

TRANSPORTATION

INTRODUCTION

York County's first transportation plan was a thoroughfares plan that gave no consideration to non-highway modes of transportation. It was not until the 1991 Comprehensive Plan that other modes of transportation – air, rail, transit, bikeways, walkways, and water – came to be fully recognized as components of the transportation system. The year 1991 also saw the passage of the federal Intermodal Surface Transportation Efficiency Act (ISTEA), which required state and regional transportation plans to be “fiscally constrained.” This means that funding must be identified for every project in the plan. Plans must also conform to federal air quality standards, which further limits the number of projects that can be included, and they must consider all modes in making transportation investment decisions.

In addition to these federal mandates governing regional transportation planning, there are several state mandates that govern the development of transportation plans at the local level. Most importantly, Section 15.2-2223.B.1 of the *Code of Virginia* specifies that “As part of the comprehensive plan, each locality shall develop a transportation plan that designates a system of transportation infrastructure needs and recommendations that include the designation of new and expanded transportation facilities and that support the planned development of the territory covered by the plan and shall include, as appropriate, but not be limited to, roadways, bicycle accommodations, pedestrian accommodations, railways, bridges, waterways, airports, ports, and public transportation facilities. The plan shall recognize and differentiate among a hierarchy of roads such as expressways, arterials, and collectors.” Furthermore, Section 15.2-2223.B.1.2. requires these local transportation plans to include “a map that shall show road and transportation improvements, including the cost estimates of such road and transportation improvements from the Virginia Department of Transportation, taking into account the current and future needs of residents in the locality while considering the current and future needs of the planning district within which the locality is situated.” Other sections of the state code require the Virginia Department of Transportation (VDOT) to provide technical assistance to localities in preparing their transportation plans as well as require localities to transmit the transportation elements of their comprehensive plans to VDOT for review and comment to ensure consistency with state transportation plans.

EXISTING CONDITIONS

Airports

Newport News/Williamsburg International Airport straddles the County boundary with Newport News. The airport terminal is located in Newport News, but both runways extend into York County. The airport is owned and operated by the Peninsula Airport Commission (PAC), which represents the cities of Newport News and Hampton. Also within about an hour's drive of much of the County are Norfolk International and Richmond International, both of which offer direct flights to more cities than does Newport News/Williamsburg International but are much less convenient because of their distance from the County. Other airport facilities that are located in or affect York County include Langley Air Force Base in Hampton, airfields at Camp Peary and the Yorktown Naval Weapons Station, and the Williamsburg-Jamestown Airport in James City County, which serves some of the general aviation needs of the Williamsburg area.

As shown in **Figure 1**, passenger activity at Newport News/Williamsburg Airport experienced significant growth from 2001 through 2005 with the introduction of new and more frequent service by AirTran Airways, when the number of enplanements more than doubled from 209,520 to 528,678. Since then, however, activity has leveled off, largely as a result of higher air fares, airline service cutbacks, and the nationwide economic downturn. In March 2012 enplanements began to decline significantly with the discontinuation of AirTran service at the airport as part of its merger

with Southwest Airlines. In August 2012, for example, there were 48.1% fewer enplaned passengers than in August 2011.¹

Despite the negative passenger activity trends of recent years, the PAC is proceeding with an update of its Airport Master Plan. The draft updated plan calls for the ultimate extension of both existing runways and construction of a third in order to accommodate projected growth in operations and support international air service. These capacity improvements would increase the airport's presence in York County as well as require the realignment of a segment of Oriana Road. While such a configuration would extend the runways closer to populated areas of York County, the airport expansion is expected to reduce the noise problem experienced by County residents who live in the path of an airport runway.

In the interest of air traffic safety, York County amended the Zoning Ordinance in 1991 by creating an Airport Safety Management (ASM) overlay district that establishes special height limitations for development in proximity to airports and the various airport approach zones. The purpose of these regulations is to protect air space in the vicinity of Newport News/Williamsburg Airport and the various military airports and airfields in the area.

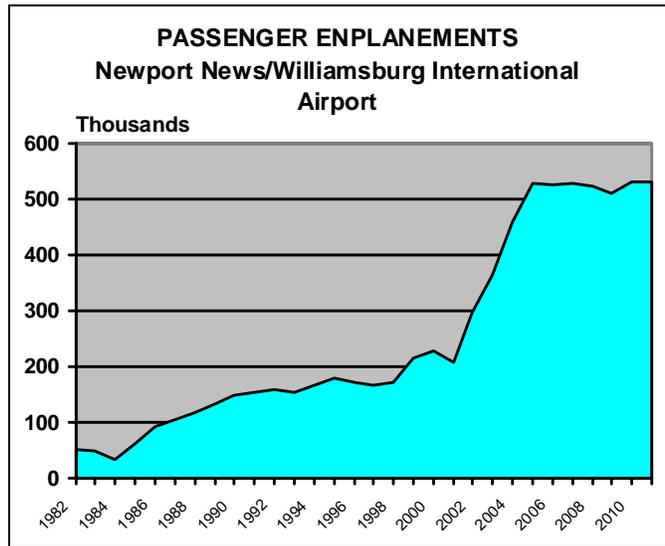


Figure 1

Bikeways

Although often thought of as a recreational activity, bicycling is also a mode of transportation. Benefits of bicycle use include energy conservation, reduced noise and air pollution, traffic reduction, and health and fitness improvement. York County's mild weather, relatively flat terrain, and tourist attractions offer ideal opportunities for bicycling.

There are five basic types of bikeways as defined in the *Virginia Bicycle Facility Resource Guide*², published by VDOT in 2002:

- **Shared Lane:** Shared auto/bicycle use of a "standard" width (12') travel lane. Shared lanes and wide outside lanes are referred to as shared roadways in the *Regional Bikeway Plan*.
- **Wide Outside Lane (Wide Curb Lane):** An outside travel lane with a width of at least 14 feet.
- **Bike Lane:** A portion of the roadway designated by striping, signing, and/or pavement markings for preferential or exclusive use of bicycles. The *Regional Bikeway Plan* refers to these facilities and to Shoulders as Shoulder Bike Lanes.
- **Shoulder:** A paved portion of the roadway to the right of the edge stripe on which bicyclists may ride. These areas are not marked or signed as bike lanes. The minimum desirable width is 4 feet, or 5 feet where there are side obstructions such as curbing, guardrails, utility poles, etc.

¹ Jon Cawley, "Newport News Airport Ridership Continues Downward trend," *Daily Press* 25 September 2012

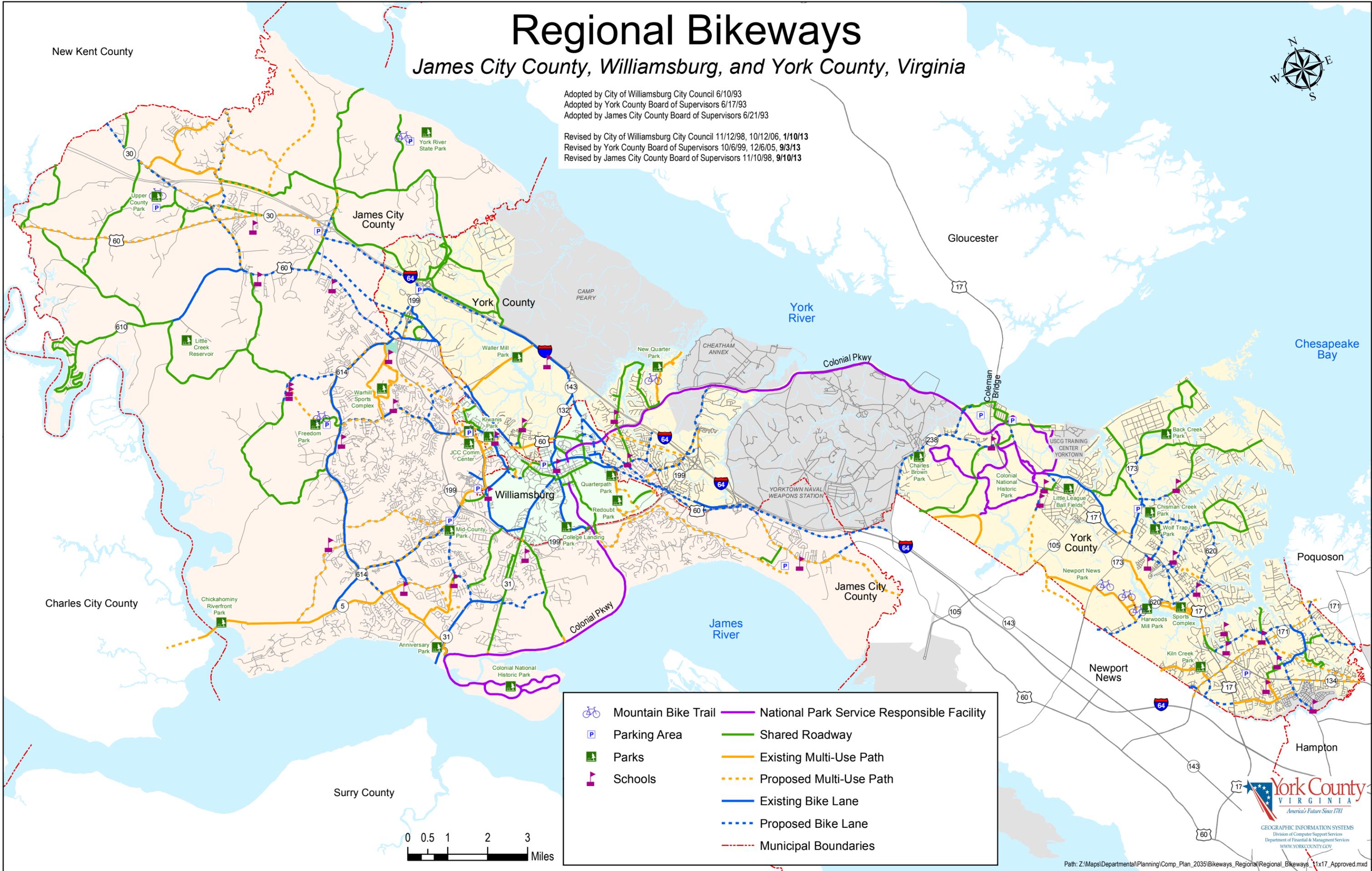
² *Virginia Bicycle Facility Resource Guide*, p. 2-14

Regional Bikeways

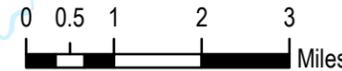
James City County, Williamsburg, and York County, Virginia

Adopted by City of Williamsburg City Council 6/10/93
 Adopted by York County Board of Supervisors 6/17/93
 Adopted by James City County Board of Supervisors 6/21/93

Revised by City of Williamsburg City Council 11/12/98, 10/12/06, 1/10/13
 Revised by York County Board of Supervisors 10/6/99, 12/6/05, 9/3/13
 Revised by James City County Board of Supervisors 11/10/98, 9/10/13



| | | | |
|--|---------------------|--|--|
| | Mountain Bike Trail | | National Park Service Responsible Facility |
| | Parking Area | | Shared Roadway |
| | Parks | | Existing Multi-Use Path |
| | Schools | | Proposed Multi-Use Path |
| | | | Existing Bike Lane |
| | | | Proposed Bike Lane |
| | | | Municipal Boundaries |



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- **Separate Bike Path (Shared Use Path):** A facility that is physically separated from the roadway and intended for bicycle use. The *Regional Bikeway Plan* refers to these facilities as Multi-Use Trails.

In 1993 York County joined with Williamsburg and James City County in developing and adopting a *Regional Bicycle Facilities Plan* (or *Regional Bikeway Plan*) for the three localities. A multi-jurisdictional approach was taken in recognition of the fact that bikeways, like roadways, should not abruptly end at jurisdictional boundary lines. The three governing bodies also formed the Historic Triangle Bicycle Advisory Committee (HTBAC) comprised of citizen appointees and staff from each locality as well as the National Park Service, the Colonial Williamsburg Foundation, and the College of William and Mary. In addition to developing and implementing promotional, informational, and safety initiatives related to bicycling, the HTBAC is responsible for recommending projects and priorities for implementation under the adopted Regional Bikeways Plan and recommending amendments to the Plan. In 2012 the HTBAC conducted a thorough review and update of the plan as part of the coordinated comprehensive plan review with James City County and Williamsburg. The updated bikeway plan, incorporated by reference into this Comprehensive Plan, is depicted on the **Regional Bikeways** map and proposes approximately 43 miles of bike lanes, 22 miles of multi-use trails, and 39 miles of shared roadways in York County.

Since the adoption of the Regional Bikeway Plan in 1993, shoulder bike lanes have been built along Amory Lane, Capitol Landing Road (Route 143), East Rochambeau Drive, Goodwin Neck Road, Mooretown Road, and Old York-Hampton Highway, and the Waller Mill Rail Trail was constructed as a multi-use trail running through the City of Williamsburg's Waller Mill Park from Mooretown Road to East Rochambeau Drive generally parallel to Airport Road. Three of these bikeways (Amory Lane, Mooretown Road, and Old York-Hampton Highway) were built as part of road construction or widening projects. The remaining three bikeways were constructed with CMAQ or RSTP (Regional Surface Transportation Program) funds. In addition, there are several bikeway projects that are either underway or in the planning/design stages: addition of shoulders along Cook Road between Surrender Road and Ballard Street and potentially along Ballard between Cook Road and the Colonial Parkway; and the elimination of gaps in the bikeway network along East Rochambeau Drive.

Rail

A main line of the CSX Railroad runs between Richmond and the Port of Virginia's Newport News marine terminal generally along the spine of the Peninsula and consists primarily of single- and double-track sections, with spurs and sidings to industrial areas, including a spur line to the Dominion Virginia Power Yorktown Power Station and the Plains Marketing Crude Oil Terminal in the Goodwin Neck area of York County. The CSX main line provides both passenger and freight service. Because there is only one track throughout much of the rail corridor, the shared use of the CSX rail line for both passenger and freight service creates potential for conflict.

Amtrak offers daily service to the Peninsula via the CSX line, with stations in Williamsburg and Newport News. Two Amtrak trains run daily in each direction between Newport News and Washington, New York, and Boston, with a third southbound train on Fridays. The Virginia Department of Rail and Public Transportation (DRPT) is investigating improved passenger rail service between Hampton Roads and Richmond as an extension of the Southeast High Speed Rail Corridor and has completed the Tier 1 Final Environmental Impact Statement. Recommendations for the Peninsula include the addition of one round-trip per day (at conventional speeds) between Newport News and Boston, with higher-speed rail service between Norfolk and Petersburg in south Hampton Roads.

The movement of freight along the CSX line is important to both the economy and the transportation network. This rail line is classified as one of the highest density freight tracks in the state, with over 30 million gross ton-miles per mile of line per year. The primary freight activity

along this main-line route is the hauling of coal to the coal terminals in Newport News for shipment overseas. The existing CSX main line and the Goodwin Neck spur provide an opportunity to locate additional rail-served industry in the Goodwin Neck/Seaford area, which is designated for industrial use. That capability is considered an attractive potential opportunity for some of the undeveloped property in the York River Commerce Park.

The CSX corridor has also been identified as a potential commuter rail corridor in the *Transit Vision Plan* for Hampton Roads. This plan, which was developed by DRPT in partnership with the regional transit providers and all the localities of Hampton Roads, maps out a series of short- and long-term recommendations for improved transit service in the region. Recommendations include the establishment of commuter rail service between downtown Newport News and Williamsburg by 2035, with further extension to Lightfoot and Toano beyond 2035. However, as noted previously, a major impediment to the enhancement of rail service on the Peninsula is the sharing of tracks by passenger and freight rail service.

Roadways

There are over 600 centerline miles of roadway in the County, most of which³, as in all Virginia counties except Arlington and Henrico, are owned and maintained not by the County but by the Virginia Department of Transportation (VDOT). Largely because of a topography typified by a large number of peninsulas and inlets in the lower County and pronounced ridgelines which fall off into steep ravines in the upper County, combined with a generally linear alignment along the banks of the York River, the roadway network has developed with a large number of collector roads feeding relatively few arterial roads. In the functional hierarchy of streets, higher order streets, such as freeways, arterials, and major collectors are intended more to move traffic than to provide land access (i.e., driveways connecting to them). Minor collectors and sub-collectors serve both functions, and local streets, which are typically subdivision streets, are intended to provide land access. Generally speaking, local streets feed into the sub-collector and collector roads, which move traffic to the arterial and freeway system, with increasing speeds and diminishing land access as one moves from lower order to higher order streets.⁴ It is also possible to think of such roads in terms of their traffic volumes, with the most traffic generally found on freeways and the least on subdivision or access streets. As traffic volumes increase, the design characteristics of roadways must also increase. Frequently, this means building roads with more and wider lanes, better shoulders, access controls, and higher speed limits, all of which can increase both the safety and the capacity of the roadway. They also increase the cost of the road and can create barriers to modes other than automobile travel. The functional hierarchy of York County's roadway network is depicted on the **VDOT Functional Classification** map, while mileage by functional classification for public (VDOT) roads is shown in **Table 1**.

| MILES OF ROADWAY BY VDOT FUNCTIONAL CLASSIFICATION, 2009 | | | |
|---|--------------|--------------|--------------|
| Roadway Functional Classification | Urban | Rural | Total |
| Interstate | 5.7 | 5.6 | 11.3 |
| Freeway & Expressway | 2.8 | - | 2.8 |
| Other Principal Arterial | 32.4 | - | 32.4 |
| Minor Arterial | 17.3 | 2.2 | 19.5 |
| Collector | 31.7 | 7.9 | 39.6 |
| Local | 264.4 | 33.9 | 298.3 |
| Total Centerline Miles | 354.3 | 44.0 | 403.9 |

³ There are also approximately 332 private streets (mostly within apartment complexes, timeshare resorts, and townhouse, duplex, and quadruplex developments) and 210 federally maintained roads, including the Colonial Parkway and roads located on military bases.

⁴ Vergil G. Stover and Frank J. Koepke, *Transportation and Land Development* (Institute of Transportation Engineers: Washington D.C.) 2002, pp 4-3 through 4-11

| MILES OF ROADWAY BY VDOT FUNCTIONAL CLASSIFICATION, 2009 | | | |
|--|-------|-------|-------|
| Roadway Functional Classification | Urban | Rural | Total |
| Source: Virginia Department of Transportation | | | |

Table 1

In York County, as in most of the United States, the automobile is the principal mode of travel. According to the Census Bureau's American Community Survey for 2008-10, 85.6% of the County's employed residents drive to work alone, while 6.9% carpool and another 3.1% walk to work. Very small proportions – 0.2% and 0.8% respectively – commute either by public transportation or by other means, while an additional 3.4% work at home. The prevalence of the single-occupant vehicle, combined with residential and commercial growth in both the County and the region and dwindling transportation funding, has caused traffic on many roads to exceed their capacity. Roadway capacity is derived from a mathematical relationship between roadway geometric features (lane width, horizontal and vertical curvature, shoulder type and width, etc.) surface treatment, access type and spacing, intersection location and type of control (stop sign, yield sign, traffic signal, etc.), and the general characteristics of travel (peak hours, number of heavy vehicles in the traffic stream, the number and percentage of left turns at intersections, etc.). All else being equal, the capacity of a roadway is defined by its conflict points, which include access driveways and intersections: the fewer the conflict points, the greater the capacity of the roadway.

Capacity analysis involves the estimation of the traffic-carrying ability of a roadway over a range of operational conditions, which are defined in terms of Level of Service (LOS).⁵ "The concept of *levels of service* uses qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers. The descriptions of individual levels of service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience."⁶ There are six levels of service with letter designations of A through F; LOS A represents the best operating conditions (free-flow) and LOS F represents the worst (gridlock). These delays increase air pollution, waste energy, and cause driver frustration, which often manifests itself in attempts to find short cuts, usually along roads not designed for through traffic. LOS A through D are considered to be acceptable operating conditions, while LOS E and F are considered unacceptable.

Capacity analysis of the regional roadway network is conducted on a regular basis as part of the *Congestion Management Process* (CMP) for the region, with the analysis being done by the Hampton Roads Transportation Planning Organization (HRTPO). Federal regulations require CMPs for all urban areas with populations over 200,000. As stated in the 2010 CMP, "The Congestion Management Process (CMP) is an on-going process that identifies congested locations, determines the causes of congestion, ranks the most congested segments, and develops transportation strategies to reduce traffic congestion and enhance safety and mobility regionwide."⁷ The CMP includes all roadways in the Hampton Roads study area that are classified as interstates, freeways or other expressways, principal and minor arterials, as well as some selected collectors.⁸

The 2010 CMP includes current and forecasted future Levels of Service on major roads in the long term (2034). The data for York County's roads appears in **Table 2** below and is graphically illustrated in the **2010** and **2034 Congestion** maps. As indicated, many roadway segments in York

⁵ Transportation Research Board, *Highway Capacity Manual, Special Report 209, Third Edition* (1998), p. 1-3

⁶ Highway Capacity Manual, p.1-4

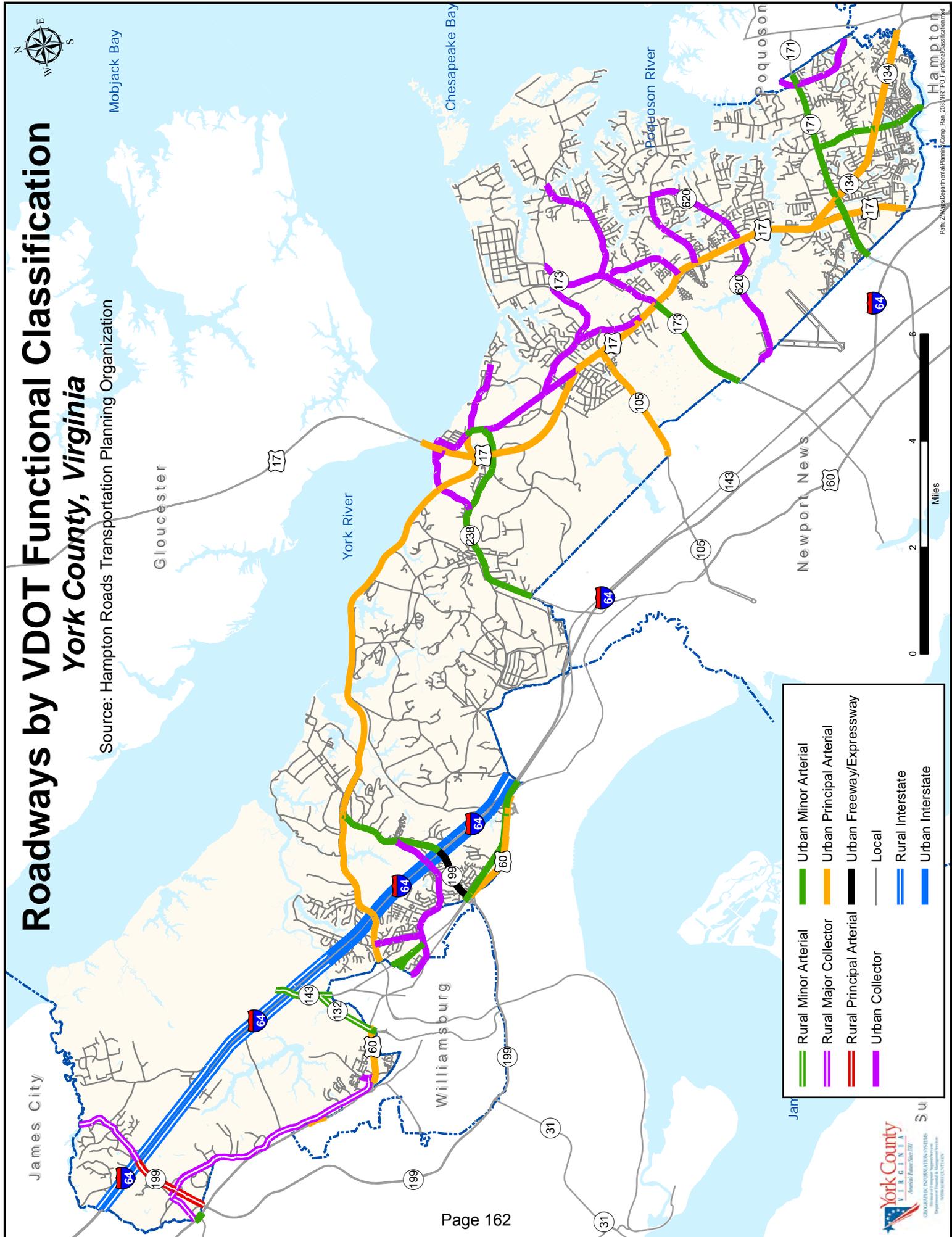
⁷ Hampton Roads Transportation Planning Organization, *Hampton Roads Congestion Management Process* (September 2010), p. 1

⁸ Page 17

Roadways by VDOT Functional Classification

York County, Virginia

Source: Hampton Roads Transportation Planning Organization



| | | | |
|--|--------------------------|--|--------------------------|
| | Rural Minor Arterial | | Urban Minor Arterial |
| | Rural Major Collector | | Urban Principal Arterial |
| | Rural Principal Arterial | | Urban Freeway/Expressway |
| | Urban Collector | | Local |
| | | | Rural Interstate |
| | | | Urban Interstate |

County are experiencing moderate or severe congestion now while others are projected to become congested by 2034. However, it should be emphasized that traffic forecasting is not an exact science and that no forecasting model is perfect. Long-range forecasts of severe future congestion do not necessarily indicate that improvements will be needed. For example, the HRTPO modeling indicates that the Colonial Parkway and Route 132 in York County – two roads where traffic appears to flow smoothly, even in the morning and afternoon peak hours – are currently experiencing moderate congestion that will become severe by 2034. There does not appear to be any need to improve either of these roads. The same is true for Ballard Street in Yorktown, which is a relatively low-volume road with little congestion that provides access to the Coast Guard base and a small residential area (Surrender Field) that has very little privately owned land available for future development. Furthermore, the CMP data are based on various assumptions about long-range population and employment growth patterns that are by necessity somewhat speculative. Although the prioritization of improvement projects should not be based solely on this information, the CMP is a useful tool for helping to identify existing and future problem areas where the County should concentrate its focus and efforts.

| Current and Projected Weekday Traffic Volumes and PM Peak-Hour Levels of Service | | | | | | | |
|--|-------|--------------------------------|----------------------------------|----------------|---------|------------------|------|
| Route Name | Rte # | Segment From | Segment To | Weekday Volume | | PM Peak Hour LOS | |
| | | | | Most Recent | 2034 | 2010 | 2034 |
| Ballard St | 1020 | Colonial Pkwy | Cook Rd | 5,899 | 14,000 | D | F |
| Ballard St | 238 | Cook Rd | Coast Guard Training Center | 2,430 | 10,000 | D | F |
| Big Bethel Rd | 600 | Hampton CL | Hampton Hwy | 9,444 | 18,000 | A-C | F |
| Big Bethel Rd | 600 | Hampton Hwy | Victory Blvd | 4,971 | 11,000 | A-C | A-C |
| Bypass Rd | 60 | Williamsburg CL | Waller Mill Rd | 26,802 | 43,000 | A-C | A-C |
| Bypass Rd | 60 | Waller Mill Rd | Route 132/Williamsburg CL | 26,802 | 43,000 | A-C | A-C |
| Capitol Landing Rd | 143 | Route 132 | I-64 | 19,138 | 27,000 | A-C | A-C |
| Capitol Landing Rd | 143 | Williamsburg CL | Route 132 | 9,226 | 15,000 | A-C | A-C |
| Colonial Pkwy | | Williamsburg CL | Ballard St | 6,218 | 16,000 | D | F |
| Cook Rd | 704 | Route 17 | Goosley Rd | 6,368 | 18,000 | A-C | F |
| Cook Rd | 238 | Goosley Rd | Ballard St | 6,900 | 19,000 | A-C | F |
| Denbigh Blvd | 173 | Newport News CL | Route 17 | 16,203 | 18,000 | E | E |
| East Yorktown Rd | 782 | Victory Blvd | Poquoson CL | 5,585 | 11,000 | A-C | D |
| Fort Eustis Blvd | 105 | Newport News CL | Route 17 | 18,188 | 37,000 | E | A-C |
| Fort Eustis Blvd Ext. | 1050 | Route 17 | Old York-Hampton Hwy | 5,000 | 20,000 | A-C | A-C |
| GW Wash Mem Hwy | 17 | Newport News CL | Victory Blvd | 38,983 | 49,000 | A-C | E |
| GW Wash Mem Hwy | 17 | Victory Blvd | Hampton Hwy | 42,347 | 52,000 | D | F |
| GW Wash Mem Hwy | 17 | Hampton Hwy | Dare Rd | 54,914 | 87,000 | F | F |
| GW Wash Mem Hwy | 17 | Dare Rd | Denbigh Blvd | 39,235 | 71,000 | A-C | D |
| GW Wash Mem Hwy | 17 | Denbigh Blvd | Fort Eustis Blvd | 39,111 | 55,000 | A-C | F |
| GW Wash Mem Hwy | 17 | Fort Eustis Blvd | Cook Rd | 38,988 | 61,000 | A-C | F |
| GW Wash Mem Hwy | 17 | Cook Rd | Goosley Rd (Rte 238) | 29,384 | 61,000 | A-C | F |
| GW Wash Mem Hwy | 17 | Goosley Rd | Gloucester CL | 34,117 | 59,000 | F | F |
| Goodwin Neck Rd | 173 | Route 17 | Wolf Trap Rd | 9,318 | 15,000 | A-C | A-C |
| Goosley Rd | 238 | Old Wmsburg Rd | Crawford Rd | 6,878 | 8,000 | A-C | D |
| Goosley Rd | 238 | Crawford Rd | Route 17 | 6,878 | 12,000 | A-C | F |
| Goosley Rd | 238 | Route 17 | Cook Rd | 1,690 | 7,000 | A-C | A-C |
| Hampton Hwy | 134 | Route 17 | Victory Blvd | 21,178 | 43,000 | A-C | A-C |
| Hampton Hwy | 134 | Victory Blvd | Big Bethel Rd | 29,041 | 42,000 | A-C | F |
| Hampton Hwy | 134 | Big Bethel Rd | Hampton CL | 27,101 | 36,000 | A-C | F |
| I-64 EB | | James City CL | Route 199/646 | 58,252 | 100,000 | A-C | E |
| I-64 WB | | | | | | A-C | F |
| I-64 EB | | Route 199/646 | Route 143 | 56,909 | 87,000 | A-C | D |
| I-64 WB | | | | | | A-C | E |
| I-64 EB | | Route 143 | Route 199 (East of Williamsburg) | 65,349 | 88,000 | A-C | D |
| I-64 WB | | | | | | D | E |
| I-64 EB | | Rte 199 (East of Williamsburg) | Grove Connector | 83,621 | 111,000 | D | F |
| I-64 WB | | | | | | D | F |
| I-64 EB | | Grove Connector | James City CL | 87,885 | 116,000 | D | F |
| I-64 WB | | | | | | E | F |
| Merrimac Trail | 143 | James City CL | Busch Gardens Interchange | 10,021 | 30,000 | A-C | F |
| Merrimac Trail | 143 | Busch Grdens Int. | Route 199/James City CL | 14,675 | 39,000 | A-C | F |
| Merrimac Trail | 143 | Penniman Rd | Second St | 16,543 | 23,000 | A-C | A-C |
| Merrimac Trail | 143 | Second St | Williamsburg CL | 7,936 | 13,000 | A-C | A-C |

| Current and Projected Weekday Traffic Volumes and PM Peak-Hour Levels of Service | | | | | | | |
|--|-------|-------------------|---------------------------|----------------|--------|------------------|------|
| Route Name | Rte # | Segment From | Segment To | Weekday Volume | | PM Peak Hour LOS | |
| | | | | Most Recent | 2034 | 2010 | 2034 |
| Merrimac Trail | 143 | Williamsburg CL | Route 132 | 9,226 | 15,000 | A-C | A-C |
| Mooretown Rd | 603 | Waller Mill Rd | Airport Rd | 6,289 | 12,000 | A-C | A-C |
| Mooretown Rd | 603 | Airport Rd | Old Mooretown Rd | 9,283 | 15,000 | A-C | D |
| Mooretown Rd | 603 | Old Mooretown Rd | Route 199 | 20,000 | 25,000 | A-C | A-C |
| Newman Rd | 646 | I-64 | Fenton Mill Rd | 2,859 | 14,000 | A-C | E |
| Old Williamsburg Rd | 238 | Newport News CL | Baptist Rd | 11,158 | 15,000 | A-C | F |
| Old Williamsburg Rd | 238 | Baptist Rd | Goosley Rd | 9,833 | 14,000 | A-C | F |
| Penniman Rd | 641 | Route 199 | Colonial Pkwy | 5,479 | 11,000 | A-C | D |
| Pocahontas Trail | 60 | James City CL | Kingsmill Rd | 8,600 | 43,000 | A-C | F |
| Pocahontas Trail | 60 | Kingsmill Rd | Busch Gardens Interchange | 11,980 | 43,000 | A-C | F |
| Pocahontas Trail | 60 | Busch Grdns. Int. | James City CL | 11,459 | 27,000 | A-C | F |
| Route 132 | | Williamsburg CL | Capitol Landing Rd | 11,135 | 13,000 | D | D |
| Route 199 EB | | Richmond Rd | Mooretown Rd | 27,033 | 34,000 | A-C | A-C |
| Route 199 WB | | | | | | A-C | A-C |
| Route 199 EB | | Mooretown Rd | I-64 | 29,588 | 39,000 | A-C | A-C |
| Route 199 WB | | | | | | A-C | A-C |
| Route 199 | | Rte 60/JCC CL | I-64 | 30,753 | 60,000 | A-C | F |
| Route 199 | | I-64 | Marquis Pkwy | 20,012 | 31,000 | A-C | A-C |
| Route 199 | | Marquis Pkwy | Penniman Rd | 9,598 | 23,000 | A-C | A-C |
| Second St | | Williamsburg CL | Merrimac Trail | 15,123 | 24,000 | A-C | D |
| Victory Blvd | 171 | Newport News CL | Route 17 | 52,998 | 65,000 | D | F |
| Victory Blvd | 171 | Route 17 | Hampton Hwy | 33,648 | 41,000 | D | F |
| Victory Blvd | 171 | Hampton Hwy | Big Bethel Rd | 20,304 | 26,000 | F | F |
| Victory Blvd | 171 | Big Bethel Rd | Carys Chapel Rd | 21,568 | 27,000 | F | F |
| Victory Blvd | 171 | Carys Chapel Rd | Poquoson CL | 13,315 | 14,000 | A-C | A-C |
| Waller Mill Rd | 713 | Bypass Rd | Mooretown Rd | 4,634 | 18,000 | A-C | A-C |

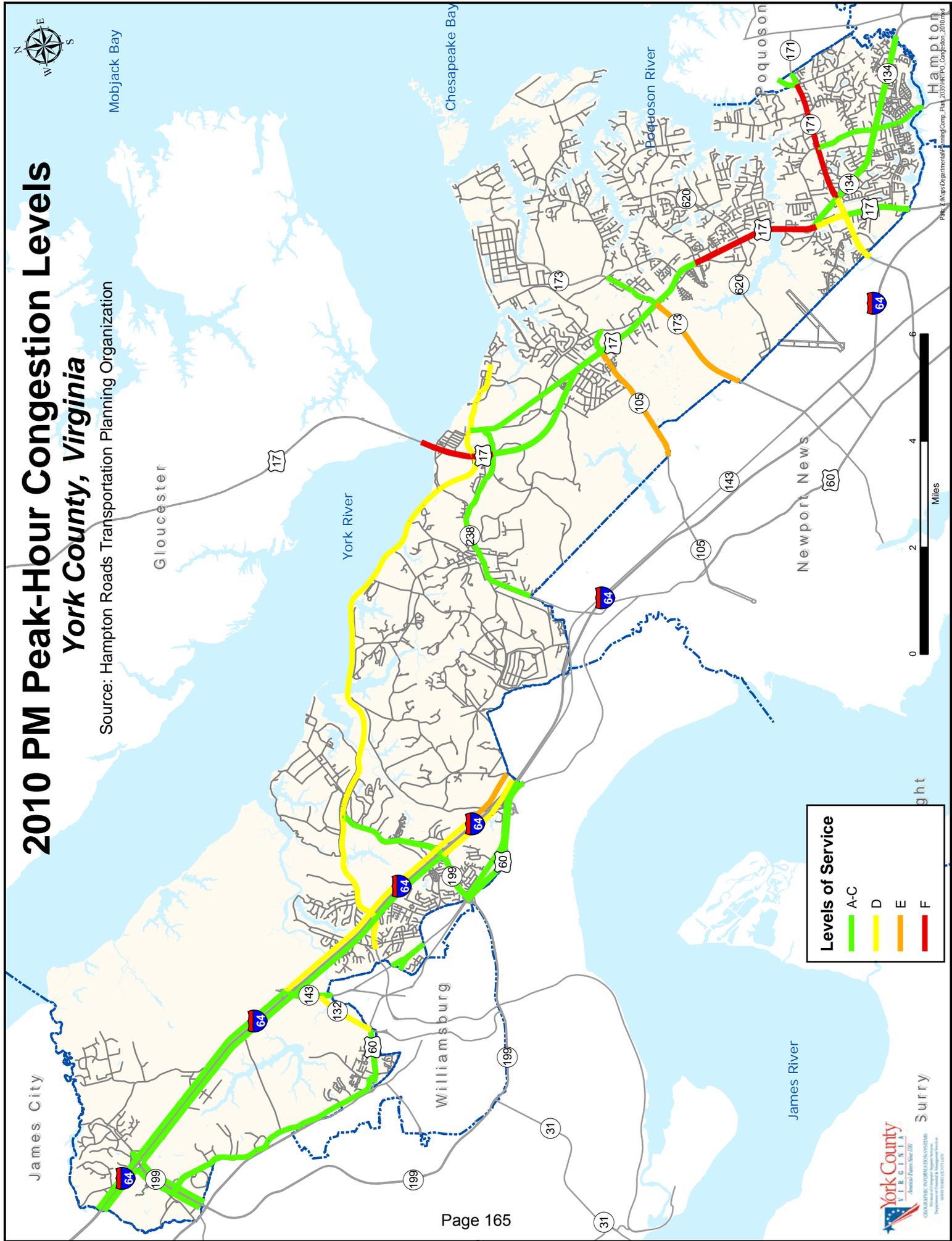
Source: Hampton Roads Transportation Planning Organization, *James City County/Williamsburg/York County Comprehensive Transportation Study*, March 2012

Table 2

Traffic congestion often contributes to safety problems as driver frustration leads to red light running, tailgating, improper lane changes, failure to yield, and other dangerous maneuvers. As shown in **Figure 2**, the number of crashes and traffic injuries on York County's roads tends to fluctuate from year to year. There were 858 crashes in 2012 – ten fewer than in 2001. Between those two years, however, the number of crashes ranged from a low of 778 in 2009 to a high of 1,137 in 2004. Crash trends are monitored by the County's Transportation Safety Commission, which is an advisory body to the Board of Supervisors composed of County citizens, staff members, and representatives of other agencies (VDOT, the National Park Service, and the Virginia Highway Safety Office) that have an interest in transportation safety. One activity of the Commission is to analyze crash trends to identify hazardous locations, which can then be addressed through a combination of education, enforcement, and engineering.

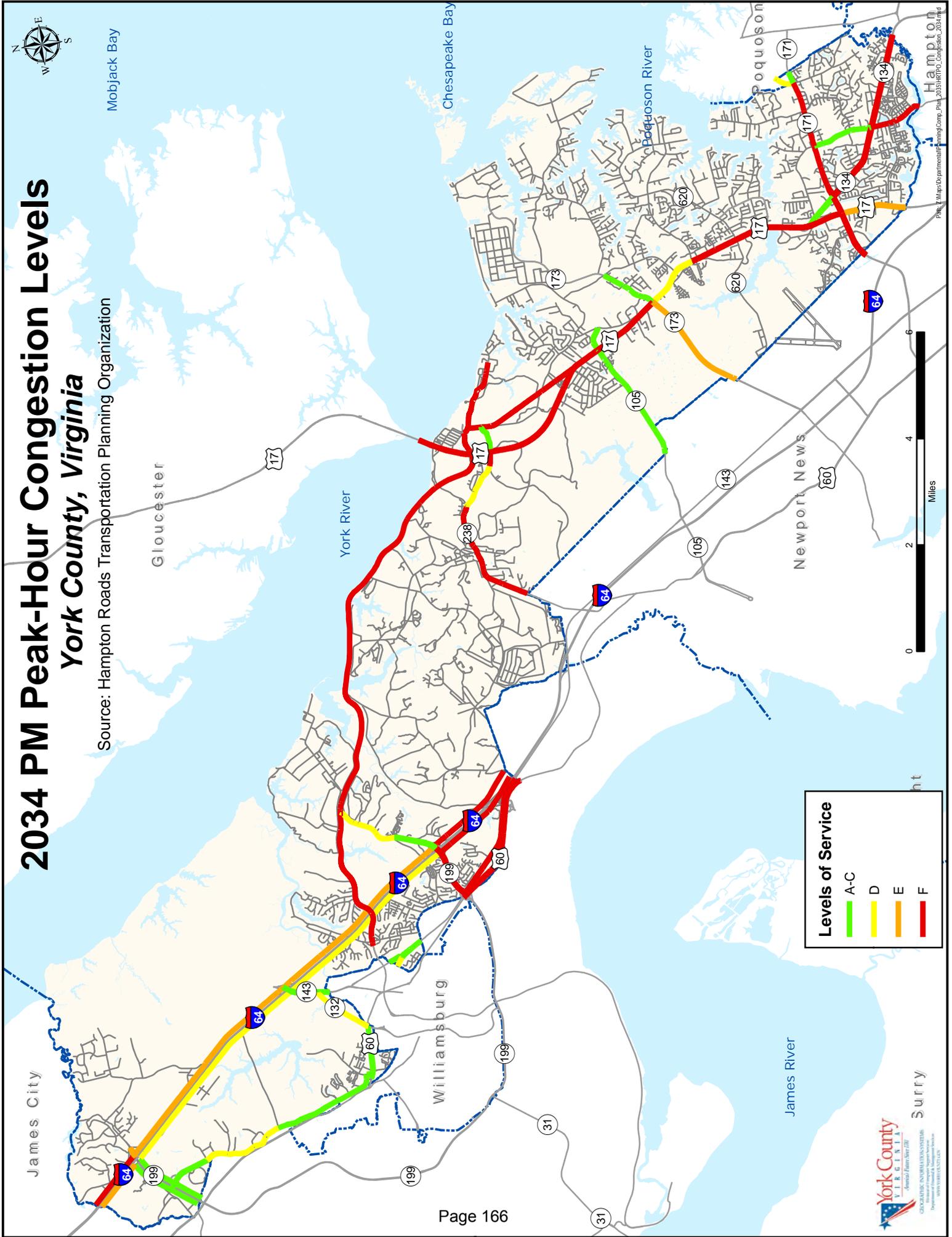
2010 PM Peak-Hour Congestion Levels York County, Virginia

Source: Hampton Roads Transportation Planning Organization



2034 PM Peak-Hour Congestion Levels York County, Virginia

Source: Hampton Roads Transportation Planning Organization



| Levels of Service | |
|-------------------|-----|
| | A-C |
| | D |
| | E |
| | F |

Crashes on York County Roadways

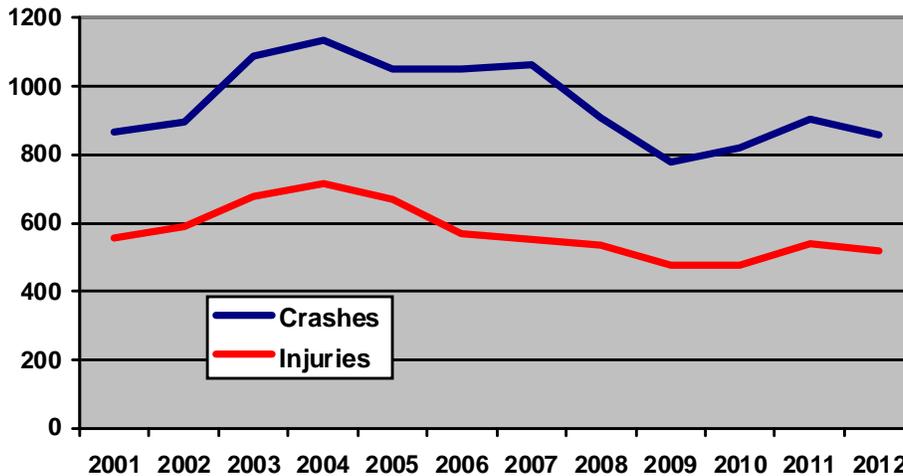


Figure 2

Capacity and safety deficiencies are indicators that some type of road improvement is needed. Types of improvements include 1) new facilities, which remove traffic from existing roadways; 2) new through lanes, which add capacity and enhance safety; 2) spot improvements, such as turn lanes, improved roadway geometrics, signals, signs, and pavement markings; and 4) Transportation System Management (TSM) measures, which usually focus on reducing peak hour demand by encouraging alternative travel modes or off-peak travel times.

The County and VDOT work together to formulate plans, within increasingly severe funding constraints, to reduce traffic congestion and improve traffic safety. Most importantly, VDOT's Six-Year Improvement Program includes a project to widen Route 17 to six lanes between Hampton Highway and Wolf Trap Road. According to VDOT's construction schedule, this project should begin in 2013 and continue through 2016. Another high priority, not just for York County but for the entire region, is the widening of Interstate 64 between Newport News and Richmond, which is currently being studied by VDOT and the Federal Highway Administration (FHWA). The draft Environmental Impact Statement, released in October 2012, examines various alternatives for providing capacity enhancements on Interstate 64 between I-664 on the Peninsula and I-95 in Richmond; these alternatives include doing nothing (the no-build scenario), widening to the inside, widening to the outside (in order to preserve as much of the landscaped median as possible), adding HOV lanes, and adding so-called "HOT" toll lanes. The planning level cost estimates for the total project under the various alternatives range from \$4.7 billion to \$7.3 billion.

For interstate and primary road system improvements, the County is largely beholden to VDOT and the Commonwealth Transportation Board, which annually adopts the State Six-Year Improvement Program establishing funding priorities for interstate, primary, and urban highway system improvements, as well as public transit, ports, and airports. It also includes secondary road projects for which federal funding is being utilized. Each year the Board of Supervisors adopts a recommended program of interstate and primary road improvement projects and priorities and makes a request of the Commonwealth Transportation Board that these projects be given consideration for inclusion in the state six-year program.

Section 15.2-2223.B.3. of the Code of Virginia requires each locality's Comprehensive Plan to be consistent with the Commonwealth Transportation Board's Statewide Transportation Plan and Six-Year Improvement Program. This requirement applies specifically to any projects in either plan that are deemed to be significant new, expanded, or relocated roadways. All York County projects listed in VDOT's current Six-Year Improvement Program are listed in **Table 3**:

| ADOPTED SIX-YEAR IMPROVEMENT PROGRAM, FY2013-2018 – YORK COUNTY PROJECTS | | | | | | | | |
|--|-----------|---|---|----------------|-----------------------|--------------|-----------------|---------|
| UPC | Route No. | Route Name | Description | Estimated Cost | Previous Expenditures | FY13 Funding | FY14-18 Funding | Balance |
| (Values in Thousands of Dollars) | | | | | | | | |
| 18441 | F-137 | East Rochambeau Drive | Pave existing shoulder for bike facility | \$0 | \$238 | \$0 | \$0 | (\$238) |
| 98098 | 64 | Install VMS and Lengthen Ramp And Weave On I-64 WB | Install VMS and Lengthen Ramp And Weave On I-64 WB | \$429 | \$429 | \$0 | \$0 | \$0 |
| 97910 | PSAP | Public Safety Announcement Points (PSAP) York County | Public Safety Announcement Points (PSAP) York County | \$98 | \$99 | \$0 | \$0 | (\$1) |
| 60843 | 17 | Route 17 - Widen From 4 To 6 Lanes | Rte 17 - Widen From 4 To 6 Lanes | \$60,376 | \$40,460 | \$8,960 | \$10,955 | \$0 |
| 80382 | 17 | Electronic Toll Collection & Violation Enforcement System | Electronic Toll Collection & Violation Enforcement System | \$0 | \$486 | \$0 | \$0 | (\$486) |
| 83512 | 17 | Route 17 - Intersection Improvements | Route 17 - Intersection Improvements | \$3,000 | \$800 | \$0 | \$0 | \$2,200 |
| 101274 | 17 | Add culverts under Route 17 | Add culverts under Route 17 | \$200 | \$100 | \$100 | \$0 | \$0 |
| 94459 | 134 | ARRA - Route 134 Extend Turn Lane at Tabb Smith Trail | ARRA - Route 134 Extend Turn Lane at Tabb Smith Trail | \$117 | \$111 | \$0 | \$0 | \$6 |
| 84484 | 143 | Capitol Landing Road | Shoulder Bike Lanes | \$418 | \$373 | \$118 | \$0 | (\$73) |
| 94127 | 143 | Rebuild Existing Traffic Signal, Route 143 at Route 132 | Rebuild Existing Traffic Signal, Route 143 at Route 132 | \$160 | \$155 | \$0 | \$0 | \$5 |
| 103072 | 171 | Victory Boulevard | Multi-Use Path | \$2,870 | \$2,296 | \$574 | \$0 | \$0 |
| 50015 | BW00 | Grafton Drive Bikeway (Bikeway and Sidewalk) | Grafton Drive Bikeway (Bikeway and Sidewalk) | \$0 | \$100 | \$0 | \$0 | (\$100) |
| T4316 | | Yorktown 225th Transportation System | Yorktown 225th Transportation System | \$46 | \$46 | \$0 | \$0 | \$0 |
| 95423 | 137 | HRRR Intersection Improvements | HRRR Intersection Improvements | \$518 | \$514 | \$0 | \$0 | \$4 |
| 101277 | 137 | Construct Paved Shoulders | Construct Paved Shoulders | \$40 | \$20 | \$20 | \$0 | \$0 |
| 16316 | 704 | Rte 704 - Bicycle Path (See Regional Project On ID 13500) | Rte 704 - Bicycle Path (See Regional Project On ID 13500) | \$1,303 | \$859 | \$0 | \$0 | \$444 |
| 101276 | 704 | Cook Road | Construct Paved Shoulders | \$360 | \$180 | \$180 | \$0 | \$0 |
| 94581 | 1209 | North Edgehill Roadway Drainage Improvements (RS FY2010) | North Edgehill Roadway Drainage Improvements (RS FY2010) | \$1,215 | \$875 | \$100 | \$0 | \$240 |
| 103006 | 1710 | Improvement To Existing Drainage Outfall | Improvement To Existing Drainage Outfall | \$200 | \$0 | \$200 | \$0 | \$0 |
| 94460 | 9999 | ARRA - Routes 646/630/622/782: Pavement Rehab/Overlay | ARRA - Routes 646/630/622/782: Pavement Rehab/Overlay | \$1,189 | \$1,189 | \$0 | \$0 | \$0 |
| 94543 | 9999 | ARRA - Routes 134/716/ 690: Construct Sidewalks | ARRA - Routes 134/716/ 690: Construct Sidewalks | \$375 | \$375 | \$0 | \$0 | \$0 |

Table 3

Only one of these projects – the widening of Route 17 from four to six lanes between Hampton Highway and Wolf Trap Road – would be considered a “significant new, expanded, or relocated roadway.” It should be noted that several of the projects listed in **Table 3** have been completed but still appear in the six-year plan because they have not been closed out financially by VDOT.

In addition to the Six-Year Improvement Program, the state has developed a long-range multi-modal transportation planning document titled *VTrans2035*, in accordance with Section 33.1-23.03 of the Code of Virginia, which directs the Commonwealth Transportation Board (CTB) to develop a multimodal long-range transportation plan with a statewide focus. Completed in January 2010, *VTrans2035* was developed through the Office of the Secretary of Transportation by the four state transportation agencies – the Department of Aviation, the Department of Rail and Public Transportation, the Virginia Port Authority, and VDOT. *VTrans2035* is a blueprint for shaping the transportation future that considers highways, transit, rail, air, pedestrian, port, and bicycle facilities

as part of a single transportation system. This plan designates eleven Corridors of Statewide Significance throughout Virginia, two of which are of particular relevance to York County: the East-West Corridor, which runs along I-64 and the CSX rail line, and the Tidewater Corridor, which basically follows Route 17. The plan recommends highway and rail capacity improvements along both corridors as well as various strategies pertaining to transit, park-and-ride lots, intelligent transportation systems (ITS), freight, and access to airport facilities.

VTrans2035 was the precursor to the *2035 Virginia Surface Transportation Plan (VSTP)*, which was a coordinated effort between VDOT and the Virginia Department of Rail and Public Transportation (DRPT). The VSTP provides an overview of existing and future transportation conditions throughout Virginia and identifies a series of long-term multimodal transportation recommendations, all of which were developed based on the policy framework established by *VTrans2035*. York County projects in the 2035 VSTP are listed in **Table 4**:

| VIRGINIA SURFACE TRANSPORTATION PLAN 2035 – YORK COUNTY PROJECTS | | | | | | |
|--|------------------------------------|-----------------|------------------------------|--------|--|--------------------------|
| Route # | Route Name | From | To | Length | Description | Estimated Cost (\$1000s) |
| 17 | George Washington Memorial Highway | I-64 | Route 134 | 2.56 | Widen to 6 lanes | \$70,702 |
| 17 | George Washington Memorial Highway | Route 134 | Route 173 | 3.57 | Widen to 6 lanes | \$101,093 |
| 17 | George Washington Memorial Highway | Route 173 | Goosley Road | 4.36 | Widen to 6 lanes | \$129,111 |
| 134 | Hampton Highway | Big Bethel Road | Hampton Roads Center Parkway | 4.35 | Widen to 6 lanes | \$126,265 |
| 171 | Victory Boulevard | Route 17 | Route 134 | 0.35 | Widen to 6 lanes | \$8,247 |
| 171 | Victory Boulevard | Route 134 | Wythe Creek Road | 3.29 | Widen to 4 lanes | \$42,229 |
| 64 | Interstate 64 | New Kent County | Route 199 | 17.72 | Widen to 6 lanes | \$261,004 |
| 64 | Interstate 64 | Route 199 | Jefferson Avenue | 12.71 | Widen to 8 lanes | \$246,240 |
| 17 | George Washington Memorial Highway | Water Street | Gloucester County | NA | Significant peak period congestion on approaches to Coleman Bridge. Bridge was constructed with wide shoulders that could accommodate traffic. Restripe existing shoulder across the Coleman Bridge as peak period lane. | \$1,000 |

Source: 2035 Virginia Surface Transportation Plan

Table 4

The County has much more influence over secondary road system improvements than it does over the interstate and primary systems. Each year, the state distributes secondary road funds among the counties under VDOT jurisdiction. VDOT serves as the fiscal agent, and these funds can be spent *only* on secondary road system improvements. The County works with the local VDOT representatives to prioritize secondary road projects over the next six-year period and to allocate the funds accordingly. The Board of Supervisors formally establishes those priorities through the adoption each year of the Six-Year Secondary Road Improvement Plan. Unfortunately, the secondary road allocations have been dramatically reduced in recent years, causing several projects to be dropped from the project listing. Secondary roads that are currently programmed for some type of improvement are Lakeside Drive, Penniman Road, and Cook Road. These projects are described in **Table 5** below:

| Programmed Secondary Road Improvement Projects | | |
|--|----------------|--|
| Route # | Route Name | Project Description |
| 620 | Lakeside Drive | Intersection and turn lane improvements between Route 17 and Dare Rd |
| 641 | Penniman Road | Reconstruct and repave from Alexander Lee Parkway to Fillmore Drive |
| 238 | Cook Road | Widen shoulders between the northern intersection of Surrender Road and Ballard Street |

Table 5

The County provides local funding for road and drainage improvement projects through the VDOT Revenue Sharing program, which allows localities to leverage transportation dollars by

contributing up to \$10 million annually – to be matched by the state on dollar-for-dollar basis (subject to state funds availability) – for use on new road improvements or on maintenance. . The County regularly participates in this program, although at a much lesser amount than the program maximum due to the scarcity of local funds.

Transit

Although public transit can include rail as well as bus transit, railways are addressed in a separate section of this plan. Advantages of bus transit over rail include the significantly lower infrastructure cost and flexible routing, which allows service to be modified to accommodate changes in land use and travel patterns.

Transit service is currently available in the upper County through Williamsburg Area Transport, which is a multi-jurisdictional public bus system operated by the Williamsburg Area Transit Authority (WATA). York County is a member of WATA, along with James City County, the City of Williamsburg, and the Colonial Williamsburg Foundation. With bus routes stretching from Stonehouse in northern James City County to Water Country USA to Lee Hall in Newport News, the WAT system serves residents, visitors, and businesses throughout the greater Williamsburg area. York County routes provide service along Penniman Road, Merrimac Trail, Pocahontas Trail, Bypass Road, Mooretown Road, Lightfoot Road, and Route 199 (see **Public Bus Service** map). Ridership has increased fairly steadily over the years with the addition of new routes, expanded hours, Sunday service, and the addition of regional connections to Surry County and Newport News. Federal and state grants have provided significant portions of the funding necessary to support many of the service expansions and enhancements and have helped to stabilize the amount of local funding (i.e., funds provided by the Authority member jurisdictions/organizations). However, as these grants expire (typically after three years) continuation of the existing service levels and frequencies will be dependent on revenue enhancements provided either by fare increases or by increased contributions from the member jurisdictions.

York County operates a free Yorktown trolley bus service during the spring and summer months to shuttle visitors throughout the historic village. In addition, the National Park Service offers seasonal bus service between Yorktown and Williamsburg. Otherwise, there is currently no bus service in the lower County. A three-year pilot project was conducted in the mid-1990s by the County in partnership with Pentran (the Peninsula's former transit agency, which has since merged into Hampton Roads Transit) and the Virginia Department of Rail and Public Transportation to provide bus service in the lower County. The service, which was paid for mostly with federal funds, never attracted significant ridership and was discontinued in 1997 upon expiration of the grant funding.

Another form of transit is carpooling and ride sharing. To encourage this activity, VDOT maintains an unpaved Park-and-Ride lot on East Rochambeau Drive that has space for an estimated 75 vehicles. In addition, the region funds a computerized ride-matching and vanpool program called "Traffix" that works with employers in the region to develop ride-sharing programs for their employees. Also, the Department of Defense has established a Mass Transportation Benefit Program (MTBP) that provides active duty military members and employees mass transportation benefits to offset commuting costs in order to reduce pollution and traffic congestion, and expand transportation alternatives. Mass transportation systems that qualify for this benefit are commuter bus, commuter train, subway, light rail, ferries, and, most applicable in York County, van pools. The Navy implements this policy through its Transportation Incentive Program. Finally, high occupancy vehicle (HOV) lanes that are limited in the morning and afternoon peak hours to vehicles occupied by two or more people offer another means to encourage ride-sharing. There are no HOV lanes in York County, but they are being considered for the I-64 widening between Hampton and Richmond.

Public Bus Service York County, Virginia



Gloucester

York River

CAMP PEARY

CHEATHAM ANNEX

YORKTOWN NAVAL WEAPONS STATION

James City

Williamsburg

Legend

- ▲ WAT Bus Stops
- WAT Bus Routes



Path: Z:\Maped\Departmental\Planning\Comp... \Plan_2025\WAT_Routes.mxd

The previously mentioned *Transit Vision Plan* for Hampton Roads includes two long-term recommendations with potential benefits for York County. One of these is the establishment of express bus service along Route 17 between Gloucester and Oyster Point in Newport News. The second recommendation, beyond 2035, is for enhanced bus service (i.e., higher-frequency service with improved operations such as priority at traffic signals, real-time arrival information, and additional station stop amenities) along Victory Boulevard and Route 17 between the City of Poquoson and Oyster Point.

Walkways

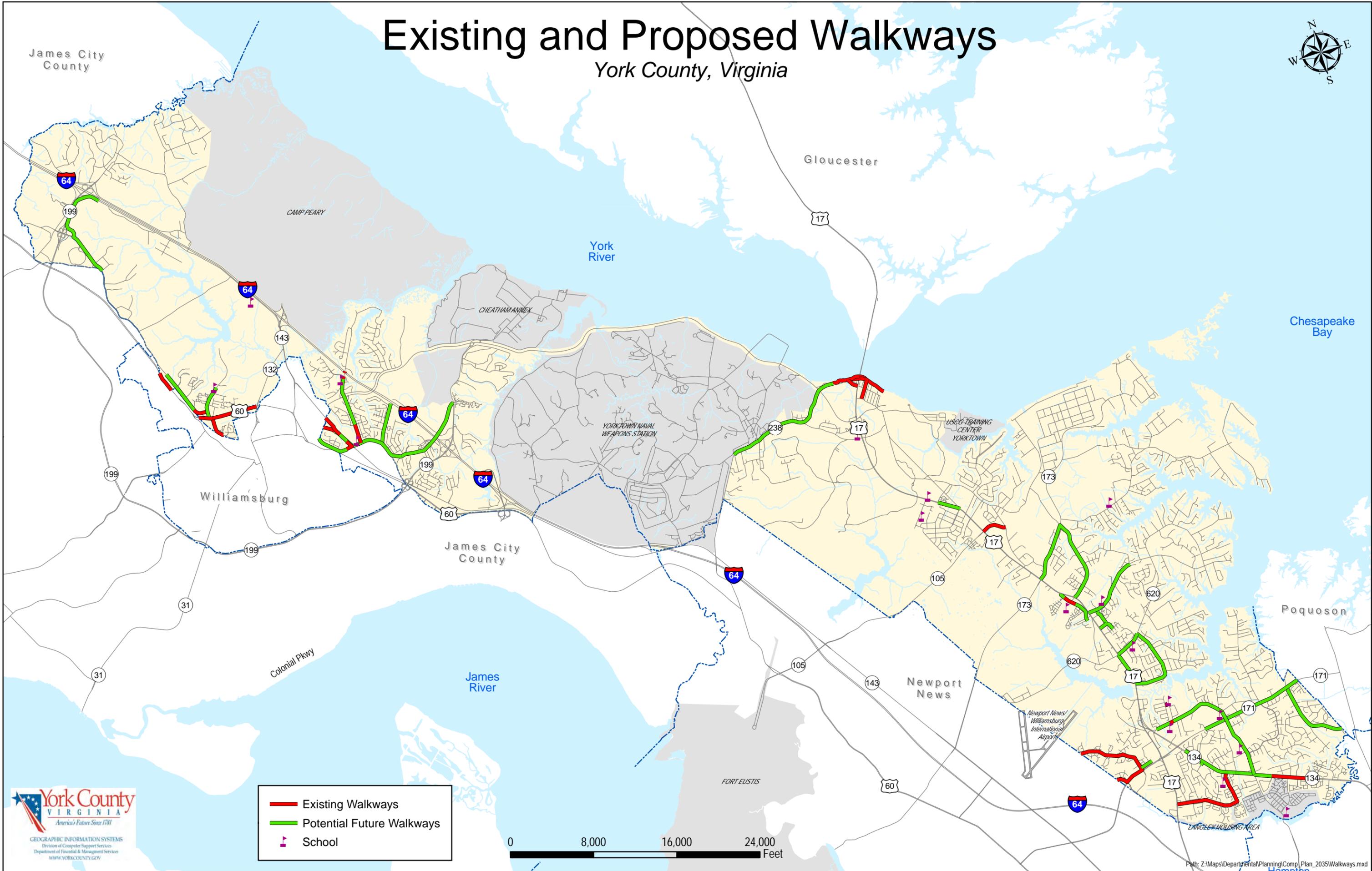
Walking is the most basic and yet probably the most overlooked of all modes of transportation. Well-designed walkways increase pedestrian safety and, in so doing, invite pedestrian use. In tourist and commercial areas, good sidewalks can provide economic advantages by encouraging consumers to patronize nearby establishments rather than driving farther and perhaps to a business not located in the County.

To address the lack of sidewalks in the County, the Board of Supervisors adopted a Sidewalk Plan in November 1995. This plan was based on the premise that people should be able to walk safely to nearby schools, shops, parks, churches, libraries, etc. Implementation of the Sidewalk Plan has taken several forms and involved a variety of funding sources:

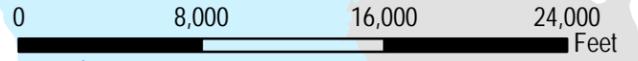
- Sidewalks can be incorporated into road construction and improvement projects, as in the case of the extension of Fort Eustis Boulevard from Route 17 to Old York-Hampton Highway. In accordance with VDOT policy, all highway construction projects are initiated with the presumption that the projects will accommodate walking and bicycling. Although sidewalks add slightly to the total project cost, it is much cheaper to build sidewalks as part of a road improvement project than as a stand-alone project.
- When a development is proposed along a road where the Sidewalk Plan recommends a sidewalk, the County can require the sidewalk as a condition of development approval. Recent examples of this approach include the Wawa convenience/store gas station at the intersection of Merrimac Trail and Penniman Road, the adjacent Animal Clinic of Williamsburg on Penniman Road, and the James York Plaza shopping center on Merrimac Trail.
- County funds can be leveraged with federal and state funds that are available for walkways through the CMAQ (Congestion Mitigation and Air Quality) program, the Transportation Enhancements program, and the state Revenue Sharing program, all of which require local matching funds (at 0%, 20%, or 50% of the total project cost). Recently built sidewalks along Hampton Highway, Hubbard Lane, and Commons Way were constructed with federal “economic stimulus” funds received by the County through the American Recovery and Reinvestment Act of 2009.
- The County can use Capital Improvement Program (CIP) funds to construct sidewalks in high-priority areas. Examples include Merrimac Trail, Second Street, and Richmond Road, where the County initiated sidewalk projects that eliminated major gaps in the local sidewalk network.
- The County sometimes works with other stakeholders to address pedestrian safety deficiencies. For example, VDOT Revenue Sharing funds were combined with funds contributed by the Villages of Kiln Creek homeowners’ association to construct a 1,900-foot walkway along Victory Boulevard, connecting the two ends of Kiln Creek Parkway and tying into the existing multi-use trail along this road, thereby eliminating the “missing link” that had prevented people from safely walking the entire loop. The County has also worked with the School Division to install sidewalks along Coachman Drive and Yorktown Road to make it easier for students to walk to Mount Vernon Elementary School and Tabb Middle School respectively.

Existing and Proposed Walkways

York County, Virginia



— Existing Walkways
— Potential Future Walkways
■ School



Pedestrian accommodations usually take the form of concrete sidewalks along the road but can also include asphalt paths. In some cases, roadside shoulders can be a reasonable accommodation. For example, the shoulder bicycle lanes along Old York-Hampton Highway are frequently used by pedestrians (walkers and joggers) as well as bicyclists; the pavement width, speed limit, and traffic volumes are conducive to relatively safe pedestrian travel along this road.

As part of the Comprehensive Plan update, the York County Transportation Safety Commission conducted a comprehensive review of the County's walkway needs based primarily on the presence of existing walkways and the location of schools, shops, and other activity centers within walking distance of residential areas and one another. County citizens participated in this effort by submitting their own walkway suggestions to the Commission. The results of this analysis are shown on the **Existing and Proposed Walkways** map, which depicts both existing walkways and additional corridors that should be considered for some type of pedestrian accommodation. The potential future walkway corridors depicted on this map are highly conceptual and will require more detailed analysis to determine the cost and feasibility of installing walkways and establish priorities for any funding that becomes available.

Waterways

The many waterways in and around York County are used by residents and businesses for a variety of purposes including seafood harvesting, recreation, and passive enjoyment, but only the York River serves as a transportation artery. With a 32-foot wide channel, the York River is one of the deepest rivers in the world. It is 33 miles long and is fed by a mixture of freshwater from rainfall and drainage from the west and tidal action and saltwater from the Atlantic Ocean and the Chesapeake Bay from the east. Much of the cargo transported by water along the York River in years past has consisted of military supplies to and from the Yorktown Weapons Station; crude oil and refined petroleum products to and from the former Western oil refinery which has recently been acquired by Plains Marketing and is being converted to a storage and distribution facility; and both raw materials and finished paper products to and from the paper mill in West Point.

In addition to cargo transport along the river, Yorktown has effectively become the port-of-call for the Historic Triangle, hosting recreational vessels for short-term dockage, tall ships, regional passenger cruise lines, and dinner and sightseeing cruise vessels. This activity was made possible by the construction of new docking facilities as part of the County's Riverwalk Landing waterfront redevelopment project, which opened in May 2005. Facilities include a 395-foot boat pier located at the foot of Ballard Street, which provides ample space for tall ships, large and small motor and sailing vessels, and regional cruise lines; the second, smaller pier is located between the larger pier and the Coleman Bridge and is available for smaller craft such as day-trippers and pleasure boaters visiting the village shops and restaurants. The piers also provide the ability for overnight stays.

CITIZEN INPUT

According to the Comprehensive Plan telephone survey, what people like least about living in York County is traffic. This response was given by 34% of those surveyed. The second most frequent response, given by 25% of those surveyed, was "don't know," followed by "quality of County services/facilities" (17%). Concern about traffic is more prevalent in the lower County, where it was named by 36% of the respondents, compared to 22% in the upper County, where "quality of County services/facilities" was the top response, given by 32% of those surveyed.

Not surprisingly, citizens believe by a wide margin that improvements to Route 17 should be the County's top transportation priority over the next twenty years. This response was given by 36% of those surveyed, while another 8% felt improvements to I-64 should be the top priority, and 27% named roads other than Route 17 and I-64. Also not surprising is the fact Route 17 is the top priority for 42% of lower County residents but only 9% of upper County residents, most of whom

do not travel on Route 17. A 37% plurality of upper County residents named roads other than Route 17 and I-64, and 34% named I-64 (compared to 5% in the lower County).

With regard to modes of transportation other than roads, public transit was cited more than anything else as the top transportation priority; 19% of those surveyed identified better public transportation as their top transportation priority, while another 17% specifically named bus service. Bike trails, rail service, and sidewalks were favored by 6%, 5%, and 4% of the survey respondents respectively.

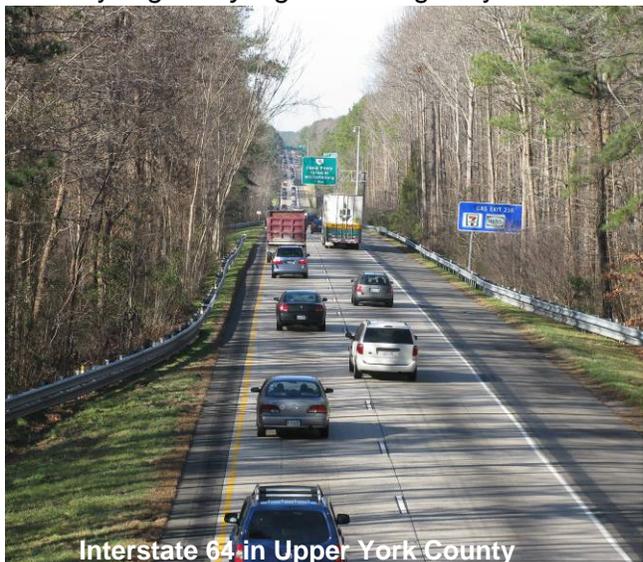
Traffic concerns are also reflected in the responses to another survey question, which asked citizen to rate the importance of expanding various facilities in the next twenty years on a scale of zero to ten, where zero is not at all important and ten is extremely important. Roads were rated very highly, with an average rating of 7.53, second only to schools at 7.59. Bike paths and sidewalks were also rated fairly highly – 6.38 and 6.26 respectively – even though very small proportions of the respondents named either as their top transportation priority.

PLANNING ISSUES FOR THE FUTURE

The future will bring more people and businesses to the County and hence more traffic as Hampton Roads is expected to add over 200,000 residents and over 300,000 vehicles between 2010 and 2030. Route 17 is the major artery running through the lower County, linking the Peninsula with both south Hampton Roads and the Middle Peninsula to the north. Similarly, Interstate 64 runs through the upper County and stretches north to the Richmond metropolitan area, where it connects with I-295 and I-95. Much of the peak-hour traffic on these two regional arteries is commuter traffic that has an origin and/or destination outside of York County. Since these and many travel patterns cross the jurisdictional boundaries of the communities within Hampton Roads, the need for a regional approach to transportation planning, through the Hampton Roads Transportation Planning Organization (HRTPO), is paramount.

The Hampton Roads Transportation Planning Organization (HRTPO) is the Metropolitan Planning Organization (MPO) for the Hampton Roads area. As such, it is a federally mandated transportation policy-making organization comprised of representatives from local, state, and federal governments, transit agencies, and other stakeholders and is responsible for transportation planning and programming for the Hampton Roads Metropolitan Planning Area (MPA). Any federally-funded highway or transit project or program to be constructed or conducted within the MPA must be approved by the MPO, and any *regionally-significant* highway or transit project, regardless of the funding source(s), must also receive MPO approval to proceed. The TPO also performs special studies and reports pertaining to transportation in the region, including the *James City County/Williamsburg/York County Comprehensive Transportation Study*, which was prepared in 2011-12 in conjunction with the coordinated comprehensive plan review.

It is clear from traffic forecasts that expanding roadway capacity is a vital component of the County's and the region's long-range transportation strategy. Interstate 64, Route 17, and Victory Boulevard are critical regional facilities that will need to be widened to relieve existing congestion as well as accommodate projected traffic growth. As noted previously, Route 17 is scheduled to be widened to six lanes between Hampton Highway and Wolf Trap Road, which is the most congested roadway

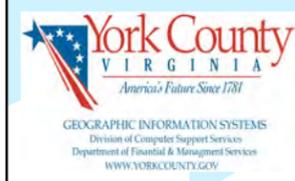
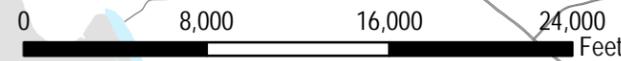


2035 Roadway Plan

York County, Virginia



- Programmed Improvement
- Recommended Improvement
- VTrans2035 Improvement
- 2035 VSTP Improvement



segment in the County. Most of the funding for these and other road improvements comes ultimately from the federal and/or state governments, and the County must continue to pursue discretionary funding for these important transportation improvements.

Planned and programmed improvements to the County's roadway network are depicted on the **2035 Roadway Plan** map. This map also depicts various proposed improvements for which no funding source has yet been identified. Although major road widening projects will require public funding, many of the recommended improvements can be accomplished through the County's development review process at little or no public expense. To the maximum extent possible, the County should work with the development community to ensure conformity between any future development in the areas discussed below and the recommended roadway network:

- Future traffic projections indicate that it will be necessary in the next twenty years to: widen Interstate 64 to at least six lanes from the south Route 199 interchange to the James City County line and beyond; widen Route 17 to six lanes from the Coleman Bridge to the Newport News city line; and to widen Victory Boulevard (Route 171) to six lanes between Route 17 and Hampton Highway and to four lanes between Hampton Highway and the City of Poquoson.
- The 2035 Virginia Surface Transportation Plan indicates a need to widen Hampton Highway (Route 134) to six lanes from Big Bethel Road all the way to the Hampton Roads Center Parkway, and the HRTPO modeling indicates that this roadway, though currently operating at acceptable Levels of Service, will be experiencing severe peak-hour congestion by 2034.
- A connecting road between Hornsbyville Road and the intersection of Fort Eustis Boulevard (Route 1050) and Old York-Hampton Highway should be incorporated into the planning and design of the York River Commerce Park, which is a joint venture between Dominion Virginia Power and the York County Economic Development Authority. This would give residents of Hornsbyville Road and the Waterview area more direct access to Fort Eustis Boulevard and Interstate 64 and prevent them from "cutting through" residential areas on subdivision streets not designed or intended for such traffic. Major obstacles to construction in this area include wetlands and the CSX railroad tracks, both of which contributed to the demise of the former conceptual proposal to extend Fort Eustis Boulevard beyond Old York-Hampton Highway to the Goodwin Neck/Seaford Road intersection.
- Several years ago the County and VDOT developed plans to realign the southern terminus of Grafton Drive (Route 621) and the northern terminus of Burts Road (Route 709), connecting the two roads to establish a continuous route extending from Grafton Drive to Oriana Road parallel to Route 17 and helping to divert traffic from the oddly aligned intersection of Burts Road and Route 17. The project would also address the need for sight distance improvements at the intersection of Burts Road and Oriana Road. The first phase of this project was completed, but the project ultimately had to be dropped from the Secondary Road Plan because of a lack of funding. If funds can be found, this is still a worthwhile project and therefore is included on the 2035 Roadway Map.
- The planned runway enhancements at Newport News/Williamsburg International Airport will require the realignment of a segment of Oriana Road west of Harwoods Mill Reservoir.
- Extension of Mooretown Road beyond its present terminus at Lightfoot Road would improve access to a large area of contiguous undeveloped commercial acreage and, if extended all the way to Croaker Road or Rochambeau Drive in James City County, would provide an alternate route between the Lightfoot and Croaker areas and potentially divert traffic off of Richmond Road. This project is not a high County priority from the standpoint of congestion relief since the long-range forecasting does not indicate future congestion in

this area except for the short segment of Richmond Road between Lightfoot Road and Route 199. However, the development opportunities in this area make it important to identify and ensure the availability of a corridor should such extension be desired in the future. Such a project should be funded by the property owner or developer and not with scarce public highway funds.

There are a number of older secondary roads in the County that are not wide enough to safely accommodate the amount of traffic they carry. Many of them lack paved shoulders. When development is proposed along such substandard roads, the County requires the developer to dedicate half of the right-of-way deficiency for future road widening, but it is extremely unlikely that there will be enough secondary road funds to widen all or even a significant number of these roads in the next 20 years. These are roads that would benefit greatly from a minor shoulder widening and spot improvements, including intersection improvements, that could be done as part of a rehabilitation and repaving project (ditches, paved shoulders, right-turn wedges/tapers). This approach, which has been successfully utilized to improve a segment of Seaford Road, is a simpler and less costly alternative that can be implemented much more expeditiously than a full-scale widening project. The roadway segments listed in **Table 5** below are good candidates for this type of maintenance project:

| Proposed Secondary Road Rehabilitation/Repaving Projects | | | |
|---|------------------------------------|----------------------|-------------------------|
| Route No. | Route Name | From | To |
| 655 | Allens Mill Road | Dare Road | Wolftrap Road |
| 718/626 | Back Creek Road/Shirley Road | Seaford Road | Dead end |
| 718 | Back Creek Road | Seaford Road | Goodwin Neck Road |
| 660 | Baptist Road | Route 238 | Spring Road |
| 604 | Barlow Road | Newman Road | Skimino Road |
| 604 | Barlow Road | Skimino Road | East Rochambeau Dr. |
| 718 | Battle Road | Route 17 | Old York-Hampton Hwy |
| 600 | Big Bethel Road | Route 134 | Route 171 |
| 709 | Burts Road | Oriana Road | Grafton Dr connector |
| 606 | Calthrop Neck Road | Route 171 | Dead end |
| 782 | Cary's Chapel Road | Route 171 | Poquoson city line |
| 615 | Charles Road | Yorkville Road | Dead end |
| 629 | Dandy Loop Road | Goodwin Neck Road | Goodwin Neck Road |
| 613 | Darby Road | Route 17 | Dead end |
| 620 | Dare Road | Dare Elementary | Lakeside Drive |
| 620 | Dare Road | Lakeside Drive | Link Road |
| 659 | Dogwood Road | Route 238 | Dead end |
| 602 | Fenton Mill Road | Newman Road | James City County line |
| 238 | Goosley Road | Crawford Road | Route 17 |
| 718 | Hornsbyville Road | Old York-Hampton Hwy | Goodwin Neck Rd |
| 716 | Hubbard Lane/West Queens Drive | Sheppard Drive | Queens Lake Mid. School |
| 1314 | Lakeshead Drive | Hubbard Lane | New Quarter Park |
| 646 | Lightfoot Road | Route 60 | Rochambeau Drive |
| 679 | Lindsay Landing Lane | Showalter | Dead end |
| 620 | Link Road | Dare Road | Railway Road |
| 675 | Mansion Road | Cary's Chapel road | Dead End |
| 603 | Mooretown Road | Airport Road | Old Mooretown Road |
| 646 | Newman Road | Fenton Mill Road | James City County line |
| 792/1514 | Old Lakeside Dr/Whispering Pine Dr | Lakeside Drive | Fielding Lewis Drive |
| 603 | Old Mooretown Road | Mooretown Road | Route 60 overpass |
| 632 | Old Wormley Creek Road | Hornsbyville | Dead End |
| 641 | Penniman Road | Interstate 64 | Route 199 |
| 641 | Penniman Road | Alexander Lee Pkwy | Alexander Lee Pkwy |
| 642 | Queens Creek Road | Penniman Road | Springfield Drive |
| 617 | Railway Road | Link Road | Dare Marina |

| Proposed Secondary Road Rehabilitation/Repaving Projects | | | |
|--|-----------------|------------------|--------------------|
| Route No. | Route Name | From | To |
| 620 | Railway Road | Dare Road | Link Road |
| 622 | Seaford Road | Ellerson Court | Goodwin Neck Road |
| 622 | Seaford Road | Sommerville Way | Back Creek Road |
| 622 | Seaford Road | Back Creek Road | York Point Road |
| 619 | Ship Point Road | Link Road | Anchor Drive |
| 614 | Showalter Road | Route 17 | Lakeside Drive |
| 797 | Skimino Road | Barlow Road | Dead End |
| 630 | Wolftrap Road | Willow Lakes | Goodwin Neck Road |
| 706 | Yorktown Road | Route 134 | Tabb High School |
| 706 | Yorktown Road | Tabb High School | Calthrop Neck Road |
| 658 | Yorkville Road | Lakeside Drive | Fairfield Drive |

Table 5

In addition to adding new roadway capacity, traffic flow and safety can be improved through the use of land use planning practices that can help to preserve *existing* capacity at no direct cost to the taxpayer:

- *Access management* is the limiting of commercial and industrial entrances on higher order streets. Besides creating additional conflict points and thereby increasing the potential for crashes, unsignalized driveways along arterial and major collector roads reduce road capacity by impeding traffic flow. It is estimated that the capacity of a four-lane arterial street with a 45 mph speed limit will be reduced by over 1% for every 2% of the traffic that turns between the right lane and driveways at unsignalized driveway locations. For these reasons, multiple entrances to a single development should only be permitted for large-scale developments with a significant amount of road frontage, and shared entrances should be required where feasible along higher order streets.
- Interconnection of subdivision streets promotes the safe and efficient movement of vehicles. The benefits of interconnected streets are well documented. In *Conservation Design for Subdivisions*, Randall Arendt writes, “every effort should be made to connect each street with another so that dead ends will be minimized. Interconnected streets provide easier and safer access for fire engines, ambulances, school buses, and garbage trucks, while distributing traffic more evenly and helping to avoid conditions where certain residential streets become ‘collectors’ with everyone in the entire development funneling through them.”⁹ The Code of Virginia (§15.2-2241.A.2.) requires subdivision ordinances to provide “for the coordination of streets within and contiguous to” [any proposed] subdivision with other existing or planned streets within the general area,” including planned streets in nearby future subdivisions. Well-designed interconnected streets can provide alternate routes to divert traffic off of existing sub-standard streets without generating “cut-through” traffic that does not have an origin or a destination within the general area. The City of Suffolk accomplishes this by requiring the street network for any site plan or subdivision to achieve a “connectivity ratio” of at least 1.40. The connectivity ratio is the number of street links (that portion of a street defined by a node at each end or at one end) divided by the number of nodes or link ends (the terminus or the intersection of two or more streets).¹⁰
- Mixed use developments that combine residential and commercial uses within a single, compact high-density development allow people to live, work, and do at least some of

⁹ Randall Arendt, *Conservation Design for Subdivisions* (Island Press: Washington D.C.), 1996, p. 45

¹⁰ City of Suffolk, Virginia, Unified Development Ordinance, Article 6, Design and Improvement Standards §31-612 (Street Improvement Standards) p. 6-110

their shopping without ever leaving their neighborhood, thereby keeping traffic off of already congested major roads. Such communities are typically designed to be pedestrian-oriented so that residents can walk between their homes and jobs, shopping, restaurants, etc. Local examples of such communities include Port Warwick in Newport News and New Town in James City County. York County's Zoning Ordinance provides opportunities for mixed-use development through the Planned Development district.

- The most fundamental land use strategy for reducing or preventing congestion is not to allow development that will generate more traffic than the road network can accommodate. The shortage of funding for new roadway projects has reached epidemic proportions, dictating that land use and transportation planning be in concert with one another. This calls for a shift in focus: rather than merely trying to design a road network to accommodate growth, it is important to establish land use densities that channel growth away from congested areas and roads that cannot accommodate the traffic that could potentially be generated by development on surrounding land.

Another alternative to road construction that can improve traffic flow and safety is to make use of rapidly developing technologies to manage transportation more efficiently on the existing network. This is the focus of Intelligent Transportation Systems (ITS), which attempts to better manage traffic through technology. The overall goal for ITS in Virginia is to “make travel ‘smart’ through computers, microprocessors, high speed wire and wireless communications, and a host of supporting sensory and electronic technology, as well as through automated, streamlined agency processes and procedures.”¹¹ Local examples of ITS include the “Smart Tag” automated toll facility at the Coleman Bridge, video cameras along I-64 and I-664 for monitoring traffic flow through the VDOT Smart Traffic Center in Virginia Beach, variable message signs for reactive routing, and the OPTICOM system (in place at numerous intersections in York County) that enables fire and rescue vehicles to override traffic signals. Development and deployment of additional ITS strategies is addressed in both the state ITS plan and the *Hampton Roads ITS Strategic Plan* completed in 2004.

Though not an ITS strategy, telecommuting offers another technological approach to roadway congestion, albeit only a partial one. As one of the major employers in the County, York County could help lead the way by providing opportunities for employees whose job tasks do not require them to be physically located in a County office to work from home.

Although roadways will continue to be the major component of the region's transportation system for the foreseeable future, York County and the region will need to pursue long-term strategies to reduce the prevalence of the single-occupancy vehicle. As roadway congestion increases, it will become increasingly important to expand the range of transportation options, including rail and bus transit, that have the capacity to move more people more efficiently. The WAT bus system serves most of the major corridors in the upper County. These options will become more viable as the region's population grows and as roadway congestion reaches intolerable levels. Demand for transit will also be bolstered by the growth of the senior population. In the years ahead the transportation system will need to be adapted to better meet the mobility needs of this fast-growing segment of the population. Senior-oriented transit services will be needed since older residents, particularly those who are at least 70 years old, are less likely to be drivers. One possibility for expanded service in the County is Old Williamsburg Road (Route 238), which provides access to the Lackey Free Clinic, Charles Brown Park, and historic Yorktown.

Bikeways and walkways can also play a role, however marginal, in enhancing mobility and reducing congestion by encouraging people to make shorter trips on foot or on a bicycle. Construction of bikeways was not identified as a high funding priority in the telephone survey, but there are several means by which both bikeways and walkways can be provided without significant public investment. For example, such facilities are less costly to construct when built as

¹¹ Virginia Department of Transportation, *Smart Travel Strategic Plan – 2001*, p. 18.

part of a road construction or widening project. The Commonwealth Transportation Board's *Policy for Integrating Bicycle and Pedestrian Accommodations*, first adopted in 2004, states that VDOT will initiate all highway construction projects with the presumption that the projects will accommodate bicycling and walking. The County should support the incorporation of bikeway and sidewalks in such projects except in those instances identified in the VDOT policy where bikeways and sidewalks are not recommended. Furthermore, there are several funding sources specifically intended for such facilities – such as Transportation Enhancements and CMAQ – that would require the County to pay as little as 0% to 20% of the total project cost. Finally, ensuring that developers install bike and pedestrian facilities along designated routes as a condition of development approval requires no initial County expenditures and lessens the ultimate cost of providing complete, interconnected linkages.

A common distinction in bikeway planning is between transportation and recreational routes. The *Regional Bikeway Plan* attempts to address both but is still principally a transportation-oriented plan. The County should consider recreational routes in planning park facilities as well as in the review of large residential developments. It is especially important that bikeways connect residential, commercial, and recreational areas, and community facilities such as schools, libraries, and athletic fields. In any case, bicycle facilities should be connected and integrated to form a comprehensive bikeway system.

Future traffic growth will not be limited to the surface transportation system. The Federal Aviation Administration (FAA) projects slow but steady growth in passenger activity at Newport News/Williamsburg International Airport (see **Figure 3**). While it is impossible to predict whether or not demand will ever be sufficient to warrant the ultimate three-runway configuration favored by the Peninsula Airport Commission, it seems likely that some type of expansion will ultimately be necessary. The Norfolk and Richmond airports have limited potential for growth and will become increasingly inconvenient for York County residents as traffic in the region grows and Interstate 64 congestion increases.

The FAA recommends that airports begin planning for additional runway capacity when they reach 60% of their Annual Service Volume (ASV), which is a measure of total airport operations that can be accommodated before unacceptable delays occur. This approach ensures that the need for improvements to an airport is dictated by demand. With about 116,000 aircraft operations (takeoffs and landings) in 2009, Newport News/Williamsburg Airport was operating at approximately 45% of its ASV. The Federal Aviation Administration (FAA) projects that the number of operations will grow to 140,000 (52% of ASV) by 2032. Although the airport has not reached the point where detailed planning for capacity enhancements is warranted, the Peninsula Airport Commission is updating its Airport Master Plan, which was adopted in 1997. If airport activity follows the FAA projections, neither the planned runway extension nor the third runway will be needed for at least another twenty years; in fact, the proposal for the third runway is beyond the horizon of the Airport Master Plan). However, if activity exceeds these projections, the airport will have a plan in place to better accommodate that growth and potentially attract additional air carriers.

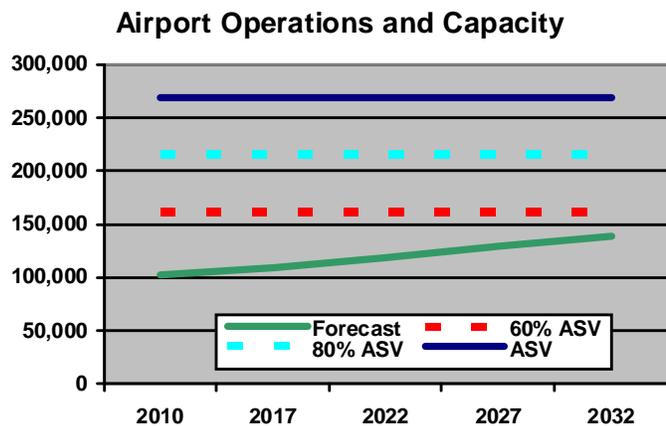


Figure 3

Newport News-Williamsburg International Airport: Existing and Planned/Proposed Runways

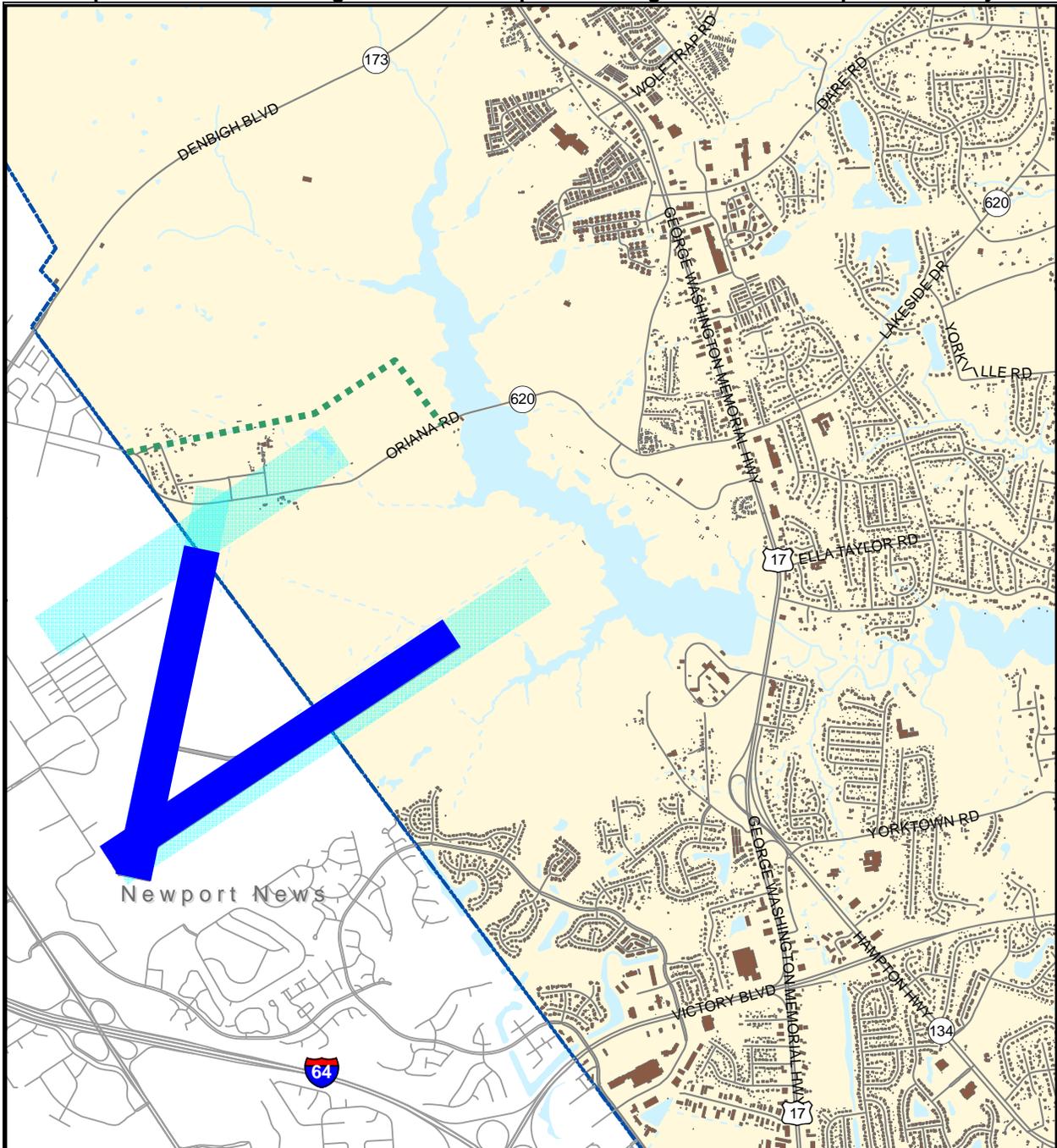


Diagram based on Draft Airport Master Plan Update, Peninsula Airport Commission, 2013

LEGEND

-  Existing Runway Footprint
-  Planned/Proposed Runway Footprint
-  Planned/Proposed Oriana Road Realignment

The proposed runway enhancements at Newport News/Williamsburg International Airport would require the relocation of a segment of Oriana Road west of the Harwoods Mill Reservoir, and approximately 25 developed properties in the residential areas along Oriana Road would have to be purchased by the Peninsula Airport Commission. Otherwise, the major impact on the County would be to bring aircraft operations – and the noise that comes with them – closer to populated areas that are in the flight path of an existing or future runway. Based on FAA and Department of Housing and Urban Development (HUD) standards, aircraft noise begins to interfere with a person’s quality of life at a DNL (Day-Night Level) of 65dB(A). As stated in a 2010 report published by the American Planning Association, “A DNL is a measurement of sound (in weighted decibels [dB(A)]) over a 24-hour period, taking into account quiet periods as well as times of aircraft overflight.”¹² Although aircraft noise is a frequent nuisance for many Grafton area residents, the noise modeling done as part of the Airport Master Plan update indicates that the areas subject to a DNL of 65dB(A) are limited to undeveloped Newport News Waterworks property. The planned airport expansion will cause these noise exposure areas to grow, and the County’s support for this expansion should be qualified with the need to protect its citizens from excessive aircraft noise. In addition, the County has the option, set forth in Section 15.2-2295 of the *Code of Virginia*, of adopting an aircraft noise overlay zone in which noise attenuation features would have to be incorporated in any new construction. Such an overlay zone could also be established for areas affected by operations at Langley Air Force Base. None of York County currently falls within the 65dB(A) contour surrounding Langley; however, these noise contours often change over time in response to changes in flight operations, mission requirements, and aircraft types, as well as technical improvements in noise modeling.

GOAL, OBJECTIVES, AND IMPLEMENTATION STRATEGIES

Goal

Provide for the safe and efficient movement of people and goods within York County and throughout the Hampton Roads region.

Objectives

1. Promote the development of a regional multi-modal transportation system.
2. Maintain adequate levels of service on County roadways (i.e., LOS D or better).
3. Increase funding for transportation improvements critical to the mobility of York County’s citizens.
4. Promote development and land use strategies that enhance roadway safety and preserve the carrying capacity of the roadway network.
5. Reduce crash rates on York County roadways.
6. Utilize technology to enhance mobility and safety.
7. Promote the development of improved air transportation service convenient to York County residents.

¹² Susan M. Schalk, and Stephanie A. D. Ward, *Planners and Planes: Airports and Land-Use Compatibility*, American Planning Association, Planning Advisory Service Report Number 562 (2010) 41

8. Increase the number of bicycle lane miles in the County in accordance with the *Regional Bikeway Plan* for Williamsburg, James City County, and York County.
9. Provide a safe and convenient walking environment for pedestrians.
10. Provide for the particular mobility needs of the senior population when planning transportation programs and facilities.

Implementation Strategies

1. Continue to support and participate in the regional network and modeling effort of the Hampton Roads Transportation Planning Organization (HRTPO). (S)
2. Continue to aggressively pursue all available road funding sources through the Commonwealth Transportation Board and the HRTPO. (S)
3. Annually establish priorities for the improvement and expansion of the County's roadway network through the VDOT Six-Year Plan process and the Capital Improvements Program. Primary focus should be on the present and future congested facilities identified in this plan and projects shown on the 2035 Roadway Plan map. High-priority road widening projects in the Interstate and Primary system include Route 17 (George Washington Memorial Highway, Interstate 64, and Route 171 (Victory Boulevard). (S)
4. Work with VDOT to coordinate the scheduling of road improvement and utility projects to reduce neighborhood disruption as much as possible. (S)
5. In partnership with neighboring jurisdictions, encourage the General Assembly and the Congress to increase funding for transportation. (S)
6. Participate in the VDOT Revenue Sharing program to the maximum extent permitted under the program guidelines and feasible from a local funding standpoint. (S)
7. Continue to limit the number of access points on arterial and major collector roads and review development ordinances (regulatory measures) and incentive-based programs (grants, etc.) to identify possible ways to facilitate consolidation and elimination of access points to reduce conflicts. (S)
8. Continue to support the Williamsburg Area Transport system and its expansion in the upper County and historic Yorktown. (S)
9. Work with local and regional transit agencies to develop transit services for the elderly. (M)
10. Support the development of enhanced passenger rail service on the Peninsula consistent with the recommendations of the regional *Transit Vision Plan* for Hampton Roads. (L)
11. Encourage residential development patterns that provide direct driveway access from individual units to local streets and not to collector and arterial roadways. (S)
12. Continue to require the interconnection of subdivision street systems for use by bicyclists, pedestrians, emergency vehicles, and – where such interconnection will not encourage “cut-through” traffic by people living outside the subdivisions – automobiles. In some cases where vehicular interconnections are provided, appropriate traffic-calming measures should be incorporated into the initial development design and street construction to reduce the potential for “cut-through” traffic. (S)

13. Promote and support the work of the Transportation Safety Commission, the Historic Triangle Bicycle Advisory Committee, and the Peninsula Area Bicycle Advisory Committee. (S)
14. Continue to provide County-funded law enforcement positions used in traffic law enforcement operations. (S)
15. Work with the Transportation Safety Commission, the Sheriff's Office, VDOT, and the Hampton Roads Transportation Planning Organization to improve traffic crash data collection and analysis for the purpose of identifying dangerous locations on the County's road network and developing strategies – through engineering, education, and enforcement – for improving traffic safety in these locations. (S)
16. Integrate bikeway and sidewalk development into County road construction, reconstruction, and widening projects In accordance with the VDOT *Policy for Integrating Bicycle and Pedestrian Accommodations*. (S)
17. Review and if necessary enhance the street lighting installation and service program to consider not only traffic but safety and security. (S)
18. Set aside funds annually through the CIP for the construction of bikeway and sidewalk projects in critical locations and pursue federal and state funding for such facilities. (M)
19. Review and update the plan text accompanying the Regional Bikeway Plan map. (S)
20. Review County development ordinances to identify opportunities to require sidewalks in more instances within residential neighborhoods and between residential neighborhoods and each other and nearby recreational areas, community facilities, and commercial establishments. (S)
21. Support the expansion of runway capacity at Newport News/Williamsburg International Airport in a manner that preserves York County residents' quality of life. (L)
22. Promote compatible land use and development in areas affected by airport activities. (S)
23. Investigate dredging needs, including the identification of possible spoils sites, for both recreational and commercial watercraft along navigable creeks in the County. (M)

