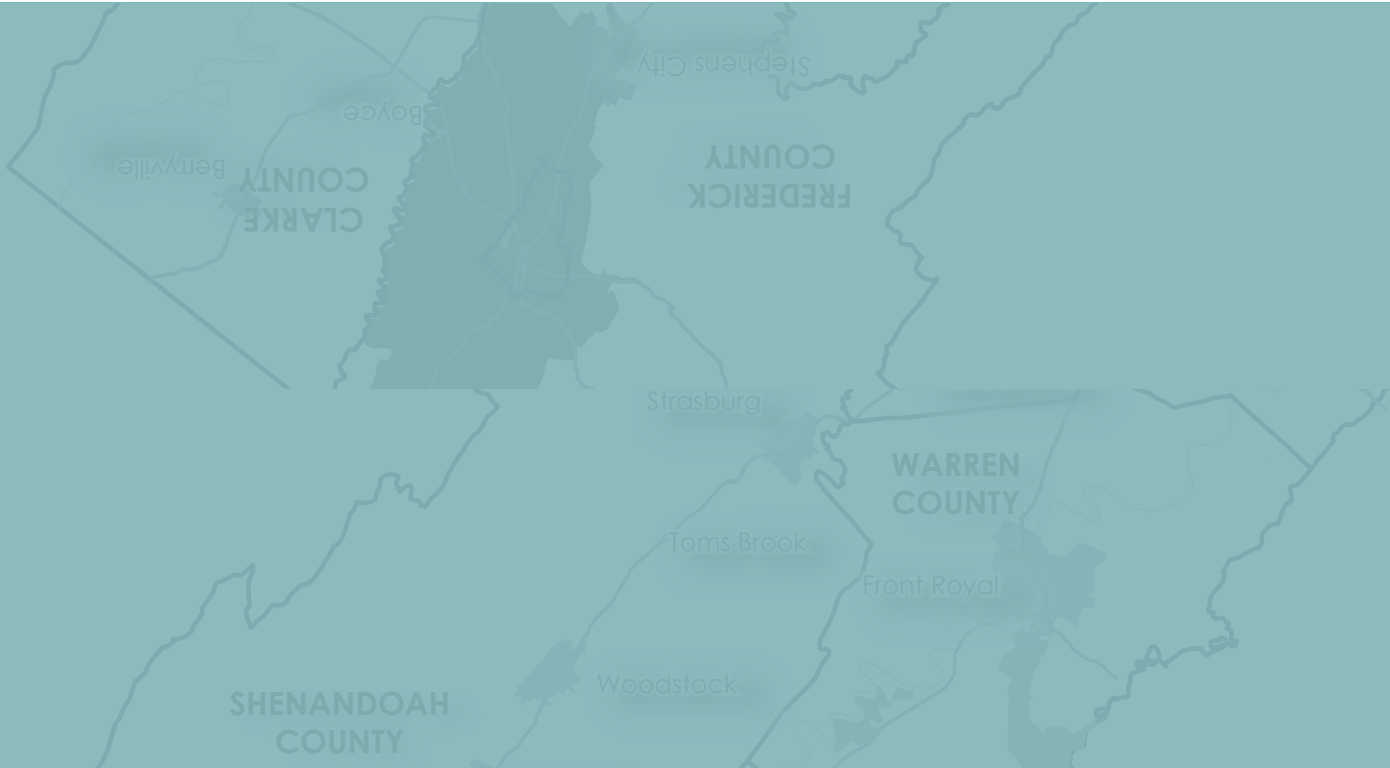


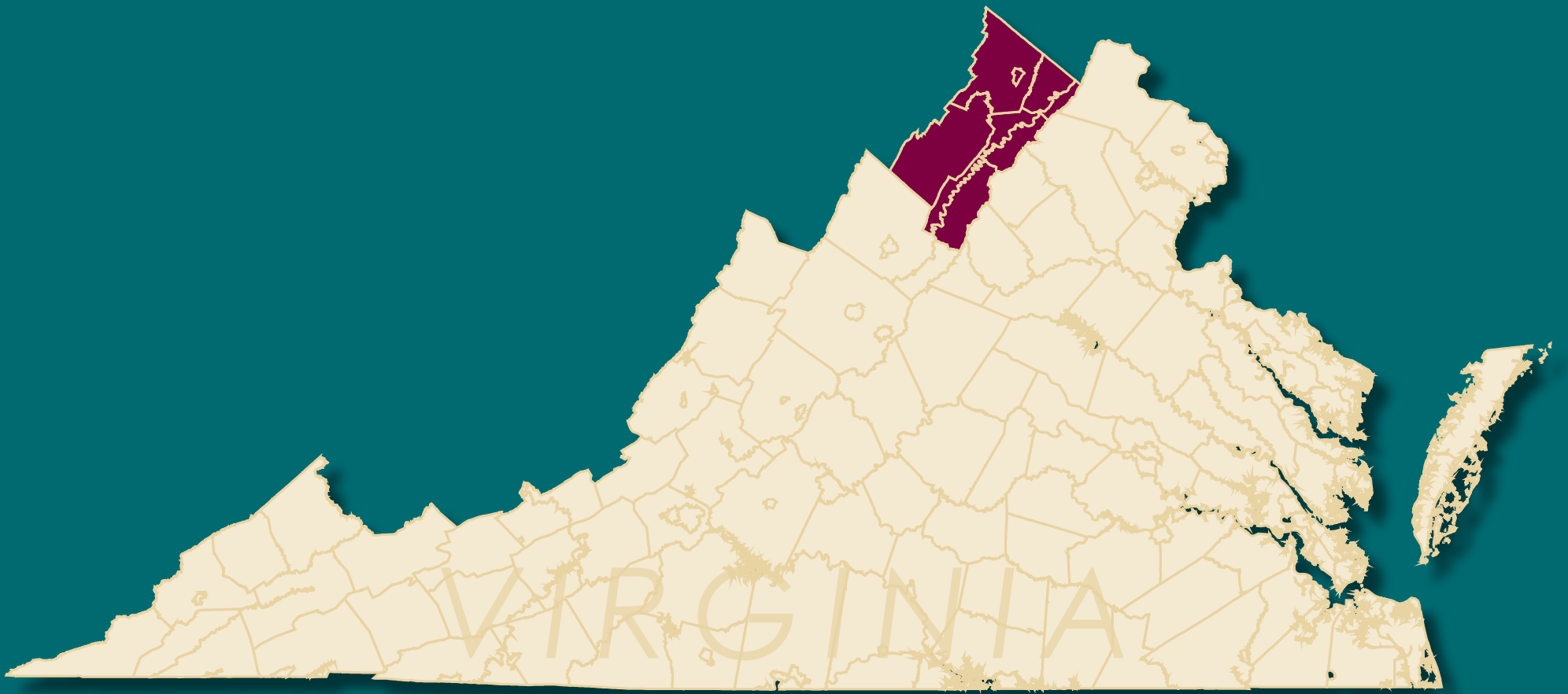
Please visit the VDOT website to find additional information regarding this and other important transportation initiatives in your area.  
[www.lfpdcr.state.va.us](http://www.lfpdcr.state.va.us)  
[www.virginia.gov](http://www.virginia.gov)



## NORTHERN SHENANDOAH VALLEY REGIONAL COMMISSION 2035 Rural Long Range Transportation Plan



# NORTHERN SHENANDOAH VALLEY REGIONAL COMMISSION



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## INTRODUCTION & PURPOSE

The Transportation and Mobility Planning Division (TMPD) of the Virginia Department of Transportation (VDOT) has worked with other modal agencies to develop *VTrans 2035*, the Commonwealth's multi-modal long range plan and a more detailed subset report known as the *2035 Surface Transportation Plan*. The highway element of the *2035 Surface Transportation Plan* includes proposed improvements on Virginia's federal functionally classified roadways. This *Rural Long Range Transportation Plan* is one piece of the 2035 Plan. VDOT, Virginia's Planning District Commissions (PDCs), and the local governments they represent are partners in the development of this new initiative to create regional transportation plans in rural and small urban areas that complement those in Virginia's metropolitan areas.

The transportation system within the rural areas for each region was evaluated, and a range of transportation improvements - roadway, rail, transit, air, bicycle, and pedestrian - are recommended that can best satisfy existing and future needs. Some of the PDCs contain urbanized areas whose transportation needs are coordinated by a metropolitan planning organization (MPO). In the case of the Northern Shenandoah Valley Regional Commission (NSVRC), much of the region is rural, however, the Winchester-Frederick Metropolitan Planning Organization (Win-Fred MPO) conducts the transportation planning for the City of Winchester, Stephens City, and the immediately adjacent urbanized areas of Frederick County. The Win-Fred MPO is responsible for developing a long-range transportation plan for the MPO area: the 2035 Fiscally Constrained Long Range Transportation Plan, which is a separate component of the 2035 Surface Transportation Plan. For the purposes of this Plan, only the transportation network outside of the MPO is analyzed and addressed in this report.



Each rural regional plan has a horizon year of 2035 and addresses the anticipated impacts of population and employment growth upon the transportation system. This plan will be reviewed and updated as needed. Each rural plan was developed as a vision plan, addressing all needs of the transportation system studied regardless of anticipated funding availability. It is envisioned that each regional plan will be used as a basis to identify transportation funding priorities. Additional details on topics discussed in this plan can be found in the Technical Report.

### STUDY APPROACH

- Development of regional transportation goals and objectives,
- Public involvement,
- Data compilation and collection,
- Data analysis,
- Identification of transportation deficiencies and recommendations, and
- Environmental overview.

## OVERVIEW OF THE REGION

### Description and Function of the Northern Shenandoah Valley Regional Commission

The Northern Shenandoah Valley region contains the valley around the Shenandoah River and the Allegheny Mountains west of the valley to West Virginia and the Blue Ridge Mountains to the east. The NSVRC serves the Counties of Clarke, Frederick, Page, Shenandoah, and Warren, the City of Winchester, and the Towns of Berryville, Boyce, Edinburg, Front Royal, Luray, Middletown, Mount Jackson, New Market, Shenandoah, Stanley, Stephens City, Strasburg, Toms Brook, and Woodstock. The region's topography is varied. The majority of the area lies within Virginia's Valley and Ridge Physiographic Province with a small portion within the Blue Ridge Physiographic Province. Most of the cities and the towns lie within the Shenandoah Valley along the tributaries and north and south forks of the Shenandoah River. The surrounding rural areas are very mountainous with narrow valleys. The Valley has been a major transportation corridor and agricultural region for hundreds of years.

### Summary of Transportation Network

I-66 and I-81 pass through the region. Primary east-west corridors include US 50, US 211, VA 7, and VA 55. The main north-south corridors are US 11, US 17, US 340, US 522, and VA 42. Public transportation in the region is provided by Virginia Regional Transit and Winchester Transit. There are four general aviation airports in the region. Within the NSV, there are two Class I rail carriers, Norfolk Southern and CSX, and one Class III carrier, the Winchester and Western. There are ten official VDOT maintained park and ride lots within the region. The RideSmart program promotes carpools, van pools, and commuter bus services through ride-sharing promotion, matching services, and outreach. Passenger rail service is not currently available in the region.



## Goals and Objectives

Needs for each regional plan were developed based on regional and statewide goals and objectives. Similar concepts within the goals of the PDCs were found and used to shape common regional long range plan goals (at right) to address rural transportation planning across the Commonwealth. A basic goal for all transportation programs in Virginia is the provision for the effective, safe, and efficient movement of people and goods. The plan for the NSV was developed with this primary goal in mind, along with other goals including consideration for environmental issues and local travel desires. Each PDC developed transportation goals and objectives that were used to guide the development of the Regional Long Range Transportation Plan for their area. Rural transportation planning in the NSV is guided by a technical advisory committee. The committee, with support from the NSVRC, established goals and objectives in order to address particular transportation concerns within the region:

- GOAL 1** Incorporate the established Goals and Objectives from Commission jurisdictions.
- GOAL 2** Establish and maintain long term regional transportation priorities in recognition of the different viewpoints of local jurisdictions, to enable regional decision-making/consensus.
- GOAL 3** Build on the Northern Shenandoah Valley's historical role as transportation corridor having many crossroad communities and marketplaces by improving the regional transportation system to service both local and through traffic for Winchester City, the Towns of Berryville, Boyce, Edinburg, Front Royal, Luray, Middletown, New Market, Mt. Jackson, Shenandoah, Stanley, Stephens City, Strasburg, Toms Brook, Woodstock, villages and rural destinations in the unincorporated areas of the Counties of Clarke, Frederick, Page, Shenandoah and Warren.
- GOAL 4** Anticipate the growth of the industrial market and the growth of the Inland Port through transportation improvements that manage industrial access and increase freight rail service.
- GOAL 5** Provide a safe and efficient road system within the Northern Shenandoah Valley.
- GOAL 6** Encourage growth in town, city and urban-services areas providing adequate and convenient parking and a connected system of sidewalks and walking paths.
- GOAL 7** Encourage the use of alternate modes of transportation to that of the single occupancy vehicle for routine trips such as walking, bicycling, ridesharing, commuter pooling, and public transit, with connections to commercial air and rail services.
- GOAL 8** Provide a transportation network that is sensitive to the region's environment.
- GOAL 9** Provide land use patterns that maximize the efficiency of the transportation network.



## Common Rural Long Range Plan Goals

In addition to the regional goals, a number of goals have been developed to address rural transportation planning across the Commonwealth. These were developed using input from each of the 20 PDCs in Virginia that include rural areas within their boundaries. These goals are consistent with those of *VTrans 2035*:

- GOAL 1** Enhance the connectivity of the existing transportation network within and between regions across all modes for both people and freight.
- GOAL 2** Provide a safe and secure transportation system.
- GOAL 3** Support and improve the economic vitality of the individual regions by providing access to economic opportunities, such as industrial access or recreational travel and tourism, as well as enhancing intermodal connectivity.
- GOAL 4** Ensure continued quality of life during project development and implementation by considering natural, historic, and community environments, including special populations.
- GOAL 5** Preserve the existing transportation network and promote efficient system management in order to promote access and mobility for both people and freight.
- GOAL 6** 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.

# DEMOGRAPHIC AND LAND USE TRENDS

## Relationship of Land Use and Development to Transportation

Rural counties throughout the Commonwealth and in the Northern Shenandoah Valley are working either to seek new economic growth and diversification or to balance growth, while striving to preserve the rural character of the landscape. Most of the land in these counties is in agricultural or forested use, with more intensive land use in the towns and village centers. There is a broad spectrum of the amount of growth and land use changes occurring throughout the Commonwealth and in the NSV, based particularly on proximity to urban areas. Many of the rural counties throughout the Commonwealth are trying to direct any new growth towards existing towns, village centers, or

service districts in order to provide services and to continue to address the needs of residents as well as maintain a general agricultural setting. As the population fluctuates, either through in- or out-migration or shifting within the region, the needs of the communities - including education, health care, social services, employment, and transportation - shift and fluctuate as well. Land use and development changes that particularly affect transportation in rural areas include, but are not limited to, school consolidation, loss or gain of a major employer, movement of younger sectors of the population to more urban areas, retirement community development, and growth of bedroom-community type developments for nearby urban areas.

*Most of the land in these counties is in agricultural or forested use, with more intensive land use in the towns and village centers.*

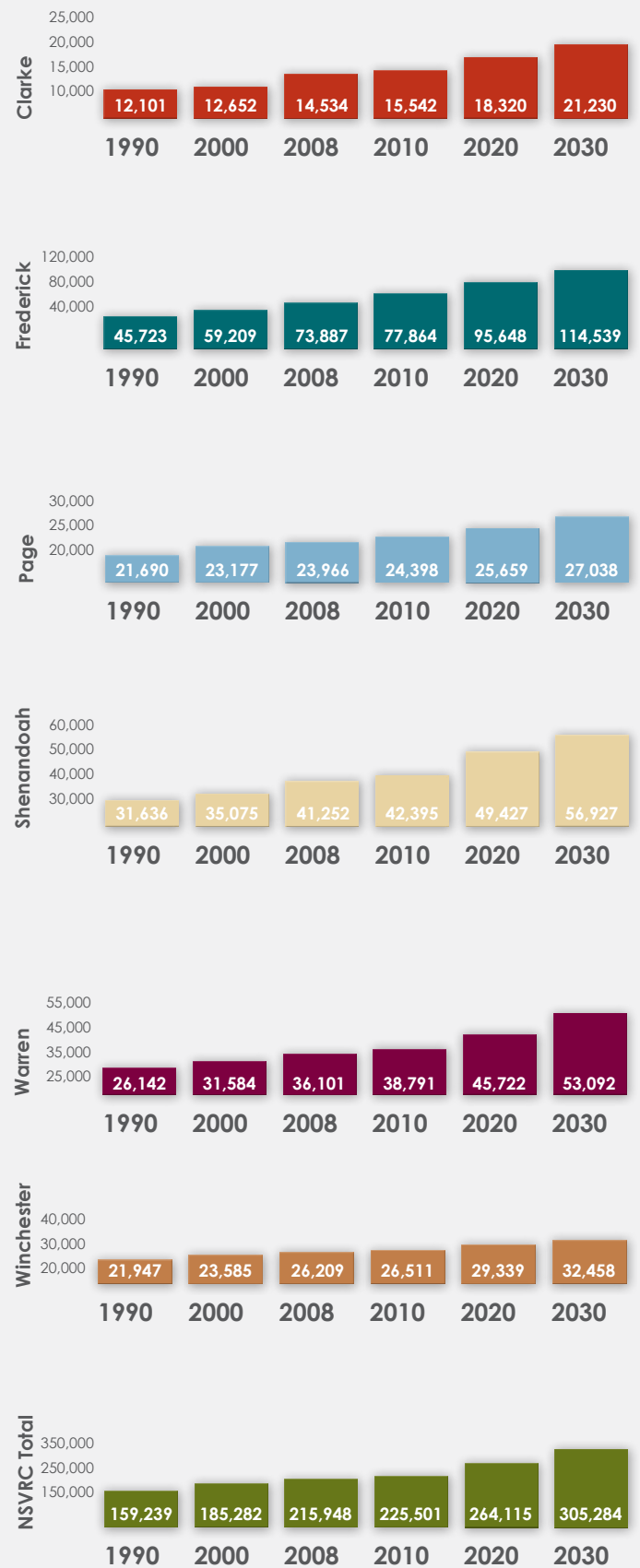
Several factors have affected land use in the Northern Shenandoah Valley: changes in population within the region itself, and the location of two interstate corridors within the region, I-66 and I-81. Frederick and Warren Counties have experienced the most growth in the region, which is projected to continue. This growth has already affected land use, which is expected to continue and to affect future travel demand on the regional roadway network. In addition, due to the steep slopes in some parts of the region, development has almost exclusively concentrated in these areas in the valleys. This trend could affect future land use in these areas and could intensify travel demand on the roadway network. Development along both I-66 and I-81 has intensified, which can affect access to and mobility on the transportation network.

## Population Trends

The Northern Shenandoah Valley had an estimated population of 215,948 in 2008 (Weldon, 2009). Population in most of the region has increased steadily in the last twenty years, with Frederick County experiencing the greatest increase. Only the population in Page County increased less than 10% between 2000 and 2008. These trends are projected to remain the same through 2030. Population in the Northern Shenandoah Valley is projected to grow by over 40% by 2030.



Total Population Over Time



Source: US Census, 1990; Weldon 2009; VEC, 2009.

Population trends have implications for the transportation network of any geographic area. Improvements to the network are needed because mobility and safety are affected by increases in population. In the case of the NSV, increasing pressure on the network has already resulted in changes to the network such as additional capacity demands on the roadways and additional demand for public transportation and travel demand management services. The region has also experienced growth in through traffic, particularly along I-66 and I-81.

Disadvantaged groups studied include low-income, minority, elderly, and people with disabilities, as defined by the US Census.



### Demographic Trends

Disadvantaged population groups were studied in order to determine if there are any gaps or deficiencies in the transportation network that could affect these groups. Disadvantaged groups studied include the elderly, persons with disabilities, persons with low-income, and minorities, as defined by the US Census. According to the 2000 US Census, all of the jurisdictions had a minority population percentage lower than that of the state (29.9%). In 2000, only Page County and the City of Winchester had low-income populations above the state percentage of 9.6%. The portion of the population with disabilities in Page and Warren Counties and the City of Winchester is above the state percentage of 18.1%. All of the jurisdictions, except Frederick County, have elderly populations in a higher proportion than the state in 2000 (11.2%).

### Transportation Implications

US Census data from 2000 were reviewed at the block group level in order to provide enough detail to assess possible areas of service expansion for fixed-route and demand-responsive transit. Any segment of the population without a vehicle available, which can include the elderly, people with disabilities, and low-income groups, are more dependent on demand-responsive transit in a rural area than in urban areas. This is due to the smaller network of fixed transit routes in rural areas when compared to urban areas. The NSVRC, in conjunction with the Virginia Department of Rail and Public Transportation's (DRPT) statewide effort, recently completed a Coordinated Human Service Mobility (CHSM) Plan that assessed the mobility needs of these target populations. Certain needs are being identified throughout the state such as limited demand-responsive transit service, limited fixed-route service, determination of a single point of contact for providers, and funding constraints. Some of these needs were also identified in the Northern Shenandoah Valley.

*All of the jurisdictions, except Frederick County, have elderly populations in a higher proportion than the state in 2000 (11.2%)*

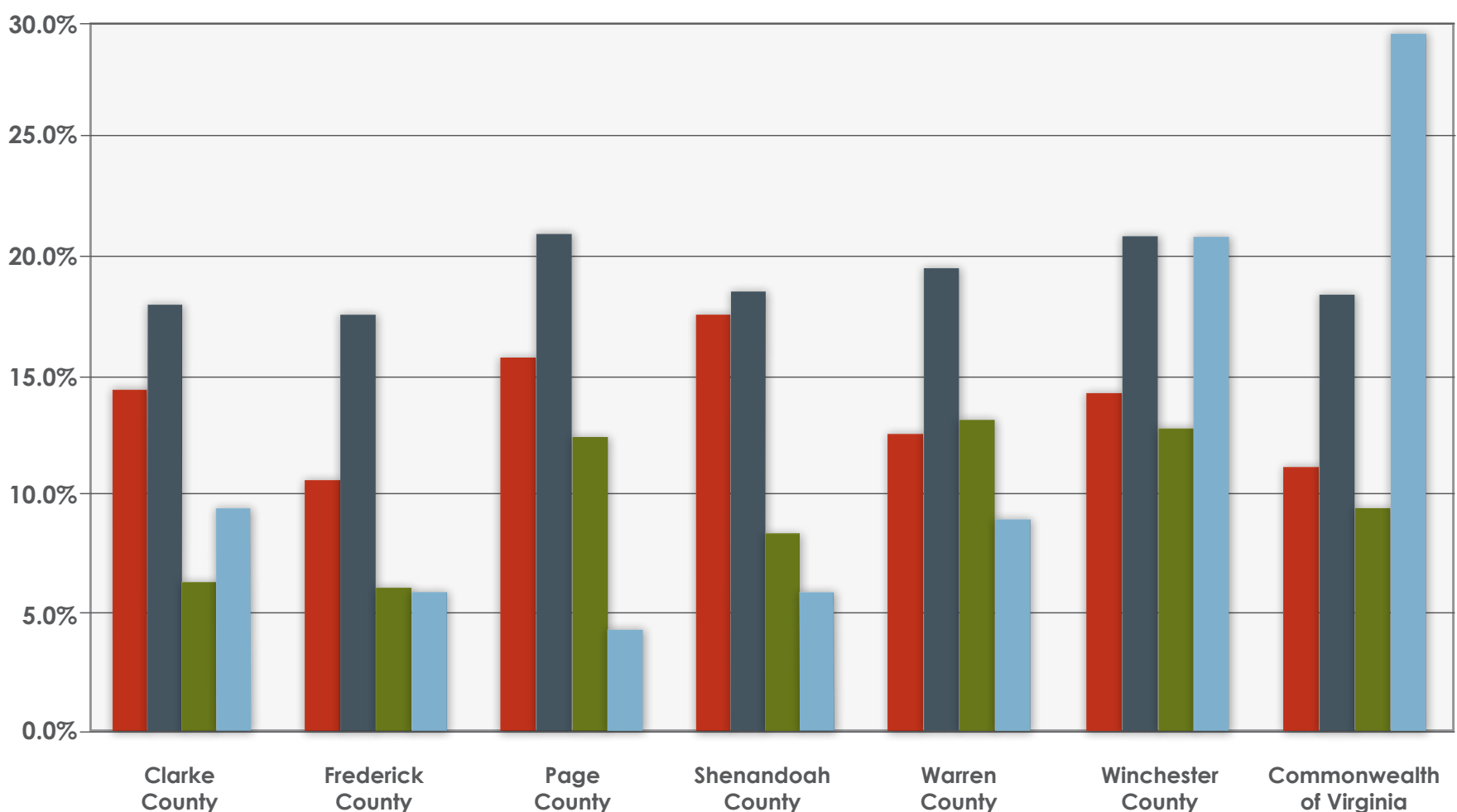
#### LEGEND

- Elderly
- Disability
- Low-Income
- Minority

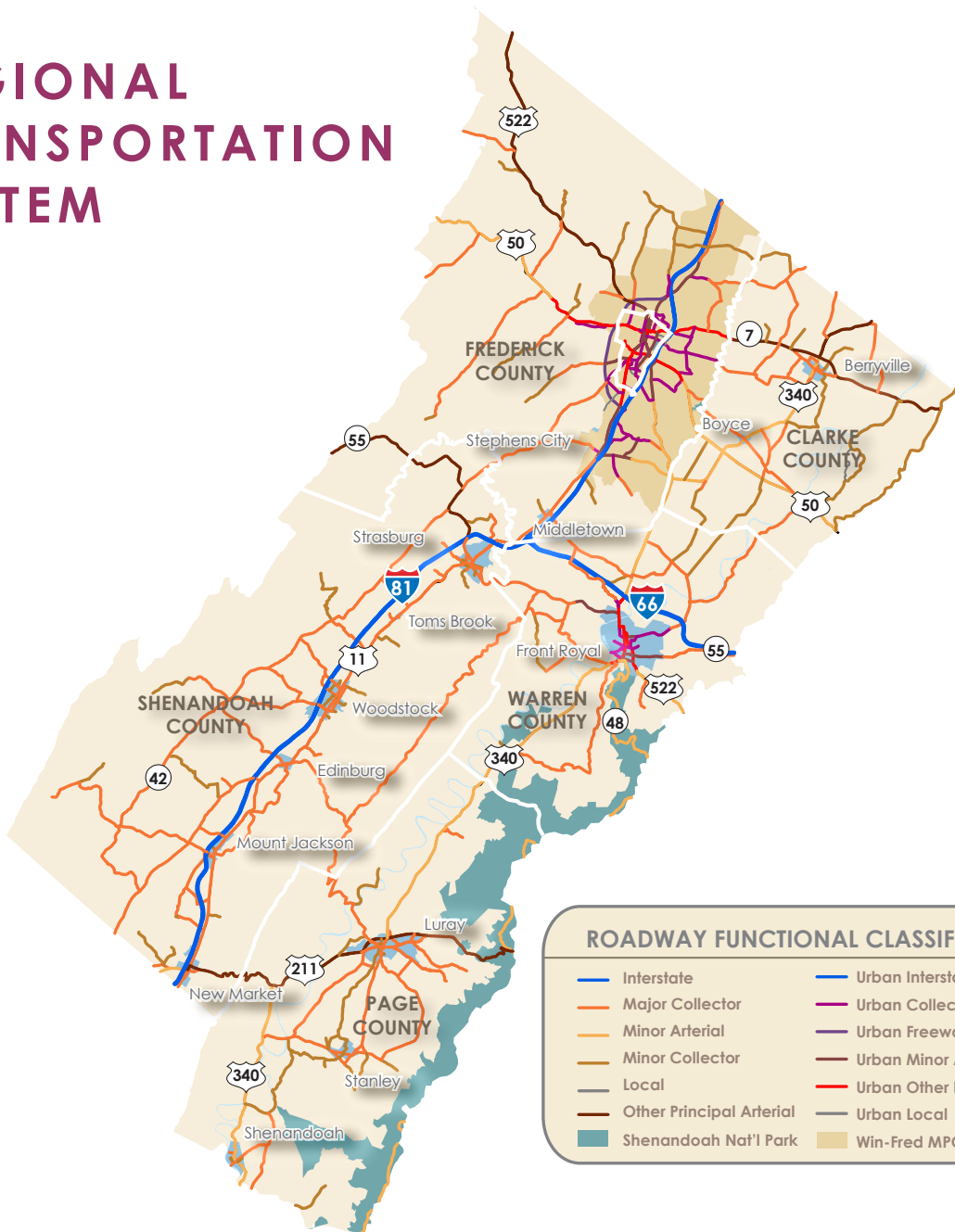


Source: US Census, 2000. Note: People with disabilities is based on the population over 5 years of age. Low-income is a percentage of the population for whom poverty is determined.

**Elderly, Disability, Low-Income, and Minority Populations in the Northern Shenandoah Valley**



# REGIONAL TRANSPORTATION SYSTEM



Each mode of travel – roadways, public transportation, rail, bicycle and pedestrian facilities, and airports – has been independently analyzed for both current and forecasted conditions.

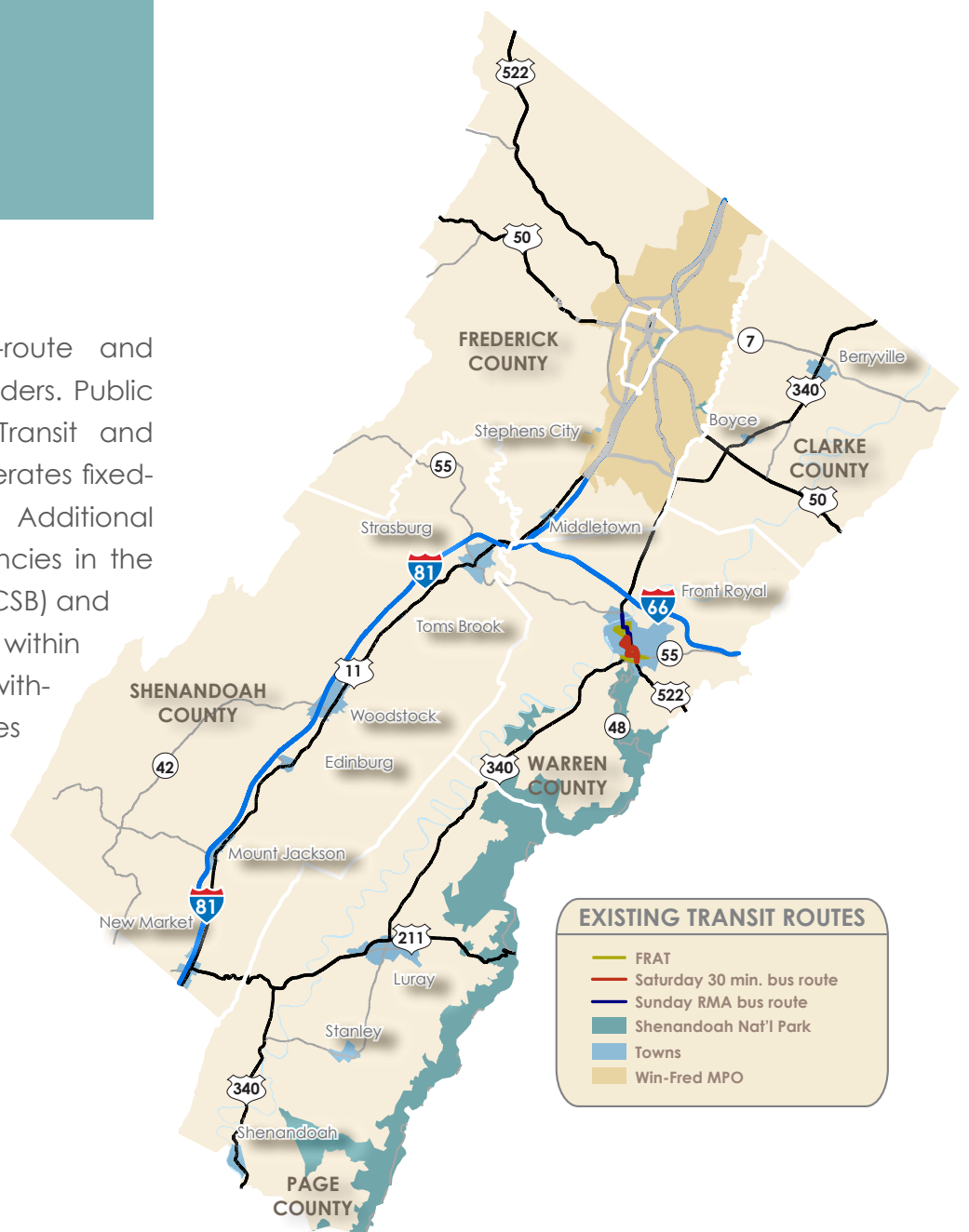
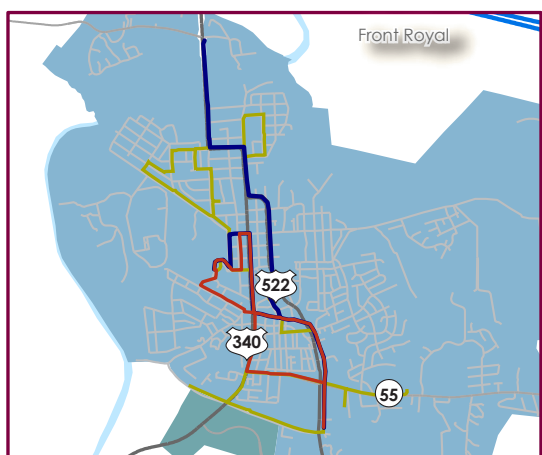
## Roadways

The NSV is served by a number of interstates and major US highways (adjacent map). I-81 passes through the center of the region, traveling north-east to southwest through Frederick, Warren, and Shenandoah Counties. I-66 passes through the Manassas Gap into Warren County and terminates at I-81 at the Frederick County line. Primary east-west corridors include US 50, US 211, VA 7, and VA 55. The main north-south corridors are US 11, US 17, US 340, US 522, and VA 42. I-81 and I-66 are two of the key truck freight corridors in the Commonwealth. I-66 is also a major commuter route into Northern Virginia.

Public transportation in the region is provided by Winchester Transit and Virginia Regional Transit (VRT).

## Public Transportation

Public transportation includes public transit, both fixed-route and demand-responsive, volunteer transportation, and private providers. Public transportation in the region is provided by Winchester Transit and Virginia Regional Transit (VRT). Winchester Transit currently operates fixed-route and demand-responsive service only within the MPO. Additional demand-responsive transit is provided by social service agencies in the region, including the Northwestern Community Service Board (CSB) and the Shenandoah Area Agency on Aging (AAA). VRT operates within Clarke, Frederick, Page, and Warren Counties. VRT operates within Clarke, Frederick, Page, and Warren Counties. VRT operates fixed-route service as Front Royal Area Transit (adjacent map). VRT also provides demand-responsive service in Clarke and Frederick Counties.





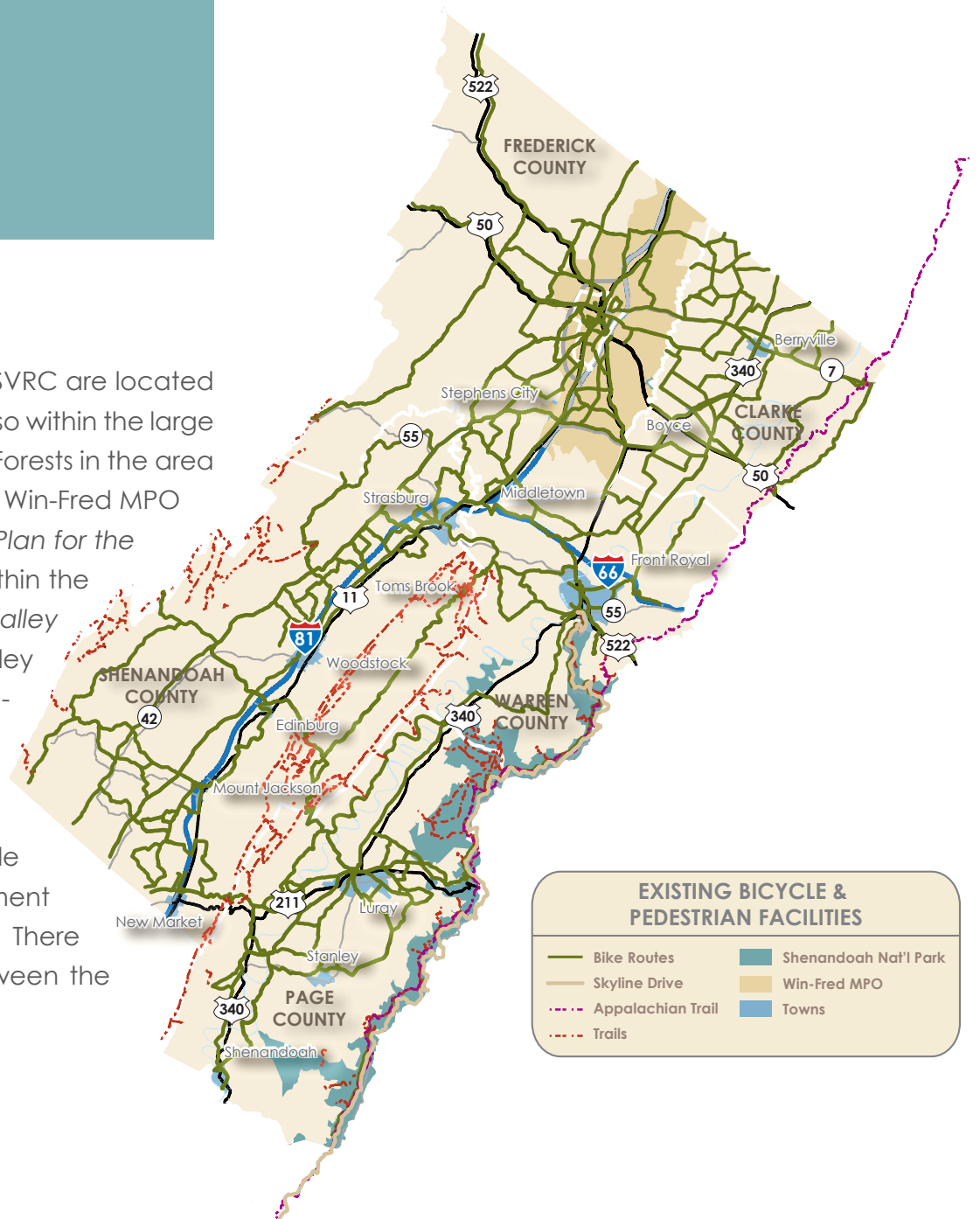
## Airports

There are four general aviation airports located in the NSVRC (adjacent map). Luray Caverns Airport in Page County and Winchester Regional Airport in Frederick County are both classified as general aviation regional airports. Front Royal-Warren County Airport is classified as a general aviation community airport and New Market Airport in Shenandoah County is classified as a local airport. The *Virginia Air Transportation System Plan Update* analyzes past growth rates in based aircraft and projects future average annual growth rates for based aircraft at all airports (DOAV, 2003). Between 1990 and 2000, based aircraft at Winchester Regional grew by 1.7%. At New Market, based aircraft grew by 1.9% and grew by 0.3% at Front Royal-Warren County. Luray Caverns lost based aircraft at a rate of 0.9% between 1990 and 2000.

There are four general aviation airports located in the NSVRC.

## Bicycle and Pedestrian Facilities

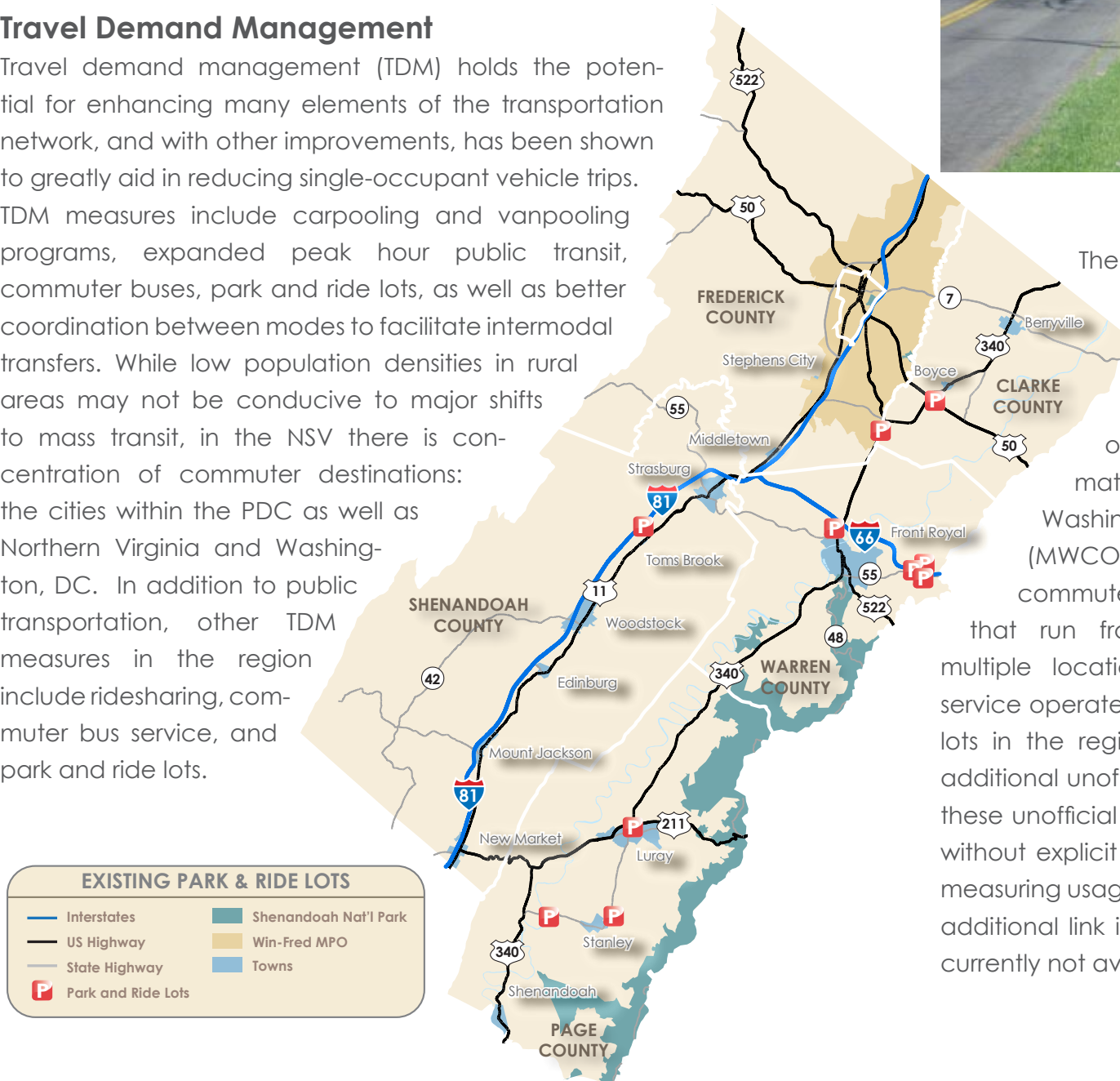
The existing bicycle and pedestrian facilities within the NSVRC are located throughout the region (adjacent map). Hiking trails are also within the large tracts of the George Washington and Jefferson National Forests in the area and national and state parks throughout the region. The Win-Fred MPO recently completed the *Bicycle and Pedestrian Mobility Plan for the Win-Fred MPO*, which addresses the geographic area within the MPO. *Walking and Wheeling the Northern Shenandoah Valley* was completed for the NSVRC and the Shenandoah Valley Battlefields Foundation in 2004. The types of facilities needed in the NSVRC were broken down into three groups, regional projects, town to town projects, and local projects (NSVRC, 2004). Within the individual jurisdictions, including all of the counties and cities, expansion of bicycle and pedestrian facilities is being encouraged in development of new roadways or while upgrading existing roadways. There is also a desire to coordinate facility development between the counties and the cities and towns that lie within them.





## Travel Demand Management

Travel demand management (TDM) holds the potential for enhancing many elements of the transportation network, and with other improvements, has been shown to greatly aid in reducing single-occupant vehicle trips. TDM measures include carpooling and vanpooling programs, expanded peak hour public transit, commuter buses, park and ride lots, as well as better coordination between modes to facilitate intermodal transfers. While low population densities in rural areas may not be conducive to major shifts to mass transit, in the NSV there is concentration of commuter destinations: the cities within the PDC as well as Northern Virginia and Washington, DC. In addition to public transportation, other TDM measures in the region include ridesharing, commuter bus service, and park and ride lots.



The NSVRC administers the RideSmart Program that works to promote carpools, van pools, and commuter bus services through ride-sharing promotion, matching services, and outreach. The service includes carpool matching through the Metropolitan Washington Council of Governments (MWCOCG). Valley Connector is a system of commuter routes that include motor coaches that run from Strasburg and Front Royal to multiple locations within Northern Virginia. Van service operates from Front maintained park and ride lots in the region (adjacent map). There are likely additional unofficial lots in the region. However, since these unofficial lots are generally used by commuters without explicit permission from the private lot owner, measuring usage is difficult. Passenger rail service is an additional link in travel demand management but is currently not available in the region.

*There are ten VDOT maintained park and ride lots in the region.*

## Goods Movement

The movement in the region is by both truck and rail services. The Class I rail lines in the region are owned by CSX and Norfolk Southern. The CSX line connects to the CSX National Gateway Corridor north of Washington, DC. Norfolk Southern's Crescent Corridor has two mainlines running north to south in the Commonwealth. The Shenandoah line generally parallels I-81 and lies within the NSV region. There is also a key connection between the two mainlines that parallels I-66 in the region as well. The trains on the Shenandoah line are intermodal, general merchandise, and auto trains (DRPT, *Virginia*, 2008). There are on-going improvements to the Crescent Corridor to expand freight rail operations while continuing to serve existing passenger rail service. An increase in the transfer of freight from truck to rail will occur, however I-81 is still expected to be a key freight corridor.

There is one Class III or shortline railroad in the region. The Winchester and Western is the oldest short line in the Commonwealth and operates between Gore (in western Frederick County) and Winchester and from Winchester north to Hagerstown, Maryland (DRPT, *Draft*, 2008). The Winchester and Western interchanges with CSX and with Norfolk Southern.

Truck freight primarily utilizes I-66, I-81, US 11, US 17, US 50, US 340, VA 7, and VA 42. I-81 is one of the primary truck freight corridors on the eastern seaboard. A tiered Environmental Impact Statement (EIS) process has been used for to address the needs and deficiencies of the I-81 corridor.

The Virginia Inland Port (VIP) is located in Front Royal in Warren County one mile from I-66 and 5 miles from I-81. It is one of four state owned port facilities and is a US Customs designated port of entry. The facility contains a Norfolk Southern rail yard that connects to the Crescent Corridor. Cargo from the three terminals in Hampton Roads is transferred to the VIP essentially to bring the ports closer to their markets.

## Land Use

The location and extent of land use and development throughout the region is reviewed as a part of traffic analysis. Changes in existing land use and geographic shifts of land use and development can have a long-term effect on traffic forecasts and demand on the transportation network. The land use in the region varies widely from almost exclusive agricultural and forested land uses in the mountains along the edges of all the counties, to more intensive residential and commercial development within the Shenandoah Valley itself. There are large parcels of National Forests and Parks in the region, including the George Washington and Jefferson National Forests and Shenandoah National Park.

# TRANSPORTATION SYSTEM PERFORMANCE & RECOMMENDATIONS

## Roadways

Roadway analysis focused on safety, geometry and structure, and congestion. Through the review of available data, input at public meetings, and information provided by local and regional officials, the NSVRC, in conjunction with the local jurisdictions, prepared a list of priority locations. The priority study location list is based on roadway performance measures, safety considerations, or a combination of the two. Some priority locations had current improvement recommendations from recent studies and required no further analysis. Other priority locations required a

new or updated analysis. Within the NSV, 46 priority locations were analyzed; recommendations for these locations are identified separately in the list of recommendations that follow. Nineteen of these locations were identified for assessment of congestion concerns, while the remaining 27 were analyzed for safety. The safety assessment locations were identified using safety and crash database information, and input from local officials and the public. A more detailed discussion of all deficiencies and recommendations with planning-level cost estimates is located in the Technical Report.

*Higher priorities were given to those roadways with potential geometric concerns that also carried higher levels of traffic.*

## Bridge Deficiency Summary

Bridge Sufficiency Rating	Functionally Obsolete			Structural Deficiency		
	REPLACE	UPGRADE/REPAIR		REPLACE	UPGRADE/REPAIR	
	0-50	51-80	80+	0-50	51-80	80+
Clarke	0	8	1	0	1	0
Frederick*	0	18	11	2	1	0
Page	0	23	2	9	2	1
Shenandoah	3	34	20	16	3	0
Warren	3	13	4	4	4	0
NSVRC Total	6	96	38	31	11	1

\*Outside of MPO



## 1. Safety

The roadway safety assessments identified deficiencies such as sight distance and visibility, access management, and inadequate signage. Recommendations were developed for both intersections and segments throughout the region. The recommendations are identified by jurisdiction. More detailed deficiency data appear in the Technical Report.

## 2. Operations and Maintenance

### a. Geometric Weaknesses

Roadways and intersections with geometric deficiencies such as substandard lane width, shoulder width, or horizontal and vertical curvature, were identified from the VDOT Statewide Planning System (SPS) database. Higher priorities were given to those roadways with potential geometric concerns that also carried higher levels of traffic. Recommendations to address these needs are identified by jurisdiction. More detailed deficiency data appear in the Technical Report.

### b. Bridge Condition

Current bridge sufficiency ratings were reviewed and those structures with a rating of less than 50 were considered deficient and in need of structural upgrade or replacement. These appear in a separate table by jurisdiction.

## 3. Capacity

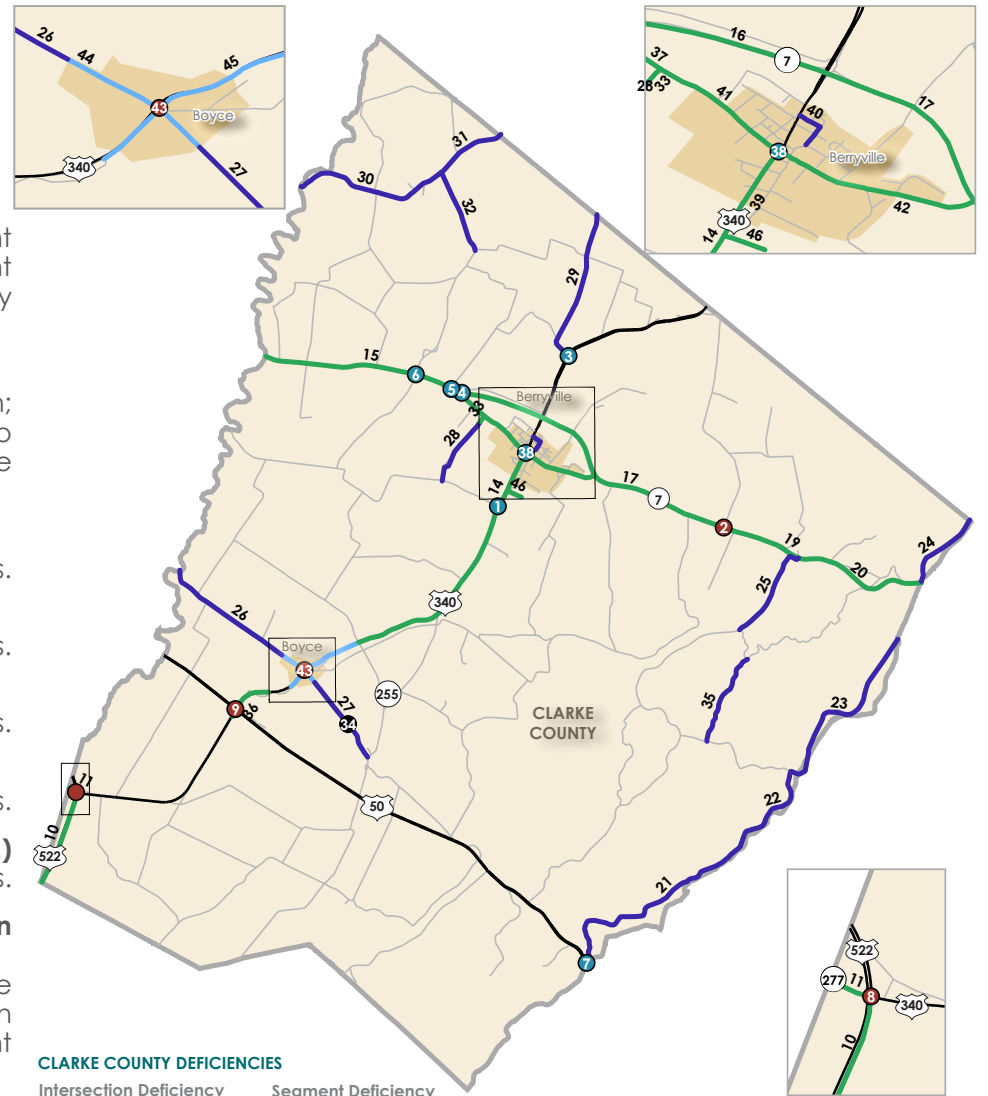
Level of service analyses were performed on all functionally classified roadways in the CSPD to assess current and projected year 2035 operations. In addition, analyses were conducted for intersections identified by the NSVRC and local governments as priority study locations. The recommendations to address the deficient locations are identified as congestion or safety, by jurisdiction. Current Day, Mid-Term, and Long-Term recommendations were combined in the tables and maps.

Deficiencies in the forecast year were noted for the functionally classified roadway network. Forecasted deficiencies are applicable only to anticipated mobility performance measures, since it is not possible to forecast safety issues or geometric and structural deficiencies.



## CLARKE COUNTY RECOMMENDATIONS

- 1 US 340 at VA 657 (Senseny Rd.)**  
Short-term add stop bars to minor approaches and refresh pavement markings; Mid-term add northbound left turn lane and southbound right turn lane; Long-term monitor crashes to see if horizontal realignment may be warranted.
- 2 VA 7 (Harry Byrd Hwy.)/VA 612 (Shepherds Mill Rd.)**  
Short-term access management and eliminate dip on westbound approach; Mid-term widen VA 612 approach; Long-term upgrade intersection to current design standards, including left and right turn lanes and signalize intersection.
- 3 US 340 (Lord Fairfax Hwy.)/VA 611 (Summit Point Rd.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 4 VA 7 (Harry Flood Byrd Hwy./Berryville Pike)/VA 7 BUS (W. Main St.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 5 VA 7 (Berryville Pike)/VA 653**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 6 VA 7 (Berryville Pike)/VA 632 (Triple J Rd./Crums Church Rd.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 7 US 17/US 50 (John S. Mosby Hwy.)/VA 601 (Blue Ridge Mountain Rd.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 8 VA 277 (Double Tollgate/Lord Fairfax Hwy.) at US 340/522 (Stonewall Jackson Hwy.)**  
Short-term access management; Mid-term provide turn lanes to Double Tollgate Road; Long-term widen east-west roadway to allow for two through lanes in each direction through intersection, provide separate left and right turn bays, and modify signal phasing.
- 9 US 340 /US 17/50**  
Short-term access management, add "Left Turn Signal" signs on all mast arms, convert northbound free-right movement to signal control; Mid-term widen US 340 to two through lanes, construct dual lefts for southbound and westbound left turns, and monitor traffic volumes to determine whether an interchange is warranted.
- 10 US 340 from 0.13 M. S. US 522/VA 277 to US 522/VA 277**  
Long-term widen to urban six-lane roadway with median.
- 11 VA 277 (Fairfax Pike) from Frederick Co. Line to US 340/522**  
Long-term widen to urban four-lane roadway with median.
- 12 US 340 (Lord Fairfax Hwy.) from VA 620 to VA 255**  
Long-term add turn lanes at key intersections along corridor.
- 13 US 340 (Lord Fairfax Hwy.) from VA 255 to VA 657**  
Long-term add turn lanes at key intersections along corridor.
- 14 US 340 (Lord Fairfax Hwy.) from VA 657 to SCL of Berryville**  
Long-term add turn lanes at key intersections along corridor.
- 15 VA 7 (Harry Flood Byrd Hwy.) from Frederick Co. Line to VA 7 BUS W.**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 16 VA 7 (Harry Flood Byrd Hwy.) from VA 7 BUS W. to US 340**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 17 VA 7 (Harry Flood Byrd Hwy.) from US 340 to VA 612 E.**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 18 VA 7 (Harry Flood Byrd Hwy.) from VA 612 E. to VA 603**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 19 VA 7 (Harry Flood Byrd Hwy.) from VA 603 to VA 606**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 20 VA 7 (Harry Flood Byrd Hwy.) from VA 606 to Loudoun Co. Line**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies and perform regional travel pattern study to identify locations of potential Park & Ride lots.
- 21 VA 601 (Blue Ridge Mountain Rd.) from US 50 to 4.5 M. N. US 50**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 22 VA 601 (Blue Ridge Mountain Rd.) from 4.5 M. N. US 50 to VA 605**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 23 VA 601 (Blue Ridge Mountain Rd.) from VA 605 to Loudoun Co. Line**  
Long-term continue to monitor for potential improvements to address safety, geometric and capacity deficiencies such as reconstruction of the roadway within the existing cross-section, adding shoulders or implementing spot-specific treatments.
- 24 VA 601 (Raven Rocks Rd.) from Loudoun Co. Line to West Virginia State Line**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 25 VA 606 (River Rd.) from VA 607 to VA 7**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.



### CLARKE COUNTY DEFICIENCIES

<span style="color: green;">●</span> Intersection Deficiency	<span style="color: green;">■</span> Segment Deficiency
<span style="color: blue;">●</span> Operation Deficiency	<span style="color: blue;">■</span> Operation Deficiency
<span style="color: red;">●</span> Safety Deficiency	<span style="color: red;">■</span> Safety Deficiency
<span style="color: orange;">●</span> Both Deficiencies	<span style="color: orange;">■</span> Geometric Deficiency
<span style="color: black;">●</span> Other Deficiency	<span style="color: cyan;">■</span> Both Operation & Safety Deficiency

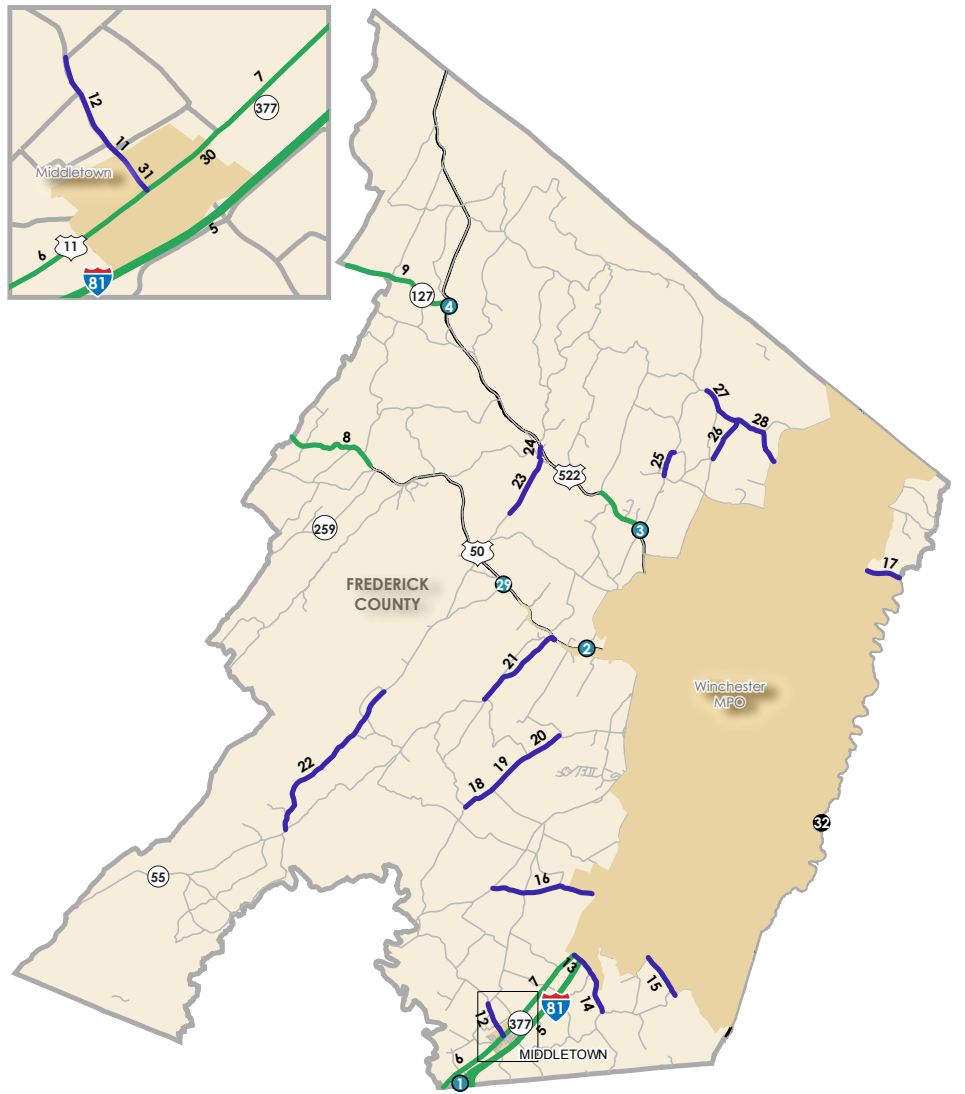
- 26 VA 723 (Old Winchester Rd.) from Frederick Co. Line to NCL of Boyce**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 27 VA 723 (Main St.) from SCL of Boyce to VA 255 N.**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 28 VA 636 (Westwood Rd.) from 0.45 M. S. of VA 7 BUS to VA 657**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 29 VA 611 (Summit Point Rd.) from US 340 to West Virginia State Line**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 30 VA 761 (Old Charles Town Rd.) from Frederick Co. Line to VA 632**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 31 VA 761 (Old Charles Town Rd.) from VA 632 to West Virginia State Line**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 32 VA 632 (Crums Church Rd.) from VA 639 to VA 761**  
Long-term continue to monitor for potential improvements to address safety, geometric, and capacity deficiencies.
- 33 VA 636 (Westwood Rd.) from VA 7 BUS to 0.45 M. S. of VA 7 BUS**  
Mid-term widen roadway to three-lane urban standards.
- 34 VA 723 (Millwood Rd.) at bridge over Page Brook between Millwood and Boyce**  
Mid-term replace bridge.
- 35 VA 604 (Ebenezer Rd.) from VA 605 (Morgan's Mill Rd.) to VA 607 (Saw Mill Hill Rd.)**  
Mid-term reconstruct roadway to standards, including larger culvert sizes.
- 36 US 340 from .12 M. S. US 50/17 to 0.75 M. N. US 50/17**  
Mid-term widen roadway to four-lane rural standards.
- 37 VA 7 BUS (W. Main St.) from VA 7 W. to WCL of Berryville**  
Mid-term widen roadway to three-lane urban standards.
- 38 US 340 (Lord Fairfax Hwy.)/VA 7 BUS (W. Main St.)**  
Deficiency with low priority. Continue to monitor for potential improvements. (Berryville)
- 39 US 340 (Lord Fairfax Hwy.) from SCL of Berryville to VA 7 BUS**  
Long-term add turn lanes at key intersections along corridor.

## CLARKE COUNTY RECOMMENDATIONS (continued)

- 40 VA T-616 (N. Church St.) from VA T-1005 to US 340 N.**  
Long-term widen to urban two-lane roadway (including full-width lanes and shoulders). (Berryville)
- 41 VA 7 BUS (W. Main St.) from WCL of Berryville to US 340**  
Mid-term widen roadway to three-lane urban standards. (Berryville)
- 42 VA 7 BUS (E. Main St.) from US 340 to VA 7 E.**  
Mid-term widen roadway to three-lane urban standards. (Berryville)
- 43 US 340/VA 723 (Main St.)**  
Short-term add stop bars to minor approaches and widen Main Street at intersection to provide left turn lanes; Long-term signalize intersection. (Boyce)
- 44 VA 723 from WCL of Boyce to ECL of Boyce**  
Short-term refresh pavement markings; Mid-term perform traffic study to develop solutions for the corridor and address left turn conflict issues. (Boyce)
- 45 US 340 from VA 688 N. to VA 620**  
Short-term improve drainage; Long-term reconstruct roadway to rural two-lane standards with turn lanes at key intersections along corridor. (Boyce)
- 46 Jack Enders Blvd. from Western Terminus to US 340**  
Mid-term extend existing urban section from its existing terminus to US 340.

## FREDERICK COUNTY RECOMMENDATIONS

- 1 I-81 at Southbound merge from I-66**  
Long-term improve interchange (project in environmental stage).
- 2 US 50 (Northwestern Pike)/VA 654**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 3 US 522 (N. Frederick Pike)/VA 654 (Cedar Grove Rd.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 4 US 522 (N. Frederick Pike)/VA 127 (Bloomery Parkway)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 5 I-81 from Warren Co. Line/I-66 to Winchester MPO**  
Long-term widen to rural six-lane roadway with median (project in environmental stage).
- 6 US 11 (Valley Pike) from Warren Co. Line to SCL of Middletown**  
Long-term adjacent segment of I-81 is to be widened, monitor this segment for need of capacity improvements.
- 7 US 11 (Valley Pike) from NCL of Middletown to VA 735**  
Long-term adjacent segment of I-81 is to be widened, monitor this segment for need of capacity improvements.
- 8 US 50 (Northwestern Pike) from West Virginia State Line to .29 M. E. of VA 703**  
Long-term widen to rural four-lane roadway with median.
- 9 VA 127 (Bloomery Parkway) from West Virginia State Line to US 522**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 10 US 522 (N. Frederick Pike) from VA 608 N. to VA 654**  
Long-term widen to rural four-lane roadway standards to match adjacent segments.
- 11 VA 627 (Chapel Rd.) from VA 635 N. to WCL of Middletown**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 12 VA 627 (Chapel Rd.) from VA 625 N. to VA 635 N.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 13 VA 735 (Salem Church Rd.) from US 11 to 0.51 M. E. US 11**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 14 VA 735 (Salem Church Rd.) from 0.51 M. E. US 11 to VA 636 N.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 15 VA 641 (Double Church Rd.) from VA 636 S. to VA 640**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 16 VA 631 (Marlboro Rd.) from VA 628 to VA 648**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 17 VA 761 (Old Charlestown Rd.) from VA 666 E. to Clarke Co. Line**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 18 VA 622 (Cedar Creek Grade) from VA 618 to VA 732**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 19 VA 622 (Cedar Creek Grade) from VA 732 to VA 619**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 20 VA 622 (Cedar Creek Grade) from VA 619 to VA 620**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 21 VA 608 (Wardensville Grade) from VA 616 S. to US 50 S.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 22 VA 600 (Back Mountain Rd.) from VA 608 N. to VA 612 N.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 23 VA 600 (Hayfield Rd.) from 1.06 M. N.E. VA 679 to VA 684 S.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 24 VA 600 (Siler Lane) from VA 684 N. to US 522**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 25 VA 654 (Cedar Grove Rd.) from VA 677 to VA 730**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 26 VA 739 (Apple Pie Ridge Rd.) from VA 677 to VA 671**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 27 VA 671 (Green Spring Rd.) from VA 654 E. to VA 676**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 28 VA 671 (Green Spring Rd.) from VA 676 to VA 661**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 29 US 50 (Northwestern Pike)/VA 614 (Back Mountain Rd.)**  
Short-term maintenance and move minor approach stop bar forward, relocate "Stop Ahead" sign, add "Watch for Turning Vehicles Sign" for westbound approach, and add centerline in crossover; Long-term lengthen existing eastbound right turn lane taper.
- 30 US 11 (Valley Pike) from SCL of Middletown to NCL of Middletown**  
Long-term adjacent segment of I-81 is to be widened, monitor this segment for need of capacity improvements. (Middletown)
- 31 VA T-1107 (Chapel Rd.) from WCL of Middletown to US 11 S.**  
Long-term widen to urban two-lane roadway. (Middletown)
- 32 VA 723/Bridge over Opequon Creek**  
Short-term replace bridge.

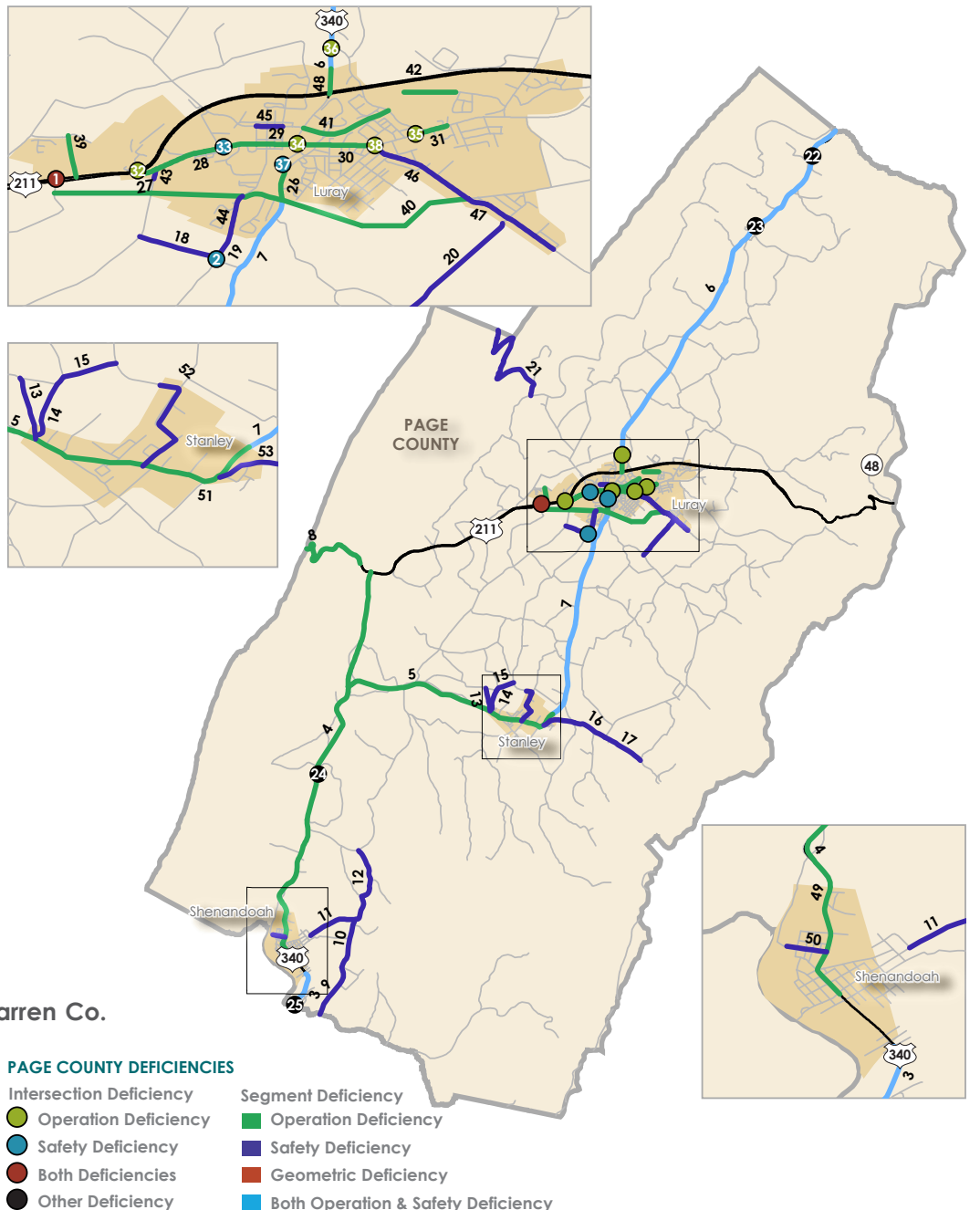


FREDERICK COUNTY DEFICIENCIES

<span style="color: green;">●</span> Intersection Deficiency	<span style="color: green;">■</span> Segment Deficiency
<span style="color: blue;">●</span> Operation Deficiency	<span style="color: blue;">■</span> Operation Deficiency
<span style="color: red;">●</span> Safety Deficiency	<span style="color: red;">■</span> Safety Deficiency
<span style="color: black;">●</span> Both Deficiencies	<span style="color: black;">■</span> Geometric Deficiency
<span style="color: grey;">●</span> Other Deficiency	<span style="color: grey;">■</span> Both Operation & Safety Deficiency

## PAGE COUNTY RECOMMENDATIONS

- 1 US 211/VA 644 (Big Oak Rd.)**  
Short-term lengthen eastbound right turn bay and refresh pavement markings; Long-term signalize intersection when warranted.
- 2 VA 638 (Mill Creek Rd.)/VA 639 (Lakewood Rd.)**  
Short-term convert intersections to three-way stop; Long term realign north intersection to the south intersection and convert intersection to four-way stop control, widen all approaches to twelve-foot lanes, add left turn lanes on all approaches, and improve vertical alignment under railroad overpass.
- 3 US 340 from Rockingham Co. Line to SCL of Shenandoah**  
Short-term add "Watch for Turning Vehicles" signs along corridor in advance of major intersections and commercial areas; Long-term upgrade horizontal and vertical alignment to current standards, including full-width lanes and shoulders.
- 4 US 340 from NCL of Shenandoah to US 211**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 5 US 340 BUS from US 340 to VA 636**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 6 US 340 from NCL of Luray to Warren Co. Line**  
Short-term add "Watch for Turning Vehicles" signs along corridor in advance of major intersections and commercial areas; Long-term upgrade horizontal and vertical alignment to current standards, including full-width lanes and shoulders.
- 7 US 340 BUS from ECL of Stanley to SCL of Luray**  
Short-term add "Watch for Turning Vehicles" signs along corridor in advance of major intersections and commercial areas; Long-term upgrade horizontal and vertical alignment to current standards, including full-width lanes and shoulders.
- 8 US 211 from Shenandoah Co. Line to .16 M. W. US 340**  
Long-term widen to rural four-lane roadway with median.
- 9 VA 603 (Fleeburg Rd.) from Rockingham Co. Line to VA 681**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 10 VA 603 (Fleeburg Rd.) from VA 681 to VA 602**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 11 VA 602 (Corner Town Rd.) from VA 711 to VA 603 N.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 12 VA 602 from VA 603 N. to VA 650**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 13 VA 622 from VA 635 to US 340 BUS**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 14 VA T- 760 (Forrest Dr.) from VA 622 to VA 635**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 15 VA 635 (Forest Rd.) from VA 760 to VA 638**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 16 VA 689 (Ida Rd.) from VA 611 S. to VA 624 N.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 17 VA 611 (Kite Hollow Rd.) from VA 689 S. to VA 628**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 18 VA 639 (Lakewood Dr) from VA 616 to VA 638**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 19 VA 638 (Mill Creek Rd.) from VA 639 N. to SCL of Luray**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 20 VA 689 (Antioch Rd.) from SCL of Luray to VA 642**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 21 VA 675 from Shenandoah Co. Line to VA 615 S.**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 22 US 340 at Bridge over Compton Creek, 1 mile S. of Warren Co.**  
Short-term replace bridge.
- 23 US 340 at Bridge over Norfolk Southern Railroad, ~3.5 M. S. of Warren Co.**  
Short-term replace bridge.
- 24 US 340 at Bridge over Cub Run near VA 613**  
Short-term replace bridge.
- 25 VA 605/Bridge over Naked Creek, near Rockingham Co. Line**  
Short-term replace bridge.
- 26 US 340 (Virginia Ave.) from SCL of Luray to Hawksbill St.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Luray)
- 27 US 211 BUS (W. Main St.) from US 211 to Leaksville Rd.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Luray)
- 28 US 211 BUS (W. Main St.) from Leaksville Rd. to Lee St.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Luray)
- 29 US 211 BUS (W. Main St.) from Lee St. to US 340 BUS**  
Deficiency with low priority. Continue to monitor for potential improvements. (Luray)
- 30 US 211 BUS (E. Main St.) from US 340 BUS to Reservoir Ave.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Luray)
- 31 US 211 BUS (E. Main St.) from Collins Rd. to Smith St.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Luray)
- 32 Main St./US 211 Bypass**  
Long-term perform a signal warrant study and install new traffic signal, add eastbound right turn lane with taper. (Luray)
- 33 Main St./Bixlers Ferry Rd.**  
Long-term improve intersection geometry, which requires further study to identify specific improvements. (Luray)
- 34 Main St./Broad St.**  
Restrict on-street parking during peak hours on all four approaches of the intersection. (Luray)
- 35 Main St./Collins Ave.**  
Long-term add turn lanes, which requires further study to identify specific improvements. (Luray)
- 36 US 340/Collins Ave.**  
Long-term add southbound deceleration lane with taper. (Luray)
- 37 Virginia Ave./Hawksbill Creek**  
Long-term replace bridge and upgrade approaches to standards. (Luray)
- 38 Reservoir Ave./Main St.**  
Long-term widen Reservoir Avenue approach to two lanes to provide additional capacity at intersection and conduct further study to identify specific improvements. (Luray)

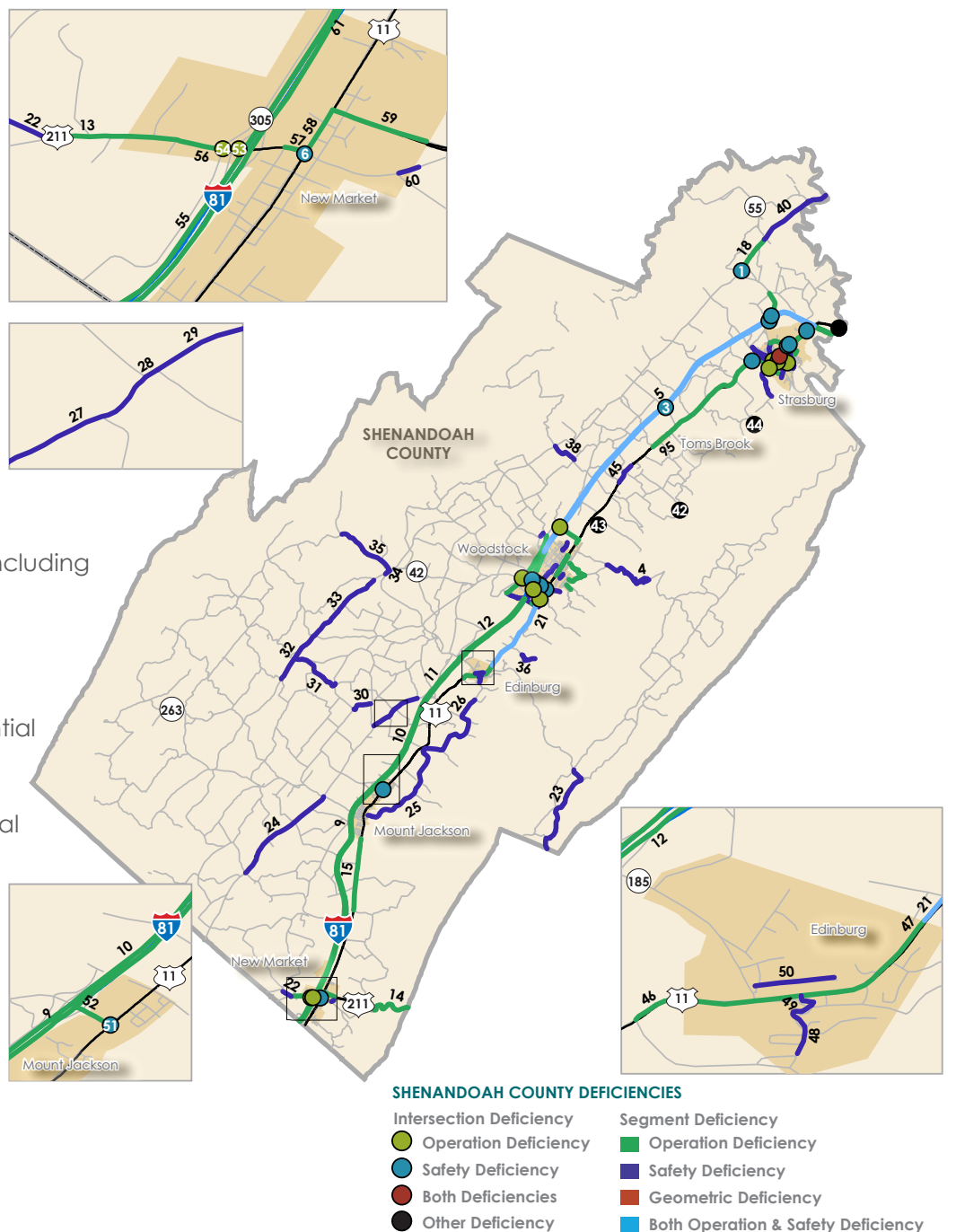


## PAGE COUNTY RECOMMENDATIONS (continued)

- 39 New Connector Roadway from VA 647 to US 211**  
Long-term construct roadway on new alignment to two-lane urban standards. (Luray)
- 40 Southwestern Connector Roadway from VA 644 to Fairview Rd.**  
Long-term construct roadway on new alignment to two-lane urban standards. (Luray)
- 41 Northeastern Connector Roadway from Mechanic St. to Collins Ave.**  
Long-term construct roadway on new alignment to two-lane urban standards as an alternative roadway to Main Street. (Luray)
- 42 New Industrial Access Rd. from Collins Ave. to Stoney Brook Lane**  
Long-term construct roadway on new alignment to two-lane urban standards and provide parallel access to Main Street for Industrial Park. (Luray)
- 43 Leaksville Rd. from SCL to Main St.**  
Mid-term reconstruct roadway to three-lane rural standards to provide for center turn lane. (Luray)
- 44 Court St. from SCL to Court St. Extension**  
Long-term reconstruct roadway to two-lane urban/rural standards and conduct further study to define specific limits of urban versus rural roadway improvements. (Luray)
- 45 Mechanic St. from Lee St. to Hawksbill St.**  
Long-term reconstruct roadway to two-lane urban standards. (Luray)
- 46 Reservoir Ave. from Main St. to Fairview Rd.**  
Long-term reconstruct roadway to two-lane urban standards. (Luray)
- 47 Fairview Rd. from Reservoir Ave. to ECL**  
Long-term reconstruct roadway to two-lane urban standards. (Luray)
- 48 US 340 from US 211 Bypass to NCL of Luray**  
Long-term widen to four-lane rural divided standards. (Luray)
- 49 US 340 from VA T-602 to NCL of Shenandoah**  
Long-term widen to urban four-lane roadway with median. (Shenandoah)
- 50 VA T- 683 (Junior Ave.) from US 340 to VA 683**  
Long-term widen to urban two-lane roadway. (Shenandoah)
- 51 US 340 BUS from VA 636 to ECL of Stanley**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders). (Stanley)
- 52 VA T- 638 (Aylor Grubbs Ave) from US 340 BUS W. to NCL of Stanley**  
Long-term widen to urban two-lane roadway. (Stanley)
- 53 VA T- 689 (Kite Hollow Rd.) from VA 624 N. to US 340 BUS**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders). (Stanley)
- 13 VA 211 (W. Old Cross Rd.) from VA 728 to WCL of New Market**  
Long-term widen to rural four-lane roadway with median.
- 14 US 211 (Lee Hwy.) from VA 834 to Page Co. Line**  
Long-term widen to rural four-lane roadway with median.
- 15 US 11 (Old Valley Pike) from VA 620 to SCL of Mount Jackson**  
Long-term widen to urban four-lane roadway with median.
- 16 US 11 (Main St.) from NCL of Woodstock to VA 664**  
Long-term widen to urban four-lane roadway with median.
- 17 US 11 (Main St.) from NCL Toms Brook to SCL of Strasburg**  
Long-term widen to urban four-lane roadway with median.
- 18 VA 55 (John Marshall Hwy.) from VA 628 W. to VA 623**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 19 VA 55 (John Marshall Hwy.) from VA 622 to I-81**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 20 I-81 from US 11 to Warren Co. Line**  
Long-term widen to rural six-lane roadway with median (ongoing EIS study will further define improvements).
- 21 US 11 (Main St.) from NCL of Edinburg to SCL of Woodstock**  
Long-term widen to urban four-lane roadway with median.
- 22 VA 953 from VA 211 to VA 728**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 23 VA 675 from VA 678 Middle Intersection to Page Co. Line**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 24 VA 614 from VA 42 N. to VA 263**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 25 VA 698 (Red Banks Rd.) from VA 707 to ECL of Mount Jackson**  
Long-term reconstruct road to address geometric deficiencies (10-foot lanes).
- 26 VA 698 (Palmyra Church Rd.) from VA 822 to VA 707**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).

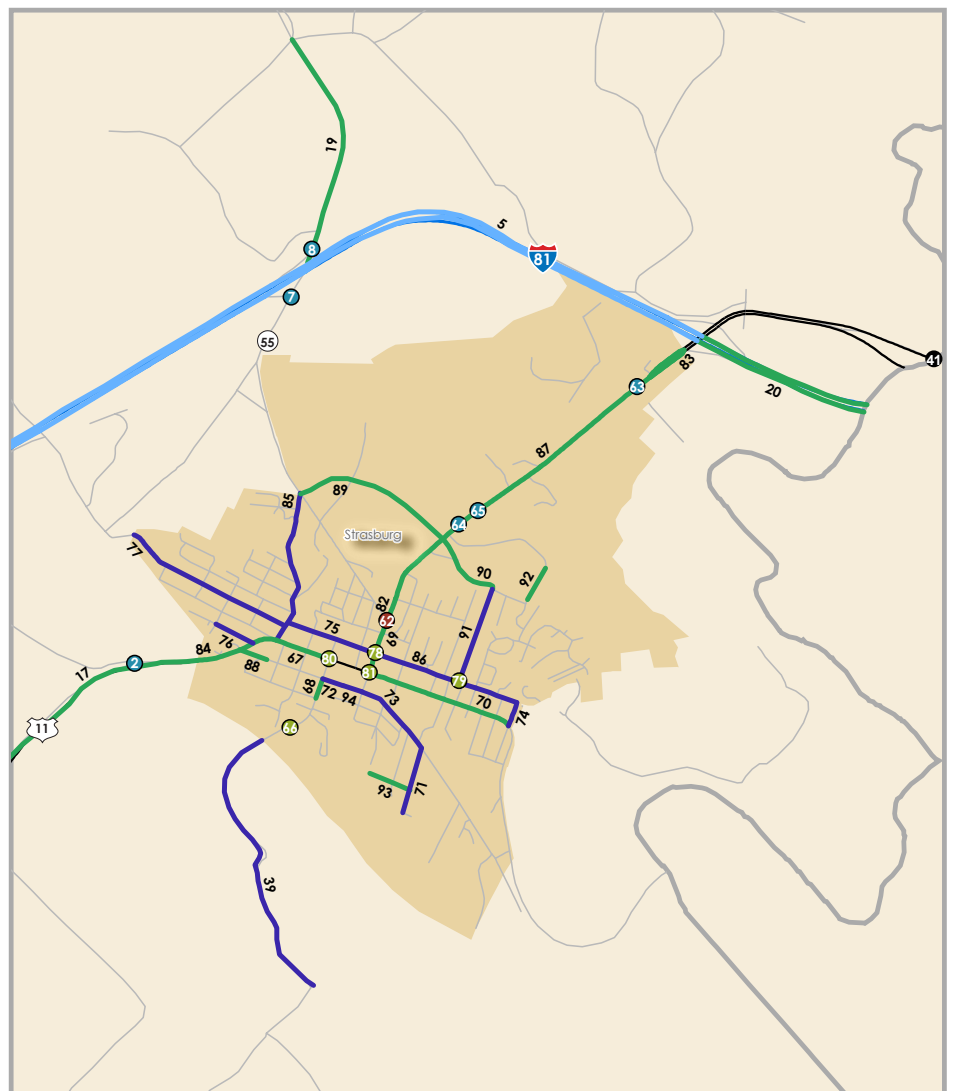
## SHENANDOAH COUNTY RECOMMENDATIONS

- 1 VA 55 (John Marshall Hwy.)/VA 623**  
Mid-term realign Hockman Road to tie into Back Road and close intersection on VA 55; Long-term realign VA 55 to the north of dairy farm and construct roadway to standards.
- 2 US 11/VA 639 (Green Acres Rd.)**  
Short-term prohibit right turns from minor approach and sign VA 639 to inform and guide traffic to VA 757 and VA 601 to reach US 11.
- 3 I-81 Northbound off-ramp (exit 291)/VA 651 (Mount Olive Rd.)**  
Short-term modify northwest corner of intersection to accommodate turning truck traffic; Mid-term signalize intersection for safety; Long-term reconstruct interchange (project in environmental stage).
- 4 VA 758 (Woodstock Tower Rd.) from VA 665 (Mill Rd.) to Top of mountain (E.)**  
Short-term improve guardrails and implement spot improvements, including pullouts at scenic locations.
- 5 I-81 from WCL of Woodstock to US 11**  
Long-term reconstruct roadway (project in environmental stage).
- 6 US 11/Old Cross Rd. (VA 211)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 7 VA 55 (John Marshall Hwy.)/I-81 ramps (S.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 8 VA 55 (John Marshall Hwy.)/I-81 ramps (N.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 9 I-81 from VA 730 to VA 292**  
Long-term reconstruct roadway (project in environmental stage).
- 10 I-81 from VA 292 to VA 614**  
Long-term reconstruct roadway (project in environmental stage).
- 11 I-81 from VA 614 to VA 185**  
Long-term reconstruct roadway (project in environmental stage).
- 12 I-81 from VA 185 to SCL of Woodstock**  
Long-term reconstruct roadway (project in environmental stage).



## SHENANDOAH COUNTY RECOMMENDATIONS (continued)

- 27 VA 614 (S. Middle Rd.) from VA 707 S. to VA 708 S.**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 28 VA 614 (S. Middle Rd.) from VA 708 S. to VA 708 N.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 29 VA 614 (S. Middle Rd.) from VA 708 N. to VA 693**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 30 VA 710 from VA 707 S. to VA 703 N.**  
Long-term reconstruct road to address geometric deficiencies (10-foot lanes).
- 31 VA 709 from VA 709 N. to VA 42 S.**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 32 VA 42 from VA 711 to VA 691**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 33 VA 42 from VA 691 to VA 779**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 34 VA 675 from VA 608 to VA 42 E.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 35 VA 675 from VA 749 to VA 608**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 36 VA 673 from .53 M. E. US 11 to Dead End**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 37 VA 676 from VA 816 to VA 604 W.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 38 VA 600 (Zepp Rd.) from VA 623 to VA 652 N.**  
Long-term reconstruct road to address geometric deficiencies (10-foot lanes).
- 39 VA 648 (Sandy Hook Rd.) from SCL of Strasburg to 1.23 M. S. of SCL of Strasburg**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 40 VA 628 from Frederick Co. Line to VA 55 N.**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 41 US 11/Bridge over Cedar Creek**  
Short-term replace bridge.
- 42 VA 600/Bridge over N. Fork Shenandoah River**  
Mid-term replace bridge.
- 43 VA 663/Bridge over N. Fork Shenandoah River**  
Short-term replace bridge.
- 44 VA 744/Bridge over N. Fork Shenandoah River**  
Short-term replace bridge.
- 45 US 11 from 0.10 M. S. VA 625 to VA 740**  
Short-term reconstruct roadway to three-lane standards and improve drainage.
- 46 US 11 (Old Valley Pike) from SCL of Edinburg to VA 675 N.**  
Long-term widen to urban four-lane roadway with median. (Edinburg)
- 47 US 11 (Main St.) from VA 675 N. to NCL of Edinburg**  
Long-term widen to urban four-lane roadway with median. (Edinburg)
- 48 VA T- 1419 (Palmyra Rd.) from VA 760 to VA 1417**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes). (Edinburg)
- 49 VA T- 760 (Water St.) from US 11 to VA 1419**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes). (Edinburg)
- 50 VA T- 1402 (N. High St.) from VA 675 to .30 M. E. VA 675**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes). (Edinburg)
- 51 US 11/VA 292**  
Deficiency with low priority. Continue to monitor for potential improvements. (Mount Jackson)
- 52 VA 292 from I-81 to US 11**  
Long-term widen to urban four-lane roadway with median. (Mount Jackson)
- 53 US 211/I-81 Southbound off ramp**  
Long-term install signal and reconstruct interchange (project in environmental stage). (New Market)
- 54 US 211/VA 305/VA 619**  
Long-term install "Do Not Block Intersection" signs after adjacent intersection is signalized. (New Market)



TOWN OF STRASBURG DEFICIENCIES

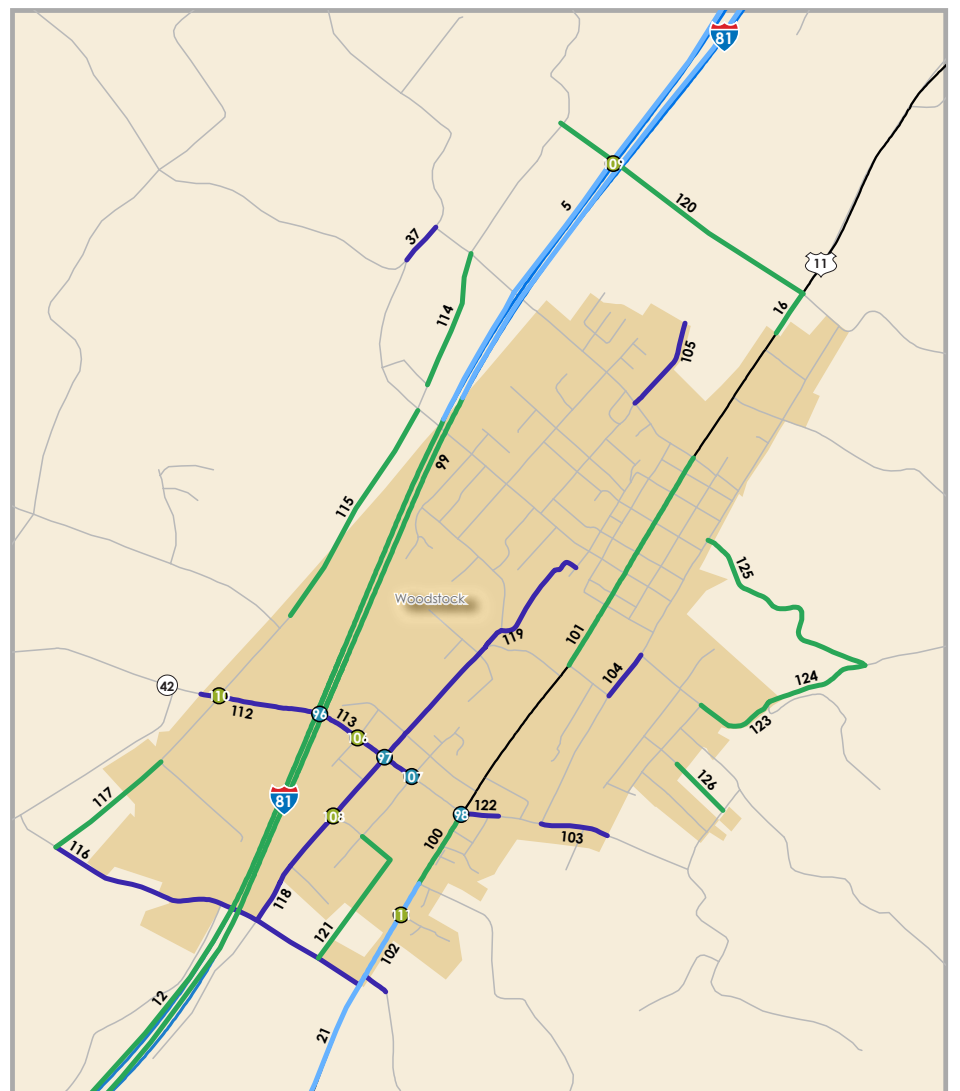
<span style="color: green;">●</span> Intersection Deficiency	<span style="color: green;">■</span> Segment Deficiency
<span style="color: blue;">●</span> Operation Deficiency	<span style="color: blue;">■</span> Operation Deficiency
<span style="color: red;">●</span> Safety Deficiency	<span style="color: red;">■</span> Safety Deficiency
<span style="color: orange;">●</span> Both Deficiencies	<span style="color: orange;">■</span> Geometric Deficiency
<span style="color: black;">●</span> Other Deficiency	<span style="color: cyan;">■</span> Both Operation & Safety Deficiency

- 55 I-81 from Rockingham Co. Line to US 211/VA 211**  
Long-term reconstruct road to rural six-lane standards (project in environmental stage). (New Market)
- 56 VA 211 (W. Old Cross Rd.) from WCL of New Market to VA 305**  
Long-term widen to urban four-lane roadway with median. (New Market)
- 57 VA 211 (W. Old Cross Rd.) from VA T-1003 to US 11 S.**  
Long-term widen to urban four-lane roadway with median. (New Market)
- 58 US 11 (Congress St.) from VA T-1002 (Southern Intersection with US 211) to US 211 N.**  
Long-term upgrade to urban three-lane roadway. (New Market)
- 59 US 211 (Lee Hwy.) from US 11 N. to ECL of New Market**  
Long-term upgrade to urban three-lane roadway. (New Market)
- 60 VA T- 1002 (Old Cross Rd.) from VA T-735 to ECL of New Market**  
Long-term widen to urban four-lane roadway with median. (New Market)
- 61 I-81 from US 211/VA 211 to VA 730**  
Long-term reconstruct roadway (project in environmental stage). (New Market)
- 62 US 11 (N. Massanutten Hwy.)/VA 55 (John Marshall Hwy.)**  
Short-term restripe northbound approach to a ten-foot left turn lane and a twelve-foot through lane; Mid-term signalize intersection, add separate eastbound right turn bay, and coordinate signal with adjacent signals on Massanutten from US 11 to King Street. (Strasburg)
- 63 US 11 (Old Valley Pike)/Radio St./Ion Rd.**  
Long-term monitor for need of additional improvements (intersection recently upgraded with a signal and access management). (Strasburg)
- 64 US 11/Shopping Center Rd. (N.)**  
Mid-term install street lights and convert north access for shopping center to a right in-right out intersection and divert left turns to south entrance when south entrance is signalized; Long-term evaluate further widening of US 11. (Strasburg)
- 65 US 11/Shopping Center Rd. (S.)**  
Mid-term install signal and street lights; Long-term evaluate further need to widen US 11. (Strasburg)
- 66 VA 648 (Holliday St.)/Strasburg High School**  
Mid-term monitor Holliday Street/South Queen Street intersection for signal warrants; Long-term further study needed to widen Holliday Street or develop a second crossing over the river as a secondary access to the schools. (Strasburg)
- 67 US 11 (Stover Ave.) from Capon St. to Holiday St.**  
Long-term construct US 11/VA 55 bypass and monitor traffic flows following construction. (Strasburg)
- 68 Holiday St. from Queen St. to High St.**  
Long-term further study needed to widen Holliday Street. (Strasburg)



## SHENANDOAH COUNTY RECOMMENDATIONS (continued)

- 69 US 11 (Massanutten St.) from King St. to VA 55 N.**  
Long-term construct US 11/VA 55 bypass and monitor traffic flows following construction. (Strasburg)
- 70 VA 55 (King St.) from US 11 (Massanutten St.) to Eberly St.**  
Long-term construct US 11/VA 55 bypass and monitor traffic flows following construction. (Strasburg)
- 71 Aileen Ave. from Queen St. to Dead End**  
Long-term reconstruct to urban two-lane standards (including full-width lanes and shoulders). (Strasburg)
- 72 Queen St. from Holliday St. to 0.085 Mi. W. of S. Massanutten St.**  
Long-term reconstruct to urban two-lane standards (including full-width lanes and shoulders). (Strasburg)
- 73 Queen St. from S. Massanutten St. to Aileen Ave.**  
Long-term reconstruct to urban two-lane standards (including full-width lanes and shoulders). (Strasburg)
- 74 Eberly St. from VA 55 to Washington St.**  
Long-term reconstruct to urban two-lane standards (including full-width lanes and shoulders). (Strasburg)
- 75 Washington St. from Massanutten St. to Capon St.**  
Long-term reconstruct to urban two-lane standards (including full-width lanes and shoulders). (Strasburg)
- 76 Orchard St. from US 11 to Third St.**  
Long-term reconstruct road to address geometric deficiencies (10-foot lanes). (Strasburg)
- 77 A St. from Capon St. to WCL of Strasburg**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes). (Strasburg)
- 78 Massanutten St./Washington St.**  
Short-term install traffic signal and coordinate with existing signals on Massanutten Street from US 11 to King Street. (Strasburg)
- 79 Crim Drive/Washington St.**  
Mid-term realign and signalize intersection. (Strasburg)
- 80 King St./Holliday St.**  
Mid-term provide southbound and eastbound right turn lanes along with northbound and westbound left turn lanes by eliminating on-street parking and adjust signal timing to coordinate with signals on King Street. (Strasburg)
- 81 King St./Massanutten St.**  
Mid-term adjust signal timing for this intersection to coordinate with signals on King Street. (Strasburg)
- 82 Massanutten St. from VA 55 (John Marshall Hwy.) to E. Thompson St.**  
Short-term eliminate on-street parking and restripe roadway to provide a center turn lane; Long-term widen to urban two-lane roadway. (Strasburg)
- 83 Massanutten St. from E. Thompson St. to Lee St.**  
Short-term widen roadway to three lanes to provide for a center turn lane; Long-term reconstruct to urban four-lane standards. (Strasburg)
- 84 U.S. Route 11 (Stover Ave.) from WCL to Capon St.**  
Short-term restripe roadway to provide a center turn lane. (Strasburg)
- 85 Capon St. from King St. to VA 55 (John Marshall Hwy.)**  
Long-term reconstruct roadway to two-lane urban standards. (Strasburg)
- 86 Washington St. from Massanutten St. to Eberly St.**  
Long-term reconstruct roadway to two-lane urban standards. (Strasburg)
- 87 US 11 (Massanutten St.) from Lee St. to NCL of Strasburg**  
Long-term reconstruct to urban four-lane standards. (Strasburg)
- 88 Queen St. Extension from Sharp St. to US 11 (Stover Ave.)**  
Mid-term extend Queen Street from Sharp Street to Stover Avenue as a two-lane urban facility. (Strasburg)
- 89 US 11 & VA 55 Bypass from Capon/VA 55 Intersection to Massanutten/Crystal Lane Intersection**  
Mid-term construct bypass as a two-lane urban facility. (Strasburg)
- 90 Eastern Bypass from Massanutten/Crystal Lane Intersection to Northern Terminus of Crim Lane**  
Mid-term construct bypass as a two-lane urban facility. (Strasburg)
- 91 Crim Drive from Washington St. to Northern Terminus**  
Long-term reconstruct roadway to two-lane urban standards. (Strasburg)
- 92 Dickerson Lane Extension from Northern Terminus of Dickerson Lane to Eastern Terminus of Crystal Lane**  
Mid-term extend roadway to connect to Crystal Lane as a two-lane urban facility. (Strasburg)
- 93 New Access Rd. from Aileen Ave. to High School Parking Facility**  
Mid-term construct new roadway as a two-lane urban facility. (Strasburg)
- 94 Queen St. from 0.085 Mi. W. of S. Massanutten St. to S. Massanutten St.**  
Short-term reconstruct roadway to two-lane urban standards. (Strasburg)
- 95 US 11 (Old Valley Pike) from VA 653 S. to NCL of Toms Brook**  
Long-term upgrade to urban three-lane roadway. (Toms Brook)
- 96 I-81/VA 42**  
Short-term apply access management and sign westbound left turn lanes to indicate access to Wal-Mart versus Lowes; Mid-term construct parallel access roads from Minor Road; Long-term reconstruct interchange (project in environmental stage). (Woodstock)
- 97 VA 42 (W. Reservoir Rd.)/Ox Rd.**  
Add northbound left turn lane. Continue to monitor for potential improvements after northbound left turn lane is added. (Woodstock)
- 98 VA 42 (W. Reservoir Rd.)/US 11 (Main St.)**  
Deficiency with low priority. Continue to monitor for potential improvements. (Woodstock)
- 99 I-81 from Southern Corporate Limits of Woodstock to Western Corporate Limits of Woodstock**  
Long-term reconstruct road to rural six-lane standards (project in environmental stage). (Woodstock)
- 100 US 11 (Main St.) from Lakeview Drive to W. Reservoir Drive**  
Long-term upgrade to urban four-lane roadway. (Woodstock)
- 101 US 11 (Main St.) from Indian Spring Rd. to W. N. St.**  
Long-term upgrade to urban four-lane roadway. (Woodstock)
- 102 US 11 (Main St.) from SCL of Woodstock to Lakeview Drive**  
Long-term upgrade to urban four-lane roadway. (Woodstock)
- 103 E. Reservoir Rd. from ECL of Woodstock to Water St.**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes). (Woodstock)
- 104 Water St. from Indian Spring Rd. to Hollingsworth Rd.**  
Long-term reconstruct to urban two-lane standards. (Woodstock)
- 105 Lee St. from N. St. to NCL of Woodstock**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes). (Woodstock)
- 106 VA 42 (Reservoir Rd.)/Motel Drive**  
Long-term perform signal study and install signal when warranted. (Woodstock)
- 107 Susan Avenue/VA 42 (Reservoir Rd.)**  
Long-term construct island to prohibit northbound left turns and through movements. (Woodstock)
- 108 Ox Rd./Falcon Drive**  
Long-term add a westbound right turn lane, a northbound right turn lane, and a southbound left turn lane. (Woodstock)
- 109 New Interchange on I-81 N. Side of Woodstock**  
Long-term construct new interchange on I-81 providing access to VA 676, VA 604, VA 642, and US 11 (further study required to define specific improvements). (Woodstock)

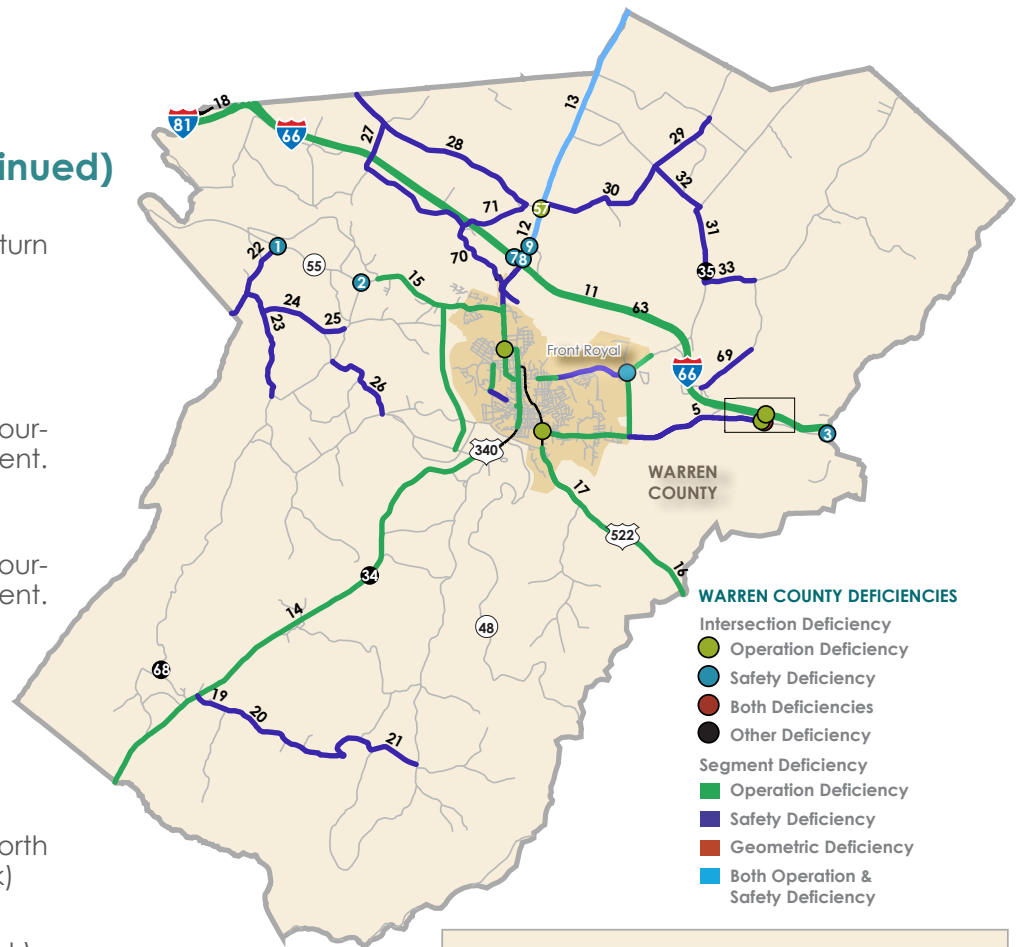


## SHENANDOAH COUNTY RECOMMENDATIONS (continued)

- 110 VA 42 (Reservoir Rd.)/Hisey Ave.**  
Mid-term construct southbound left turn lane and northbound right turn lane. (Woodstock)
- 111 US 11/Lora Drive (1,500 ft N. of Hoover Rd.)**  
Mid-term signalize intersection. (Woodstock)
- 112 VA 42 (Reservoir Rd.) from WCL of Woodstock to I-81 W.**  
Long-term improve and widen VA 42 from current configuration to four-lane urban divided standards and implement access management. (Woodstock)
- 113 VA 42 (Reservoir Rd.) from I-81 W. to Susan Ave.**  
Long-term improve and widen VA 42 from current configuration to four-lane urban divided standards and implement access management. (Woodstock)
- 114 Hisey Ave. Extension (N.) from Hisey Ave. to N. St.**  
Long-term extend Hisey Avenue from current northern terminus to North Street and construct extension to rural two-lane standards. (Woodstock)
- 115 Hisey Ave. Extension (Central) from Hisey Ave. to Spring St.**  
Long-term extend Hisey Avenue from current northern terminus to North Street and construct extension to rural two-lane standards. (Woodstock)
- 116 Hoover Rd. from Hisey Ave. Extension to Water St. Extension**  
Long-term reconstruct roadway to two-lane rural standards. (Woodstock)
- 117 Hisey Ave. (S.) from Hisey Ave. to Hoover Rd.**  
Long-term extend Hisey Avenue from current northern terminus to North Street and construct extension to rural two-lane standards. (Woodstock)
- 118 Ox Rd. from Hoover Rd. to Park Ave.**  
Long-term reconstruct roadway to two-lane rural standards. (Woodstock)
- 119 Massanutten Heights from Ox Rd. to Commerce St.**  
Long-term reconstruct roadway to two-lane rural standards. (Woodstock)
- 120 New Connector Roadway from VA 676 to Main St./Moose Rd. Intersection**  
Long-term construct roadway on new alignment to two-lane rural standards. (Woodstock)
- 121 Proposed Central High School Access Rd. from School Complex to Hoover Rd.**  
Long-term provide additional access to the school for improved circulation. (Woodstock)
- 122 E. Reservoir Rd. from US 11 to 0.133 M. E. US 11**  
Mid-term reconstruct approach to standards. (Woodstock)
- 123 VA 667 (Lupton Rd.) from Hollingsworth St. to VA 668 (French Woods Rd.)**  
Mid-term reconstruct roadway to standards. (Woodstock)
- 124 VA 668 (French Woods Rd.) from VA 667 (Lupton Rd.) to VA 758 (Cemetery Rd.)**  
Mid-term reconstruct roadway to standards. (Woodstock)
- 125 VA 758 (Cemetery Rd.) from S. Water St. to VA 668 (French Woods Rd.)**  
Mid-term reconstruct roadway to standards. (Woodstock)
- 126 Indian Spring Rd. from Jackson St. to Hollingsworth Rd.**  
Long-term construct east extension of Indian Spring Road on new alignment at two-lane rural standards. (Woodstock)

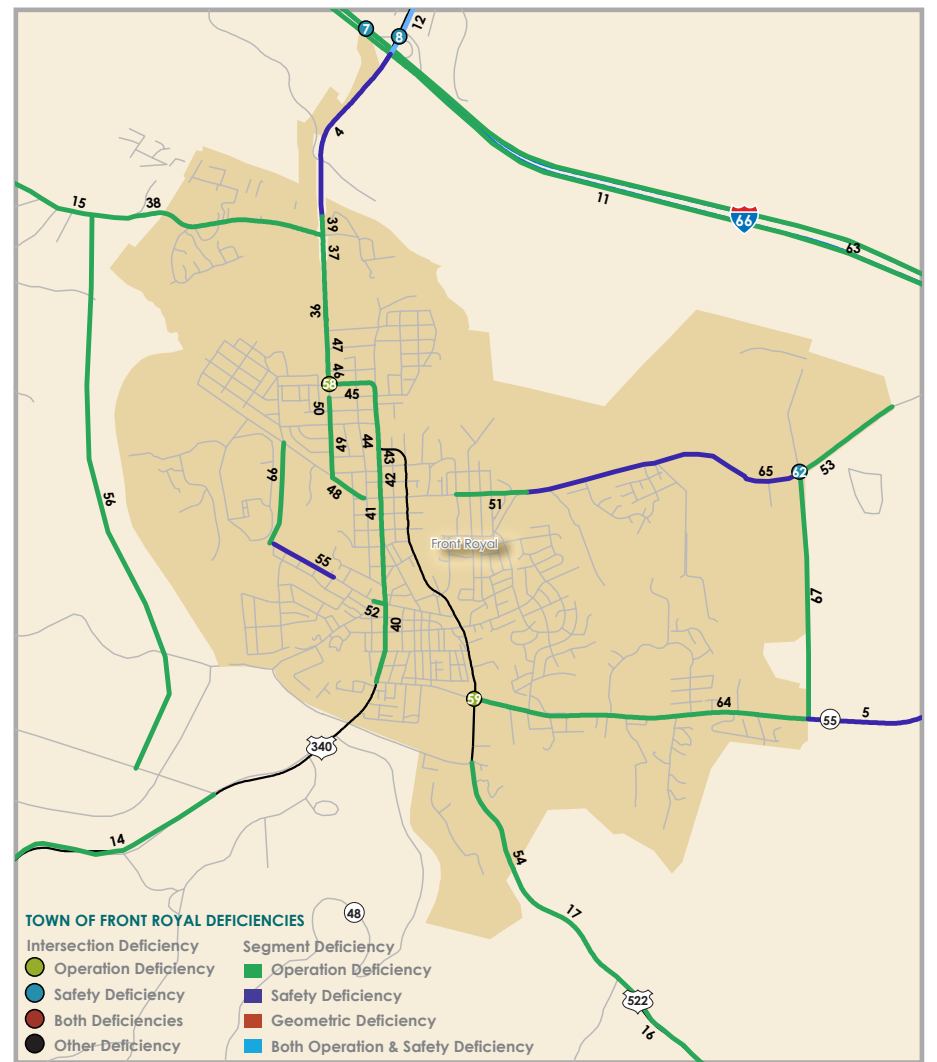
## WARREN COUNTY RECOMMENDATIONS

- 1 VA 55 (Strasburg Rd.) at VA 678 (Fort Valley Rd.)/VA 610 (Bucks Mill Rd.)**  
Short-term add stop bar to VA 678 approach; Mid-term add westbound left turn bay and eastbound right turn bay.
- 2 VA 55 (Strasburg Rd.)/VA 626 (Totten Rd.)**  
Short-term add stop bar to VA 626 approach; Mid-term widen VA 626 to twelve-foot lanes and add westbound left turn lane to separate turning traffic; Long-term realign roadway to the west to correct horizontal/vertical curve.
- 3 VA 55 (John Marshall Hwy.)/VA 638 (Freezeland Rd./Fiery Run Rd.)**  
Short-term reconstruct roadway to standards; Mid-term widen VA 55 approaches to accommodate left and right turn lanes, widen Fiery Run Road and Freezeland Road to twelve-foot lanes; Long-term monitor for need of a signal.
- 4 US340/522 from N. Fork Shenandoah River to I-66**  
Short-term perform study to determine safety improvements along this corridor, such as signalizing key intersections or reducing speed limit; Mid-term provide locations for mid-block U-turns south of VDOT Park & Ride lot.
- 5 VA 55 (John Marshall Hwy.) from ECL Front Royal to VA 79**  
Short-term reduce speed limit from 55 to 45 mph; Long-term widen VA 55 to four-lane rural standards.
- 6 VA 79 from VA 55 (John Marshall Hwy.) to I-66**  
Short-term review signal timing plans; Long-term widen to four-lane rural standards, add westbound I-66 to southbound VA 79 loop ramp, realign eastbound ramps to single signalized intersection, and add second eastbound left turn lane and convert southbound right into a free flow right turn movement at VA 55 and VA 79 junction.
- 7 I-66 at Exit 6 Westbound Onramp Merge-point/Bridge**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 8 US 340 (Winchester (N.))**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 9 US 340 (Winchester Rd.)/VA 655 (Country Club Rd.)**  
Deficiency with low priority. Continue to monitor for potential improvements.
- 10 VA 55 (John Marshall Hwy.)/VA 79**  
Lengthen southbound right turn lane. Continue to monitor for additional improvements after lengthening turn bay.
- 11 I-66 from I-81 Northbound Onramp to Fauquier Co. Line**  
Long-term widen to rural six-lane roadway with median.
- 12 US 340 from I-66 to VA 658**  
Short-term reduce speed limit from 55 to 45 mph; Mid-term add street lighting, reflectors, and puppy tracks at intersections in commercial strip and apply access management; Long-term widen to rural six-lane roadway with median.
- 13 US 340 from VA 658 to Clarke Co. Line**  
Mid-term add street lighting, reflectors, and apply access management; Long-term widen to rural six-lane roadway with median.
- 14 US 340 from Page Co. Line to VA 619**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 15 VA 55 (Strasburg Rd.) from VA 626 E. to WCL of Front Royal**  
Long-term widen to rural four-lane roadway with median.
- 16 US 522 (Zachary Taylor Ave.) from Rappahannock Co. Line to VA 604**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 17 US 522 (Zachary Taylor Ave.) from VA 604 to SCL of Front Royal**  
Long-term widen to rural four-lane roadway with median.
- 18 I-81 from Shenandoah Co. Line to Frederick Co. Line/I-66**  
Long-term reconstruct road to rural six-lane standards (project in environmental stage).
- 19 VA 613 (Bentonville-Browntown Rd.) from US 340 E. to VA 630**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 20 VA 613 (Bentonville-Browntown Rd.) from VA 630 to VA 738**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 21 VA 613 (Bentonville-Browntown Rd.) from VA 738 to VA 649**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 22 VA 678 (Fort Valley Rd.) from Shenandoah Co. Line to VA55**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 23 VA 619 (Mountain Rd.) from VA 678 to VA 626**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 24 VA 615 from VA 660 to VA 619**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 25 VA 660 from VA 626 to VA 615**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).



## WARREN COUNTY RECOMMENDATIONS (continued)

- 26 VA 615 from VA 619 S. to VA 626 E.**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 27 VA 637 (River Rd.) from VA 626 to VA 627**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 28 VA 627 from Frederick Co. Line to VA 609**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 29 VA 658 (Rockland Rd.) from VA 639 W. to VA 661**  
Long-term reconstruct road to address geometric deficiencies (11-foot lanes).
- 30 VA 658 (Rockland Rd.) from VA 661 to US 522**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 31 VA 624 (Morgan Ford Rd.) from VA 661 to VA 643**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 32 VA 661 (Fairground Rd.) from VA 658 to VA 624**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 33 VA 643 from VA 624 to VA 603**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders).
- 34 US 340/Bridge over Gooney Creek**  
Short-term replace bridge.
- 35 VA 624 (Morgan Ford Rd.)/Bridge over Shenandoah River (Structure 6019)**  
Short-term replace bridge.
- 36 US 340/522 (S. Fork Bridge) from 18th St. to New NCL of Front Royal**  
Long-term widen bridge to standards to provide five-lane section plus bike/pedestrian lanes. (Front Royal)
- 37 US 340/522 (S. Fork Bridge) from New NCL of Front Royal to Strasburg Rd.**  
Long-term widen bridge to standards to provide five-lane section plus bike/pedestrian lanes. (Front Royal)
- 38 VA 55 (Strasburg Rd.) from WCL of Front Royal to US 340/522**  
Long-term widen to rural four-lane roadway with median. (Front Royal)
- 39 US 522 (Shenandoah Ave.) from VA 55 W. to Old NCL of Front Royal**  
Long-term widen to rural four-lane roadway with median. (Front Royal)
- 40 US 340 (S. Royal Ave.) from S. St. to E. Main St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 41 US 340 (N. Royal Ave.) from E. Main St. to Sixth St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 42 US 340 (N. Royal Ave.) from Sixth St. to Eighth St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 43 US 340 (N. Royal Ave.) from Eighth St. to Commerce St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 44 US 340 (N. Royal Ave.) from Commerce St. to 14th St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 45 US 522 (14th St.) from N. Royal Ave. to Shenandoah Ave.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 46 US 522 (Shenandoah Ave.) from 14th St. to 15th St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 47 US 522 (Shenandoah Ave.) from 15th St. to 18th St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 48 VA 4006 (Kendrick Lane) from Shenandoah Avenue to 6th St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 49 VA 4010 (Shenandoah Ave.) from Kendrick Lane to 12th St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 50 VA 4010 (Shenandoah Ave.) from 12th St. to 13th St.**  
Long-term upgrade to urban four-lane roadway. (Front Royal)
- 51 VA 4006 (6th St.) from Bel Air Ave. to Happy Creek Rd.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Front Royal)
- 52 VA 4004 (W. Main St.) from Luray Ave. to N. Royal Ave.**  
Deficiency with low priority. Continue to monitor for potential improvements. (Front Royal)
- 53 VA 4006 (Happy Creek Rd.) from Leach Run Parkway to ECL of Front Royal**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders). (Front Royal)
- 54 US 522 (Chester Gap Rd.) from SCL of Front Royal to Criser Rd.**  
Long-term widen to rural four-lane roadway with median. (Front Royal)
- 55 VA 4004 (W. Main St.) from Viscose Ave. to N. Ave.**  
Long-term reconstruct road to address geometric deficiencies (including full-width lanes and shoulders). (Front Royal)



- 56 Western Bypass from VA 619 to VA 55**  
Long-term construct new roadway to two-lane rural standards. (Front Royal)
- 57 US 340/522 at Reliance Rd./Rockland Rd.**  
Long-term realign Rockland Road and install traffic signal. (Front Royal)
- US 340/522/14th St.**  
Long-term add second westbound right turn lane and modify signal timing. (Front Royal)
- 58 VA 55/Commerce Ave.**  
Long-term realign intersection to increase intersection spacing and install traffic signal. (Front Royal)
- 59 VA 55/Dismal Hollow Rd.**  
Long-term realign intersection to increase intersection spacing and install traffic signal. (Front Royal)
- 60 I-66/VA 79**  
Long-term modify existing interchange configuration from a diamond ramp to a loop ramp for the westbound to southbound movement. (Front Royal)
- 61 Leach Run Pkwy./Happy Creek Rd.**  
Mid-term construct Happy Creek Road interchange to eliminate at-grade railroad crossing. (Front Royal)
- 62 I-66/the Existing VA 606 Overpass**  
Long-term construct a diamond interchange to connect with an improved VA 606. (Front Royal)
- 63 VA 55 Widening from Commerce Ave. to ECL Front Royal**  
Long-term widen VA 55 to four-lane urban divided standards. (Front Royal)
- 64 VA 647 (Happy Creek Rd.) from 6th St. to VA 606**  
Short-term reconstruct roadway to two-lane urban standards; Long-term realign Happy Creek Road and Sixth Street intersection. (Front Royal)
- 65 New Local Connector Roadway from Kerfoot Ave. to Massanutten Ave.**  
Long-term construct new roadway to two-lane urban standards. (Front Royal)
- 66 Leach Run Pkwy. from VA 606 to VA 55**  
Long-term construct roadway to four-lane urban divided standards on existing or new alignment and construct interchange to eliminate at-grade railroad crossing. (Front Royal)
- 67 VA 613 (Indian Hollow Road) at bridge over South Fork Shenandoah River**  
Short-term replace bridge.
- 68 VA 603 (Oregon Hollow Road) from VA 647 (Dismal Hollow Road) to Khyber Pass Road and Rockwood Lane**  
Long-term widen roadway and shoulders.
- 69 VA 637 (Guard Hill Road) from 0.3 miles East of US 522 to VA 626 (North River Road)**  
Long-term upgrade roadway to include lane widening, spot alignment improvements, and drainage improvements.
- 70 VA 609 (Rittenour Hollow Road) from VA 637 (Guard Hill Road) to VA 627 (Reliance Road)**  
Long-term upgrade roadway to include lane widening, spot alignment improvements, and drainage improvements

## Public Transportation

One set of deficiencies and recommendations (base year and forecast year) was developed for the public transportation component of the Plan. Deficiencies and recommendations were compiled primarily from the CHSM Plan (DRPT, *Northern Shenandoah*, 2008) and from the VRT transit development plan (VRT, 2009). The CHSM Plan resulted mainly in strategies to address deficiencies. These strategies include:

- Continue to support capital needs of coordinated human service and public transportation providers;
- Expand availability of demand-response and specialized transportation services to provide additional trips for older adults, people with disabilities, and people with lower incomes;
- Build coordination among existing public transportation and human service transportation providers;
- Expand outreach and information on available transportation options in the region, including establishment of a centralized point of access;
- Provide flexible transportation options and more specialized one-to-one services through expanded use of volunteers;
- Establish or expand programs that train customers, human service agency staff, medical facility personnel, and others in the use and availability of transportation services;

*The VRT has developed a long-range plan for transit services for the region and is pursuing expanded service with local jurisdictions.*

- Establish a ride-sharing program for long-distance medical transportation;
- Expand access to taxi and other private transportation operators;
- Implement new public transportation services or operate existing public transit services on more frequent basis;
- Bring new funding partners to public transit/human service transportation; and
- Provide targeted shuttle services to access employment opportunities.

The VRT has developed a long-range plan for transit services for the region and is pursuing expanded service with local jurisdictions. The transit development plan includes service and capital improvement recommendations. Changes in the service within the region could include expanded flexible (deviated) fixed route service in all of the counties.

The review of disadvantaged population groups determined that there is access to fixed-route or public demand-responsive service by most of these populations. However, the population in western Frederick County and Shenandoah County have very little access to public transportation.



The airports in the NSV are expected to continue to be important to the transportation network in the future.

## Airports

The airports in the NSV are expected to continue to be important to the transportation network in the future. The *Virginia Air Transportation System Plan Update* forecasts future (2020) growth of operations and aircraft based at airports. In the NSV, the plan projects growth of 1.9% of based aircraft at Winchester Regional Airport, 0.5% growth at New Market, 0.9% at Front Royal-Warren County, and no growth at Luray Caverns (VADOA, 2003).

## Goods Movement

The transfer of some goods shipments from roadway to rail has the potential to strengthen rail freight services offered, while also reducing the number of long-haul tractor-trailers trips and preserving or possibly enhancing roadway Level-of-Service (LOS). This transfer is possible when rail sidings are available both at the origin and destination of the goods. Even with this transfer, short-distance truck shipments are still necessary between the shipper and the siding. The key freight corridors will continue to include: I-66, I-81, US 11, US 17, US 50, US 340, VA 7, and VA 42.

There are currently improvements proposed for the Norfolk Southern Crescent Corridor (DRPT, *Virginia*, 2008). Added capacity along both the Shenandoah line, that parallels I-81, and the Piedmont line, that parallels US 29 east of the region, is expected to transfer more truck shipments from I-81 to this rail corridor. For Class III carriers, the greatest identified need in the *Virginia Statewide Rail Plan* is to "improve all railroads to meet Federal Railroad Administration Class 2 track standards for freight and Class 4 track standards for passenger trains" (DRPT, *Virginia*, 2008). These improvements are expected to take twenty years to complete.



## Land Use and Future Growth

Future land use and potential future growth areas were reviewed and identified by the PDC in conjunction with the individual jurisdictions. These areas were used in the analysis of the roadway network to review existing traffic forecasts for the individual roadways and to produce new forecasts. The analysis was then used to prepare the recommendations. Due to the regional topography and the location of the George Washington and Jefferson National forests and the widespread presence of agriculture in the region, the land use in the much of the region is not expected to change. Based on the comprehensive plans of the individual jurisdictions, future land use is to remain well-balanced with centralized areas of new and in-fill development so that the setting of the existing land uses stay within their rural character. The jurisdictions are also working to coordinate future land use development between the counties and the towns and cities that lie within their individual boundaries. Preserving open space is one of the highest priorities of the jurisdictions, as well as designating village centers for growth and focusing future growth and development where utilities and services already exist.

*Future land use and potential future growth areas were reviewed and identified by the rural technical committee in conjunction with the individual jurisdictions.*



## Bicycle and Pedestrian Facilities

Determination of the need for bikeways and pedestrian facilities is dependent on several factors. One is to define areas for development that have numerous trip generators and attractors, such as neighborhoods, parks, schools, and shopping areas. Another factor in development is the determination of areas appropriate for extensions of existing routes and paths to provide better links between facilities. Analysis is more qualitative than quantitative in nature with recommendations closely aligned with local desires.

The primary source of recommendations was the individual jurisdictions' comprehensive plans and *Walking and Wheeling the Northern Shenandoah Valley*. The regional plan, as well as comprehensive plans, land use plans, or bicycle plans of all the counties, endorse the concept of pedestrian and bicycle facilities. The facilities recommended in *Walking and Wheeling* include: a Regional Project - US 340 Front Royal to Luray; a Town to Town Project - US 11 Corridor; and a Local Project - Winchester (Shenandoah University Area) (NSVRC, 2004).

## Travel Demand Management

In rural areas, low residential densities and dispersed work destinations are generally not conducive to high public transportation use. However, the region does have concentration of work destinations in the cities within the region, as well as in Northern Virginia and Washington, DC. Decreases in single-occupant vehicle trips are possible within the valley and on heavily traveled commuter routes, particularly I-66, I-81, US 11, US 50, US 340, VA 7, and VA 55.

The individual services of RideSmart will be important tools for decreasing single-occupant vehicle trips, particularly during the peak hour. Park and ride lots in the region are also expected to maintain their importance to the commuting population.



## PLAN ADOPTION

The 2035 Rural Long Range Transportation Plan for the NSVRC was adopted by the Regional Commission on August XX, 2011. This Plan will serve as a long term strategy for the transportation network of the region and as a component of the *2035 Surface Transportation Plan*. Projects can be prioritized for funding based on the recommendations that have been identified. Further information on this Plan and the *2035 Surface Transportation Plan* and *VTrans 2035* can be found at [www.vdot.virginia.gov](http://www.vdot.virginia.gov).

*In rural areas, low residential densities and dispersed work destinations are generally not conducive to high public transportation use.*



## REFERENCES

Northern Shenandoah Valley Regional Commission, *Walking and Wheeling the Northern Shenandoah Valley*. Front Royal, VA: NSVRC, 2004.

U.S. Department of Commerce, Bureau of the Census, SF3, 1990, 2000.

Virginia Department of Aviation, *The Virginia Air Transportation System Plan Update: 2003 Technical Report*. Richmond, VA: DOAV, 2003.

Virginia Department of Rail and Public Transportation, *Northern Shenandoah Valley Regional Commission Coordinated Human Service Mobility Plan*. Richmond, VA: DRPT, 2008.

Virginia Department of Rail and Public Transportation, *Virginia Statewide Rail Plan - Draft*. Richmond, VA: DRPT, 2008.

Virginia Employment Commission, *Population Projections by Gender, Age, and Race/Ethnicity*, [www.vec.virginia.gov](http://www.vec.virginia.gov). Richmond, VA: VEC, 2009.

Virginia Regional Transit, *Six Year Transit Development Plan (2008-2013)*. Purcellville, Virginia: VRT, 2009.

Weldon Cooper Center for Public Service, University of Virginia, *Population Estimates for Virginia Localities, Planning Districts, and Metropolitan Areas: Final 2007 and Provisional 2008*. Charlottesville, VA: Weldon Cooper Center for Public Service, January 2009.