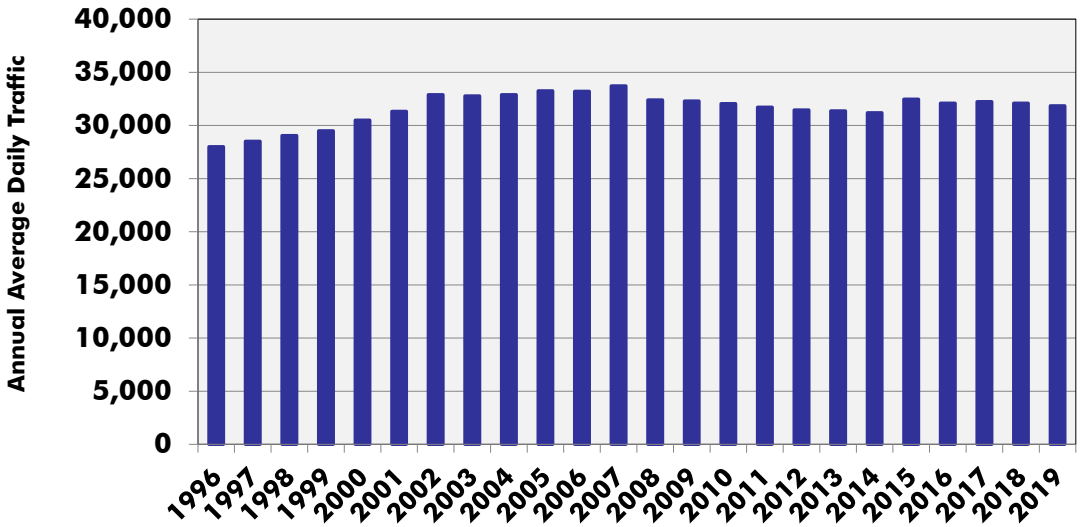


FIGURE 43 – ANNUAL AVERAGE DAILY TRAFFIC VOLUMES AT THE COLEMAN BRIDGE, 1996-2019

Source: HRTPO analysis of VDOT data.

Upper York River Crossing

For decades, there have been various planning efforts looking at providing better access across the York River between Gloucester County and the Peninsula, including constructing an additional span across the York River. Some efforts, such as the George P. Coleman Bridge York River Crossing Study, occurred prior to the Coleman Bridge widening project. That study, completed in 1988, included an initial list of 17 alternatives that were considered. Seven alternatives were further analyzed in the Environmental Impact Statement, six of which were on a new alignment. Ultimately, after the Gloucester County Board of Supervisors would not designate a preferred route for a new crossing, this study led to the Coleman Bridge being widened from 2 to 4 lanes in 1996, and the bridge was built with wide shoulders that could be restriped to accommodate an additional travel lane in each direction.

In 2000, VDOT commissioned the York River Crossing Travel Demand Study to determine whether there would be demand for a new crossing of the York River between York County and Gloucester County to the northwest of the Coleman Bridge. Two locations for a new structure were examined in the study (**Figure 44**). The northern alignment would cross the York River near the Allmondsville area of Gloucester County, while the southern alignment would cross the York River near Timberneck Farm Road and connect with Route 17 northwest of the Court House area. The estimated capital cost of the northern alternative was $313 million in year 2000 dollars, while the southern alternative was estimated to cost $556 million in year 2000 dollars.

The study determined that 51% of York River crossing traffic would use the new bridge in the northern alternative and 56% of crossing traffic would use the new bridge in the southern alternative.

The study determined that the Coleman Bridge could handle expected future volumes crossing the York River until 2033 if the operation of the bridge was expanded to 6 lanes, which would be expected to increase the bridge's capacity to approximately

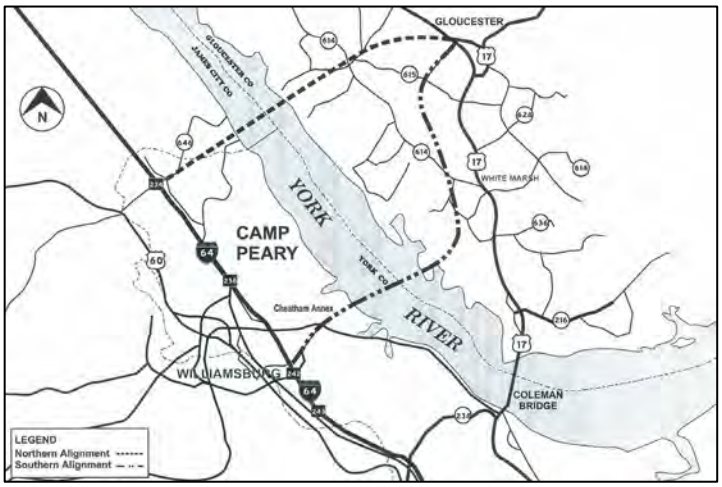


FIGURE 44 – YORK RIVER CROSSING TRAVEL DEMAND STUDY ALTERNATIVE ALIGNMENTS
Source: VDOT York River Crossing Travel Demand Study

68,000 vehicles per day. However, portions of the Route 17 corridor would also need to be widened to 6 lanes and capacity of critical intersections in the corridor would need to be expanded. It should be noted that HRTPO's projection for daily volumes on the Coleman Bridge for the year 2040 is 50,000 vehicles per weekday, which is well below the study's projection of demand in 2033.

In 2012, a developer based in Gloucester County wanted to examine the feasibility of building another York River Crossing. The effort – which was envisioned as a toll facility constructed through a public/private partnership – was supported by the Gloucester County Board of Supervisors but did not lead to a final study.

Although there are currently no ongoing planning efforts looking at another York River crossing, the Board of Supervisors added a conceptual crossing and path to the County's 2016 Comprehensive Plan Update to show support for the concept without endorsing a specific path. The idea of another crossing is also included in the Gloucester County Board of Supervisors strategic plan. The Infrastructure section of the Board of Supervisors 2035 Vision Statement includes: "A Second Crossing over the York River provides easy access for customers and tourists in the Williamsburg area to the shops and attractions of Gloucester County." However, York County officials have not indicated any interest in a second crossing and the County has not reserved any right-of-way for such a facility.

Active Transportation

Gloucester County currently has limited active transportation infrastructure, although sidewalks exist along Main Street in the Court House area and along Route 17 at Gloucester Point. Pedestrian facilities are an important safety measure which provides options for alternative transportation, recreation and exercise and have recently been installed in various parts of the Gloucester Point/Hayes Village Development Area (UDA). Currently pedestrian facilities across Route 17 are limited, which does not provide a safe environment for pedestrian travel to commercial centers and other areas, even over short distances. The County also requires sidewalks in new subdivisions and on new site plans within the two designated village areas in the County.

Safety concerns and the lack of on- and off-road bicycle facilities are hindering bicycle usage in the study area. There is a bicycle facility in Beaverdam Park, which is a 13-mile unpaved multi-use trail that goes along Beaverdam reservoir.

Figure 45 shows active transportation projects that have been completed in Gloucester County over the last decade. These three improvements include:

- Pedestrian improvements on Route 17 from the Coleman Bridge to Farmwood Road/Route 675.
- Pedestrian improvements on Guinea Road (Route 216) to the east of Route 17.
- A new sidewalk on Hayes Road (Route 1216) between the northern and southern intersections with Route 17.

These improvements are based on the UDA designation and the county's effort to create village scale development and infrastructure in these areas of the county.

Safety

Pedestrians and bicyclists are some of the most vulnerable users of the transportation system. This is particularly true in more rural areas such as most of Gloucester County, which typically have narrow, high speed roadways and fewer facilities dedicated to pedestrians and bicyclists.

There was a total of 53 crashes involving pedestrians and 18 crashes involving bicyclists in Gloucester County between 2009 and 2018 (**Figure 46** on page 78). These crashes resulted in 48 injuries and 17 fatalities for pedestrians and 19 injuries and 1 fatality for bicyclists. Although only comprising only 1% of the crashes in Gloucester County between 2009 and 2018, pedestrians comprised 2% of the injuries and 28% of the fatalities during this time. During the same time period bicyclists comprised only 0.4% of the crashes in the county but 0.6% of the injuries and 1.6% of the fatalities.

Needs and Gaps

Figure 47 shows Gloucester County bicycle and pedestrian improvement projects included in the current Six-Year Improvement Program. There are currently six projects in the SYIP at a total project cost of $14.5 million.

A combination of buffered bike lanes, shared-use paths, future regional trails, and signed routes compose some of the community's suggestion for a future Gloucester County's bicycle network (shown on **Map 27** on page 79). These potential/desired improvements include:

- Paved shared-use paths connecting Gloucester Point and the Court House area to the future Middle Peninsula State Park, future Werocomoco National Park, and Beaverdam Park.

UPC	Project	Year Completed	Cost
100626	Route 17 from Coleman Bridge to Farmwood Rd (Rte 1237) - Pedestrian Improvements	2014	$649,000
100625	Guinea Road (Rte 216) - Pedestrian Improvements east of Route 17	2018	$1,949,000
100624	Hayes Road (Rte 1216) - New Sidewalk between Route 17 (South) and Route 17 (North)	2018	$1,559,000

Figure 45 – Gloucester County Bicycle and Pedestrian Facility Projects completed since 2009

Source: VDOT

Year	Pedestrian			Bicyclist		
	Total Crashes	Total Injuries	Total Fatalities	Total Crashes	Total Injuries	Total Fatalities
2010	6	2	5	1	1	0
2011	9	8	2	3	3	0
2012	5	3	2	1	1	0
2013	4	7	1	0	0	0
2014	5	5	0	3	4	0
2015	2	1	1	3	3	0
2016	9	8	3	1	1	0
2017	4	3	2	3	4	0
2018	6	7	1	1	0	1
2019	5	5	0	2	2	0
10 year Total	55	49	17	18	19	1

FIGURE 46 – BICYCLE AND PEDESTRIAN CRASHES IN GLOUCESTER COUNTY, 2010-2019

Source: HRTPO analysis of DMV data

- Regional trails on Route 17 and Routes 3/14. Further study is recommended for future connections between Middlesex County and Matthews County respectively.
- Signed routes for existing shared on-road bicycle routes in rural areas of the county including areas near Warner Hall, Peasley and Achilles Schools.

The Virginia Institute of Marine Science (VIMS) has many waterfront properties and a compact campus near other community amenities such as the Gloucester Point Beach and commercial properties along Route 17 and Greate Road to promote active transportation. Potential/desired facilities in the vicinity of VIMS include:

- Bike sharrows along Greate Road parallel to the funded sidewalk project that is currently being developed.
- Shared-use paths connecting Tyndall Park to the Institute and Gloucester Point Beach Park.
- A boardwalk connecting the Institute's boat ramp to the Gloucester Point Boat Ramp.
- Consideration of separated bike lanes on the Coleman Bridge.

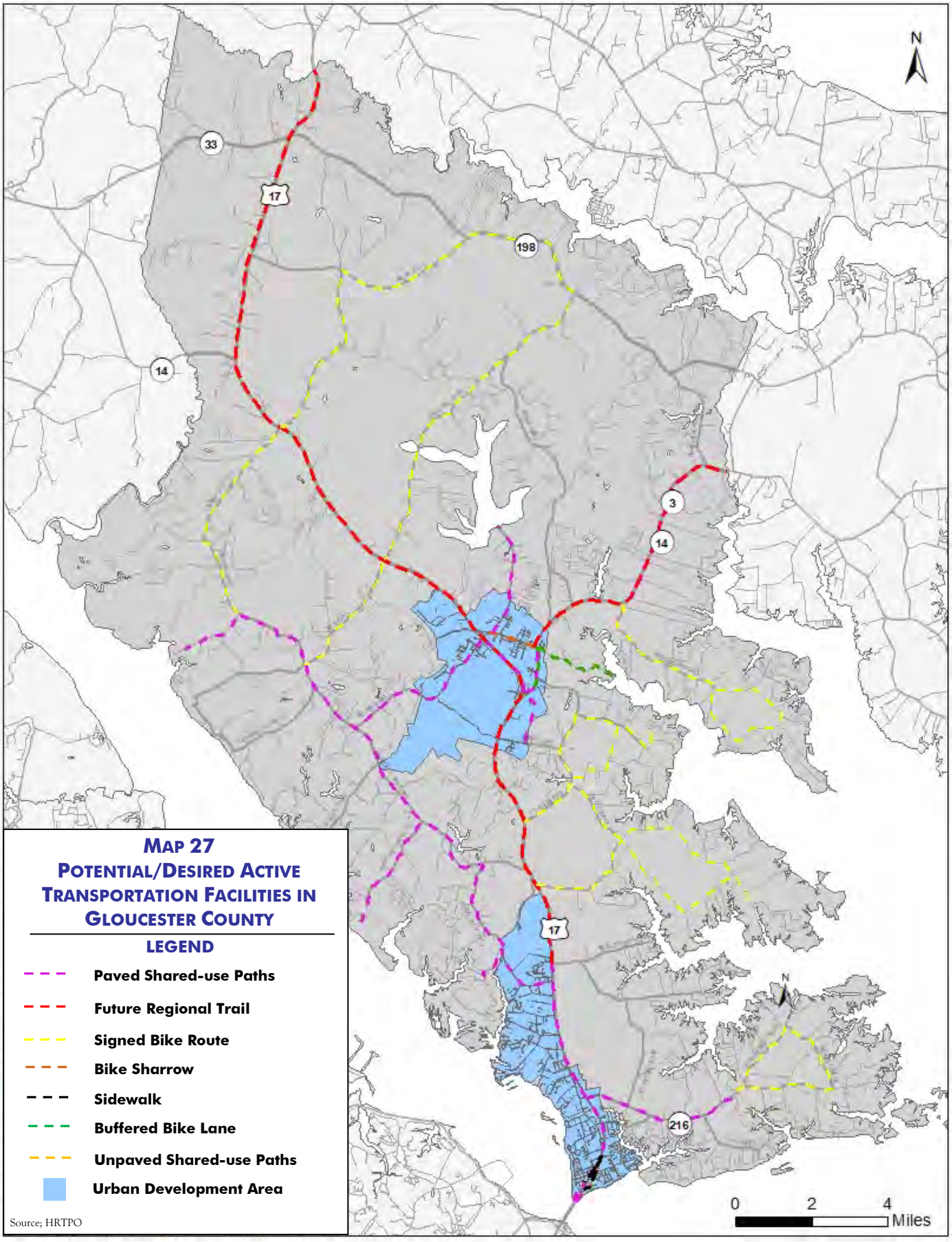
There are numerous county offices, schools, and key shopping destinations in the Gloucester Court House area. Potential facilities in the Gloucester Court House area include:

- Buffered bike lanes on both sides of Main Street to connect key businesses and destinations. There may be room for bike lanes between the court circle and the Main St/John Clayton Memorial Hwy intersection depending on the traffic volume (this section of Main St is a two-lane road with a center turn lane that could turn into a two lane), which is a County's decision.
- Buffered bike lanes on Ware House Road from Main Street to the Ware House boat ramp.
- Shared-use paths along Belroi Road and Roaring Spring Road connecting Main Street to multiple parks across the county.

UPC	Project	Projected Construction Start	Project Cost
110626	Greate Road (Rte 1208) - Pedestrian Improvements between Route 17 and Gloucester Boat Ramp	2026	$2,120,000
111223	Historic Gloucester Court Circle - Sidewalk Improvements	2020	$297,000
115121	Main Street (Business Rte 17) between Route 17 and Route 3/14 - Bicycle and Pedestrian Improvements	2027	$7,300,000
107414	Roaring Springs Road (Rte 616) from Main Street (Business Rte 17) to Beaverdam Park - Bike Lane Improvements	2026	$2,990,000
109470	Route 17 at Business Route 17 north of Gloucester Courthouse - Pedestrian Improvements	2020	$950,000
109468	Route 17 SB between Lafayette Heights Dr (Rte 1206) and Bellehaven Dr (Rte 1250) - Sidewalk addition	2020	$800,000

FIGURE 47 – PROGRAMMED GLOUCESTER COUNTY BICYCLE AND PEDESTRIAN PROJECTS

Source: VDOT



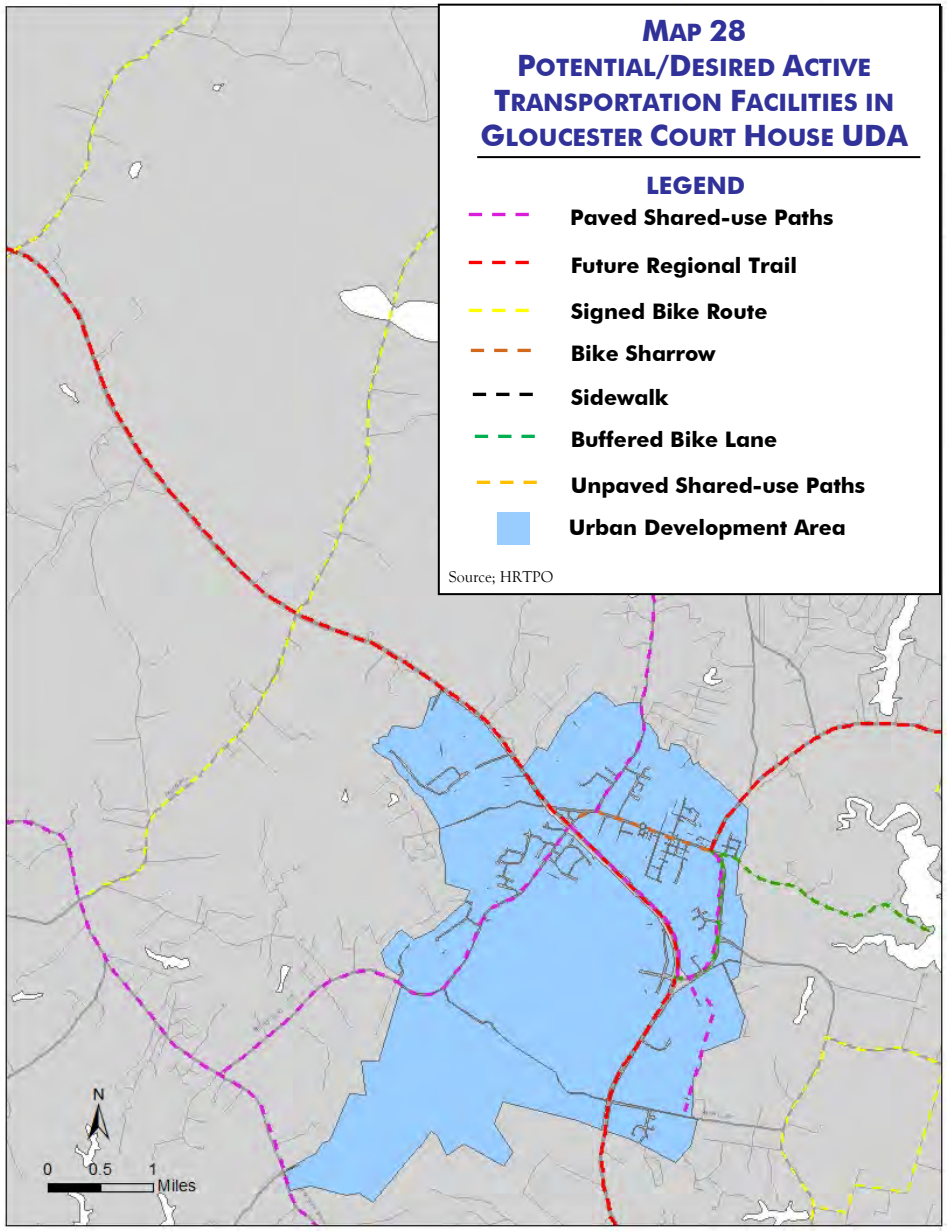
Map 27
Potential/Desired Active Transportation Facilities in Gloucester County

LEGEND

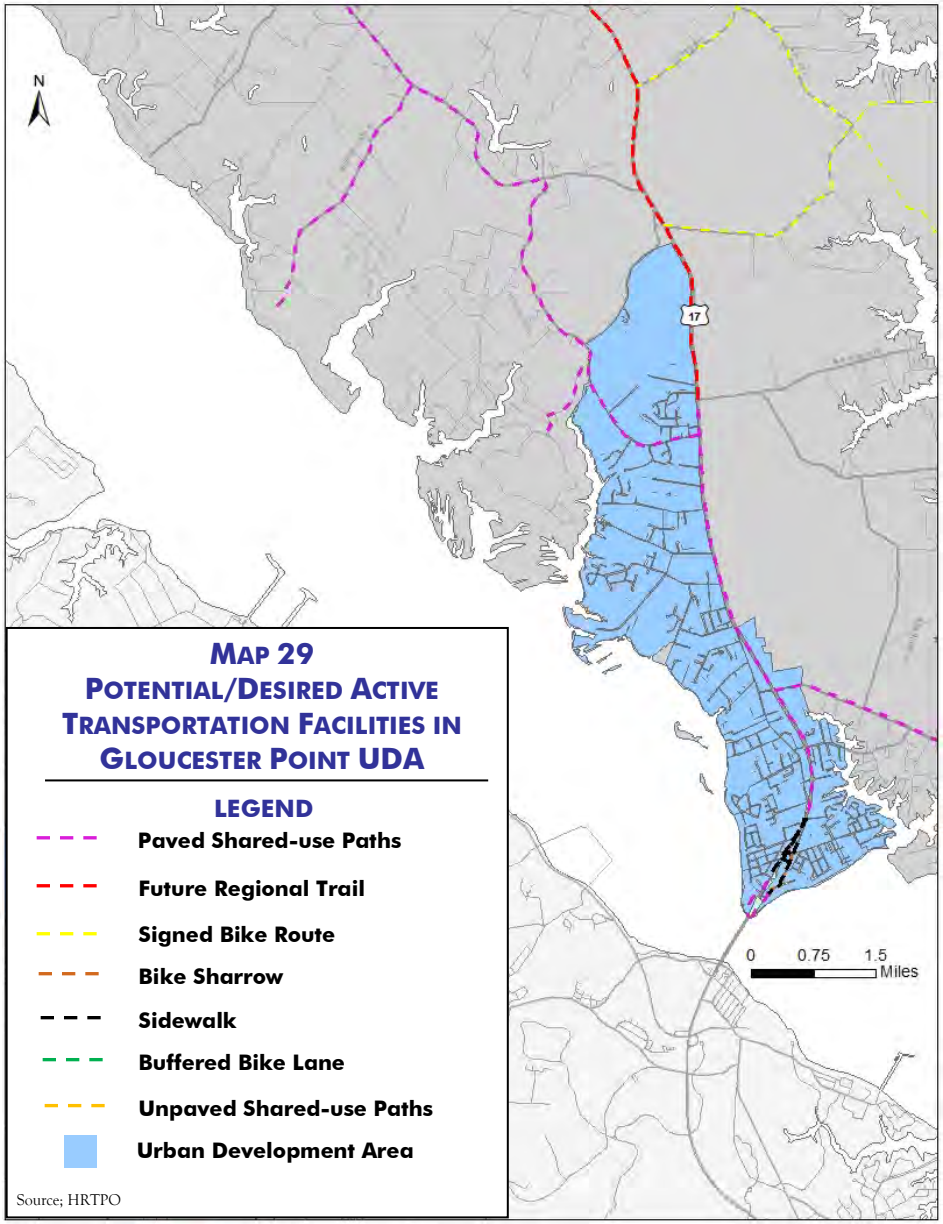
- Paved Shared-use Paths
- Future Regional Trail
- Signed Bike Route
- Bike Sharrow
- Sidewalk
- Buffered Bike Lane
- Unpaved Shared-use Paths
- Urban Development Area

Source; HRTPO

Map 28
Potential/Desired Active Transportation Facilities in Gloucester Court House UDA

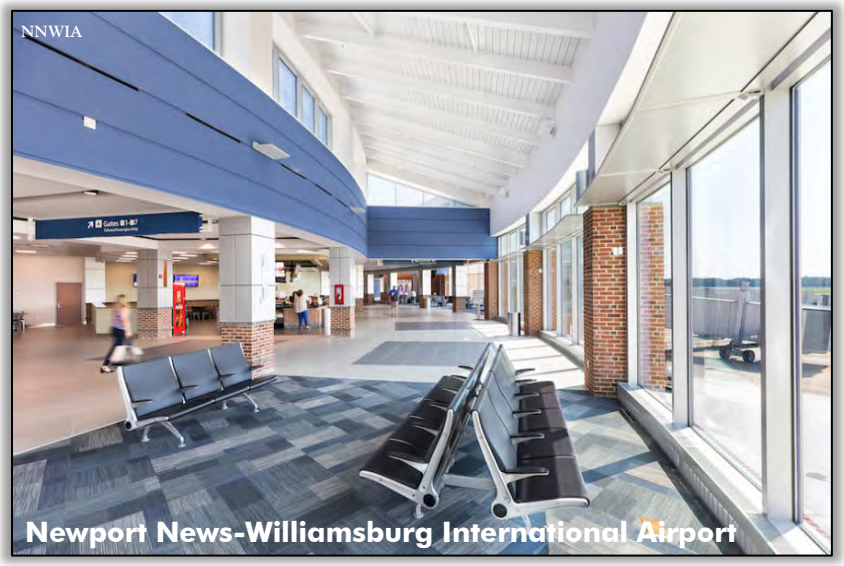


Map 29
Potential/Desired Active Transportation Facilities in Gloucester Point UDA



Air Service

For air transportation, residents and travelers of Gloucester County can choose from a range of options. Three commercial passenger service airports are located in close proximity to the county. The closest passenger service airport is Newport News-Williamsburg International Airport (PHF), which is 25 miles from the Court House area of the county. Norfolk International Airport (ORF) and Richmond International Airport (RIC) are also options for residents, since both are located about 50 miles from the Court House area. There is also a general aviation airport on Middle Peninsula.



Newport News - Williamsburg International Airport

The Newport News-Williamsburg International Airport (PHF) is located on the border of Newport News and York County (distance to Gloucester County is approximately 24 miles and about 40 minutes by car). 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 48 shows the enplanements or "passenger boardings" at the Newport News-Williamsburg, Richmond, and Norfolk International Airports from 2000 through 2019. As shown in Figure 48, passenger activity at the Newport News-Williamsburg International Airport increased between 2001 and 2005 but has decreased 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. With the departure of Airtran, passenger activity declined substantially in 2012. Another contributor to passenger increases and decreases was Frontier Airlines, which began nonstop service in 2010 but withdrew service in January 2015.

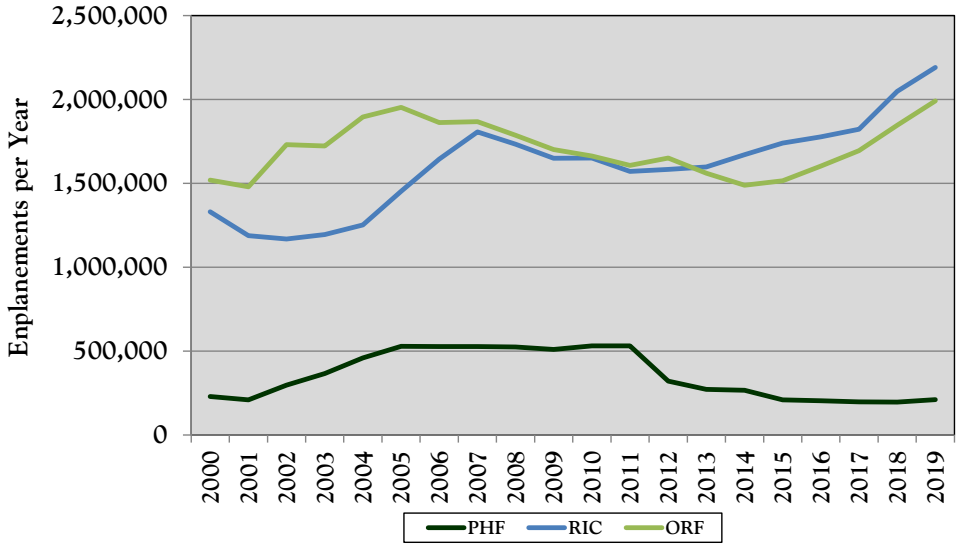


Figure 48 - Enplanements at Newport News-Williamsburg, Richmond, and Norfolk International Airports, 2000-2019

Data source: FAA.

Norfolk International Airport

Norfolk International Airport (ORF) is the second closest commercial passenger service airport to Gloucester County, located about 50 miles and approximately 1 hour and 15 minutes by car. The airport is owned by the City of Norfolk and operated by the Norfolk Airport Authority. Norfolk International Airport is served by six commercial airlines (Allegiant, American, Delta, Frontier, Southwest, and United).

As shown in **Figure 48**, 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 again in recent years, up to nearly 2 million enplanements in 2019.

Richmond International Airport

Due to its proximity, Gloucester County residents and travelers have the option to use Richmond International Airport (RIC), which is located about 55 miles away and takes about 1-hour and 20-minutes by car. Richmond International Airport is located in Sandston, Virginia, which is seven miles southeast of downtown Richmond.

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 nearly 2.2 million enplanements in 2019, Richmond International Airport now carries more passengers than Norfolk International Airport and is the third-busiest airport in Virginia behind Dulles and Reagan National in the Washington D.C. area.

Middle Peninsula Regional Airport

The Middle Peninsula Regional Airport is a general aviation airport five miles to the west of Gloucester County in King and Queen County just to the east of the Town of West Point. The airport – which serves about 20,000 operations each year – has a 5,000-foot runway which is accessible to a wide variety of aircraft. The Middle Peninsula Regional Airport Authority has members appointed to the Board by Gloucester County, King and Queen County, King William County, and the Town of West Point.

Resiliency and Sea Level Rise Impacts

Extreme flooding events currently disrupt transportation networks and will likely become more prevalent as sea levels are expected to rise at an accelerated pace for many coastal regions, such as Hampton Roads. Hampton Roads—second only to New Orleans in terms of vulnerability to sea level rise in the United States—is seeing more frequent storm surges and higher tides than before[16]. Based on past storm events, Hampton Roads' east coast location makes it prone to significant storm surges about every four to five years.

Sea level rise will cause significant impacts to coastal regions. Some areas are already experiencing permanent inundation, while other areas are seeing more frequent flooding. As sea levels continue to rise, some areas that have not seen flooding will start to experience it, which will have major infrastructure impacts.

Gloucester County officials are required to address sea level rise as part of their comprehensive plans under new state legislation. On March 16, 2015, Governor McAuliffe signed Senate Bill (SB) 1443, which amended the Code of Virginia by adding section 15.2-2223.3 for comprehensive plans to incorporate strategies to combat sea-level rise and recurrent flooding:

> "Beginning July 1, 2015, any locality included in the Hampton Roads Planning District Commission shall incorporate into the next scheduled and all subsequent reviews of its comprehensive plan strategies to combat projected relative sea-level rise and recurrent flooding. Such review shall be coordinated with the other localities in the Hampton Roads Planning District Commission."

As part of the 2016 Gloucester County Comprehensive Plan, storm surge zones and sea level rise areas within the county are provided (Chapter 7 – Natural Resources). Vulnerable areas to sea level rise and storm surge that were identified include regions east of Route 17, such as the

Goal NR-5: Address impacts related to Sea Level Rise and Recurrent Flooding.		
Objectives	**Implementation Strategies**	**Time Frame**
Protect residents and County assets from sea level rise and recurrent flooding impacts	Apply the recommendations within the Floodplain Management Plan, Open Space Plan, and Natural Hazards Mitigation Plan	Short Term
	Review and regularly update the Floodplain Management, Open Space, and Natural Hazards Mitigation Plans	Ongoing
	Continue participation in region discussions and planning efforts regarding sea level rise and recurrent flooding	Ongoing
	Consider sea level rise and recurrent flooding in County-funded projects	Short Term

Figure 49 – Natural Resources Goal for Sea Level Rise and Recurrent Flooding
Source: Gloucester County Comprehensive Plan, 2016

[16] *Virginia Conservation Network website*, "Confronting Climate Change" webpage, www.vcnva.org, April 2013.

Mobjack Bay, Jenkins Neck, Maryus, Severn, Achilles, Bena, Perrin, Robins Neck, Glass, Dutton, Ware Neck, White Marsh and portions of Goucester Point. Several implementation strategies for sea level rise and recurrent flooding were included as natural resources goals (see **Figure 49** on page 84).

HRTPO Study

HRTPO staff partnered with Hampton Roads Planning District Commission (HRPDC) staff in 2016 to conduct a GIS-based flooding vulnerability analysis for potential sea level rise and storm surge impacts to regional roadways by 2045 (the next Hampton Roads Long-Range Transportation Plan horizon year). The study[17] contains potential flooding scenarios for Hampton Roads localities, including all of Gloucester County. Identification of flood prone areas and addressing problems with mitigation strategies will help communities in the region to become more resilient to extreme weather and climate impacts.

Given the uncertainty in how much relative sea level rise (SLR) will occur over time, research suggested that 2.0 feet of rise could occur in Hampton Roads sometime between 2043 and 2083. With the forecast year of the next HRTPO Long-Range Transportation Plan being 2045, a 2.0 foot relative sea level rise scenario was conservatively used in this analysis.

The three scenarios used in the flooding vulnerability analysis were as follows:

Scenario 1: 2.0 foot relative sea level rise

Scenario 2: 2.0 foot relative sea level rise + 25-year storm surge

Scenario 3: 2.0 foot relative sea level rise + 50-year storm surge

In October 2018, the HRPDC adopted a resolution[18] that recommended local governments adopt policies to incorporate sea level rise into planning and engineering decisions. The resolution recommends using 1.5 feet of relative sea level rise above current mean higher high water[19] (MHHW) for near-term (2018-2050) planning, 3.0 feet of relative sea level rise above current MHHW for mid-term (2050-2080) planning, and 4.5 feet of relative sea level rise above MHHW for long-term (2080-2100) planning. Given that the HRTPO study already included a comprehensive analysis with 2.0 feet of relative sea level rise, the flooding vulnerability analysis for this study was not redone for 1.5 feet. A 2.0 foot relative sea level rise scenario captures all of the potentially flooded roadways under the 1.5 foot relative sea level rise scenario for the near-term. It is important to note that this analysis does not include a mid-term (2050-2080) or long-term (2080-2100) planning horizon, where 3.0 feet and 4.5 feet of relative sea level rise above MHHW would need to be used.

Map 30 on page 87 shows the potential submergence of roadways by 2045 in Gloucester County. Based on HRTPO's analysis, roadways along the shoreline especially east of Route 17 are projected to be impacted by flooding by 2045. Guinea Road (Route 216) is the main roadway in the southern part of the county that is expected to have flooding under Scenarios 1, 2, and 3. **Maps 31, 32, and 33** on pages 88-90 show a closer view of the results for local roadways located in the western, eastern, and southeastern parts of Gloucester County.

Flood Prone Area along Guinea Rd (Rte 216) at Maryus Rd (Rte 649)/Kings Creek Rd (Rte 653)

[17] *Sea Level Rise and Storm Surge Impacts to Roadways in Hampton Roads*, HRTPO, May 2016.

[18] *Hampton Roads Planning District Commission Resolution 2018-01*, Resolution Encouraging Local Governments in Hampton Roads to consider Adopting Policies to Incorporate Sea Level Rise into Planning and Engineering Decisions, October 2018.

[19] Mean Higher High Water (MHHW) – The average of the higher high water height of each tidal day observed over the National Datum Epoch (Source: NOAA Tidal Datums).

HRTPO Study Recommendations

- It is recommended that engineers and planners within cities and counties work with the Virginia Department of Transportation (VDOT) to develop detour plans for all roadways that are projected to be submerged for the three scenarios analyzed in this study.
- It is recommended that VDOT/cities/counties incorporate the latest projections for relative sea level rise/storm surge when a roadway project is designed. Design standards need to be reviewed and modified on an ongoing basis as sea levels continue to rise.
- It is recommended that cities/counties include climate change mitigation measures and adaptation projects into ongoing capital improvement plans, which can extend over long periods and help distribute the mitigation costs.
- It is recommended that VDOT/cities/counties consider and implement adaptation strategies as discussed in this study when planning, designing, constructing, or retrofitting transportation infrastructure (e.g., roadways, tunnels, bridges).

Gloucester County Floodplain Management Committee Recommendations

In May 2010, the County Administrator of Gloucester County established a Floodplain Management Committee to annually evaluate and review the county's Floodplain Management Plan.

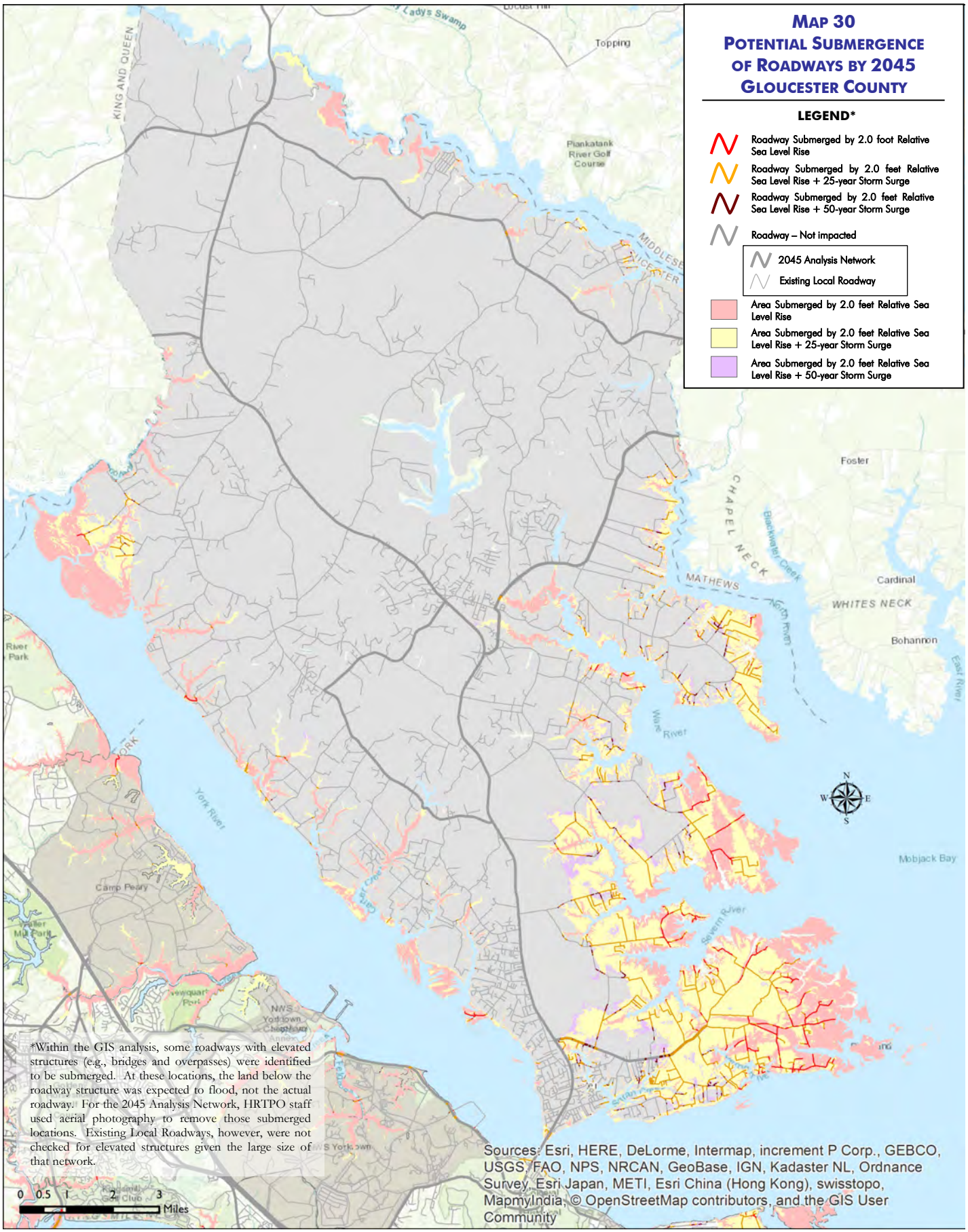
In November 2017, the Gloucester County Floodplain Management Committee reviewed various roadways where flooding currently exists. The committee suggested that the county install "Road May Flood" signs at the following locations to alert motorists during flooding:

- Jenkins Neck Road (2 locations)
- Perrin Creek Road (2 locations)
- Guinea Road at Maryus Road and Kings Creek Road
- Severn Wharf Road

Road May Flood Sign Example

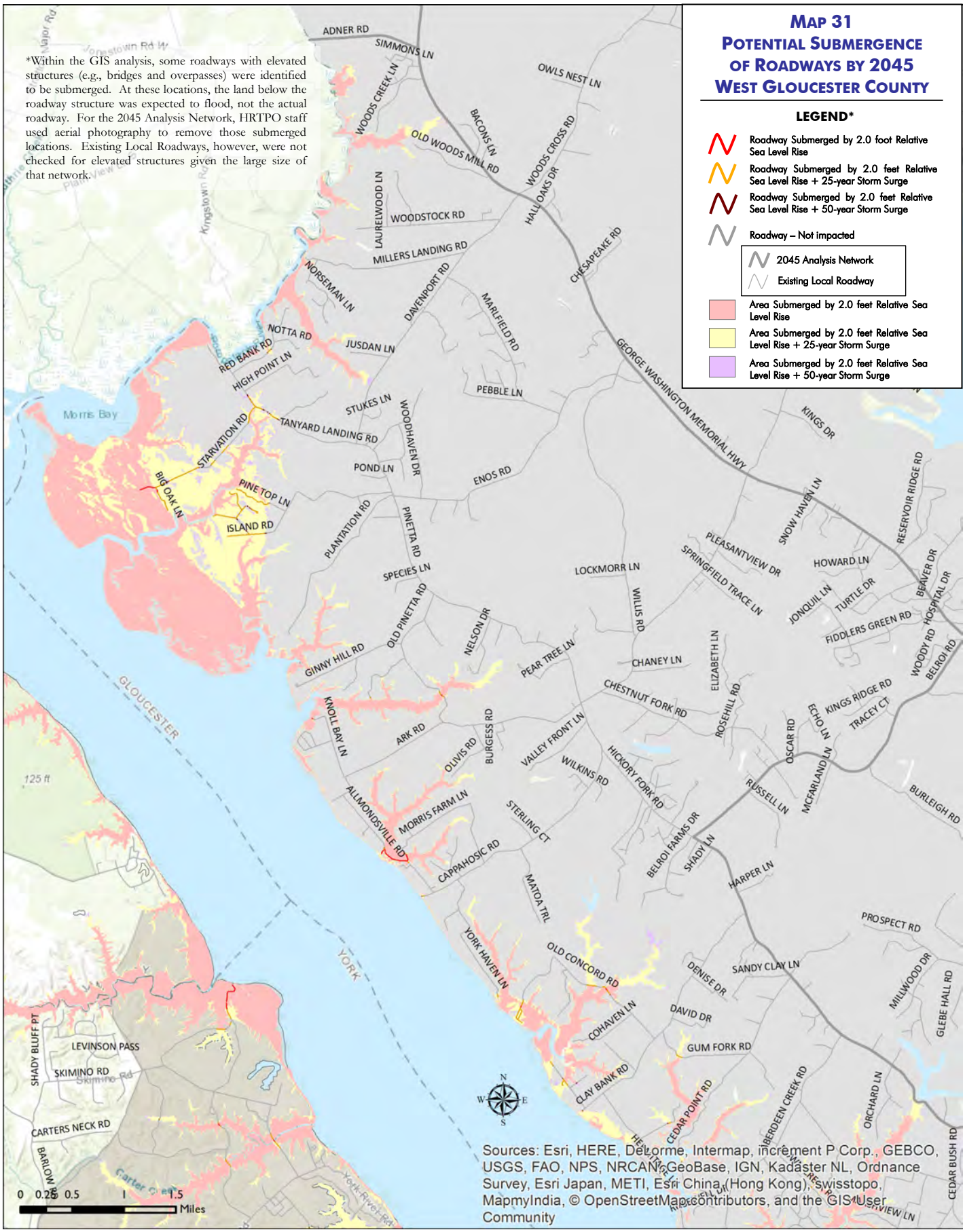
- Mark Pine Road
- Little England Road (2 locations)
- Low Ground Road (2 locations)
- Glass Road at Stonewall Road
- Warner Hall
- Featherbed Lane
- Robins Neck Road at The Corduroy
- Carmines Island Road
- Allmondsville Road (2 locations)

Location details and photos from the Floodplain Management Committee's recommendations are included in **Appendix B** of this report. Gloucester County staff is coordinating with VDOT regarding the installation of the signs.



Prepared by: HRTPO Staff, October 2015

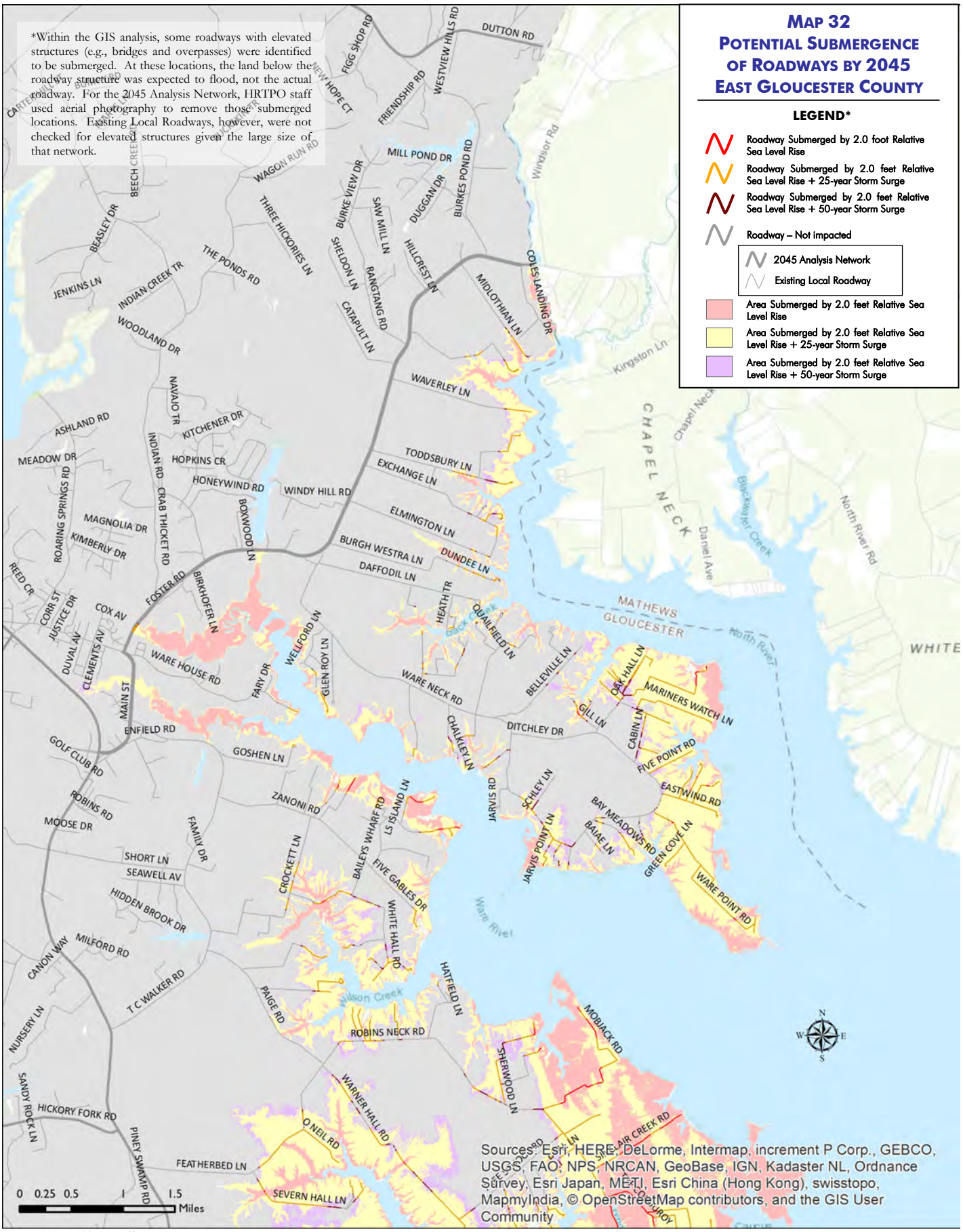
Data source for projected flooded areas: HRPDC Staff, October 2015



Prepared by: HRTPO Staff, October 2015

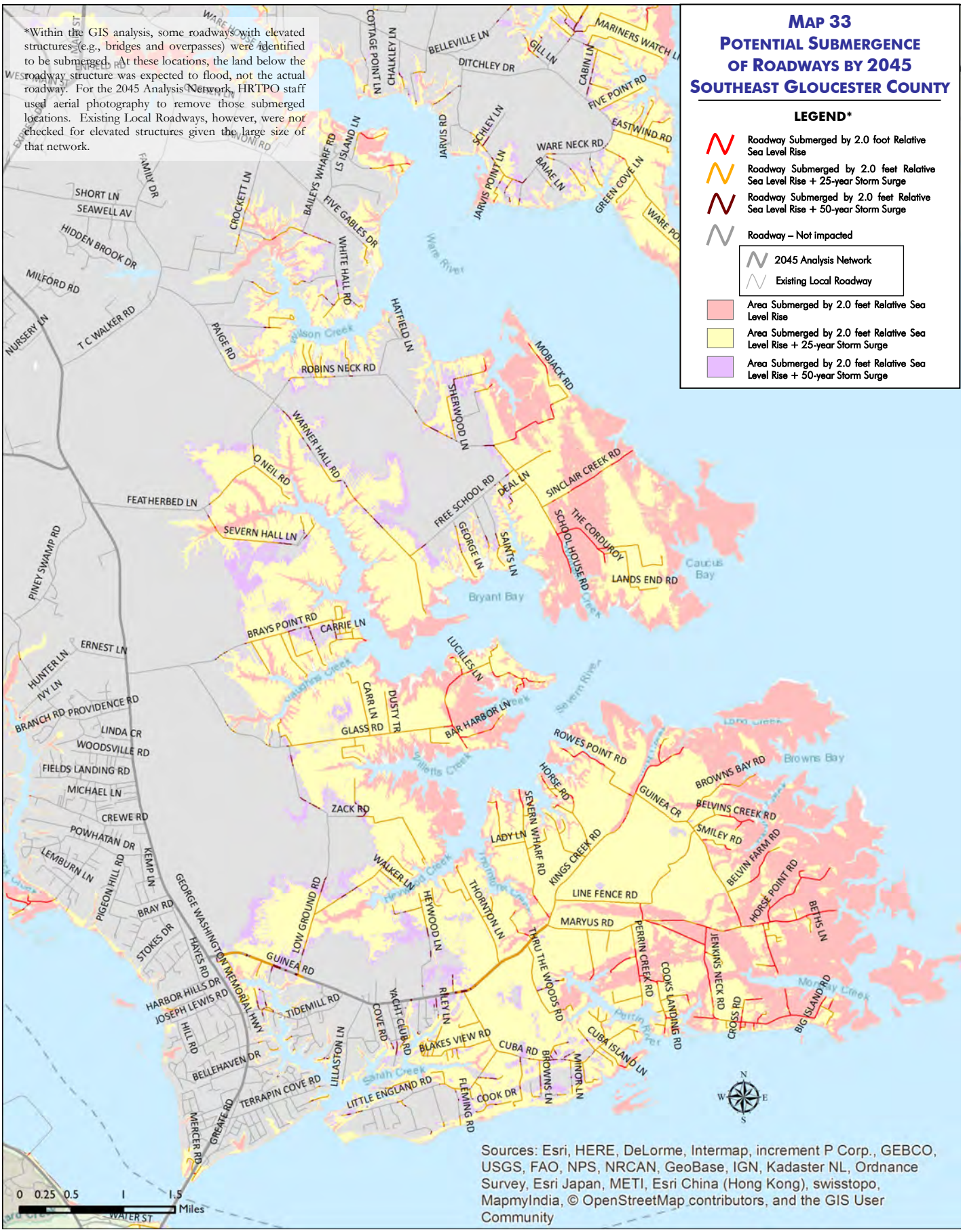
Data source for projected flooded areas: HRPDC Staff, October 2015

*Within the GIS analysis, some roadways with elevated structures (e.g., bridges and overpasses) were identified to be submerged. At these locations, the land below the roadway structure was expected to flood, not the actual roadway. For the 2045 Analysis Network, HRTPO staff used aerial photography to remove those submerged locations. Existing Local Roadways, however, were not checked for elevated structures given the large size of that network.



Prepared by: HRTPO Staff, October 2015

Data source for projected flooded areas: HRPDC Staff, October 2015



Prepared by: HRTPO Staff, October 2015

Data source for projected flooded areas: HRPDC Staff, October 2015

RECOMMENDATIONS

A number of recommendations are described throughout this report. These recommendations are related to improving roadway congestion, improving safety, constructing active transportation facilities, rehabilitating bridges, and reducing the impact of sea level rise/storm surge. These recommendations are summarized below:

Highway

This study looks at current roadway conditions in Gloucester County and how they compare to historical trends. In addition, future roadway conditions and projects are highlighted. The impact of private roadways in the county is also detailed. Recommendations for roadways in Gloucester County include:

Private Roadways

Many roadways in Gloucester County – comprising 295 centerline miles (42% of total miles) – are privately-owned. Gloucester County has the 6th highest percentage of privately-owned roadways among the 93 counties in Virginia with roadways maintained by VDOT. Issues related to private roadways in Gloucester County include the lack of formal maintenance agreements and the inability to enforce private upkeep provisions. Many of the older private roads are in poor condition, which poses a safety risk both to residents and others that use these roadways. Recommendations for private roadways include:

- Gloucester County staff should continue preparing educational materials for private road owners to inform them of maintenance standards and how to establish road maintenance agreements.
- Gloucester County should continue to work with VDOT and citizens to get private roads incorporated into the secondary system of state highways as funding allows.

Congestion

No roadway segments in Gloucester County currently operate at severely congested levels (LOS E or F) during the morning and afternoon peak travel periods. Roadways that operate at moderate levels of congestion (LOS D) during the morning peak period include Route 17 northbound between Short Lane (Route 615) and Main Street (Route 17 Business South) and Hickory Fork Road (Route 614) between Route 17 and Belroi Road (Route 616).

During the afternoon peak period, roadways that operate at moderate levels of congestion include northbound Route 17 between the Coleman Bridge and Guinea Road (Route 216), southbound Route 17 between Providence Road (Route 636) and Guinea Road (Route 216), northbound and southbound Route 17 between Short Lane (Route 615) and Main Street (Route 17 Business South), and Hickory Fork Road (Route 614) between Route 17 and Belroi Road (Route 616). Northbound Route 17 between Short Lane and Main Street has a travel time index (1.39) that is just below the threshold for being classified as severely congested (1.40).

Operational improvements should be considered for these moderately congested roadways, particularly Route 17. These improvements include retiming and improving the coordination of traffic signals, constructing additional turn bays, or redesigning intersections to redirect or prohibit certain movements (such as a Restricted Crossing U-Turn, or RCUT, intersection), which would improve traffic flow through the corridor.

Widening projects should also be considered along with other access management measures, particularly for Route 17 between Short Lane and Main Street. The widening of Route 17 through Gloucester Point – which is programmed and scheduled to begin construction in 2027 – will improve traffic flow in that area.

By 2040, Route 17 between the Coleman Bridge and Hickory Fork Road (Route 614) is projected to be severely congested during the PM Peak Period. This is projected to occur despite the widening project that is included in the Hampton Roads 2040 Long-Range Transportation Plan, largely due to the highly directional travel that occurs during peak travel periods. This should lead to further consideration of an Upper York River Crossing in the future.

Safety

This study includes an in-depth analysis of five Gloucester County intersections with safety concerns. A list of potential countermeasures for

each intersection is provided below. In addition, reconstructing roadways (with adequate lane widths, shoulders, drainage, etc.) should be considered for those roadways highlighted in the study with the highest Equivalent Property Damage Only (EPDO) Rates, which take into account both the number and severity of crashes.

Business Route 17 (Main Street) at T C Walker Road (Route 629)

- Remove the mound/vegetation that blocks visibility to the left from T C Walker Road.
- Move the stop sign and stop bar on T C Walker Road closer to Main Street to improve visibility.
- Add lighting to the intersection.
- Perform an analysis to determine if a signal is warranted.
- Consider adding flashing intersection ahead signs along Main Street (COMPLETED IN 2020).
- Extend SB left-turn bay along Main Street to AASHTO design standards (NB COMPLETED IN 2020).
- Install a right turn bay along northbound Main Street.

Route 17 at Davenport Road/Woods Cross Road (Route 610)

- Redesign the intersection by aligning Woods Cross Road with Davenport Road to fix the skew of the intersection.
- Trim back vegetation from the Woods Cross Road stop sign, and add an additional stop sign on the left-hand side of the roadway on the same approach.
- Reduce the turn radius for Wood Cross Road so right-turning vehicles can see Route 17 traffic better.
- Reinstall a yield line in the median for southwestbound travelers.
- Extend left-turn bays along Route 17 to AASHTO design standards.

Route 17 at Fields Landing Road (Route 1301)

- Add an additional stop sign on the right side on the Fields Landing Road approach.

Route 3/14 at Ware Neck Road (Route 623)

- Repaint/move Ware Neck Road stop bar closer to the intersection.
- Redesign intersection as a Restricted Crossing U-Turn (RCUT) intersection, which would prohibit left turns from Ware Neck Road at the intersection. Instead, this movement would be made by making a right turn onto Route 3/14, and then making a U-Turn at Route 676.
- Trim back vegetation from the stop sign and right side for the Ware Neck Road approach.
- Add lighting to intersection.
- Reduce speed limit along Route 3/14.
- Add second stop sign/channelizing island for the Ware Neck Road approach.
- Extend right and left-turn bays along Route 3/14 to AASHTO design standards.

Business Route 17 (Main Street) at Ware House Road (Route 621)

- Consolidate signage in the area and remove unnecessary signage.
- Repaint stop bar for Ware House Road.
- Add lighting to the intersection.
- Add "Do Not Block Intersection" cross-hatching pavement markings to ensure that vehicles remain clear of the intersection.

Active Transportation

Gloucester County currently has limited active transportation infrastructure, particularly outside of the Court House and Gloucester Point areas. Pedestrian and bicycle facilities are important safety measures which provide options for alternative transportation, recreation and exercise.

There are a number of potential active transportation improvements that are being considered by the County. These improvements include:

- Paved shared-use paths connecting Gloucester Point and the Court House area to the future Middle Peninsula State Park, future Werocomoco National Park, and Beaverdam Park.
- Regional trails on Route 17 and Routes 3/14, with possible connections to Middlesex and Matthews Counties.
- Signed routes for existing shared on-road bicycle routes in rural areas of the county

including areas near Warner Hall, Peasley and Achilles Schools.
- Bike sharrows along Greate Road parallel to the funded sidewalk project that is currently being developed.
- Shared-use paths connecting Tyndall Park to the Virginia Institute of Marine Science (VIMS) and Gloucester Point Beach Park.
- Consideration of separated bike lanes on the Coleman Bridge.
- Buffered bike lanes on both sides of Main Street in the Court House area to connect key businesses and destinations.
- Buffered bike lanes on Ware House Road from Main Street to the Ware House boat ramp.
- Shared-use path along Roaring Spring Road connecting Main Street to Beaverdam Park.

Bridges

Bridges in Gloucester County are generally in good or fair condition. There are three bridges in Gloucester County that are classified as structurally deficient as of 2019 – Route 17 Southbound over Dragon Run, Route 14 over Poropotank River, and Tidemill Road over a branch of Sarah Creek. Funding for rehabiliation/replacement has been allocated for all three bridges in VDOT's current Six-Year Improvement Program (SYIP), and construction on the Dragon Run and Poropotank River bridges is underway.

As bridges in Gloucester County continue to age, many of the bridges that are currently in fair condition may become structurally deficient. Funding for these structures will need to continue to be a priority for VDOT, primarily through the State of Good Repair program.

Sea Level Rise/Storm Surge

HRTPO Study Recommendations

- It is recommended that the county Department of Emergency Management, Floodplain Management Committee, and planners work with the Virginia Department of Transportation (VDOT) to develop detour plans for all roadways that are projected to be submerged for the three scenarios analyzed in this study.
- It is recommended that VDOT/cities/counties incorporate the latest projections for relative sea level rise/storm surge when a roadway project is designed. Design standards need to be reviewed and modified on an ongoing basis as sea levels continue to rise.
- It is recommended that cities/counties include climate change mitigation measures and adaptation projects into ongoing capital improvement plans, which can extend over long periods and help distribute the mitigation costs.
- It is recommended that VDOT/cities/counties consider and implement adaptation strategies as discussed in this study when planning, designing, constructing, or retrofitting transportation infrastructure (e.g., roadways, tunnels, bridges).

Gloucester County Floodplain Management Committee Recommendations

In November 2017, the Gloucester County Floodplain Management Committee reviewed various roadways where flooding currently exists. The committee suggested that the county install "Road May Flood" signs at the following locations to alert motorists during flooding:

- Jenkins Neck Road (2 locations)
- Perrin Creek Road (2 locations)
- Guinea Road at Maryus Road and Kings Creek Road
- Severn Wharf Road
- Mark Pine Road
- Little England Road (2 locations)
- Low Ground Road (2 locations)
- Glass Road at Stonewall Road
- Warner Hall
- Featherbed Lane
- Robins Neck Road at The Corduroy
- Carmines Island Road
- Allmondsville Road (2 locations)

Location details and photos from the Floodplain Management Committee's recommendations are included in **Appendix B** of this report. Gloucester County staff is coordinating with VDOT regarding the installation of these and other warning signs.

Appendix A: Private Roads Research

HRTPO staff collected several private road maintenance agreements and subdivision ordinances from other counties in Virginia and are included in this appendix for Gloucester County staff review.

Private Road Maintenance Agreement – Albermarle County

*Prepared by **ATTORNEY OR FIRM***
*Albemarle County Parcel ID # **00000-00-00-00000***

PRIVATE IMPROVEMENT MAINTENANCE DECLARATION

This PRIVATE IMPROVEMENT MAINTENANCE DECLARATION (hereinafter, the "Declaration") is made this **DAY** of **MONTH, YEAR**, by **OWNER1** and **OWNER2** (hereinafter, the "Declarant(s)"), whose address is **ADDRESS**.

WHEREAS, the Declarant(s) is/are the owner(s) of a parcel of land known as Albemarle County Parcel ID **PARCEL** #; and

WHEREAS, Albemarle County Parcel ID **PARCEL** # is being subdivided by the Declarant(s) into Lots # _____, as shown and described on a plat by **SURVEYOR NAME**, dated **DATE**, a copy of which is attached hereto and incorporated herein by reference (hereinafter, the "Plat"); and

WHEREAS, the access easement shown on the Plat is to be a new or existing # **of FEET WIDE** foot wide non-exclusive ingress and egress easement (hereinafter, the "Street") for the use and benefit of Lots # _____ **(or all lots)** shown on the Plat.

NOW, THEREFORE, for and in consideration of the premises and the undertakings contained herein, the Declarant(s) hereby impose(s) the following obligations upon Lots # _____:

1. MINIMUM STANDARD: The Street shall be maintained in perpetuity to a standard that, at a minimum, ensures that it will remain in substantially the same condition it was in when approved by the County: **(describe the standard that the street will be constructed to. Example – a "X feet" wide base of gravel or a superior surface as agreed to in the future via supplemental declaration)**. The travelway shall at all times be maintained so that it is safe and convenient for passenger automobiles and emergency vehicles at all times except in severe temporary weather conditions.

2. DEFINITIONS: For purposes of this instrument, "maintenance" includes the maintenance of the private streets or alleys, and all curbs, curbs and gutters, drainage facilities, utilities, dams, bridges and other private street improvements, and the prompt removal of snow, water, debris, or any other obstruction so as to keep the private street or alley reasonably open for usage by all vehicles, including emergency services vehicles. The term "to maintain," or any derivation of that verb, includes the maintenance, replacement, reconstruction and correction of defects or damage.

3. WHEN TO MAINTAIN: After the initial construction of the Street, any further construction, maintenance or repair shall be undertaken only with the mutual consent of all owners, provided that in the event that (a) one or more of the owners determines that the Street is not safe and convenient for passenger automobiles and emergency vehicles at all times (except in severe temporary weather conditions), and (b) such

owner(s) give(s) 30 days prior written notice to all other owners using the Street, such owner(s) may commence or contract to bring the Street to the minimum standard, and the resulting costs shall be the responsibility of all owners using the Street.

4. DEFAULTING OWNER(S): If any owner(s) fail(s) to pay their proportionate share of the costs of maintenance or repair for which they are responsible, as provided hereinabove, any other owner(s) not in default or the person or corporation performing such maintenance may, after 30 days written notice to the defaulting parcel owner(s), bring an action of law against each defaulting parcel owner(s) in a court of competent jurisdiction and/or may record in the Clerk's Office of the Circuit Court of Albemarle County, a Notice of Lien to secure the payment of any defaulting parcel owner(s)' proportional share of maintenance or repair. The amount due by any delinquent owner(s) will bear interest at the maximum judgment rate provided by law from the date of completion of the maintenance. The delinquent owner(s) shall be liable for all costs of collection, including reasonable attorney's fees.

5. COST OF MAINTENANCE: The owner(s) of Lots # _____ shall be equally responsible for the cost of the maintenance of and/or repair to the Street, from **LOCATION X** to **LOCATION Y**. Any further division of Lots # _____ shall require the reassessment of cost to be equally shared by all owners using the Street.

6. **No public agency, including the Virginia Department of Transportation and the County of Albemarle, Virginia, will be responsible for maintaining any improvement identified herein.**

IN WITNESS WHEREOF, the Declarant(s) has/have caused this Declaration to be executed on his/her/its/their behalf by his/her/its/their duly authorized agent.

BY: _____
OWNER

STATE OF VIRGINIA AT LARGE
CITY/COUNTY OF _____, to-wit:

The foregoing Declaration was acknowledged before me this ____ day of _____, 20_____, by **OWNER**.

_____
Notary Public

My commission expires: **DATE**

Private Road Maintenance Agreement – Loudon County

USE OF A SEPARATE ROAD MAINTENANCE AGREEMENT IS OPTIONAL. HOWEVER, IF A SEPARATE AGREEMENT IS USED, THEN THE SECOND (AND NOT THE FIRST) OF THE TWO BRACKETED SENTENCES ON PAGE 2, 3RD PARAGRAPH OF THE DEED OF SUBDIVISION SHOULD BE USED. THE FOLLOWING SUGGESTED FORM IS INTENDED FOR USE BY PERSONS LEGALLY AUTHORIZED TO PREPARE DEEDS CONVEYING INTERESTS IN REAL PROPERTY.

THIS PRIVATE ROAD MAINTENANCE AGREEMENT made this ___ day of _____, _____, by and between _____ (hereinafter referred to as "_____"); and _____, (hereinafter referred to as "_____").

W I T N E S S E T H:

WHEREAS, _____ is the owner of that certain real property known as Lot ____ of the _____ Family Subdivision, lying and being situate in the _____ Election District, Loudoun County, Virginia, as shown on that certain Plat dated _____, and revised through _____, _____, entitled "_____," and prepared by _____ of _____, Virginia, certified land surveyors (the "Plat") which Plat is recorded contemporaneously herewith among the land records of Loudoun County, Virginia; and

WHEREAS, _____ is the owner of that certain real property known as Lot ____ of the _____ Family Subdivision, lying, and being situate in the _____ Election District, Loudoun County, Virginia, as shown on the Plat; and

WHEREAS, Lots _____ and _____ are served by a private access easement for ingress and egress and for the construction and maintenance of utilities in the location as shown on the Plat, and designated thereon as "_____"; and

WHEREAS, it is the desire and intent of the parties hereto to provide for the maintenance of the aforesaid easement.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

(a) The responsibility for the construction, repair and maintenance of the private access easement serving the said Lots shall be shared [equally] **OR** [in the following percentages] among the said Lots served by the easement[:

IF MAINTENANCE RESPONSIBILITY IS NOT TO BE SHARED EQUALLY AMONG THE LOTS, SET FORTH HERE THE LOT NUMBERS AND ASSIGNED PERECENTAGES].

(b) The private access road within the said easement shall be constructed and maintained only as a gravel roadway sufficient for vehicular traffic, with maintenance to include, without limitation, grading, scraping, ditching, snow removal and spreading of new gravel, as necessary, in the sole discretion of the owners of the Lots served by said easement.

(c) As required by Section 1245.05(3)(b) of the Loudoun County Land Subdivision and Development Ordinance, the parties hereto state and acknowledge that said access road or access easement is private and its maintenance, including snow removal, is NOT a public responsibility. It shall not be eligible for acceptance into the State secondary system for maintenance until such time as it is constructed and otherwise complies with all requirements of the Virginia Department of Transportation for the addition of subdivision roads current at the time of such request. Any costs required to cause this road to become eligible for addition to the State system shall be provided from funds other than those administered by the Virginia Department of Transportation and by Loudoun County.

This Road Maintenance Agreement, and any amendments hereto, shall be recorded among the land records of Loudoun County, Virginia, and shall constitute a covenant running with the land, and the terms hereof shall not be amended or modified, except by written agreement.

WITNESS the following signatures and seals.

[ADD SIGNATURE LINE AND NOTARY BLOCK FOR EACH PARTY]

_____(SEAL)

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public in and for the Commonwealth and County aforesaid, do hereby certify that _____, whose name is signed to the foregoing Road Maintenance Agreement appeared before me personally and acknowledged the same in my jurisdiction aforesaid.

Given under my hand and seal this _____ day of _____, 19____.

_____
Notary Public

My Commission Expires: _____

LCOFORMS\SBFM\RdMntnceAgmt.4\99
First Web Version 7-1-99

Private Road Maintenance Agreement – Orange County

THE FOLLOWING AGREEMENT TEMPLATE IS INTENDED FOR USE BY PERSONS LEGALLY AUTHORIZED TO PREPARE DEEDS CONVEYING INTERESTS IN REAL PROPERTY. **THIS HEADER SHOULD NOT BE PRESENT FOR RECORDING.**

PRIVATE ROAD MAINTENANCE AGREEMENT

An Agreement ("Agreement") made on this date of _____, 20_____, applicable to the undersigned parcels and owners as prescribed below,

RECITALS

WHEREAS, _____ (the "Roadway") is a private road and easement or right-of-way situated in the _____ area of the County of Orange (the "County"), Commonwealth of Virginia, and

WHEREAS, the undersigned parcel owners are the owners or users of the Roadway which is shown and described on a certain plat recorded herewith **OR** in the Orange County Circuit Court as Instrument #: _____, dated: _____, and titled: _____

_____; and

WHEREAS, the parties desire to enter into an Agreement regarding responsibilities for maintenance of and improvements to the Roadway, which shall be binding for said parties and each subsequent owner(s) of the parcel(s), and shall serve as a covenant binding upon each current parcel using the Roadway and any future division(s) of said parcel(s).

NOW THEREFORE, IT IS HEREBY AGREED AS FOLLOWS:

(1) **Mutual responsibility.** The responsibility for the construction, repair, and maintenance of the Roadway serving the parcels shall be shared equally among the owners of said parcels served by the Roadway.

(2) **Good repair.** The Roadway shall be constructed and maintained as a [gravel] **OR** [paved] road sufficient for vehicular traffic, with maintenance to include, without limitation, grading, scraping, ditching, snow removal, spreading of new gravel, and/or placement of new pavement, whenever deemed necessary by the owners.

(3) **Private road standards.** The Roadway shall be constructed and maintained so as to meet, at all times, the minimum construction standards for private roads prescribed by the Orange County Subdivision Ordinance (Chapter 54 of the Orange County Code of Ordinances), including, but not limited to, a minimum thickness of gravel or pavement, a minimum road width, a minimum vertical clearance above the road, and adequate drainage.

(4) **No public responsibility.** Said construction and maintenance is under no circumstances a responsibility of the County, Virginia Department of Transportation (VDOT), the Commonwealth Transportation Board, or any other public entity.

(5) **Emergency services.** It is understood that failure of the owners to adequately maintain the Roadway may inhibit the ability of the County to provide emergency services to the parcels, any liability for which shall be borne among the owners.

(6) **School bus service.** The provision of Orange County public school bus services on this private road are not guaranteed or implied. The suitability for any private road for school bus services and routes shall remain at the discretion of the Orange County School Board.

(7) **Liability.** It is understood that the County and its agents shall not be liable or responsible in any manner to the developer or the property owners along the road, or to their contractors, subcontractors, agents, or any other person, firm or corporation, for any debt, claim, demand, damages, action or causes of action of any kind or character arising out of or by reason of the activities or improvements being required herein. It shall not be eligible for acceptance into the State Secondary System of State Highways for maintenance until such time as it is constructed and otherwise complies with all requirements of the Virginia Department of Transportation for the addition of subdivision roads current at the time of such request. Any costs required to cause this road to become eligible for addition to the State system shall be provided from funds other than those administered by the Virginia Department of Transportation and by Orange County.

(8) **Parking.** No machinery, trailers, vehicles, or other property may be stored or parked upon the Roadway which would otherwise inhibit safe ingress and egress along the Roadway.

(9) **Timeframe for validity.** This Agreement shall be perpetual, and shall encumber and run with the land as long as the road remains private, and shall be binding upon the parties hereto, their respective heirs, executors, administrators, and assigns. At any point, should the Roadway be improved and included in the state secondary system of highways, this agreement shall become null and void.

(10) **Road Agent designation.** A Road Agent shall be elected by a majority of the property owners, who will serve a term as agreed to by the property owners, and can be replaced or renewed at any time by a simple majority vote of the parcel owners. The Road Agent shall be responsible for monitoring the condition of the road surface and initiating maintenance activities as needed to maintain the minimum road surface standards.

(11) **Enforcement.** This Agreement may be enforced by a majority of parcel owners. If a court action or lawsuit is necessary to enforce this Agreement, the party commencing such action or lawsuit shall be entitled to reasonable attorney fees and costs, if the party prevails.

(12) **Non-preapproved work.** If any parcel owner performs improvements, maintenance, repairs or replacements without the approval of the other lot owners prior to performing such work, the lot owner performing such work shall bear the entire cost thereof.

(13) **Equal responsibility.** Road maintenance, snowplowing, and road improvement costs shall be shared on an equal basis between the parcel owners sharing access to the above-mentioned road.

(14) **Prepayment.** Prepayment of maintenance, snowplowing, and improvement costs will be made to the road maintenance account by each property owner. Annually, on or before a date

as specified by the Road Agent, each parcel owner will contribute their pro-rated share of the estimated annual cost for road maintenance, road improvements, and annual snow removal. The Road Agent shall send each parcel owner a two-week notice of the annual payments due.

(15) **Checking account.** The Road Agent shall establish and maintain a bank checking account with a local bank, and will prepare and distribute to the herein affected parcel owners an annual income and expense report and a year-end balance sheet, accounting for all funds received and disbursed.

(16) **Liens.** If any owner shall fail to pay his/her proportionate share of the costs of maintenance or repair for which he/she is responsible, as provided hereinabove, any other owner not in default, or the person or corporation performing such maintenance, may after 30 days written notice to the defaulting parcel owner(s) bring an action of law against each defaulting parcel owner in a court of competent jurisdiction and/or may record in the Clerk's Office of the Circuit Court of Orange County, a Notice of Lien against all of the said defaulting parcel owners to secure the payment of the assessment of a parcel failing to pay his/her proportional share of maintenance or repair. The amount due by any delinquent Owner shall bear interest at the maximum judgment rate provided by law from the date of completion of the maintenance; and the delinquent Owner shall be liable to pay all costs of collection, including reasonable attorney's fees.

(17) **Future Parcels.** Any additional parcels gaining access to the Private Road by way of splitting existing parcels will be bound by all terms and conditions of this Agreement, and will be required to pay that portion of the maintenance, snowplowing and improvement costs incurred after the split as determined using the formula contained in Paragraph No. 14 above. If any additional parcels are created after the original Private Road Maintenance Agreement is signed, the new parcel owners must also sign the Agreement. When a parcel is being sold on a land contract, the land contract vendee shall be deemed the owner of record.

(18) **Notices.** Parcel owners under the Agreement shall be notified by mail or in person. If an address of a parcel owner is not known, a certified notice will be mailed to the address to which the parcel owner's property tax bills are sent.

(19) **Severability.** Should any provision in this Agreement be deemed invalid or unenforceable, the remainder of the Agreement shall not be affected, and each term and condition shall be valid and enforceable to the extent permitted by law.

(20) **Re-recording.** Upon recordation in the land records of the Orange County Circuit Court, this Private Road Maintenance Agreement replaces all previous Private Road Maintenance Agreements regarding the described Roadway.

Approved as to form:

_____

County Attorney

Approved as to consistency with County Code:

_____

Agent of the Board of Supervisors

[ADD SIGNATURE LINE AND NOTARY BLOCK FOR EACH PARTY]

_____(Signature)

_____(Print)

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public in and for the Commonwealth and County aforesaid, do hereby certify that _____, whose name is signed to the foregoing Private Road Maintenance Agreement appeared before me personally and acknowledged the same in my jurisdiction aforesaid.

Given under my hand and seal this _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires: _____

SEAL

_____(Signature)

_____(Print)

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public in and for the Commonwealth and County aforesaid, do hereby certify that _____, whose name is signed to the foregoing Private Road Maintenance Agreement appeared before me personally and acknowledged the same in my jurisdiction aforesaid.

Given under my hand and seal this _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires: _____

SEAL

_____(Signature)

_____(Print)

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public in and for the Commonwealth and County aforesaid, do hereby certify that _____, whose name is signed to the foregoing Private Road Maintenance Agreement appeared before me personally and acknowledged the same in my jurisdiction aforesaid.

Given under my hand and seal this _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires: _____

SEAL

_____(Signature)

_____(Print)

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public in and for the Commonwealth and County aforesaid, do hereby certify that _____, whose name is signed to the foregoing Private Road Maintenance Agreement appeared before me personally and acknowledged the same in my jurisdiction aforesaid.

Given under my hand and seal this _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires: _____

SEAL

Zoning Ordinance for Private Roads – Fauquier County

Private Roads

The Fauquier County Zoning Ordinance has specific standards for the width, length, and location of private street ingress-egress easements. Please refer to Section 7-300 and Section 7-302 of the Zoning Ordinance for specific requirements.

Neither Fauquier County nor the Virginia Department of Transportation will provide maintenance or repairs to any private roads within the County. The responsibility for all maintenance and repairs to the road, drainage channels along the road, signs, and any snow removal for the road, is the responsibility of the individual property owners who use the private road for access. All subdivision plats and deeds which involve private roads must have the following language provided in **bold** type on both the plat of subdivision and the deed:

> THE PRIVATE STREET IN THIS SUBDIVISION WILL NOT BE PAVED OR MAINTAINED WITH FUNDS OF FAUQUIER COUNTY OR FUNDS ADMINISTERED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT OWNERS OF LOTS IN THE SUBDIVISION SUBSEQUENTLY DESIRE THE ADDITION OF SUCH PRIVATE STREETS TO THE SECONDARY SYSTEM OF STATE HIGHWAYS FOR MAINTENANCE, THE COST TO UPGRADE IT TO THE PRESCRIBED STANDARDS MUST BE PROVIDED FROM FUNDS OTHER THAN THOSE ADMINISTERED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION OR FAUQUIER COUNTY. PRIVATE STREETS IN THIS SUBDIVISION ARE NOT DEDICATED TO PUBLIC USE.
>
> STREET SIGNS FOR THE PRIVATE STREET(S) IN THIS SUBDIVISION WILL NOT BE MAINTAINED WITH FUNDS FROM THE COUNTY OF FAUQUIER. SIGN MAINTENANCE FOR PRIVATE ROADS AND STREETS SHALL BE THE RESPONSIBILITY OF THE OWNER(S) OF RECORD.
>
> INGRESS AND EGRESS EASEMENT FOR PUBLIC EMERGENCY AND MAINTENANCE VEHICLES IS HEREBY GRANTED TO THE FAUQUIER COUNTY FOR ALL PRIVATE STREET(S) WITHIN THIS SUBDIVISION.

Memorandum for Maintenance of Private Roads – Bedford County

BEDFORD COUNTY
OFFICE OF THE COUNTY ATTORNEY
122 EAST MAIN STREET, SUITE 201
BEDFORD, VIRGINIA 24523

TELEPHONE: 540-587-5699
FAX: 540-586-9117

PATRICK J. SKELLEY II
COUNTY ATTORNEY

MEMORANDUM

To: Bedford County Board of Supervisors

CC: G. Carl Boggess, County Administrator;
Gregg Zody, Director of Community Development

From: Patrick J. Skelley II, County Attorney

Date: August 17, 2016

Re: Old Firetrail Road; Maintenance of Private Roads; Revenue Share Roads

---

After hearing concerns from citizens whose properties are served by Old Firetrail Road, the Board asked for a summary of options available to such citizens, and the County's role regarding those options. This memorandum shall serve as the requested summary.

As an initial matter, there has been much discussion over whether Old Firetrail is public or private. All the plats of the properties along, and served by, Old Firetrail clearly state that the rights-of-way are private, and not subject to public maintenance.[1] It is also important to note that there is a difference between a "public right-of-way," "public road" or "county road" in the sense that the general public has a right to use a certain road, as opposed to a "public road" or "public highway" which has been expressly dedicated to, and accepted by, the state for control and maintenance.

It is clear in this case that Old Firetrail has never been dedicated nor accepted into the state highway system.[2] Moreover, there has never been any judicial determination by Declaratory Judgment that Old Firetrail has become a "public right-of-way"; and, even if there

---

[1] The County's subdivision ordinance in effect at the time that the property along Old Firetrail Road stated clearly, in capital letters, that "STREETS DO NOT QUALIFY FOR PUBLIC MAINTENANCE."

[2] Apparently some maps show Old Firetrail Road as bearing a Secondary State Route Number. That is likely attributable to a mapping error, and in any event, acceptance of a road by a governmental agency must be express, and through a formal process. It cannot merely be implied by what appears on a map. See Burks v. Jones, cited below.

were such a determination, that would not automatically bring the road into the state highway system for maintenance. There must be an express acceptance by the government. See Burks Brothers of Virginia, Inc. et al. v. Jones, et al., 232 Va. 238 (1986) (finding that a road is not dedicated to the government without formal acceptance, in that case, Suck Mountain Trail).[3]

Given that Old Firetrail Road has never come into the state highway system for purposes of maintenance, the question obviously remains as to what remedies are available to the residents. As already discussed at the aforementioned meeting, a homeowners' association or joint-road-maintenance agreement are typically the mechanisms by which residents on private roads can pool their resources and keep their roads passable. As it turns out, there are already homeowners' associations in existence all along Old Firetrail Road. (A copy of one such document establishing an association and road-maintenance systems is attached hereto as Exhibit A).

It appears, however, that efforts by the residents to keep those associations organized and active have been piecemeal and inconsistent. When active, those associations would have the authority to collect dues, expend funds for road maintenance, and pursue legal action against fellow landowners who fail to pay their fair share (indeed, the land records show that certain owners have been sued by the associations from time to time to collect dues). In addition, those associations, along with any individual landowners who so chose, could enter into their own joint-maintenance agreement for the purpose of increasing their financial ability to fund road repair.[4] The most worthwhile course of action for these citizens is to retain the services of a competent attorney who is well versed in real-estate law and transactions to facilitate the above-referenced road-maintenance mechanisms.

---

[3] It is worth noting that Bedford County has no direct authority or control over road maintenance. The Byrd Road Act of 1932 relieved Virginia counties of duties of maintaining roads, and vested that authority in the Virginia Department of Transportation at the state level. The modern version of that statute plainly states "The control, supervision, management and jurisdiction over the secondary system of state highways shall be vested in the Department of Transportation and the maintenance and improvement, including construction and reconstruction, of such secondary system of state highways shall be by the Commonwealth under the supervision of the Commissioner of Highways. The boards of supervisors … of the several counties . . . shall have no control, supervision, management and jurisdiction over such public roads … constituting the secondary system of state highways. Virginia Code § 33.2-336 (emphasis added).

[4] Even without formal associations or agreements, if the residents pooled resources for upkeep of the road, there are legal remedies available to seek contribution from the other landowners who did not pay into the fund, but have benefitted nonetheless from the road repairs.

Some mention has been made of Federal funding to address improvements to rural roads, e.g., the High Risk Rural Road program. Those programs, however, are only triggered by unusually high fatalities on particular roads, which is not the case here.

It goes without saying that the revenue-share program exists as a mechanism by which private roads can be brought into the state highway system, and a copy of the County's procedures for applying for that program is attached hereto as Exhibit B. That is only an option if the road is to be brought up to VDOT standards; and, VDOT will only fund 50% of the construction costs necessary to reconstruct the road to such standards.[5]

There are several possible funding options specified in the Code of Virginia to provide for the other 50% share, and historically, the County of Bedford has required the landowners to come up with the 50% stake themselves. This can be accomplished several ways. One such method is for the County to front the 50% share from the general fund, and then recoup that expenditure through a special assessment levied upon the subject landowners. There are several issues with this approach as concerns Old Firetrail Road, however. First, 75% or of the landowners whose properties actually abut Old Firetrail Road must consent to the special assessment. While landowners not on Old Firetrail Road could opt into the special assessment, they cannot be required to do so, or be counted towards the 75%. In addition, any such special assessment must not exceed one-third of the tax-assessed value for any particular property. From the information provided to date, there is not sufficient interest among the landowners along Old Firetrail Road to meet the 75% threshold, and there are likely properties that do not have a high enough tax assessment to fall within the one-third cap on the assessment.

Another method is for the County to accept contributions from one or more landowners to meet the 50% share, and then levy a special assessment on those who did not contribute, and reimburse the initial contributors accordingly. Again, the issue with this approach as concerns Old Firetrail Road is that there does not appear to be any single landowner, or group of landowners, willing or able to make the up-front investment to meet the 50% investment requirement.

[5] Continued private maintenance of the road would undoubtedly be far less expensive, as the road could remain gravel, rather than be surface treated.

Finally, the County could (1) use existing general-fund dollars to pay the 50% revenue share to facilitate the reconstruction of Old Firetrail Road or pay 100% of the total cost; (2) issue bonds (i.e., incur debt) to fund 100% of such costs; (3) use a part of its state construction allocation to cover such costs, to the exclusion of other County highway projects; or (4) begin to budget for the future improvement of similar roads with the County bearing 100% financial responsibility . The advisability of any of those options does not call for a legal analysis, but rather one of public policy and fiscal management; and, would also depend on VDOT's willingness to accept responsibility for maintenance and upkeep.

990007003

DECLARATION OF RESERVATIONS AND
RESTRICTIVE COVENANTS

THIS DECLARATION OF RESERVATIONS AND RESTRICTIVE COVENANTS made and entered into this the 28th day of April, 1999, by Cedar Creek Land Co., a Virginia Limited Liability Company, hereinafter referred to as the "Grantor".

R E C I T A L S:

1. Cedar Creek Land Co., a Virginia corporation, is the Owner/Developer of the Lakewood Subdivision, Lakewood Subdivision, Section IV, Block B; Parcels No. 1 through 5, inclusive, 14 and 15, inclusive, and 21 through 28, inclusive. The plat of Lakewood Subdivision, Block B, is of record in the Clerk's Office, Circuit Court of Bedford County, Virginia, in Plat Book 37, at Pages 388 thru 392.

2. The Owner/Developer intends that all the Parcels of Lakewood Subdivision, Section IV, Block B, Parcels No. 1 through 5, inclusive, 14 and 15, inclusive, and 21 through 28 inclusive, shall be subject to the Declaration of Reservations and Restrictive Covenants of the Lakewood Subdivision as hereinafter set forth.

NOW, THEREFORE, Cedar Creek Land Co., L.L.C., a Virginia corporation, hereby declares that all Parcels of Section IV, Block B, as more fully shown on that certain plat of survey prepared by Berkley Howell & Assoc., P.C., and recorded in the Clerk's Office, Circuit Court of Bedford County, Virginia in Plat

1

Book 37, at Pages 388 thru 392 shall be held, transferred, sold, conveyed, owned and occupied subject to the covenants, restrictions, easements and charges as hereinafter set forth as follows:

The Reservations and Restrictive Covenants in this document are to run with the land hereinafter described and shall be binding upon all parties and all persons owning parcels (sometimes referred to as lots) in Lakewood, as below-described, or claiming under them. Furthermore, Arbor Vista Development Corp., and M. L. Carter Realty Trust, their successors and assigns shall expressly benefit by said Restrictions and may enforce then as a covenant appurtenant unto their respective lands, provided that they are seized and possessed in fee simple absolute of land contiguous to Lakewood Subdivision.

Invalidation of any of the following Reservations and Restrictive Covenants by judgment of Court Order shall not affect any of the other provisions, which shall remain in full force and effect. The failure to enforce any of the Reservations and Restrictive Covenants at the time of violation shall not be deemed a waiver to enforce the Covenant.

1. PROPERTIES SUBJECT: The Restrictive Covenants are applicable to the following described property located in Lakes Magisterial District, Bedford County, Virginia except as otherwise provided herein:

Parcels No. 1 through 5, inclusive, 14 and 15, inclusive, and 21 through 28, inclusive, as more fully shown on that certain plat prepared by Berkley Howell & Assoc., P.C., entitled "Plat of Survey of Section IV

2

Block B, Lakewood Subdivision", dated December 21, 1998, and recorded in the Clerk's Office, Circuit Court of Bedford County, Virginia, in Plat Book 37, at Pages 388 thru 392.

2. PROPERTY OWNERS ASSOCIATION AND ROAD MAINTENANCE:

The Grantor has constructed the present roadways which serve and benefit the subject properties, and shall not be further responsible to any parcel owner or to "The Lakewood Property Owners Association, Section IV" for any future upkeep, maintenance or improvement of the roadways after responsibility for same has ended as provided hereinbelow.

The Lakewood Property Owners Association, Section Four, hereinafter referred to as "The Association", is hereby formed for the purpose of maintaining and repairing the roadways located in the subdivision in good and safe condition. All owners of parcels in the Lakewood Subdivision, Section IV, Block B, its successors and assigns, and which use the roadways of Section IV, shall by acceptance of the deed of conveyance be a member(s), thereof, and subject to the below described road maintenance requirement, as well as the remaining provisions, conditions, restrictions and covenants contained herein.

a. All members of The Association shall be entitled to one (1) vote. Vote may be made in person or by proxy.

b. The roadways and rights-of-ways constructed throughout the subdivision are for the use in common with the Grantor, the Grantor's predecessor in title, the M. L. Carter Realty

Trust, and Arbor Vista Development Corp., the parcel owners and their respective heirs, successors and assigns.

This dedication shall not inhibit convenient use of the Subdivision's roadways.

c. (1) The Association shall maintain the rights-of-ways and roads within the Subdivision, and for such purpose shall assess each member, an amount not to exceed an aggregate of $100.00 annually for ownership of three parcels or less, and further $100.00 assessments for additional increments of up to three. The road fee shall be $100.00 per year until otherwise established by the Association, said road maintenance fee due at closing and on the anniversary date of the purchase of the effected Lot(s) thereafter. The Grantor shall be exempt from any and all assessments, at such time as the Association assumes responsibility for the maintenance of said roads.

(2) All maintenance and upkeep of the private road serving the Lakewood parcels, including snow removal, will be done on the basis of competitive bids and only as required on demand of one or more the property owners

serviced by the private road. No work will be undertaken where projected costs will exceed $500.00 until the consent of 75% of the membership obtained.

(3) Upkeep and maintenance will be limited to that required by virtue of erosion and ordinary wear to the road surface unless otherwise agreed to by all members.

d. Any assessments, together with interest and costs, shall be a lien upon the parcel against which such assessment is made. The Association shall have the right to file among the land records of Bedford County, Virginia, a duly executed and acknowledged Notice of Lien with respect to each parcel and its owner for which any assessment remains unpaid. However, said assessment shall be a lien whether or not filed in said courthouse.

e. All property owners (exclusive of the Grantor) agree to attend a meeting of property owners, convened after at least one month's written notice, at which time at least two (2) individuals, but not more than five (5), will be elected directors of the Association by a majority of the votes cast in person or by proxy, to handle the affairs of the Association, including road maintenance. Said directors shall have a

term of one (1) year each, and new directors will be elected on an annual basis thereafter pursuant to a duly held vote of the membership in the Association.

f. If it is decided by the Association that the annual maintenance fee needs to be increased or decreased, it shall be done only by an affirmative vote consisting of 75% of the membership.

g. Parcel owners shall be responsible for repair of any damages to roads in the Subdivision, resulting from the willful or negligent acts of himself or his agents, servants or employees; and to perform any such repairs at his/her own expense within a reasonable time, but not in excess of thirty (30) days after written notice of such damages shall have been sent to parcel owner(s) from the Grantor or the Association.

h. All property owners agree to install driveways and drainage pipe to the state or county department of highways and transportation specifications.

3. EASEMENTS:

a. The Grantor herein, its successors and/or assigns shall retain a perpetual non-exclusive easement over all right(s) of ways and

easements. The parcels in this project are subject to utility easements for the purpose of bringing public service to the land being developed. They are also subject to road and drainage easements as shown on the recorded plat.

b. Grantor reserves unto itself, successors and assigns, the right to erect and maintain all utility and electric lines, with the right of ingress or egress for the purpose of installing or maintaining same.

4. RESERVATIONS:

a. Grantor expressly reserves the right to impose violation of any of the provisions hereof, it shall be lawful for any other person or persons in owning any real estate situated in equity against the person or persons in violation or threatening to violate any such covenant, either to prevent or enjoin such violation or to recover damages or other dues for such violation.

b. Grantor reserves the right to amend, delete, or add to these covenants and restrictions as necessary provided any such amendments or deletion or addition shall not unreasonably interfere with the use and enjoyment of the land by the respective owner.

7

5. PARCEL AND AREA USE: No mobile homes shall be allowed on said property, unless underpinned or placed on a permanent foundation. Any such mobile home as permitted shall be no more than ten (10) years old when placed on any location within the property and must be in a condition similar or equivalent to a newly manufactured model. Each parcel shall be used for those purposes allowed under federal, state and local regulations or ordinances, including but not limited to agriculture, residential and permitted recreational use.

6. COMMERCIAL USE AND NUISANCE:

a. No noxious or offensive trade activity shall be carried on or upon any tract, nor shall anything be done thereon which may cause annoyance or nuisance to the neighborhood; further, activities on or the use of any said parcel shall not pollute, cause waste to, or adversely affect other parcel owners enjoyment of their property. Commercial uses are not permitted. All parcel owners shall maintain their parcel(s) free of liter and debris.

b. No unlicensed, abandoned or unusable motor vehicle of any sort shall be allowed, left or abandoned on any said parcel.

7. AGRICULTURE: No swine or foul shall be raised or bred on any parcel. Household pets such as dogs and cats, and also horses and cattle, may be kept provided they are not bred or

8

maintained for commercial purposes, and not otherwise violate this Declaration or any Municipal/County Ordinance or Regulation. Any domestic pet shall not be permitted to run at large so as to become an annoyance to the subdivision.

8. CONFLICT: In the event of any conflict between the provisions of this document and the Plat drawings and/or specifications, the constraints reflected in the Plat shall govern. Any conflict existing within the provisions of this instrument itself shall result in application of the most restrictive provision herein. Any structures and/or improvements located upon any parcel and pre-existing the recordation of this instrument are exempt from any restrictions in this instrument which would otherwise result in a violation thereof. However, alteration or replacement of any part of said structures and/or the addition of improvements, aside from routine maintenance, requires compliance with these provisions in their entirely.

WITNESS the following signatures and seals:

CEDAR CREEK LAND CO., a Virginia Limited Liability Company

by: _____
JOSEPH D. MAILLET, a Manager

by: _____
CHARLES M. BULLOCK, a Manager

COMMONWEALTH OF VIRGINIA
TO-WIT:
COUNTY OF CAMPBELL

I, Shelly Walker Ore, a Notary Public of the county and state aforesaid, do hereby certify that on this day personally appeared before me Joseph D. Maillet and Charles M. Bullock, Managers of Cedar Creek Land Co., L.L.C., a Virginia Limited Liability Company, signers and sealers of the foregoing and hereto annexed Deed and acknowledged the due execution of the same for the purposes therein set forth.

Witness my hand and notarial seal, this the 7th day of May, 1999.

_____
Notary Public

My Commission Expires: December 31, 1999

VSLF	145	1.00
State Tax	039	
County Tax	213	
City Tax	214	
County Transfer	212	
City Transfer	222	
Clerk's Fee	301	18.00
State Tax	038	
County Tax	220	
City Tax	223	
Tech. Fund	106	3.00
Postage	420	
Refund	515	
Miscellaneous	442	
Total		22.00

VIRGINIA: In the Clerk's Office of the Circuit Court of Bedford County, Va. May 14, 1999. This writing with _____ was admitted to record at 1:24 o'clock P M and the Tax imposed by Section 58.1-802 of the Code in the amount of $_____ has been paid.

TESTE: CAROL W. BLACK, CLERK

By: Virginia J. Davenport
Deputy Clerk

Return to: Prescott Gay

Envelope enclosed:

Mail:

QUALIFICATIONS AND PROCEDURES FOR PARTICIPATION IN THE REVENUE SHARING ROAD FUND

QUALIFICATIONS

All subdivisions/property owners who are submitting applications for the Revenue Sharing Road Fund Program must meet the following qualifications:

1. Each road must be designated on a plat that was recorded in the Clerk's Office before July 1, 1990.

2. The plat must show that a 50' right-of-way was designated as a public road. This is commonly referred to as a Class B County Road.

   In subdivisions where the property owner's lot lines come to the middle of the road, the roads are ineligible for this program.

3. Each mile of the road to be upgraded must contain 3 occupied houses.

4. Each request will be reviewed in order to determine if any speculative interest has been retained by the original developer, developers or successor developers. Speculative interest is defined as any property owner who owns more than one lot within the subdivision that abuts the road to be upgraded and each lot does not contain a structure. The Code of Virginia defines these property owners as successor developers who have speculative interest in the subdivision.

PROCEDURES

1. Subdivision association submits to the County a complete application. Each application should include the following:

   - Complete name of organization that is authorized to conduct business on behalf of the interested parties;
   - Name of one or two contact persons;
   - Copy of recorded plat for the subdivision detailing property lines and proper easements (Plat is available in the Clerk of Circuit Court's Office in the Courthouse);
   - Each road or portion thereof that is to be upgraded must be shown in red;
   - Total number of the miles of road to be included, to the nearest 1/10th.

2. County reviews plat to determine if the project is eligible based on the qualifications listed above and to determine if any property owner has speculative interest. The contact person for each subdivision will be notified as to the County's determination. If the project is not eligible, the subdivision association will be provided with the reason(s). If the project is eligible, the determination of the amount of speculative interest, if any, that is involved will be provided to the subdivision.

3. Subdivision association verifies to the County that all property lines and easements (particularly drainage easements) have been staked appropriately. Any costs associated with the moving of utilities will be the responsibility of the subdivision/property owner. Revenue sharing funds can not be used for this purpose.

6/19/02

4. Subdivision association submits a signed escrow agreement with Bedford County and a check in the amount of $2,000.00 made payable to Treasurer, Bedford County. A copy of the escrow agreement to be executed is enclosed. This money will be deposited into an interest bearing account in the name of the subdivision association that is responsible for the project.

5. County schedules the Highway Department to conduct a site visit of the subdivision. Property owners will be notified in advance of the visit.

6. Highway Department prepares cost estimates for the project. Estimates are submitted to and reviewed by the County. County provides subdivision association with a copy. The Highway Department and the County will be available to answer any questions or to provide additional information if necessary.

7. Subdivision association notifies County of their intent. If the association does not wish to proceed, the amount of money in their escrow account less any funds already expended (ex. survey, moving of utilities, etc.) will be remitted to the association. If their intent is to continue on with the project, the association must submit their 50% share plus any speculative interest that may have already been determined by the County. The project will not continue until the County has the entire share deposited in the escrow account.

8. The County notifies the Highway Department that the funds have been deposited.

9. Highway Department prepares project design.

10. The Highway Department schedules project to go out to bid and requests the non-state share of the funding for the project.

11. The Highway Department notifies County and Property association of the dates that the project will be advertised and the date the bids are due.

12. The Highway Department notifies County and property owners of the low bid once the bids have been received and verified.

13. Property owners must notify County of their intent. If the property owners choose to continue and their share does not increase due to the bid amount, the County will notify the Highway Department. If the property owners' share increases, the additional money needed to complete their share must be remitted to the County before the Highway Department can award the contract to the lowest responsible bidder. If the property owners decide not to continue, the same circumstances as in #7 apply. In addition, the property owners will need to reimburse the Highway Department for any expenses incurred during the design and bid process.

14. County notifies the Highway Department of property owners' intent.

15. Highway Department awards the contract.

rsp\revshqualproc

6/19/02

Subdivision Ordinance – King George County

The King George County, Virginia Subdivision Ordinance, which includes access standards for minimum requirements for private roads and private streets can be obtained by clicking HERE.

ARTICLE 4
ACCESS STANDARDS

4.1 Access Standards

a. If a subdivision is being developed in such a manner that results in Six (6) lots or more being accessed by the same subdivision road, then the subject road shall be constructed in accordance with the subdivision street standards established by the Virginia Department of Transportation.

b. If a parent tract is being developed in a manner that results in Six (6) lots being accessed by the same subdivision road, then the subject road shall be constructed in accordance with the subdivision street standards established by the Virginia Department of Transportation.

c. If there are corner lots created in the subdivision of property that meet the road frontage requirements on existing public roads, then such lots are required to access the interior subdivision road and they shall not access the existing public road.

d. Minimum requirements for minor subdivisions. The requirements for those roads that serve more than three (3) lots and less than six (6) lots are cited in Section 4.1.g. (below) of this section.

e. All lots in major subdivisions shall be accessed by an internal subdivision road system as provided in Article 8, General Requirements, and Minimum Standards of this ordinance.

f. All lots in minor subdivisions shall be accessed in a manner prescribed per the requirements for a minor subdivision.

g. Minimum requirements for private roads:

1. Road maintenance agreements are required for all private roads that access more than three (3) parcels. Commercial and Industrial properties utilizing privates streets shall demonstrate that a maintenance agreement or covenant is signed and recorded outlining maintenance responsibilities for the private street from the subject property to the existing state maintained road.
2. All new private access easements shall be a minimum of 50 feet wide.
3. All new private access easements shall have a minimum of an eighteen (18) foot wide roadway, which terminates in a bulb of a cul-de-sac with a driving surfacing for an adequate turn around.
4. Roadways shall be constructed with a minimum of 6 inches of gravel surface and have positive drainage and be designed and constructed in conformance with the Zoning and the Erosion and Sediment Control Ordinances of King George County.
5. Grade, horizontal and vertical alignment, and slope shall meet the standards of the Virginia Department of Transportation (VDOT) as in effect at the time of the application shall govern for any new private access easements.
6. All necessary utility easements shall be located a minimum of three (3) feet outside of the private access easement and shall be shown on the final plat. However, nothing in this section shall prohibit a utility from crossing over or under a road where necessary to provide utilities service to a lot.
7. All such private access easements shall remain private and the benefited property owners shall maintain any drive or road within it.
8. A professional engineer shall certify that the road has been constructed according to the plans and requirements of this Ordinance.

h. Lots within commercial and industrial zoning districts may front on Private Streets. Private streets shall connect directly to a public street and shall provide an internal circulation system with limited access to the building lots; such that no lot has direct ingress or egress to the public street. The service drive shall be design to provide safe, efficient, and orderly movement of traffic; a simple and a logical pattern traffic; respect natural features and topography; present an attractive streetscape; and limit potential traffic hazards on the public street. The service drive may consist of a system of combined access drives and shared entrances serving the overall development.

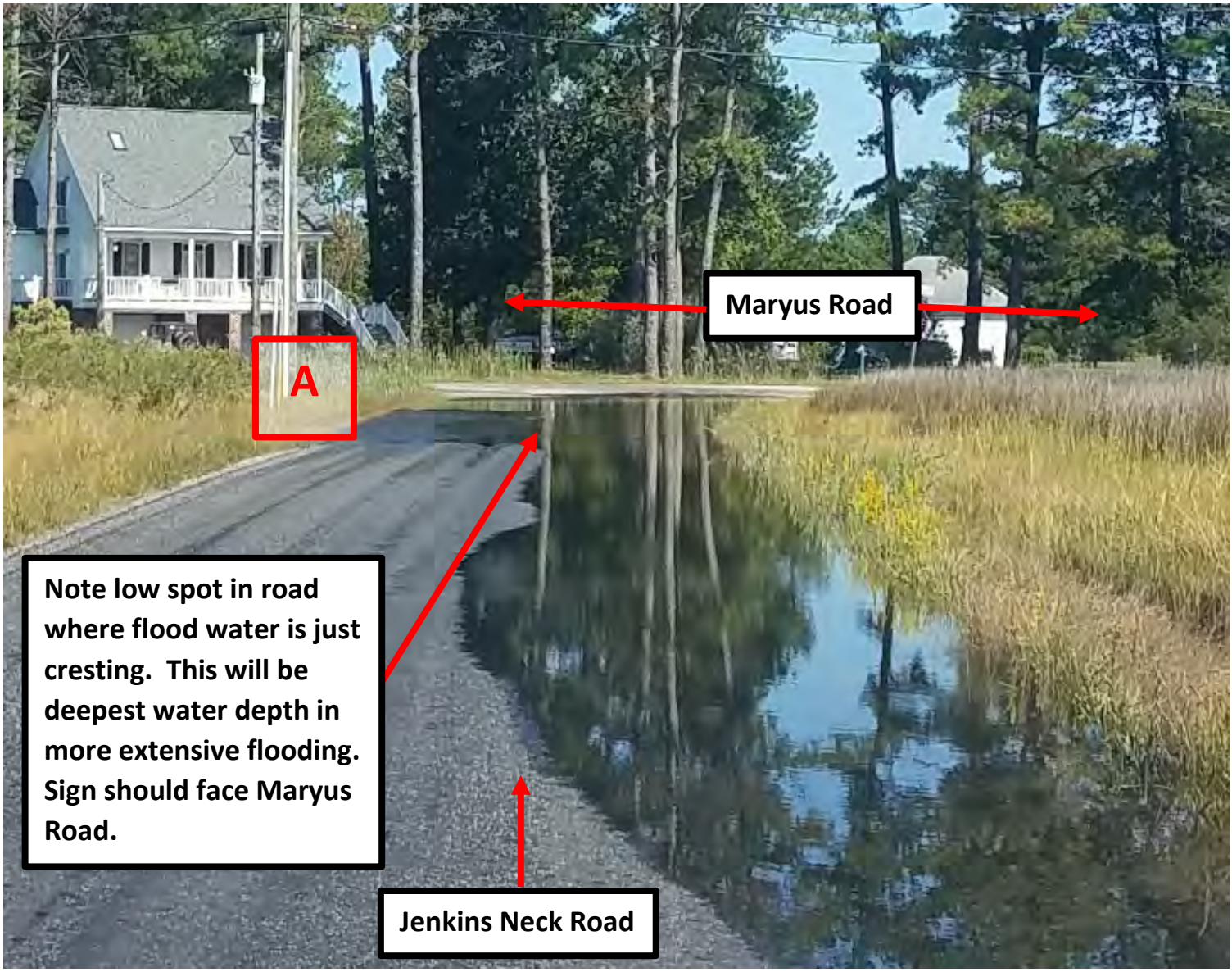
Suggested "Road May Flood" sign locations in Gloucester County, November 2017, as recommended by the Gloucester County Floodplain Management Committee

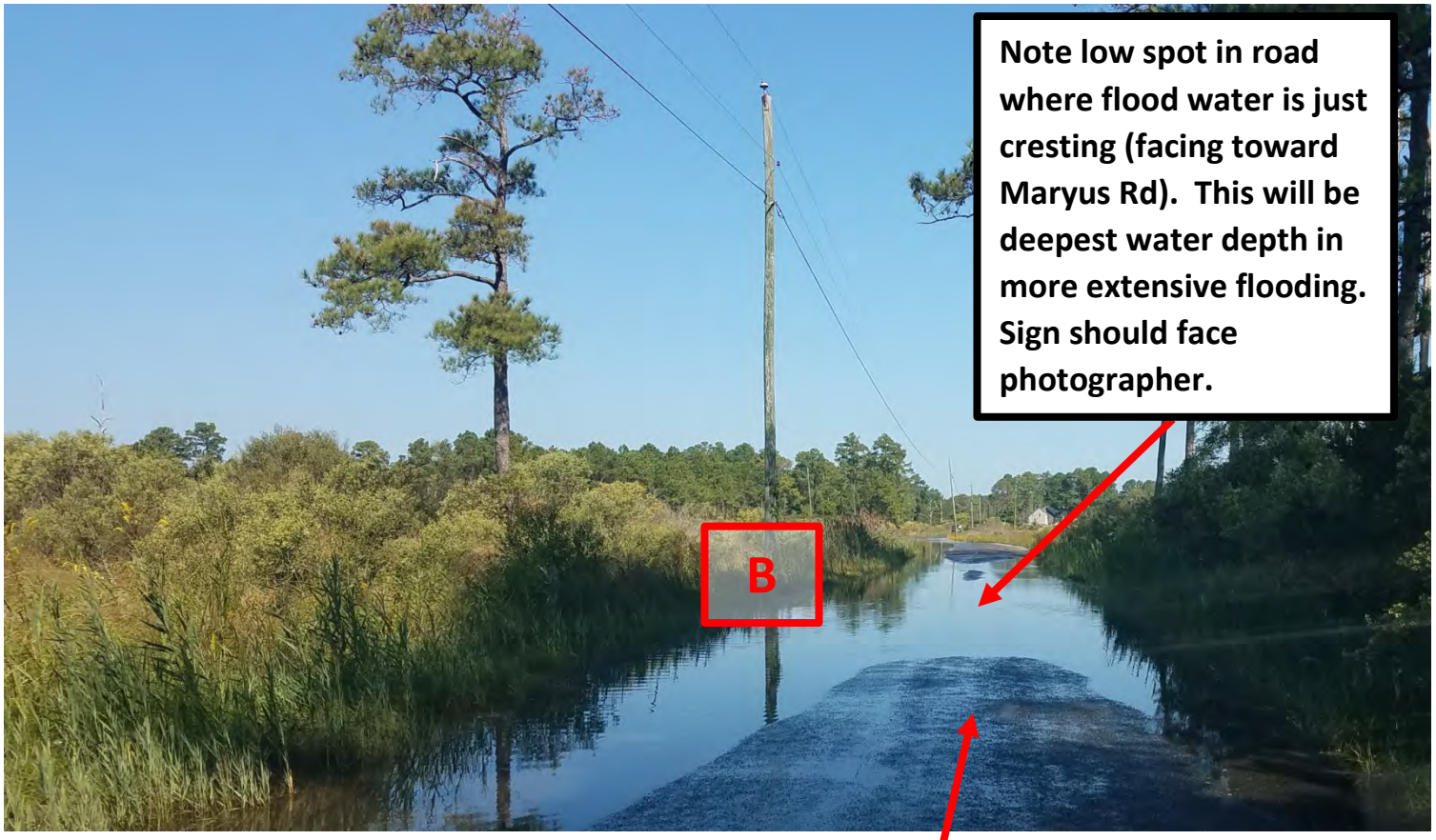
Proposed sign configuration shown on this page (some faced on both sides of post as noted):

Locations:

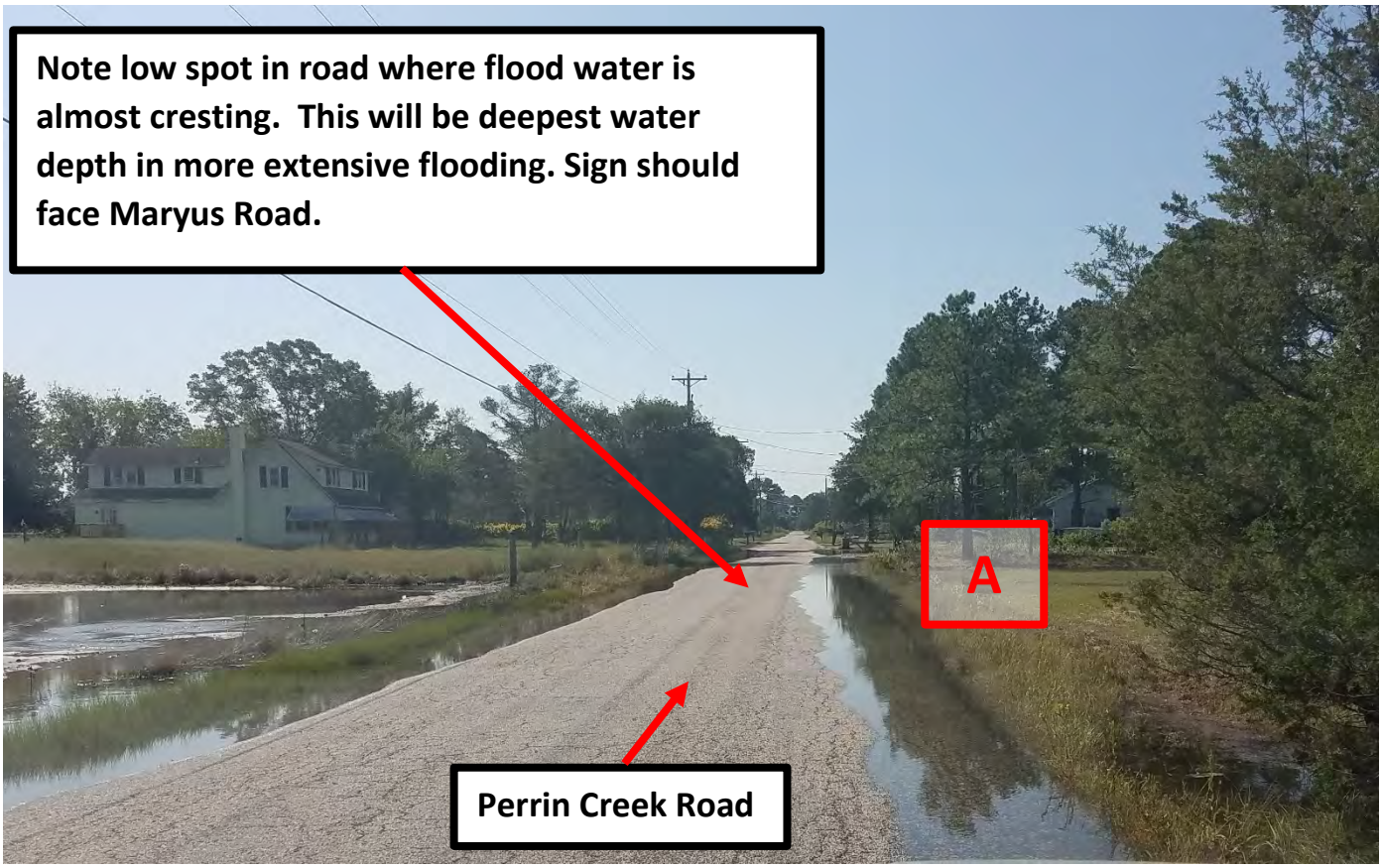
- Jenkins Neck Road (2 locations)
- Perrin Creek Road (2 locations)
- Guinea Road at Maryus Road and Kings Creek Road
- Severn Wharf Road
- Mark Pine Road
- Little England Road (2 locations)
- Low Ground Road (2 locations)
- Glass Road at Stonewall Road
- Warner Hall
- Featherbed Lane
- Robins Neck Road at The Corduroy
- Carmines Island Road
- Allmondsville Road (2 locations)

Jenkins Neck Road, Two Signs. Locations A and B, see following street level photographs


Maryus Road
A
Note low spot in road where flood water is just cresting. This will be deepest water depth in more extensive flooding. Sign should face Maryus Road.
Jenkins Neck Road


Note low spot in road where flood water is just cresting (facing toward Maryus Rd). This will be deepest water depth in more extensive flooding. Sign should face photographer.
B
Jenkins Neck Road

Perrin Creek Road, Two Signs. Locations A and B, see following street level photographs


Note low spot in road where flood water is almost cresting. This will be deepest water depth in more extensive flooding. Sign should face Maryus Road.
A
Perrin Creek Road

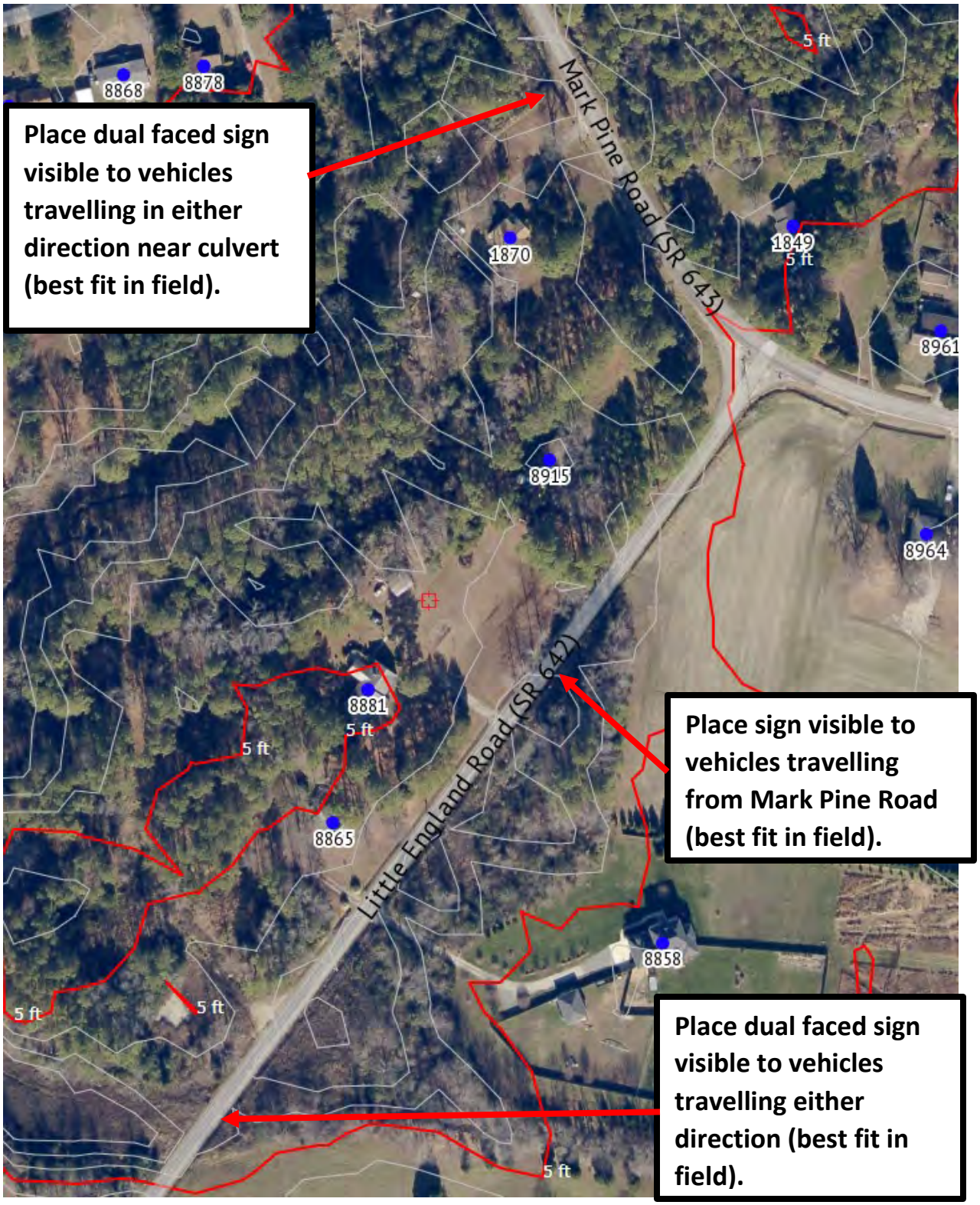

Install sign at intersection with Cooks Landing Road. Double face so visible from both approaches of Perrin Creek Road
Cooks Landing Rd
B
Perrin Creek Road

Guinea Rd/Kings Creek Rd/Maryus Rd Intersection

Place one sign visible to vehicles approaching on Guinea Road (best fit in field). Stadia measurement datum set to crown of road at intersection.

Severn Wharf Road, just off of Kings Creek Road

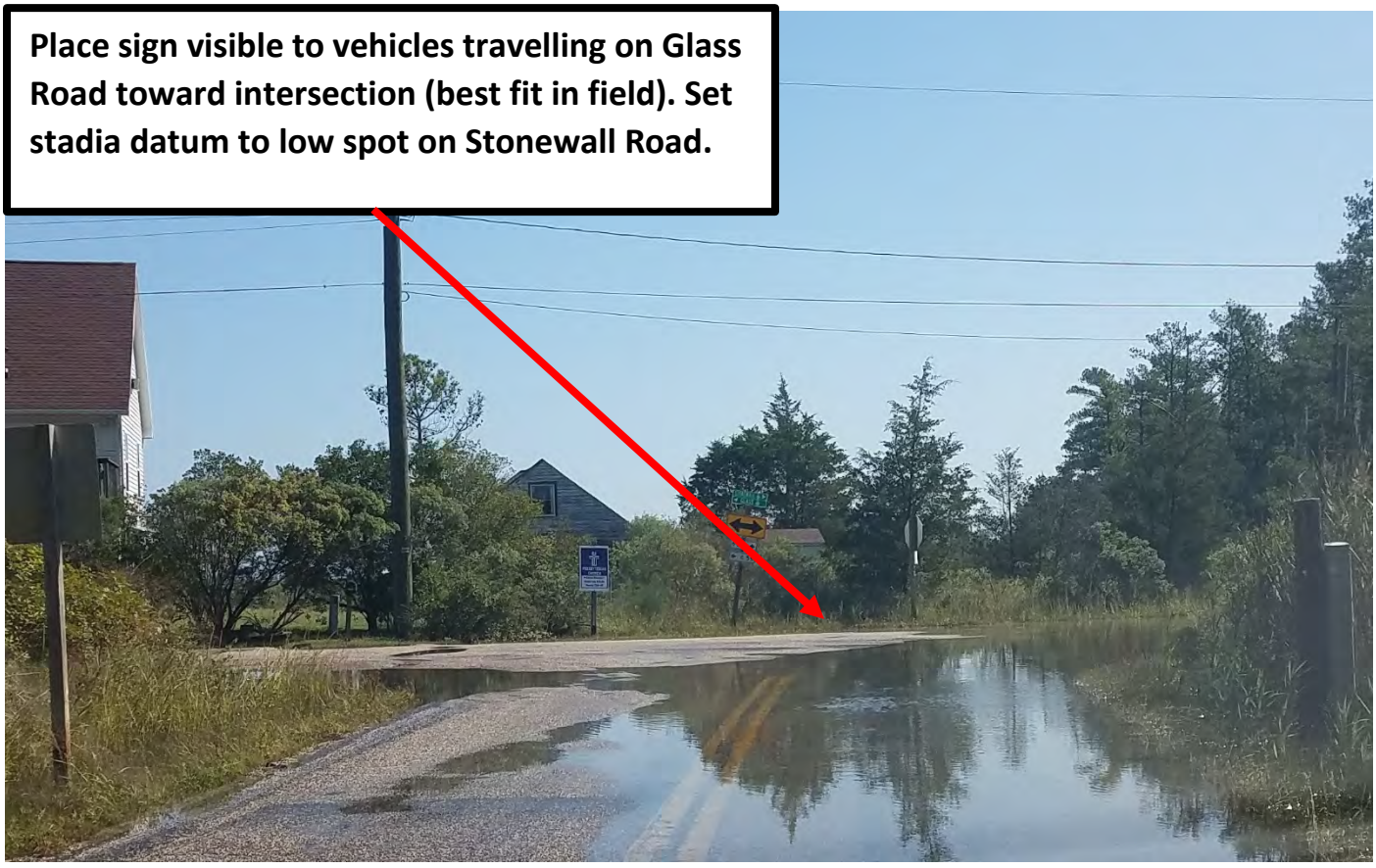
Mark Pine Road and Little England Road



Low Ground Road near Broad Marsh Road Intersection

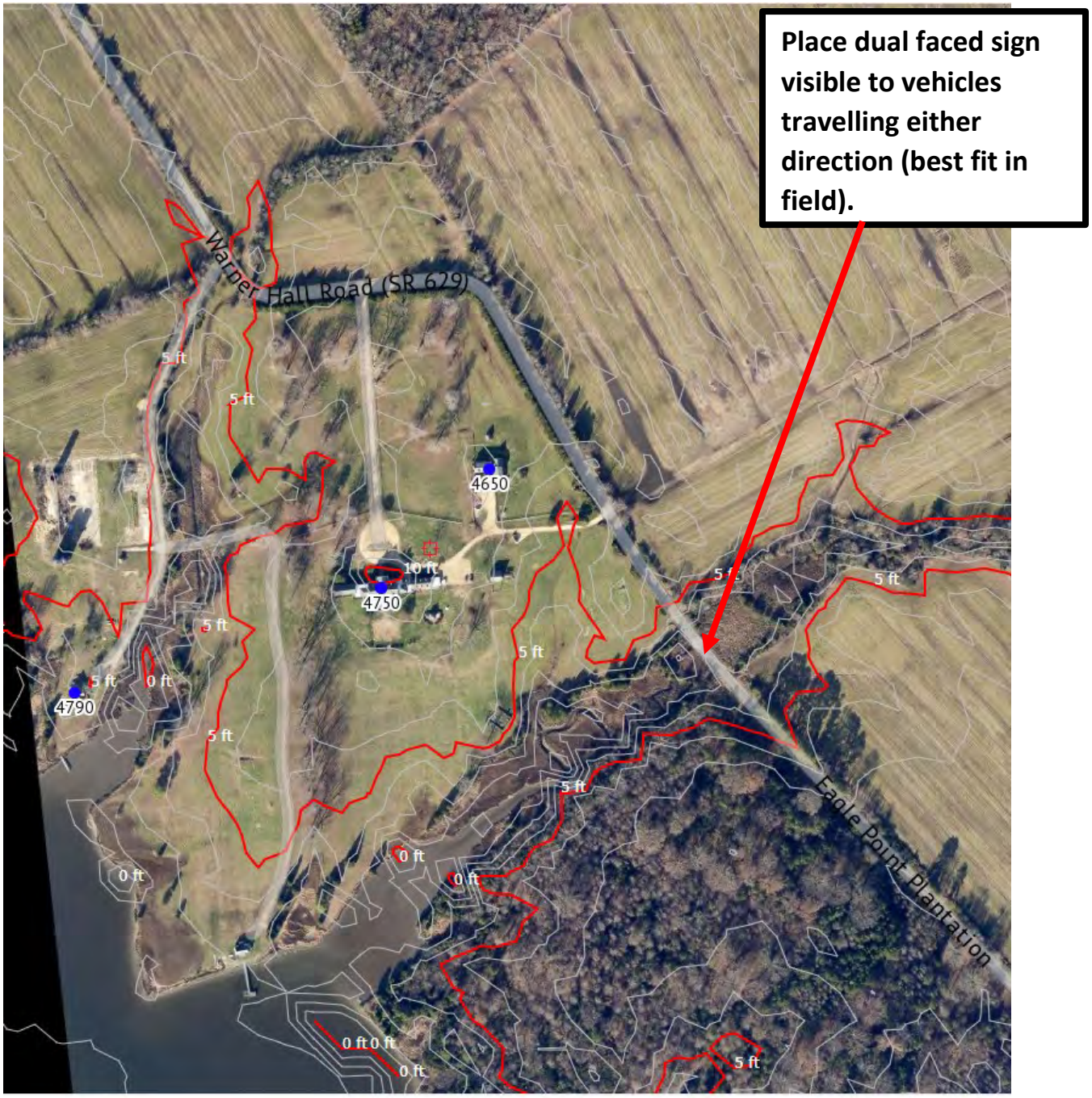
Glass Road at Stonewall Road, see following street level photograph

Place sign visible to vehicles travelling on Glass Road toward intersection (best fit in field). Set stadia datum to low spot on Stonewall Road.



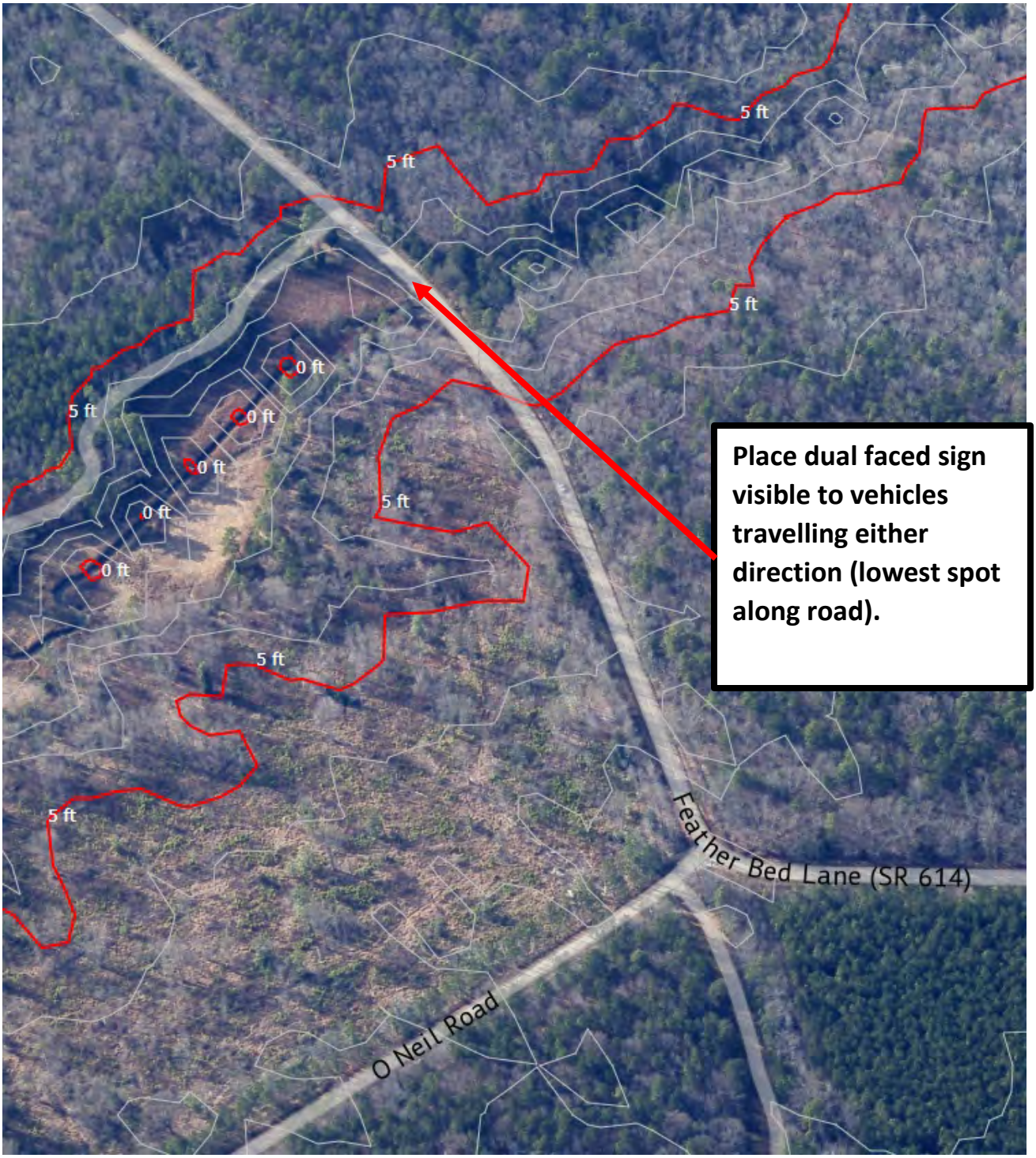
Stadia datum tied to low spot on Stonewall Road.

Warner Hall Road near Warner Hall, see following street level photograph



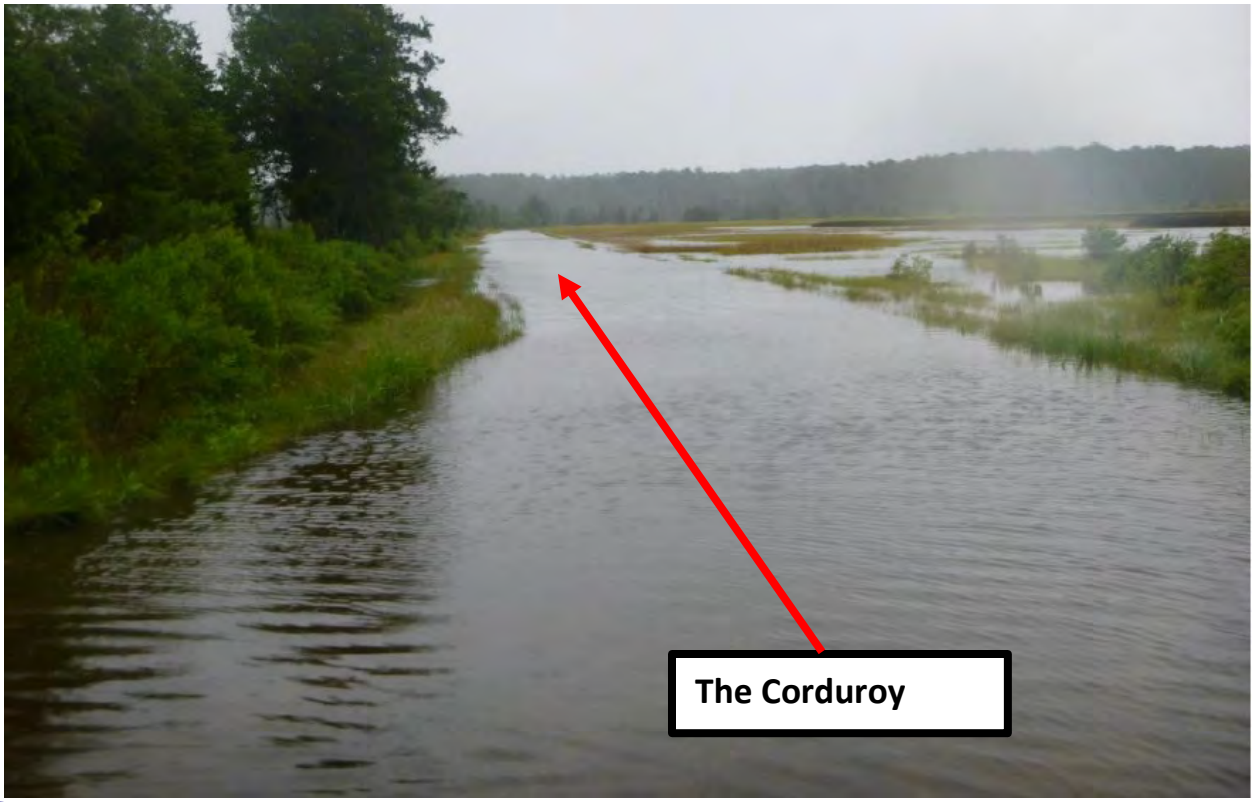

Place dual faced sign visible to vehicles travelling either direction (best fit in field).

Featherbed Lane, 1.5 miles east of Route 17

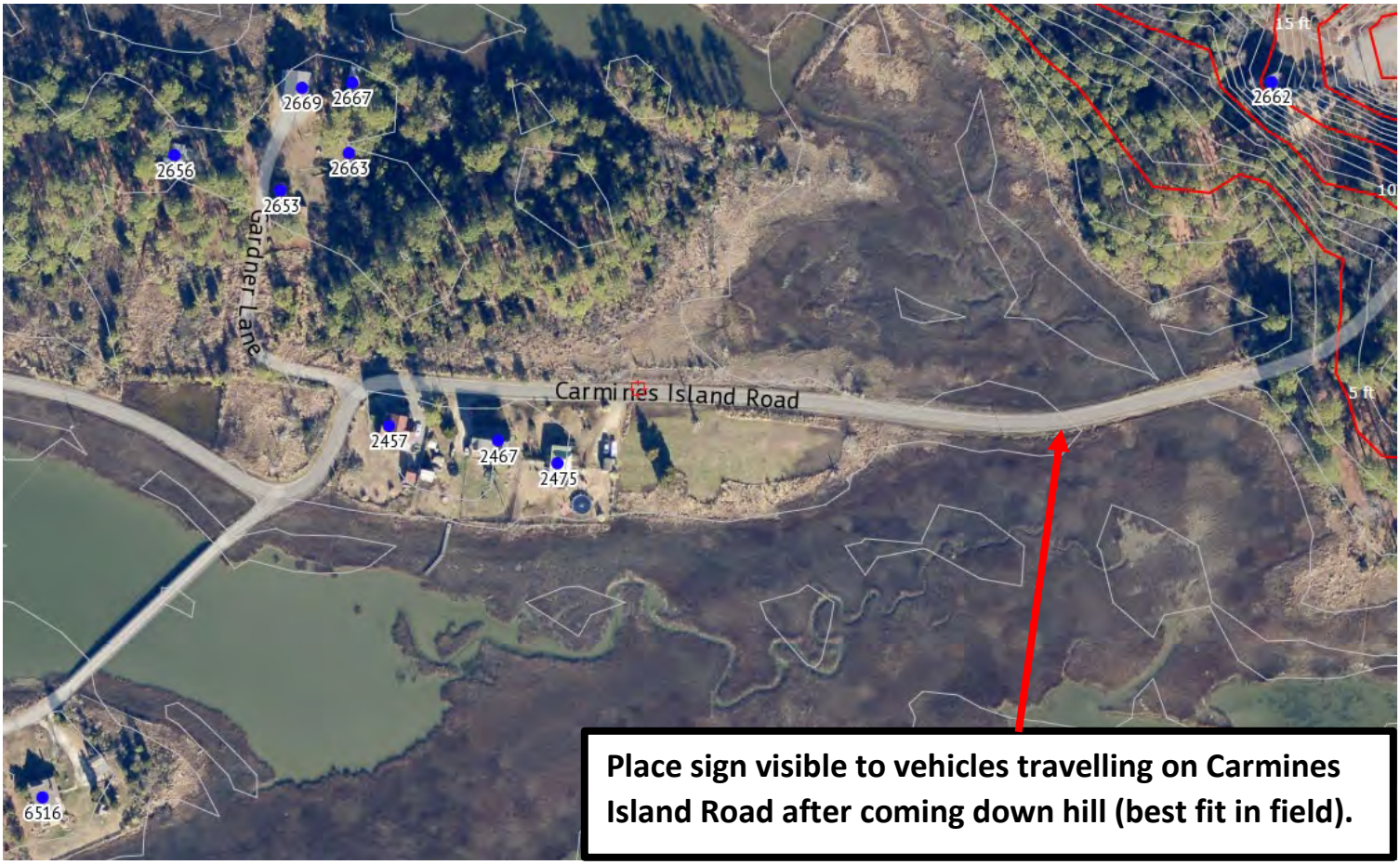


Robbins Neck Road at The Corduroy, see following street level photograph


School House Rd
The Corduroy

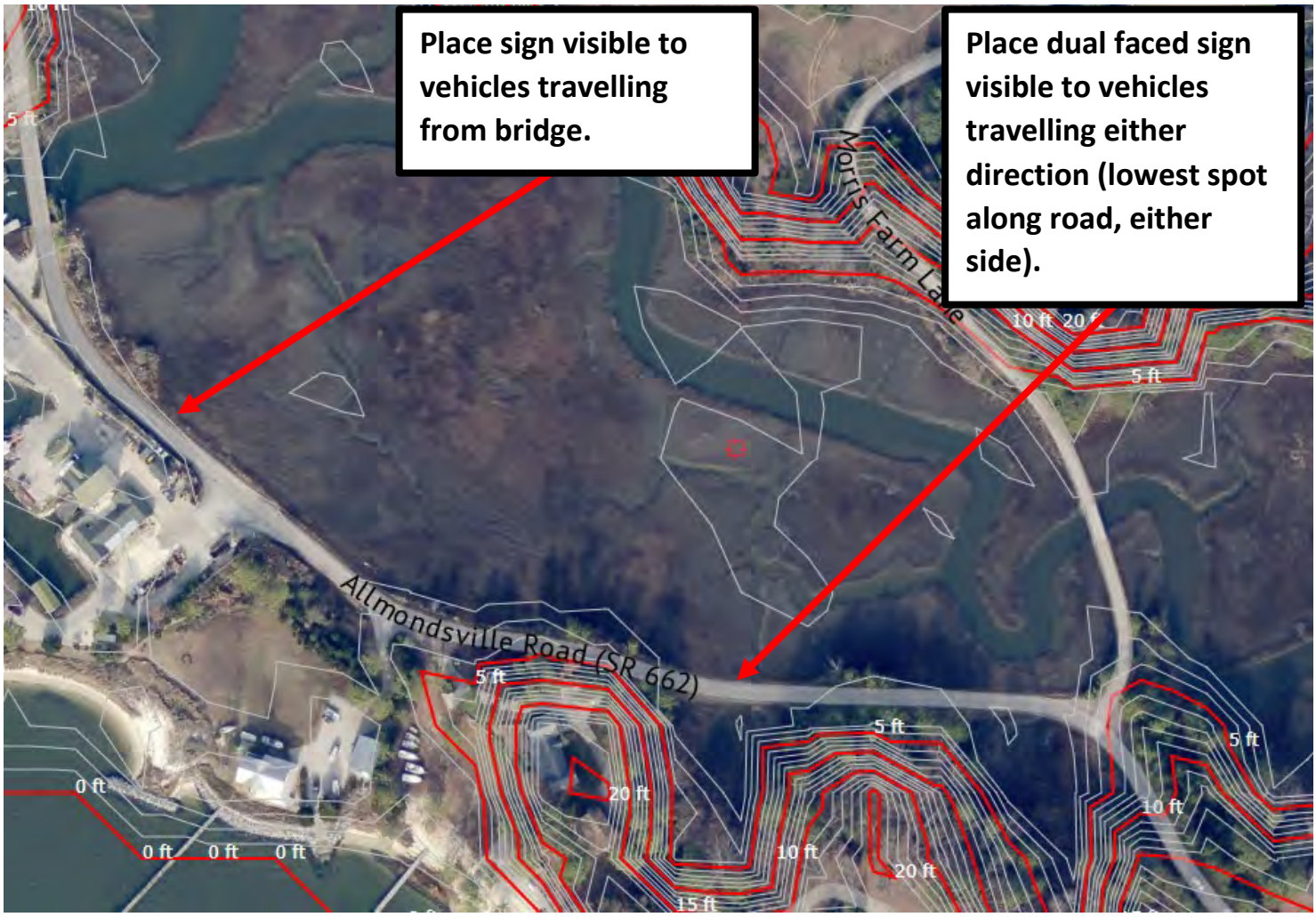

The Corduroy

Carmines Island Road, see following street level photograph




Place sign on inside or outside of curve of Carmines Island Road so it is visible as one is at the bottom of the hill behind photographer (best fit in field). Water just cresting road will be deepest point of flooding in higher tides.

Allmondsville Road, three sign locations, see following street level photographs



Place dual faced sign visible to vehicles travelling either direction (lowest spot along road). Position so visible from base of hill behind photographer point of view