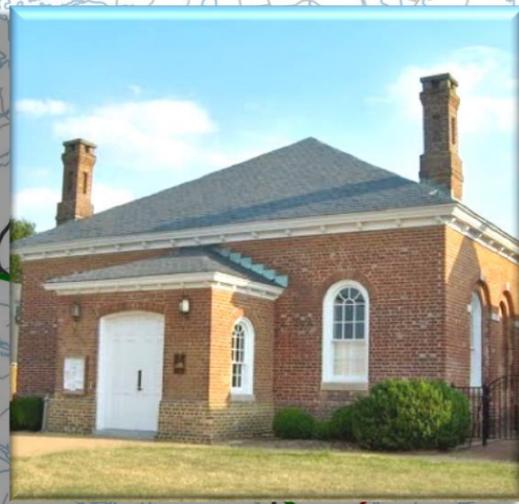
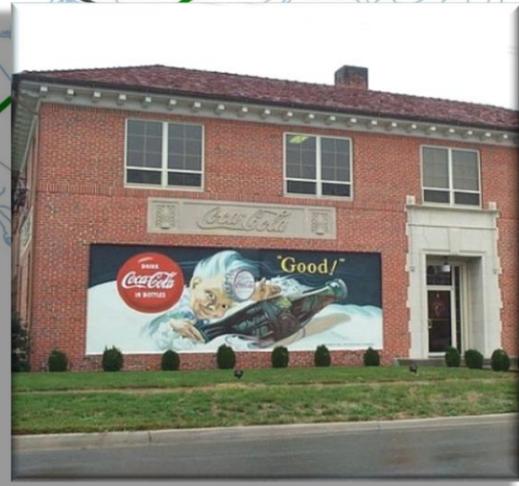




VDOT

ROUTE 3 NORTHERN NECK CORRIDOR IMPROVEMENT Draft STUDY



**VIRGINIA DEPARTMENT OF TRANSPORTATION
FREDERICKSBURG DISTRICT PLANNING SECTION
JUNE 2015**

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GLOSSARY OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
FHWA	Federal Highway Administration
HB2	House Bill 2 (Virginia General Assembly, July 2014)
HCOD	Highway Corridor Overlay District
LOS	Level of Service
MPH	Miles per Hour
NHS	National Highway System
PHNST	Potomac Heritage National Scenic Trail
STIP	Six Year Improvement Plan
VDOT	Virginia Department of Transportation
VPD	Vehicles per Day

1. INTRODUCTION

An effective transportation network in the Northern Neck of Virginia is needed to provide for the safe and efficient movement of people, goods and services, and help to promote a vibrant local economy for its residents. **Route 3 is the only roadway corridor in the Northern Neck that runs the entire length of the peninsula.** By volume it is the main highway serving Westmoreland and Lancaster Counties and is the second highway in traffic volume for the counties of King George and Richmond.

Between Route 301 and the Rappahannock River at White Stone, Route 3 traverses over 70 miles through the Northern Neck. Approximately 55 of these miles consist of two-lanes with little opportunity for passing. The economy of the Northern Neck is based largely on agriculture (farming, logging, lumbering), tourism (recreational and historic resources), fishing and processing, and small, local businesses. As rail is not an option at this time, the larger manufacturing businesses such as Carry On Trailer and Potomac Supply depend on trucks to move goods, along with other agriculture and forest product businesses. Many of these employers bring seasonal traffic, which when placed upon a two-lane highway such as Route 3, lead to a decrease in Levels of Service (LOS) and safety as well as an increase in congestion and travel times.

As traffic volumes on Route 3 continue to increase, solutions are needed to relieve both daily delays (school buses, farm equipment and log trucks) and seasonal congestion (tourists, beach traffic, towed boats and other recreational vehicles). A comprehensive solution for the corridor may include the provision of frequent, protected passing opportunities. The resulting increase in efficiency will provide an improved road system for the motoring public, commerce and emergency services and will further promote a more competitive economy for the Northern Neck. As a part of these improvements, access management practices should be implemented and bicycle and pedestrian needs should be accommodated where practical.

Route 3 in the Northern Neck is not solely a transportation corridor. It supports existing businesses dependent on a regional road network that lacks an interstate and rail system. Further, its ability to adequately respond to local and regional freight needs, serves as a catalyst to attract new business and industry to the area. An efficient Route 3 will be instrumental in determining the future of the Northern Neck by supporting existing businesses, attracting new business and providing attractive jobs for future generations. Both the Westmoreland County Comprehensive Plan and Northern Neck Comprehensive Economic Development Plan identify improvements to Route 3 as a critical need for the region.

The purpose of this study is to identify alternatives for improvements to the Route 3 Corridor in the Northern Neck that can be incorporated into the individual County Comprehensive plans and that offer a consistent approach along the entire length of the corridor. It is intended to address issues identified above with resulting recommendations which will support an efficient transportation facility well into the future. This study will include an update to the 1988 Route 3 Corridor Study as well as an expansion and refinement of that study. This new analysis includes such items as trends and forecasts, highway capacities and levels of service, safety, recommendations and priorities, and cost estimates for multiple alternatives. This study concludes with a list of proposed construction projects to be developed and considered for programming into the VDOT Six-Year-Improvement-Plan (SYIP) and the House Bill 2 (HB2) prioritization process.

Note: This update will retain the same western terminus as the 1988 Study, but will remove the southern section in the Middle Peninsula. The new eastern terminus will be the Norris Bridge at White Stone.

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2. ROUTE 3 – NORTHERN NECK OF VIRGINIA – STUDY AREA

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Total Study Area

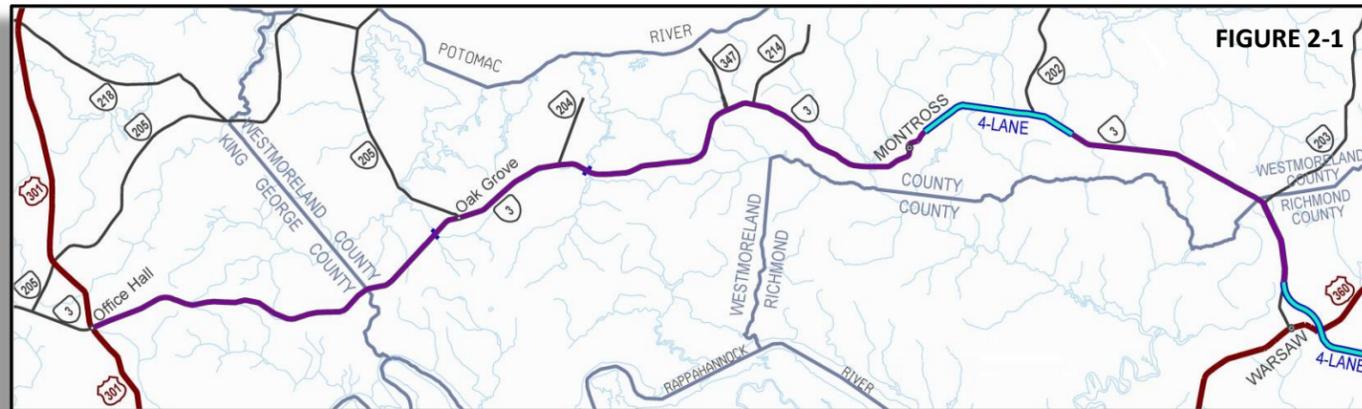
Description: Route 3, from Route 301 (Office Hall, King George County) to the Robert Opie Norris, Jr. Bridge

Total length = 71.6 miles Two lane segments = 54.8 miles (77%) Four lane segments = 16.8 miles (23%)

Western Section

Description: Route 3, from Route 301 (Office Hall, King George County) to Route 360 (Warsaw, Richmond County)

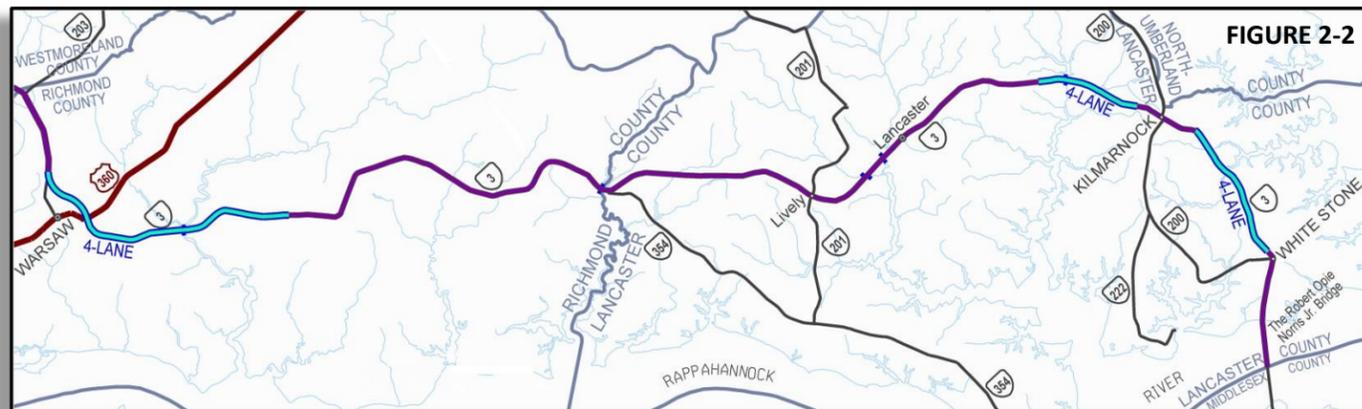
Total length = 36.0 miles Two lane segments = 30.5 miles (85%) Four lane segments = 5.5 miles (15%)



Eastern Section

Description: Route 3, from Route 360 (Warsaw, Richmond County) to the Robert Opie Norris, Jr. Bridge

Total length = 35.6 miles Two lane segments = 24.3 miles (68%) Four lane segments = 11.3 miles (32%)



The four-lane segments of Route 3 in the Northern Neck of Virginia, most of which are median-divided, currently operate at a high level-of-service, carrying only a fraction of their capacity; which should be expected to be the case for

the foreseeable future. In addition to providing for high traffic volumes, these four-lane sections provide for protected passing of slow-moving vehicles, resulting in safety, efficiency and convenience. Most opportunities for improvements to Route 3 in the Northern Neck are on the two-lane portions, and this study will focus primarily on the condition and potential for such improvements on those segments.

3. ROUTE 3 FUNCTIONAL CLASSIFICATION IN THE NORTHERN NECK

The Functional Classification (FC) of the roadway network is a federal system defined by the 2013 Edition of The *Highway Functional Classification: Concepts, Criteria and Procedures*. The Classification System consists of seven (7) categories of roads as follows:

- Interstate
- Other Expressways and Freeways
- Other Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local

The Functional Class System in the Commonwealth was recently updated and approved by the Federal Highway Administration (FHWA) (October 30, 2014). National Highway System (NHS) changes are pending FHWA approval. Route 3 is classified as a **Minor Arterial** in the southeastern portion of King George County (east of Route 301) and throughout the Northern Neck. It is important to note that any relation between Functional Class and traffic volume is strictly coincidental, as volume is not the sole basis for a road's Functional Classification.

Characteristics of Minor Arterial Highways

Urban

- Interconnect and augment the higher-level Arterials
- Serve trips of moderate length at a somewhat lower level of travel mobility than Principal Arterials
- Distribute traffic to smaller geographic areas than those served by higher-level Arterials
- Provide more land access than Principal Arterials without penetrating identifiable neighborhoods
- Provide urban connections for Rural Collectors

Rural

- Link cities and larger towns (and other major destinations such as resorts capable of attracting travel over long distances) and form an integrated network providing inter-state and inter-county service
- Be spaced at intervals, consistent with population density, so that all developed areas within the State are within a reasonable distance of an Arterial roadway
- Provide service to corridors with trip lengths and travel density greater than those served by Rural Collectors and Local Roads and with relatively high travel speeds and minimum interference to through movement

Over the years, the system of functional classification has come to assume additional significance beyond its purpose as a framework for identifying the particular role of a roadway in moving vehicles through a network of highways.

Functional classification carries with it expectations about roadway design, including its design speed, capacity and relationship to existing and future land use development. Federal legislation continues to use functional classification in determining eligibility for funding under the Federal-aid program. Transportation agencies describe roadway system performance, benchmarks and targets by functional classification. As agencies continue to move towards a more performance-based management approach, functional classification will be an increasingly important consideration in setting expectations and measuring outcomes for preservation, mobility and safety.

In the Northern Neck of Virginia, Route 3 is classified as a **Minor Arterial** beginning at the intersection of US Route 301, the western terminus of this study. Route 301 is a Principal Arterial Highway and part of the National Highway System (NHS). Combined with Virginia Primary Route 207, this Principal Arterial designation begins at the intersection of Interstate 95 (HNS, Corridor of Statewide Significance/CoSS) and Route 207 (Interchange # 104), traversing northeast and switching from Route 207 to Route 301 at Bowling Green, then entering Maryland at the Harry W. Nice Memorial Bridge over the Potomac River. West of Route 301, Route 3 is designated as a Principal Arterial Highway, also on the NHS, through Fredericksburg to Route 29 in Culpeper, Virginia.

Continuing southeast from the intersection of Route 301, Route 3 passes through King George County and the Northern Neck, intersecting US Route 360 (Principal Arterial and NHS Highway) at Warsaw and leaves the Northern Neck at the Robert O. Norris Memorial Bridge over the Rappahannock River into the Middle Peninsula of Virginia to Route 33. Route 3 continues further south through the Middle Peninsula where it terminates at US Route 17 (Principal Arterial, NHS and CoSS) in Gloucester.

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4. BACKGROUND DEVELOPMENT OF ROUTE 3 IN THE NORTHERN NECK

A. EXISTING RIGHT-OF-WAY WIDTHS

Route 3, as a Virginia Primary Highway, exists on right-of-way of varying widths. All of existing Route 3 in the Northern Neck has been constructed since 1929 (which was known as Route 37 until 1933). Portions of Route 3 built in the 1920's and 1930's have a RW width of 50', which is the minimum width currently found on Route 3 in the Northern Neck. From the 1940's onward, RW widths for improvements to Route 3 varied depending on applicable design standards and the question of whether the proposed right-of-way acquired was intended to accommodate future widening. As improvements to Route 3 were made over the course of several decades, RW widths for two-lane improvements varied from 50' – 80' and RW widths intended for long-term widening were normally 110'.



110' EXISTING RIGHT-OF-WAY IN WESTMORELAND COUNTY

See Appendix A - Supplemental Maps 1 and 2 – Page 17

Of the current 54.8 miles of two-lane Route 3 between Route 301 and the Norris Bridge, 52% (28.6 miles) has an existing RW width of 50', 36% (19.8 miles) has a RW width of 110' and the remaining segments (6.4 miles) fall somewhere

between. Highway segments with an existing RW width of 110' are most favorable to widening, as a majority of work may be performed within the existing RW and most existing utilities are located outside of the RW.

There are four segments of roadway between Route 301 and the Norris Bridge with this 110' wide existing RW:

1. Route 301 (Office Hall) to the King George /Westmoreland County Line – 7.1 Miles
 2. Route 204 (Stratford Hall) to Route 624 South – 2.4 Miles
 3. Route 692 (Farnham) to 1.1 Miles W. of Route 201 (Lively) – 9.9 Miles
 4. Segment south of White Stone, immediately north of Norris Bridge* – 0.4 Mile
- *The 110' Existing RW continues across the Norris Bridge to Route 33 (Harmony Village) in Middlesex County

Four counties are represented by these four segments. Segment #1 in King George County begins at the end of the current four-lane section that runs from Route 301 westward into King George C.H. and on to Fredericksburg. Segment #2 in Westmoreland County is 12.8 miles from the nearest four-lane section of Route 3 to the west (which terminates at Route 301) and 8.3 miles from the nearest four-lane section to the east (the section east of Montross), making it an viable candidate for improvements that would provide for vehicular passing in an area far from the nearest protected passing lanes. Segment #3 in Richmond and Lancaster Counties is 3.5 miles east of the nearest four-lane section of Route 3 to the west (the divided highway east of Warsaw/Route 360) and 7.7 miles west of the nearest four-lane section to the east (leading into Kilmarnock). Portions of this nearly ten mile segment with wide existing RW are remote and undeveloped, offering an opportunity for potential passing improvements. The fourth segment is the northern approach to the Norris Bridge. Until the bridge is replaced/modified/widened, no major improvements are expected at this location.



MODERATE TO HEAVY DENSITY OF MIXED USES ALONG ROUTE 3

Note: As a general planning guideline, constructing to current VDOT Standards on Route 3 (a Rural Minor Arterial Highway) requires a minimum RW width of 80'-90' for two-lane improvements and up to 180' for four-lane-divided improvements, depending upon the scope of the project. A three-lane segment built under today's standards would require approximately 100'-110' of RW and the minimum width for an undivided four-lane highway would be in the range of 110'-120'. Various temporary and permanent easements may be required beyond the proposed right-of-way.

B. EXISTING DENSITY OF ACCESS

See Appendix B - Supplemental Maps 3 and 4 – Page 18

Points of access along Route 3 consist of various roadway connections and all types of entrances/driveways. The number of these points of access within a given distance can be defined as **access density**. Rural areas are characterized by very sparse development and very few points of access most of which are residential driveways and farm entrances. On the opposite end of the spectrum, business districts may have a high density of access points including many commercial entrances for a wide variety of land uses. For the purposes of this study, the approximately 55 miles of two-lane highway between Route 301 and the Norris Bridge were broken down into mile-long segments. It was determined that one of seven distinct density types was applicable to each segment.

Current daily traffic volumes on Route 3 in the Northern Neck average from approximately 2,000 vehicles per day (VPD) to approximately 12,000 vehicles per day. Most of the volumes used in this report are actual counts taken in 2013 with some from 2011 with a growth factor applied.

Western Area

For the western half of the study (west of Route 360), volumes on the two-lane segments are fairly consistent, ranging from 4,200 to 6,100 ADT (average daily traffic) over the 30.5 miles. Generally, traffic is oriented toward Route 301 and the Westmoreland and Richmond County Seats, Montross and Warsaw. Breaks in traffic volumes on Route 3 occur at higher volume primary and secondary routes, such as Route 205/638 at Oak Grove, Route 214 at Lerty (Stratford Hall), Route 621 at Nomini Grove, and Route 203 at Lyells. A large portion of traffic, to and from the west, utilizes Route 3 Business at Warsaw, resulting in low volumes on the Warsaw Bypass section of Route 3. Route 360, which was chosen as the mid-point of the study, is a traffic break, as well.

Town of Montross

In addition to being the most highly developed area along the western portion of the study corridor, Route 3 through Montross and eastward also carries the highest traffic volume, approximately 7,400 ADT. While the area immediately around the county courthouse is vibrant, Route 3 is only two-lanes wide in this location, but traffic flow is generally adequate. All intersecting roadways have moderate volumes (<1,000 ADT) and commercial attractors are generally low-volume.



CURVED INTERSECTION IN VILLAGE OF MONTROSS

Eastern Area

Traffic volumes on the eastern portion of the study vary significantly, with one ten-mile stretch averaging less than 3,000 ADT. The lowest volume on Route 3 within the entire study area occurs between the Richmond/Lancaster County Line and Lively, where the ADT is less than 2,400 VPD. Ten miles east of this traffic minimum-point, the daily volume reaches an ADT of 13,000 on a four-lane segment at the northern edge of Kilmarnock, the highest volume within the study. Traffic volumes of approximately 9,000 ADT exist on Route 3 between Kilmarnock and White Stone. Similar volumes cross the Norris Bridge daily into Middlesex County. Several high-volume connections intersect Route 3 in the eastern study area including primary Route 201 at Lively and Route 200 at Kilmarnock and White Stone.

Town of Kilmarnock

While traffic volumes on Route 3 north of the Route 200 intersection are the highest in the corridor, recent streetscape enhancements have created a pedestrian-friendly traffic pattern through the downtown area which will likely preclude widening improvements in the future. Currently, a thru-truck restriction is in-place which prohibits the use of Route 3 through Kilmarnock. This restriction is mitigated by the use of a full-time truck bypass around the downtown area to the

TABLE 4-1 ACCESS DENSITY CATEGORIES ON ROUTE 3 IN THE NORTHERN NECK

1. Heavily Developed – Mixed Uses
Montross (approx. 2 miles), Kilmarnock (approx. 2 miles) and White Stone contain segments in this category. (Note: Warsaw is mostly bypassed by a four-lane, access-controlled segment of Route 3 and is, therefore, not included.)
2. Moderate to Heavy Density – Mixed Uses
Segments in Lively (approx. 2 miles) and Lancaster CH are included in this category
3. Moderate Density – Mixed Uses
Oak Grove, a segment near Farnham and a segment between White Stone and the bridge met this criterion
4. Moderate Density – Mostly Residential
Three segments fell into this category: One mile near the KG/Westmoreland County Line, one mile between Nomini Grove and Lyells and the first mile immediately east of the end of the four-lane segment at Emmerton
5. The remaining 41 mile-long segments were contained within one of these rural categories:
6. Light to Moderate Density – Mixed Uses
7. Light to Moderate Density – Residential
8. Light Density - Residential

Highway segments in the three rural categories, characterized by light or light-to-moderate density, above are generally most favorable to widening projects due to lower RW costs, minimal turning movements and so on.

The longest uninterrupted section of light access density on Route 3 in the Northern Neck occurs between the developed areas of Farnham and Lively, within the eastern section of the study. This segment, straddling Richmond and Lancaster Counties, also has the lowest daily traffic volumes of any two-lane portion of Route 3 within the study area. The nine miles of Route 3 beginning at Farnham and ending approximately one mile west of Lively has an existing RW width of 110', providing excellent potential for various road widening improvements.

In the western section (between Route 301 and Route 360), segments of lightest density are more sporadic, generally tending to comprise several two-mile segments. By combining segments characterized by light and light-to-moderate density, a section of approximately nine miles of Route 3 between Oak Grove and Montross emerges as the most likely candidate for improvements based upon access density. The only two-lane portion of Route 3 in Westmoreland County with an existing RW width of 110' occurs between Potomac Mills and Flat Iron. The density of access at this location, covering approximately 2.3 miles, is relatively light and traffic volumes are moderate, suggesting this segment may have high potential for low-cost widening. However, a bridge over Popes Creek may limit the length available.

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west, utilizing roads on the secondary system: Route 688 (James B. Jones Mem. Hwy.) from Route 3 north of town to Route 200 and Route 1036 (Harris Road) from Route 200 to Route 3 south of town. Volumes along this unofficial bypass

are high. The Route 688 portion carries approximately 5,200 ADT, which includes many trips from Route 200 traveling between the Irvington/Weems area and the northern Kilmarnock commercial area and points west. The Route 1036 segment handles approximately 1,800 ADT and serves the Rappahannock General Hospital. The northern terminus of this routing occurs at the signalized intersection of Route 3 and Route 688, at the CVS Pharmacy and Walgreens. As stated previously, this is the busiest section of Route 3 in the Northern Neck (with approximately 13,000 ADT) and, while this segment is four lanes wide, there is no median and access management is virtually nonexistent with the exception of newer businesses.



STREETSCAPE OF DOWNTOWN KILMARNOCK

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D. EXISTING GEOMETRIC DEFICIENCIES

See Appendix C - Supplemental Maps 5 and 6 – Page 19

The approximately 71.5 miles of Route 3 between Route 301 in King George County and the Norris Bridge over the Rappahannock River consists of widely varying eras of construction and design standards. Sixty to eighty-five years ago, design standards and construction methods were radically different from today. Motorists of that era expected to travel at a maximum speed of 25-30 MPH on the best roads. Pavement was optional. When roads were built or improved, grading was minimized, as large earth-moving equipment was still many years in the future. These and other factors provide understanding into why roads built then do not resemble roads built recently. On Route 3 in the Northern Neck, while all segments have seen improvements and widening to varying degrees, some of the original grades are still present. Where this is the case, certain vertical sight distances are far below those required by current standards and, to a lesser degree, grades are steeper than current standards recommend. Areas with significant numbers of deficiencies are unacceptable as passing zones and are poor candidates for certain types of improvements unless the road grade is completely reworked, adding greatly to both RW and construction costs. Those areas with the highest concentration of geometric deficiencies on Route 3 are as follows:

TABLE 4-2 LOCATIONS OF GEOMETRIC DEFICIENCIES ON ROUTE 3				
Location	Number of Deficiencies	Segment Length	Deficiencies per mile	
1. KG/Westmoreland Co. Line to Oak Grove	11	2.4 miles	4.6	
2. Templeman to Nomimi Grove	12	1.8 miles	6.5	
3. Route 612 to Lyells	5	0.8 miles	6.1	
4. Farnham to Robley	7	1.5 miles	4.6	

Other locations of geometric deficiencies tend to be isolated.

Sections of Route 3 that have received the least improvements to vertical alignment and which have the most geometric deficiencies are located in some of the most rural areas where negative impacts are minimal. However, opportunities for passing are virtually absent in these areas, where trips are often long and most affected by slow-moving vehicles.

E. EXISTING PASSING ZONES

See Appendix C - Supplemental Maps 5 and 6 – Page 19

Slightly less than ¼ of the 71.5 miles of Route 3 in the Northern Neck consists of four-lane typical sections. The remaining approximately 55 miles is two-lane highway. Within these 55 miles, there are 32 passing zones consisting of a total length of approximately 16 miles. These zones are identified by centerline striping that is of a dashed/broken pattern. Outside of these zones, passing is prohibited (with double solid lines) on ¾ of all two-lane portions of Route 3. The average passing zone is ½ mile in length and provides for passing in both directions. A typical passing zone, moving west to east, begins as east-only passing, followed by a two-way passing segment (broken line), and ends as west-only passing, in order to make the most of the sight-distance available.



EXISTING PASSING ZONE

Actual passing opportunities in a particular direction are considerably less than the total length of passing zones. According to the American Association of State Highway and Transportation Officials (AASHTO), the minimum passing sight distance for 55 MPH is 900'. Most passing areas on Route 3, for a given direction, meet this minimum, with the optimal ½ mile zone providing 1800' (approx. 1/3 mile) of passing opportunity in each direction, approximately half of which is two-way passing (broken line).

Passing zones on two-lane highways offer no built-in protection; only driver attention and discernment assure the infrequency of catastrophe. The ability to pass within a two-lane passing zone depends upon the complete absence of opposing traffic, the immediate recognition of the presence of a passing zone by the motorist, driver confidence in the maneuver under consideration and immediate action. Unless the vehicle being overtaken is travelling well below the posted speed limit, a passing maneuver can be particularly daunting, considering that the passing vehicle is accelerating head-on toward opposing traffic that may appear at a closing-rate of 110 miles per hour (MPH) or greater. Conditions such as total or partial darkness, rain, snow, fog, glare and certain driver characteristics have a negative effect on passing opportunities, as passing zones are generally adequate only under ideal conditions. **Infrequent and ineffective passing opportunities are the most significant obstacles to mobility on Route 3 throughout the Northern Neck of Virginia.**

In the western section of the study, between Route 301 and Route 360, there are 17 passing zones over the course of 30.5 miles of two-lane highway. In the eastern portion, from Route 360 to the Norris Bridge there are 15 passing zones within the 24.3 miles of two-lane highway. The table below illustrates that the passing situation is more problematic in

the western half, as four rural segments have no opportunities for passing, primarily due to a high concentration of geometric deficiencies.

Between Route 301 and Montross (a 23.5 mile portion of Route 3), there are no sections of four-lane, the longest stretch on the entire route with no protected passing area. Within that section, there are several segments – two of which are over four miles in length – where all passing is prohibited by pavement markings. The longest current passing zone in the western section is 0.8 mile. By contrast, the longest segment without a passing zone in the eastern half, between Route 360 and the Norris Bridge, is only two miles and the longest existing passing zone is 1.7 miles in length. Furthermore, passing opportunities in the eastern portion are enhanced by the low traffic volumes (mostly <3000 ADT) over a large portion of the corridor in which passing zones exist.

TABLE 4-3 NUMBER OF EXISTING PASSING ZONES ON SELECT SEGMENTS

Segment:	# of Existing Passing Zones:
1. Route 301 to KG/Westmoreland Co. Line	5
2. KG/Westmoreland Co. Line to Oak Grove	0
3. Oak Grove (Rte 205) to Flat Iron (Rte 624)	4
4. Flat Iron (Rte 624) to Lerty (Rte 214)	0
5. Lerty (Rte 214) to Montross	3
6. Montross to Templeman (Rte 202)	N/A (Four-Lane)
7. Templeman (Rte 202) to Nomini Grove (Rte 621)	0
8. Nomini Grove (Rte 621) to Route 612	3
9. Route 612 to Lyells (Rte 203)	0
10. Lyells (Rte 203) to Route 3 Business	2
11. Route 3 Business to Route 360	N/A (Four-Lane)
12. Route 360 to Emmerton (Rte 619)	N/A (Four-Lane)
13. Emmerton (Rte 619) to Farnham (Rte 692)	2
14. Farnham (Rte 692) to Robley (Rte 601)	2
15. Robley (Rte 601) to Richmond/Lancaster Co. Line	1
16. Richmond/Lancaster Co. Line to Lively (Rte 201)	3
17. Lively (Rte 201) to Lancaster CH (Rte 600)	3
18. Lancaster CH (Rte 600) to Route 614	3
19. Route 614 to NCL Kilmarnock	N/A (Four-Lane)
20. Town of Kilmarnock	0
21. SCL Kilmarnock to White Stone	N/A (Four-Lane)
22. White Stone to Lancaster/Middlesex Co. Line	1

Three of the four areas identified as having a high concentration of geometric deficiencies directly correspond to three of the five segments on which there are no opportunities for passing.

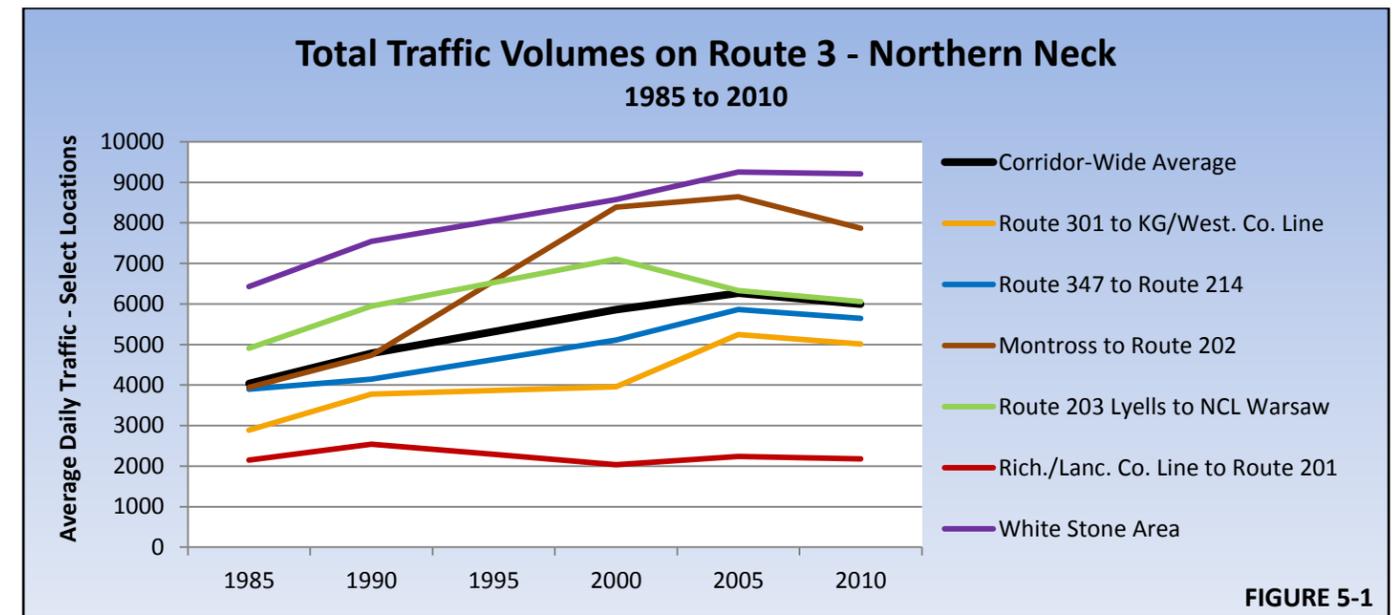
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5. TRAFFIC PATTERNS AND TRENDS ON ROUTE 3 IN THE NORTHERN NECK

A. Thirty-Year Growth Trend

Traffic on Route 3 in the Northern Neck generally experienced growth at a steady pace from 1985 through 2005. Between 2005 and 2010, virtually every segment experienced negative growth, for the five year period, presumably due to the economic downturn. Since 2010, most segments have seen continued decline or remained stagnant.

Growth rates in the Northern Neck over the past fifteen years are strongly positive on the western and eastern ends, with traffic volumes growing at +2.5% or greater at both Route 301 and in the Kilmarnock/White Stone areas. In the center of the study area, several segments have experienced stagnant or negative growth over the same period, with the area from Montross through Warsaw to the Richmond/Lancaster County Line averaging -0.5% since the late 1990's. The dates of the counts indicate the lowest rates correspond to the recent national economic recession. The locations selected to be illustrated on the charts are those for which long-range traffic data with various vehicle classifications are available for those segments.



Four of the six selected segments have grown at a strong, positive rate for most of the study period. Route 3 in the area of White Stone reflects the steady growth of the lower portion of Lancaster County, where some of the highest volumes are found. The fastest growth among selected segments was experienced on Route 3 east of Montross between 1990 and 2000. The opening of the dual, four-lane roadway in that area the late 1980's may have been a factor. A third strongly positive section of Route 3 is in eastern King George County. Likewise, the portion of Route 3 near Stratford Hall had a steady upward growth rate prior to the drop circa 2005.

Based upon the corridor-wide averages, two segments were a bit unusual. Route 3 in western Richmond County between Warsaw and Lyells saw the recession dip begin five years earlier than the others. Prior to 2000, growth on this segment had been among the strongest. The second outlier is Route 3 in the rural area between the Richmond/Lancaster County Line and Lively. In terms of traffic growth, this area has been virtually stagnant for thirty years. Volumes here actually decreased during the 1990's, at a time when all other sections were growing strongly. Oddly, the low volumes and low growth seem to have had a neutralizing effect on this segment through the downturn of the 2000's, as volumes have remained level.

B. Recent Trends on Route 3 and Connecting Roadways and Current Facilitation of Movements

King George County

Route 3 in King George County, between Route 301 and the Westmoreland County Line, consists entirely of two-lane highway that carries approximately 5600 vehicles per day and has experienced growth at an average rate of +2.57% between 1998 and 2013. Currently, none of the fifteen secondary connections within this portion of the study area have dedicated left turn lanes on Route 3.

The busiest secondary connections along this section of Route 3 are Route 629, Route 647 south and Route 628. A left-turn-lane is currently warranted on Route 3 eastbound at Route 629 and a right-turn-taper is warranted at Route 647 south, based upon existing PM peak volumes and guidance from the VDOT Road Design Manual. Other connections may soon require dedicated turn lanes, as well.

Westmoreland County

Growth on Route 3 in Westmoreland County over recent decades has been highest on the westernmost segment between the County Line and Oak Grove at +1.38%. Between Oak Grove and Montross, average growth has ranged from approximately 0% to +1%. The highest volume connections in this area are Route 205 (between Oak Grove and Colonial Beach) and Route 214 (at Stratford Hall), as well as secondary Routes 638, 664 and 624 south. At Oak Grove, Route 3 connects with Routes 205 and 638 at a signalized intersection, the only signal on a two-lane segment of Route 3 in Westmoreland County. This intersection is the busiest in the western study area and operates well, as turn lanes are provided on all legs. There are also left turn lanes on Route 3 at Route 664 and Route 214, meeting all current turn-lane warrants, along this segment. East of Montross, a four-lane stretch of approximately four miles ends approximately half way between Montross and the Richmond County Line. On the two-lane segment west of Lyells, traffic growth on Route 3 has averaged approximately +1%. The highest volume secondary connections are Route 621 north and south at Nomini Grove and Route 613, at the county line. Left turn lanes do not exist at these connections.

Richmond County

Traffic on most two-lane segments of Route 3 in Richmond County has experienced negative growth over the period between 1998 and 2013. The greatest percentage decrease occurred between Route 203 (Lyells) and Route 360 (Warsaw), with an average decrease of -1.4% or greater. The general stagnation is apparently due to the national economic recession which continues and which seems to have affected Richmond County more than the surrounding jurisdictions. Traffic volumes grew on Routes 3, 203 and 360 between 1998 and 2006, when they peaked. Through 2013, average volumes continued to decrease with resulting traffic dropping below that of 1998. East of Warsaw, traffic growth rates are also negative over the period analyzed.



ROUTE 3 APPROACHING THE WARSAW BYPASS

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The Route 203 intersection at Lyells has the highest volume turning movements on a two-lane section of Route 3 in Richmond County. Left and right turn lanes have been provided. East of Warsaw, the connection of Route 614 south occurs at the end of the four-lane and turn lanes are provided. The remaining secondary connections onto Route 3 within Richmond County that exhibit significant traffic volumes and turning movements are Routes 619, 642, and 608. None have existing turn lanes and none currently warrant turn lanes, as mainline volume is very low through this area.

Lancaster County

Contrary to the downward population trend in Lancaster County in the first decade of the 21st century, traffic on Route 3 has increased across the county. The growth rate on the western end of the county has been moderate, in the +1% range, while the rates closer to Kilmarnock have increased dramatically, particularly around the north corporate limits of the town where traffic grew at a rate of nearly +3½% between 1999 and 2011. Between Kilmarnock and White Stone, the increase was moderate, due in part to the presence of Route 200, which diverts trips through/from/to Irvington. South of White Stone, the rate grew to nearly 4% between 1999 and 2011.



LIVELY INTERSECTION OF ROUTES 3 AND 201

A number of connecting roadways in Lancaster County have relatively high traffic volumes. On the western end, Route 354, Route 622/617 and Route 201 north and south are on segments of Route 3 with volumes not meeting turn lane warrants. The intersection at Route 354 and the intersection of Route 3 and Route 622/617 have existing right-turn tapes. The Route 201 intersection at Lively has an overhead flashing warning light, requiring the north and south approaches to stop. There are no turn lanes.

All of the intersections of higher-volume roadways east of Lively warrant a turn lane. Most have turn-lanes in-place. Those requiring improvement are the intersection of Route 604 south, which warrants a left turn lane on Route 3 westbound and the intersection of Route 605, which needs a right turn taper on Route 3 westbound, as these locations fall into the zone where the predominant direction in the PM peak is westbound. Within the business districts of Kilmarnock and White Stone, there are a few movements at intersections that do not have ideal accommodation. These are, however, in low-speed locations where provision of greater roadway width could do significant damage to commercial and residential properties. The Town of Kilmarnock, in particular, functions as a downtown area for the eastern Northern Neck, having four-lane portions of Route 3 leading in from both directions, but only having a two-lane highway through the downtown area.

C. Growth Trend for Trucks

Since 1985, the number of trucks traveling along Route 3 in the Northern Neck has varied significantly. Trends reflect the influence of the national economic recession, although both volumes and percentages indicate the most severe drop in truck traffic occurred between 2001 and 2004, slightly earlier than the general economy. The most recent three-year-period ending in 2014 has seen a leveling-off on most segments. In nearly all locations, the decrease over the recessionary period was more pronounced among single-unit trucks than among heavy trucks. This would seem to indicate that the smaller carriers and businesses were more severely impacted by the recession than were larger freight transporters and larger businesses.

From 1985 through the end of the century, the use of Route 3 by trucks increased steadily. Beginning in the late 1990's, truck volumes hovered near 500 vehicles per day as an average, throughout the corridor. In the mid 2000's this dropped to an average of 400 per day, a decrease of 20%. By 2010, the average throughout the Northern Neck was slightly greater than 300 trucks per day, or a decrease of nearly 25% on the selected segments, reflecting a drop to approximately 1990 levels. While overall vehicular volumes have been generally stale (little or no growth), the most recent truck volumes tell a story of a major dip in commerce and economic well-being.

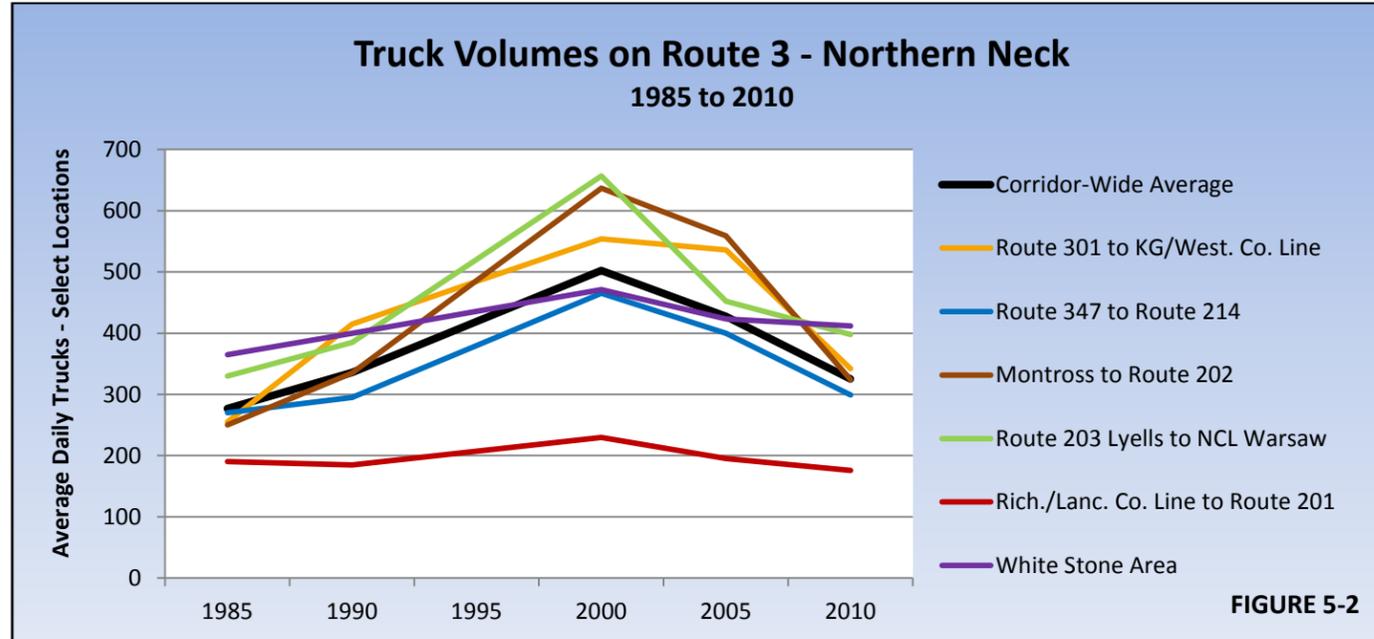


FIGURE 5-2

Daily truck volumes in the rural section spanning the Richmond-Lancaster County Line are the lowest on Route 3, at approximately 200 vehicles per day for many years. The other five selected locations have exhibited a more robust pattern with observable upward and downward trends. The section between Montross and Warsaw and the section in King George County were the most volatile in terms of positive and negative growth.

Route 3 in King George County (east of Route 301) carries the highest percentage of trucks in the study area and has experienced the greatest decrease, with approximately 12% in the late 1990's dropping to approximately 7%.

The lowest truck percentage within the study area is found in southeastern Lancaster County, through the Kilmarnock/White Stone area, where the highest overall traffic volumes exist on Route 3 in the Northern Neck. Due to the historically low proportion of trucks, the percentage has held steady, not dropping as significantly as it has on other segments. Heavy trucks have consistently comprised only 1-2% of overall traffic, through this area. This may have been a contributing factor to the acceptability of a through-truck restriction on Route 3 in Kilmarnock; the inconvenience does not affect a large proportion of overall drivers.



ROUTE 3/301 INTERSECTION IN KING GEORGE COUNTY

D. Peak Hour Patterns

Peak hours in the Northern Neck of Virginia are characterized by fairly balanced local trips eastward and westward combined with a significant concentration of commuter traffic toward employment centers. Generally, the commuter pattern on Route 3 is westbound in the AM peak and eastbound in the PM. In the western half of the study area, employees head towards jobs at Dahlgren, the Fredericksburg area and the Northern Virginia/DC area, with the directional distribution during peak periods as high as 65% westward to 35% eastward (AM). The exception to this pattern is found in the area beginning at Warsaw and extending several miles westward, where the employers and services in Warsaw and Tappahannock attract commuters. In the eastern half of the study area, peak-hour distribution is closely associated with the county through which Route 3 passes. In Richmond County, 55-60% of morning trips are headed westward, toward Warsaw/Tappahannock, with the reverse holding true in the afternoon. In Lancaster County, nearest the Richmond County Line, east/west traffic is nearly balanced, as the influence of employers and services westward gives way to those in Kilmarnock and areas to the south. Approaching Kilmarnock from the west, traffic volume increases significantly east of Lively and Lancaster Courthouse. At Kilmarnock, the highest volumes are generally drawn to the commercial area on the north side of town from both directions on Route 3 as well as from Route 200 which draws from Northumberland County to the north and northeast and from Irvington and Weems, to the southwest. The four-lane segment of Route 3 northwest of Kilmarnock has the greatest volume of traffic within the study corridor, with over 12,000 vehicles per day, the distribution of which is nearly 50/50, indicating that the immediate vicinity is a major destination from multiple directions. Traffic in the downtown area of Kilmarnock is characterized by slow speeds along urban-style streetscapes with one lane in each direction plus turn lanes. Traffic south of Kilmarnock is divided between the four-lane Route 3 and two-lane Route 200, converging at White Stone prior to the Rappahannock River crossing, which currently carries 9500 vehicle per day. South of the Irvington/White Stone area, records indicate the distribution of peak-hour trips begins to favor the southward (AM) movement toward services and employment centers in Gloucester and beyond.



VILLAGE OF WHITE STONE

E. Seasonal Peaks

During the tourist/boating season - primarily the months of June through August - a significant seasonal-peak-hour occurs later in the day than the normal weekday PM traffic peak. The most significant manifestation of this is seen on Friday and Sunday evenings, as motorists are arriving and leaving the Northern Neck, for the weekend. The eastern portion of the study area has an unusually high number of second-homes, which become weekend destinations. Towed boats, travel trailers and motor homes present the greatest challenges to traffic flow, as passing opportunities may become non-existent during these times and under these conditions.

F. The Route 17 Alternative

A likely significant contributor to the low rate of growth on Route 3 for a majority of the Northern Neck is the presence of U.S. Route 17, a principal arterial highway, which runs parallel to Route 3 in the Middle Peninsula of Virginia and provides a higher-speed, higher-capacity alternative for many travelers. At the western terminus of the area defined by this study, and in the Warsaw/Tappahannock area, Route 3 and Route 17 are only six miles apart. Utilizing Route 17 is particularly attractive to motorists between the Warsaw/Tappahannock area and the Fredericksburg area. A driver in Warsaw bound for I-95 Exit 130 at Fredericksburg (Route 3 Exit), may utilize Route 17 – of which a significant portion is a rural, divided highway with a posted speed of 60 MPH - by crossing the Downing Bridge (Route 360) and turning north towards Port Royal. The increase in speed limit, which was authorized by the General Assembly in 2005 for Route 17 between Port Royal and Saluda, has given greater impetus to the use of Route 17 by Northern Neck motorists. The time savings on Route 17 versus Route 3 is largely due to the motorists’ inability to maintain speed on Route 3 when slow-moving traffic is present. Taking Route 17 reduces the trip time by an average of seven minutes as compared to traveling Route 3 for the entire distance. Furthermore, if the motorist prefers an uninterrupted four-lane trip, they can turn north on Route 301 at Port Royal, re-crossing the Rappahannock River, and then turn left at Office Hall onto four-lane Route 3 through King George and westward or, based on local knowledge, follow a cross-country short-cut, bypassing King George Courthouse and reducing trip time further.

While Route 17 covers similar terrain as Route 3, the construction of the dual lane portions of Route 17 over the course of the past several decades has not brought significant development to the long stretches of rural landscape along the Middle Peninsula. Operating at the highest level-of-service due its low-volumes and high-capacity, Route 17 remains largely undeveloped and readily available as an alternate to Route 3 for travelers across the area. Note: Route 17 from Route 1/I-95 to the Spotsylvania/Caroline County line is currently listed on the FAMPO 2040 Constrained Long-Range-Plan for widening to four-lanes.

6. CURRENT SAFETY AND EFFICIENCY OF ROUTE 3

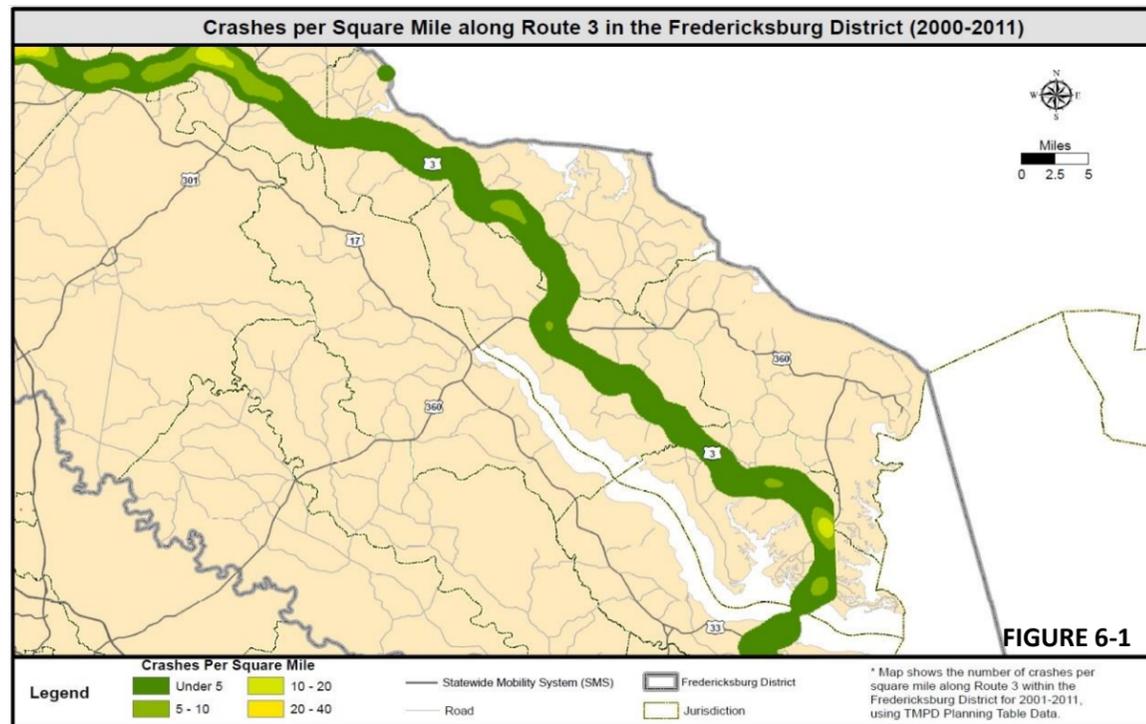


FIGURE 6-1

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As Figure 6-1 illustrates, Route 3, between Route 301 and the Norris Bridge, is a relatively safe highway. Factors that contribute to this include the scarcity of congestion, good sight-distance, a general scarcity of roadside obstacles/access points and moderate travel speeds. Not surprisingly, the number of crashes per mile corresponds to the volume of traffic. The highest density of crashes over the past decade occurred in Kilmarnock, where the highest traffic volumes and highest concentration of access points in the corridor exist. Additional “blips” on the map occur at the towns and villages of Montross, Warsaw, Lively, White Stone and the first few miles just east of Route 301 in King George County.

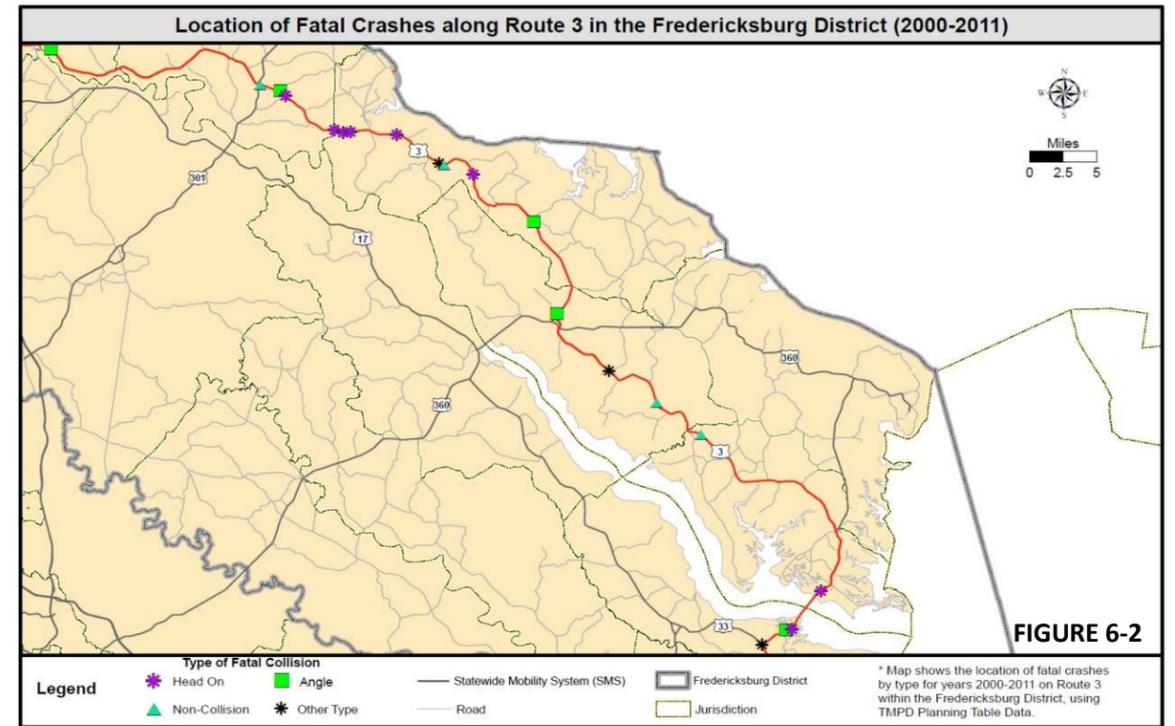
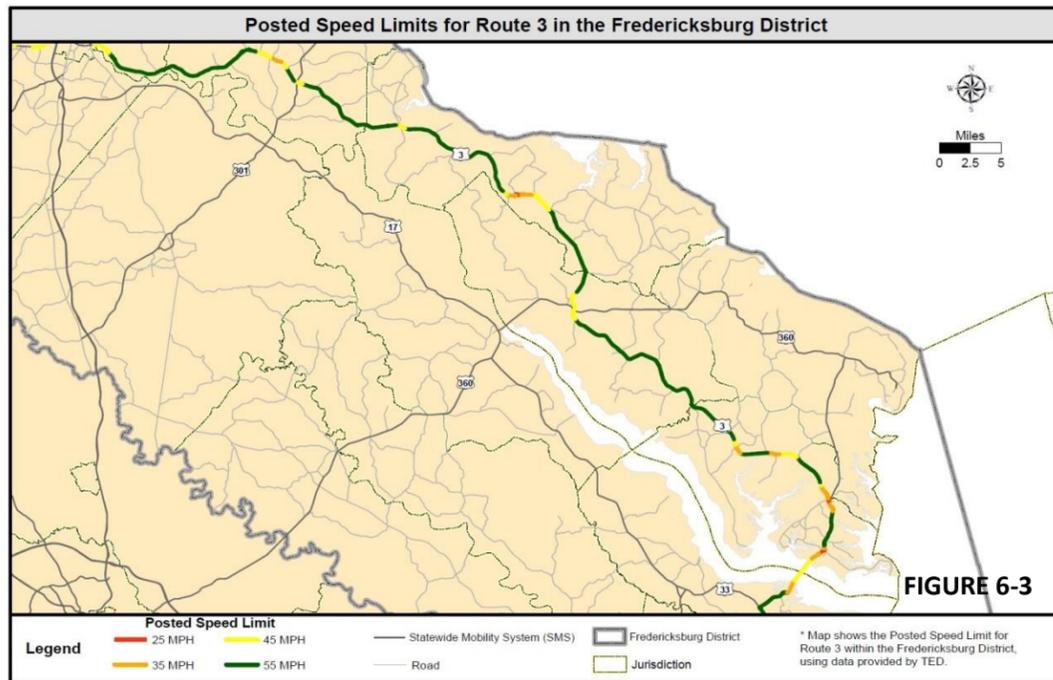


FIGURE 6-2

Fatal crashes over the same period do not follow the same pattern, although certain similarities are present. Figure 6-2 shows that the highest concentration of fatal crashes occurred along the section between the King George – Westmoreland County Line and Oak Grove. The characteristics of the highway along this stretch include narrow shoulders and geometric deficiencies in the form of a “roller-coaster grade”, as this section has not seen significant improvements in many decades. There are no passing zones along this stretch. Similar deficiencies exist west of Route 347, where two fatalities occurred. The third concentrated area of fatalities is located near the Route 301 intersection, in King George County, where volumes are greater than most other areas. The remaining fatal crashes are isolated. It is notable that while the Kilmarnock area has the highest volumes and a concentration of crashes, no fatalities have occurred within the sample timeframe, as the speeds travelled in the urbanized area are considerably slower. Nearly every fatal crash occurred on higher-speed areas, many on the most rural highway segments, such as those single-vehicle incidents near the Richmond – Lancaster County Line.



In most rural areas, Route 3 has a posted speed limit of 55 MPH. At Office Hall, Oak Grove and Warsaw, the posted limit on Route 3 drops to 45 MPH. At Lively and Lancaster the speed limit is lowered to 35 MPH. The most highly developed areas at Montross, Kilmarnock and White Stone have posted speed limits as low as 25 MPH.

FIGURE 6-3

Figure 6-4 illustrates the actual peak-hour travel-speeds experienced during the four quarters of 2012. Notably, there is very little seasonal difference in PM peak-hour speeds on Route 3, in the Northern Neck. Also apparent, average speeds traveled during the peak hour are at or near the posted speed for a majority of locations.

LEVELS-OF-SERVICE

A frequently used measure of efficiency is shown in Exhibit E, the average Level-of-Service (LOS). LOS is a qualitative term – A through F - describing the density of traffic, and relating travel speeds, delays, and other measures to performance:

- A: free flow
- B: reasonably free flow
- C: stable flow, at or near free flow - This is the target LOS for some urban and most rural highways
- D: approaching unstable flow
- E: unstable flow
- F: forced or breakdown flow

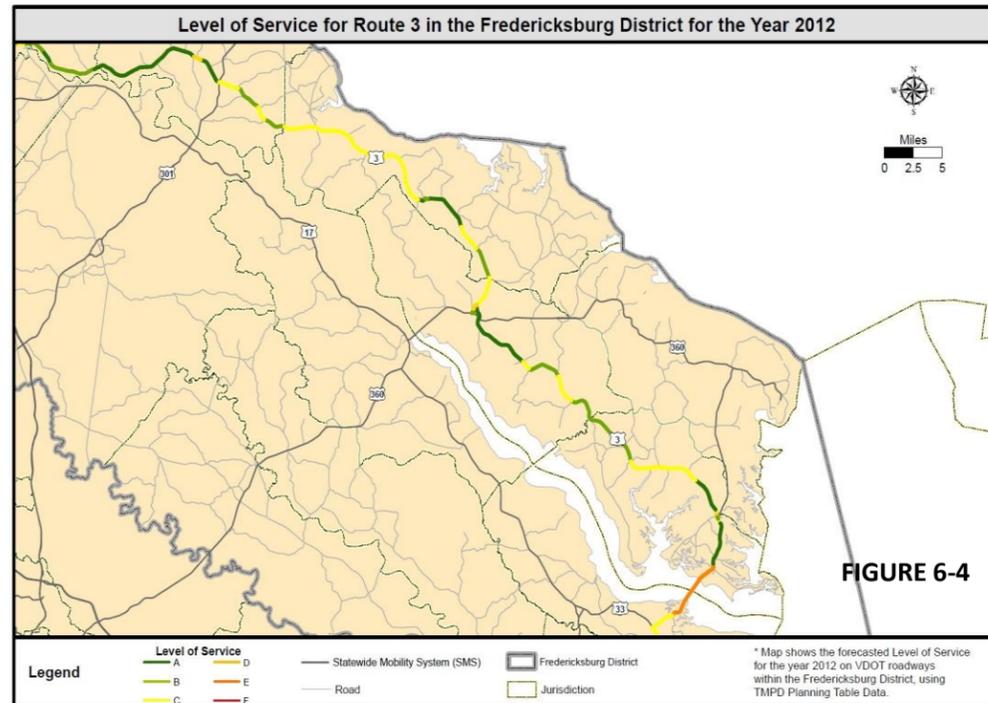


FIGURE 6-4

Not surprisingly, the highest LOS segments are the four-lane, divided segments:

- East of Montross
- The Warsaw bypass
- East of Warsaw
- West of Kilmarnock
- Between Kilmarnock and White Stone

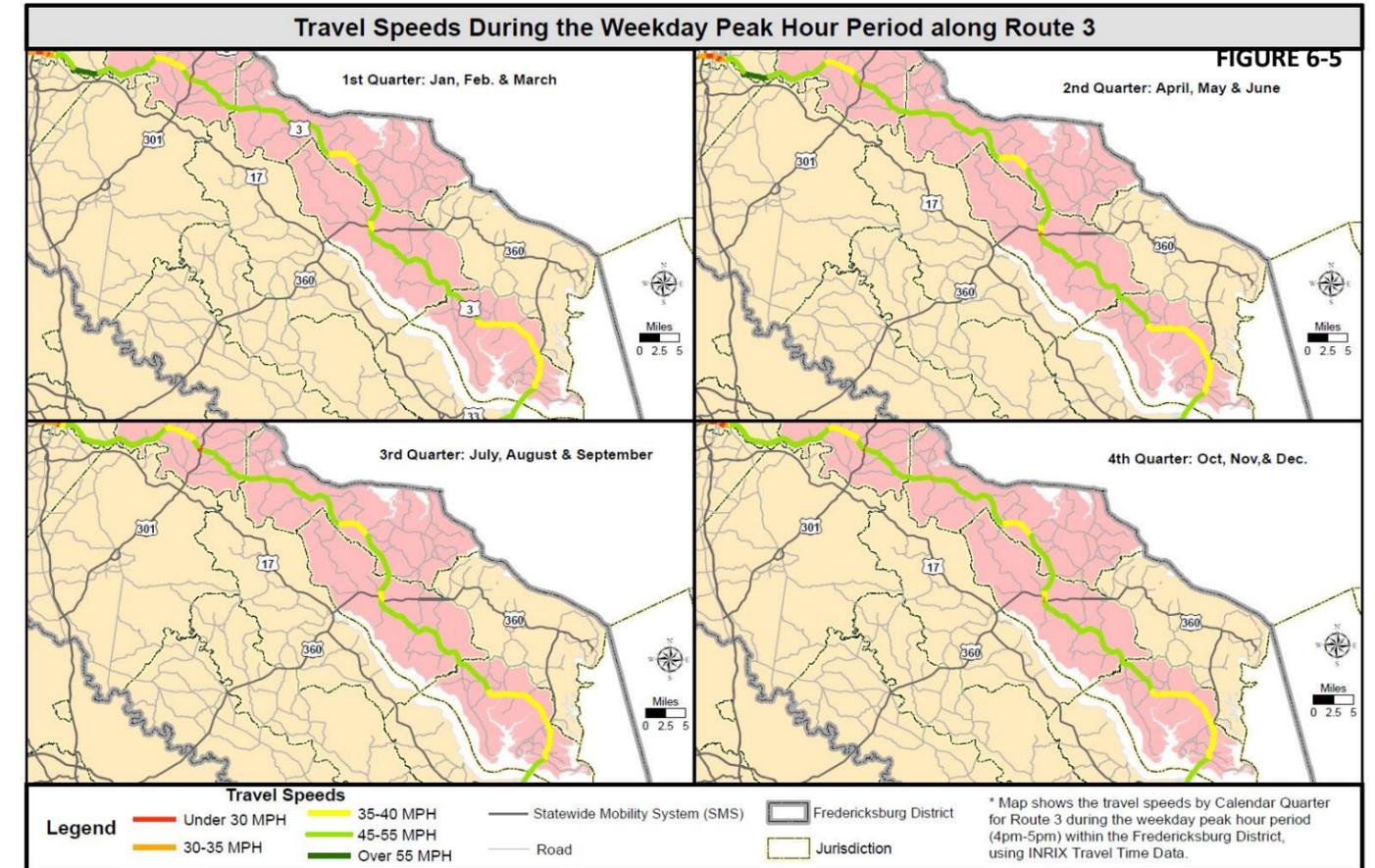


FIGURE 6-5

These segments all experience an overall LOS of “A” due to the high capacity of the facility and the ability of the motorist to travel at the speed limit due to unlimited passing opportunities. Generally, two-lane segments of Route 3 experience levels-of-service of “B” and “C”, in the Northern Neck. The highest of these LOS locations are found where volumes are lowest, eastern Westmoreland County and the most rural sections in the area of the Richmond-Lancaster County Line, with a LOS of “B”. All other segments are LOS “C” except for the Norris Bridge which is LOS “D”. The lower level on the bridge is largely a result of travel-speeds being frequently lowered due to the grades which significantly affect trucks and driver apprehension, based upon factors such as narrow shoulders and fear of heights.

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7. EXISTING BICYCLE AND PEDESTRIAN ACCOMMODATIONS

On Route 3 in the Northern Neck, bicycles share the road with motor vehicles along most of Route 3 and pedestrians utilize the shoulders in all areas outside the towns and villages. An exception for bicyclists is those segments with wide, paved shoulders, which normally correspond to certain areas of wide existing right-of-way. In these locations, bicycles can safely ride on the shoulder. Sidewalks are rare outside of developed areas, but the general need for pedestrian accommodation is low in rural areas, and walking on the shoulder is a reasonable accommodation, in most places. In the section of this report regarding geometric deficiencies on Route 3 (see page X), areas along Route 3 are specified as lacking modern characteristics. In some of those locations, shoulders may be inadequate for pedestrians, as sideslopes and ditches are immediately adjacent to the paved roadway or guardrail is placed very close to the edge of the traveled way. These areas are generally the most sparsely populated, so the need for pedestrian accommodation is very low.



SIDEWALK AND PEDESTRIAN CROSSING ON ROUTE 3

Formal pedestrian crosswalks of Route 3 are mostly within the towns and villages. On the western section, four painted crosswalks are found in the Town of Montross. All are non-signalized. Pedestrian accommodation in Montross will be upgraded with streetscape improvements, now underway in the “downtown” area. One ped crossing will be identified with pedestrian warning lights. Beyond this, no special pedestrian equipment is found on any of the four signals associated with the western portion of the study.

The eastern study area is characterized by contrasting densities of population and motorists. Crosswalks are found in the following locations: Lancaster courthouse village (no signal), Town of Kilmarnock (both signal and non-signal locations), and White Stone (both signal and non-signal locations). Of the seven signals associated with the eastern portion of the study area, three have special pedestrian accommodation, the rest do not.

Current plans from the various jurisdictions mention plans for bicycle and pedestrian accommodation.

The **2013 King George Comprehensive Plan** (adopted April 16, 2013) focuses the discussion of bike and ped plans on current and future areas of development, none of which are on Route 3 within the study area.

The **Westmoreland County Comp Plan** (adopted December 13, 2010) lists several locations along Route 3 where consideration should be given for bicycle and pedestrian accommodation. Those include the striping of bike-lanes on Route 3 south of Montross, on the portion of Route 3 near Washington and Lee High School, and on Route 3 at Lyells. The document also recommends the paving of shoulders north of Montross, leading to Hurt Field and Chandler’s Mill Pond. Further, the Comp Plan states the following: “Bikeways and sidewalks should be considered in all road projects (improvements and new construction). The inclusion of sidewalks and bikeways concurrent with road improvements is much easier and cheaper than retrofitting an existing road.” Also stated, “Installation of Share the Road signs will also begin the process of acclimating people to observing the rules of the road and making room for bicyclists. Larger projects such as paved shoulders and separate paths could be constructed along heavily traveled or dangerous roadways, or as part of development projects in more populated areas.”

The **Richmond County Comp Plan** (adopted July 11, 2013) does not mention bicycle or pedestrian accommodation along Route 3.

The 2012 **Lancaster County Comprehensive Plan Update** (drafted February 16, 2012) does not elaborate on the comments provided in the 2007 Comp Plan. In the 2007 Plan, no specific mention of Route 3 is made with regard to bikes and pedestrians. However, the Plan includes the following general recommendations: “Bike paths and sidewalks will be considered in the design of improved and new road projects. Small projects such as painting bike lane stripes on existing roadways with sufficient pavement width, minor grading, gravel compaction, and vegetation trimming will be undertaken as a means of improving safety and utility. Consistent with the plan, additional grant funding will be sought to carry out such larger projects as bridge widening, separate path construction, and shoulder paving.”

The **Town of Warsaw Comp Plan** does not specifically mention bike or ped improvements to Route 3, but calls for the development of “a Town-wide bicycle and pedestrian plan with a prioritized, phased implementation plan.”

The **Town of Kilmarnock 2014 Comprehensive Plan** also has general comments regarding the need for improvements for bicycles and pedestrians. Specific locations listed along Route 3 are North Main Street and downtown, where the plan calls for pedestrian connectivity between the two and other areas, as well as additional parking.

The **Northern Neck Heritage Trail Bicycling Route** is a segment of the **Potomac Heritage National Scenic Trail** that



passes through the Northern Neck of Virginia. A planned portion of the trail runs along Route 3 from Route 205 to Route 214 and is once again concurrent with Route 3 from Montross to Route 202, all within Westmoreland County. At more than a dozen points, segments of the trail that follow the Secondary road network intersect Route 3. In Lancaster County, two “Local Loops” of the trail follow Route 3 between Kilmarnock and White Stone and between White Stone and the Norris Bridge. Sections of Route 3 are planned to be designated as part of the PHNST, which would deem these sections eligible to receive funding from various sources. These potential funding sources could be utilized

for transportation facilities, including paved shoulder widening.

Route 3 is a recreational feature of the Northern Neck as the Potomac Heritage National Scenic Trail (PHNST) follows Route 3 in a portion of the study area. A study is underway by VDOT, in conjunction with other local, state and federal stakeholders, to upgrade the shoulders of Route 3 in Westmoreland County to enhance bicycle travel along the PHNST / Route 3 corridor. Another aspect of the study is to investigate the potential of “loop” or “spur” trails that access the recreational areas along Route 3. Several of the facilities listed above have access to the Potomac River which may be viewed by bicyclists as a welcome break in their cycling experience.

Current VDOT policies concerning bicycle and pedestrian accommodation state that, “the Virginia Department of Transportation (VDOT) will initiate all highway construction projects with the presumption that the projects shall accommodate bicycling and walking.”

http://www.virginiadot.org/programs/resources/bike_ped_policy.pdf

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8. DEMOGRAPHICS

A. Population

The current population of the Northern Neck, not including King George County, is 50,429. The population of King George County is 23,584. According to the 2010 census, the population of the localities increased by nearly 12 percent from 1990 to 2000, but increased by less than 2.5 percent from 2000 to 2010. Based upon the 2035 Northern Neck Regional Long Range Plan, Northumberland, Richmond, and Westmoreland Counties are experiencing moderate growth, while Lancaster is experiencing limited growth. Localities in the Northern Neck are attempting to temper growth and preserve the rural character of the area or seek new economic opportunities and diversification ventures. (2035 Northern Neck Regional Long Range Plan - NN RLRP p. 5) Although the Route 3 Corridor does not geographically traverse Northumberland County, reference is made to this locality as its traffic is served by and oriented toward the Route 3 Corridor.

The highest population growth in the study area occurred in King George County – increasing from 16,803 to 20,637 between the years of 2000 and 2005, as it is closest to employment centers including Greater Washington D.C., Fredericksburg, and local employers, such as the Naval Surface Warfare Center at Dahlgren and those north of the Nice Bridge in Maryland. This 22.8 percent increase represents a much higher rate of growth in comparison to other Northern Neck counties. Lancaster County, the furthest county geographically from the Fredericksburg area, grew at only a rate of 0.2 percent. (UNC Report, page 11-12)

Approximately 22 percent of the Northern Neck population is under the age of 18, and nearly 19 percent is age 65 or older (seniors). Since these groups may be less likely to hold full-time jobs, they are referred to as “dependent,” relying on family, savings and government programs such as Social Security to support their needs, according to the UNC Report. The senior population of the Northern Neck region is proportionally higher than that of the state as a whole, with the percentage for the state at approximately 12 percent. In contrast, seniors account for 31 percent of Lancaster County’s population. While many young adults leave the region to seek employment elsewhere, the higher percentage of seniors is characteristic of other rural areas, where “aging in place” occurs. In addition to the occurrence aging in place, the Northern Neck region includes a population of seniors that have moved into the region from other areas to retire. Young adults of ages 20-39 represent a lower percentage (approximately 23 percent) by comparison to the rest of the state (approximately 30 percent), indicating that members of this segment of the population often relocate away from the Northern Neck region to seek employment elsewhere.

Another distinct characteristic of the Northern Neck region is the relatively high second-home population. According to Census data, approximately 20 percent of residential units in both Westmoreland County and Lancaster County are classified as “occasional use” housing. This can be expected as it is consistent with the large number of houses located along the Chesapeake Bay, Potomac and Rappahannock Rivers, and their tributaries in the region. These houses include weekend homes where occupants travel to the region from other areas, especially during the summer months.

The counties with the highest percentage of seniors (Lancaster and Westmoreland) also have the highest percentage of second homes, and the county with the lowest percentage of seniors (King George) has the lowest percentage of second homes. This factor may have an unexpected effect on Route 3 traffic, as some of these part-time residents enter and leave the area on a schedule that is not unlike the pattern of tourists and vacationers, which may be observed as a minor spike on Friday and Sunday afternoons and evenings.

Table 8-1– Percentage of Seniors / Percentage of Second Homes

	% of Seniors	% of Second Homes
King George County	10%	3%
Westmoreland County	21%	20%
Richmond County	18%	7%
Lancaster County	31%	18.5%

B. Economy/Employment

The Route 3 Corridor is an important factor in the economic development of the Northern Neck.

The economic focus of western section of the Route 3 Corridor includes commercial and industrial uses, such as agriculture and logging, along with recreation and tourism. Similarly, the eastern section is largely founded on commercial uses, recreation and tourism, and secondary/vacation residences.

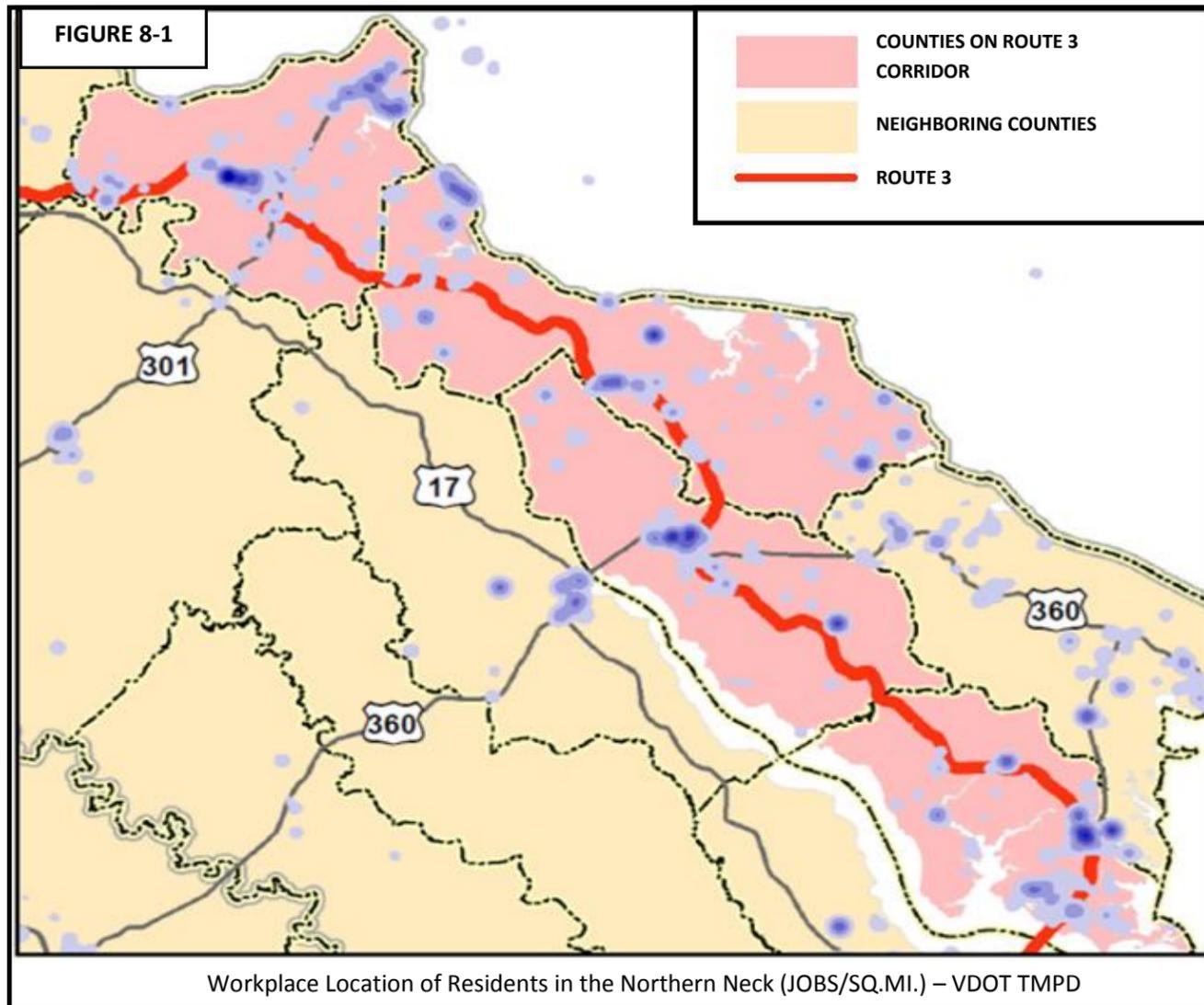
Localities comprising the western section of the study area have expressed an interest in the installation and expansion of fiber telecommunications, extension of rail service through the region, and overall existing public infrastructure expansion, such as gas utilities. Such infrastructure improvements would support a wide variety of industry sectors ranging from manufacturers to data centers.

The Northern Neck does not have rail service to complement the roadway transportation infrastructure. This places a high importance on the maintenance of free-flow operations on Route 3 in order to have an effective means of transportation which has the potential to attract domestic and international corporations to the Northern Neck region in a competitive manner.

The heavy reliance on Route 3 as the primary means of transportation is specifically referenced as a weakness for the region in the “Northern Neck, Virginia: A Competitiveness Assessment” study that was conducted by the Kenan-Flagler Business School at the University of North Carolina. The report states, “...transportation remains an obstacle to economic development” and “...no major highway crosses the region.” To enhance Economic Development in the Northern Neck, the report indicates in the Recommendations section that the region should attract businesses from the Richmond, Fredericksburg and District of Columbia regions, where proximity to these commercial hubs is of key importance. These businesses would likely be able to realize lower real-estate and other costs, “...while maintaining the opportunity for face-to-face interactions.” However, the lack of transportation options is referenced throughout the report, as well as the need for expanding the IT-data infrastructure necessary to support these commercial-hubs and associated businesses.

Figure 8-1 illustrates that employment centers in the Northern Neck are concentrated around the towns and villages. Prominent industries include agriculture, tourism and recreation, manufacturing, social services, and commercial/retail. Over 25 percent of jobs in the Northern Neck are in social services. Approximately 21 percent are in transformative activities and 20 percent are in distributive services. Producer services (e.g. finance, insurance, information services, etc.) represent the main difference in distribution of jobs in the Northern Neck by comparison to the whole of Virginia, accounting for 16.7 percent of jobs in Northern Neck versus 22.1 percent statewide. (UNC report, p. 15)

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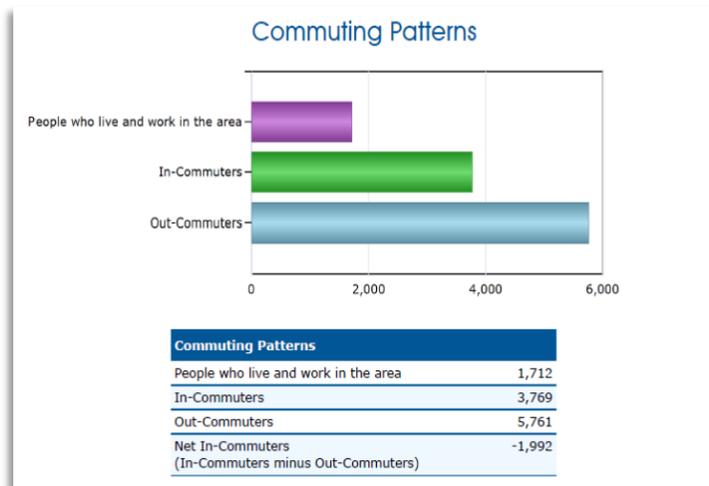
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C. Regional Commuting Patterns

In the Northern Neck, a majority of workers commute outside the county in which they reside. These statistics indicate a potential imbalance of residential centers and employment/commercial centers, with the latter having a shortage. Data from the US Census Bureau affirms that approximately twice as many workers commute from the region than those who commute into the region.

Commuting Patterns in King George County

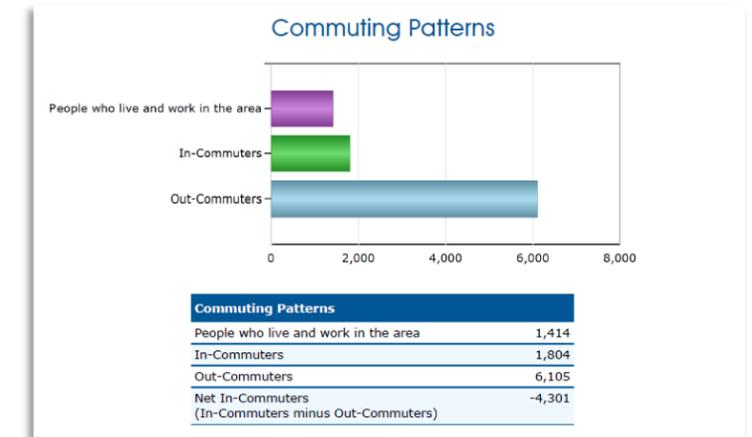
On a daily basis, approximately 2000 more persons leave King George County for employment as compared to the workforce entering King George from the surrounding counties. Census Bureau data illustrates this pattern,



which is largely driven by a local population that commutes to Fredericksburg or the Washington, D.C. Area, but also consists of a significant number of professionals attracted into the County to work at the Naval Surface Warfare Center at Dahlgren.

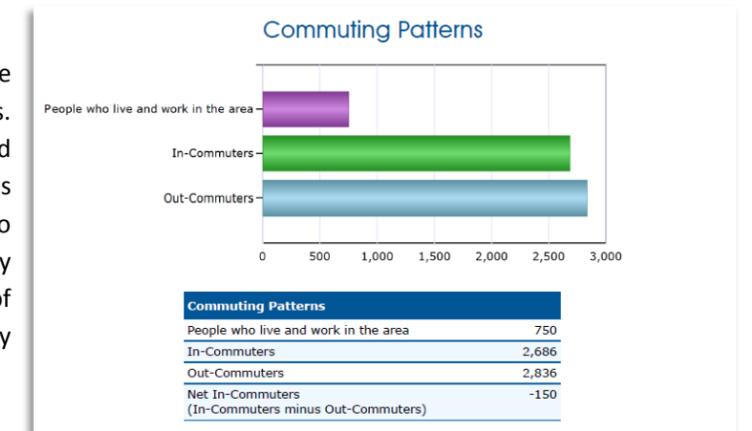
Commuting Patterns in Westmoreland County

Generally, the population of Westmoreland County commutes out of the County at a rate similar to the King George workforce. However, the number of employees entering Westmoreland County on a daily basis is considerably lower than their neighbor to the west, with the number leaving the County exceeding the number entering by a margin of greater than three-to-one. Some of the out-commuters travel to similar employment centers as workers from King George County, while others head eastward to Warsaw and Tappahannock.



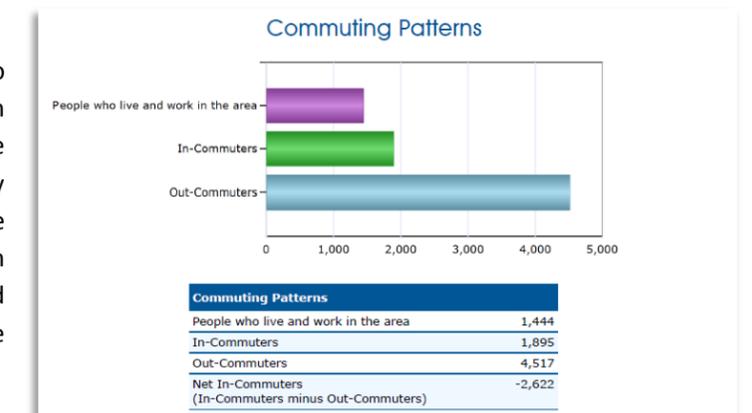
Commuting Patterns in Richmond County

The commuting patterns of Richmond County are unique as compared to King George and Westmoreland Counties. Richmond County can be characterized as being balanced with regard to the proportion of the workforce that leaves the County and those that enter Richmond County to work, based on the census data. The number of County citizens that find employment locally is very low. All of these factors indicate a workforce with skills poorly matched to the jobs available.



Commuting Patterns in Lancaster County

The travel patterns in Lancaster County are similar to those of King George and Westmoreland Counties, with considerably more persons out-commuting than those entering the County to work daily, as well as a similarly low number of the local population remaining within the County to work. Those choosing to commute away from Lancaster County may be destined westward toward Warsaw and Tappahannock or southward, toward large employment centers in Tidewater, Virginia.



Source (All exhibits): U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2011.

D. Emergency Services and Hospitals

Emergency Services (EMS) in the Northern Neck are typical of rural regions across America. While fire and rescue stations are spread out much further than those in urban areas, response times are enhanced by relatively low traffic volumes. The most critical factor, in terms of response time, is the inability of motorists to pull-to-the-right in some areas to allow passage of emergency vehicles, thereby forcing most such service providers to pass in the oncoming lane. While vehicles being passed may slow-down to better enable the EMS vehicle to overtake them, geometric factors exist in some locations which prohibit efficient emergency passing, potentially affecting arrival time.

There are two local hospitals that service the residents the Northern Neck: Riverside Tappahannock Hospital and Rappahannock General Hospital in Kilmarnock. Medical emergencies on the far western portion of the study area are often treated at Mary Washington Hospital, in Fredericksburg. More serious or specialized needs are usually met at the Medical College of Virginia Hospital in Richmond.

E. TRANSIT/Commuter Parking/TDM

The Northern Neck region has utilized limited Travel Demand Management (TDM) strategies to increase the efficiency of the Route 3 corridor, although expansion of these strategies could be beneficial with further reductions of single-occupant vehicles traveling on Route 3. TDM strategies employed in the Northern Neck area include transit service, commuter parking infrastructure and carpools/vanpools. Since the corridor is mostly rural with relatively low trip densities, not many areas are conducive to mass transit. In turn, “public transit is sparse in the area and paratransit service operates on a limited basis in the Northern Neck area.” (NN RLRP p.9). Paratransit involves specialized transportation services for individuals with disabilities and seniors. Bay Transit (a division of Bay Aging) is the provider of on-demand transit service along the corridor, (NN RLRP p.7) serving all four counties along the study area. The service includes a new route between Colonial Beach and Fredericksburg which is outside the Route 3 Northern Neck Corridor Study area.

Route 3 has two established commuter parking lots on the study corridor. The lot at Oak Grove is located near the Route 3 / Oak Grove Drive intersection and contains 55 parking spaces. The lot at Montross is located near the Route 3 / Zacata Road intersection and also contains 55 parking spaces. Both lots are paved, but the lot at Montross is lighted while the one at Oak Grove is not lighted according the commuter parking lots inventory found on the VDOT website. Neither lot currently provides access to transit service. Carpool/vanpool ride-matching services for commuters are provided by the Northern Neck Planning District Commission (NNPDC), which coordinates the Northern Neck Rideshare Program. (NN RLRP p.7)

9. EXISTING LAND USE

Existing Land Use along the Route 3 corridor is rural residential, agriculture, and forest. Variations to these land uses are evident in the villages and towns which are suburban in character, with commercial, retail and suburban residential uses.

Growth areas are identified by the NNPDC as Montross, Warsaw and Kilmarnock.

For the purposes of description in this study, land uses have been reduced (from each county’s zoning categories) to five (5) primary categories; Agriculture, Residential, Business/Commercial, Industrial and Public/Recreation/Conservation.

In a more detailed review of existing land uses, beginning at the northwestern terminus at the Route 3 and Route 301 (Office Hall) and heading east, the crossroad area is Business Commercial, highlighted with a Sheetz (convenience/gas)

and a CVS (pharmacy). From this point eastward, the primary land use is agriculture, typical for the corridor, with scattered areas of business/commercial and residential through King George County, to the county line with Westmoreland County.

Continuing east, the land use remains primarily agricultural with business/commercial at Oak grove. Leaving Oak Grove, land use again is agricultural and remains as such, with scattered business/commercial and residential uses through Potomac Mills to Montross.

Montross is an established town center with typical urban land uses – restaurants, shops, gas stations, etc. The Coca-Cola plant has recently closed, but the town is in the process of a revitalization effort designed to attract more visitors. East of Montross, businesses such as car dealers and a variety of other suburban uses are found along the four-lane section of Route 3.

Urban uses become less evident once the four-lane section ends and agricultural uses are again more prevalent.

Crossing into Richmond County, land uses remain agricultural until the heavy commercial/industrial area north of Warsaw. These uses/zoning exist through the intersection of Route 3/Route 360 (sheet 11) and then return to agriculture and residential along the four-lane section of Route 3 south of Warsaw, to its termination in Emmerton where it continues as a two-lane highway.

Crossing into Lancaster County, land uses again are typically agriculture with scattered areas of residential and limited business/commercial. Higher intensity residential and business/commercial uses exist approaching and leaving Lively. Residential land uses exist along Route 3, with commercial uses evident approaching Kilmarnock. The northern portion of Kilmarnock is an intensely utilized area, evidenced by Wal-Mart and supporting development surrounding the area (sheet 19).

Crossing Route 200, commercial uses continue towards White Stone where, above White Stone, residential is strong and then transitions back to business/commercial, centered on the Route 3/Route 200 intersection.

Heavy business/commercial and residential land uses are typical as Route 3 traverses towards the Norris Bridge, the study terminus (sheet 22).

Current Land Development Projects

Based on the VDOT LandTrack database of proposed land-use projects within the Commonwealth, there are no active zoning land development projects proposed along the Route 3 corridor. As of November 2014, 18 plat/site plan reviews are underway or were recently completed along the corridor. Plat/site plan applications are consistent with the existing zoning categories and land uses.

Current **County Comprehensive Plans** have established potential future growth areas along the study corridor. According to these plans, future growth will be directed based on existing transportation infrastructure, water and sewer capacity, current retail locations, and chief employers.

The Westmoreland County Comprehensive Plan identifies the towns of Colonial Beach and Montross as primary growth areas. Secondary growth areas include Monroe Hall, Oak Grove, Coles Point, Carmel Church and Kinsale. Areas of recommended focus include coastal management, conservation, residential and commercial development, planning and tourism. In Richmond County, Warsaw was identified as an area of growth, and conservation of the Chesapeake Bay was an area of primary focus regarding land use practices. The Lancaster County Comprehensive Plan references

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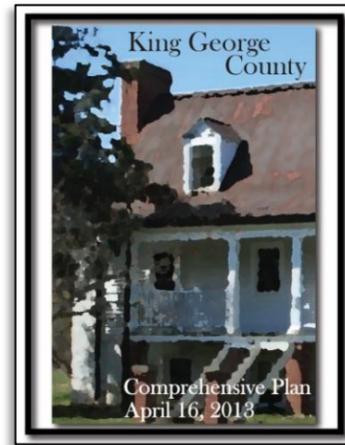
different methods to allow for optimal open space, including context sensitive development and design. The main areas where retail and commercial activities exist are the towns of Kilmarnock, White Stone and Irvington. (NNRLRP p. 17)

One of the current goals referenced in the Rural Long Range Plan for the Northern Neck region is to “Encourage land use and transportation coordination, including but not limited to, development of procedures or mechanisms to incorporate all modes, while engaging the private sector.” (NNRLRP p. 4) Both the multimodal and private sector components of this goal are addressed in more detail in the Economic Development section of the study. This goal is being explored along the corridor in the western section counties (King George and Westmoreland) to promote new industrial and commercial development.

LOCALITY LONG-RANGE PLANNING DOCUMENTS

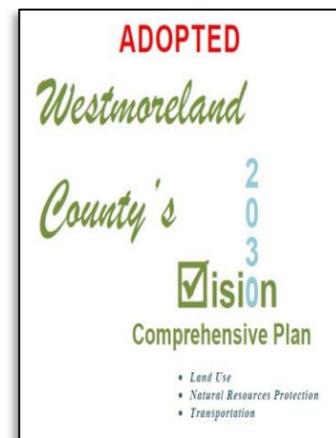
King George County Comprehensive Plan

The King George County Comprehensive Plan addresses the widening feasibility of the Route 3 Corridor through multiple references to provisions aimed at system preservation and future enhancement. It contains specific references to 4-lane widening recommendations from Office Hall to the Westmoreland County line, as well as access management practices. The Highway Corridor Overlay District (HCOD) references establishing the setback limits, which is 50’ from the right-of-way, excluding signage. The right-of-way widths along the Route 3 Corridor the County are planned for 90’ in urban areas and 140’ in rural areas. The Comprehensive Plan also references the requirement for right-of-way dedications and on-site roadway improvements in association with land development applications/projects.



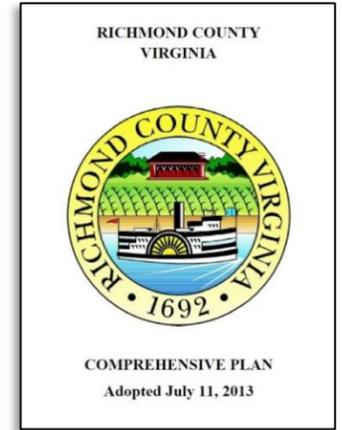
Westmoreland County Comprehensive Plan

Like the King George Comprehensive Plan, the Westmoreland County Comprehensive Plan contains references to future improvements and system preservation measures for the Route 3 Corridor. The referenced improvements include an initial effort to construct shoulder pull-offs along the Corridor. Longer term improvements include indirect references to 4-lane widening for the length of the corridor within the County, although the Plan specifically mentions the 4-lane widening for the entire corridor study area from Route 301 to beyond the Norris Bridge. The Westmoreland County Comprehensive Plan also specifies setbacks 50’ from the right-of-way but does not reference actual right-of-way widths. This Plan does mention access management practices and other corridor protection measures, such as an HCOD specifically for the Route 3 Corridor.



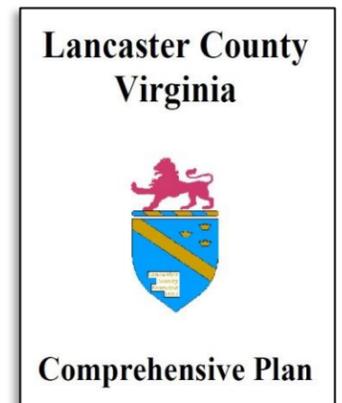
Richmond County Comprehensive Plan

The Richmond County Comprehensive Plan differs from the other counties along the study corridor in that it contains no references to Route 3 widening, setbacks or HCODs. Although the plan does not specifically prescribe right-of-way widths, County Zoning Ordinance requires a developer’s proportional dedication of right-of-way to address deficiency in cases where the existing right-of-way is less than 50’ in width or where it is otherwise required by a plan. County Ordinance also requires minimum right-of-way widths “per VDOT standards.” The Warsaw Comprehensive Plan contains references to the four-lane widening project from Warsaw to Lyells.



Lancaster County Comprehensive Plan

Similar to the two Western Section counties, the Lancaster County Comprehensive Plan contains more detailed references to corridor attributes than does Richmond County. The plan references the total four-lane widening VDOT project for Route 3 between Lancaster and Kilmarnock. Although right-of-way references are not included, the plan specifies the allowance of reduced setbacks for “compact” developments in the Land Use section. The Kilmarnock Comprehensive Plan references four-lane widening recommendations for the Route 3 corridor as specified by the “VDOT Southern Lancaster Planning Study.” Similar to the Lancaster County Comprehensive Plan, the Kilmarnock Comprehensive Plan contains no specific reference to right-of-way widths. However, the plan does note that Kilmarnock added additional off-street parking in 2012 to minimize the competition between through traffic and on-street parking on Route 3.



Recreation

The Northern Neck region is known for its historic and recreational assets. Providing access to these facilities is of chief importance. Although many of these destinations are located on connecting roadways, a majority of trips to these sites include Route 3. These include (but are not limited to) the following:

- Westmoreland State Park
- Belle Isle State Park
- George Washington’s Birthplace National Monument
- Robert E. Lee’s Birthplace (Stratford Hall Plantation)
- Historic Christ Church
- Potomac Heritage National Scenic Trail
- Potomac and Rappahannock Rivers
- Local Museums and Parks
- Artisan Trails
- Shopping Trails

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