

## Chapter 8:

# Transportation

Approved by Board of Supervisors August 23, 2016

### 1.0 Introduction

Transportation in and through Shenandoah County consists of six components:

- Roads and highways
- Taxi and bus service
- Transportation provided by local human service agencies and organizations
- Airports
- Rail
- Trails (pedestrian, biking, hiking etc.)

### 1.1 Glossary of Terms

The **Virginia Department of Transportation (VDOT)** is responsible for building, maintaining, and operating the state's roads, bridges, and tunnels. And through the Commonwealth Transportation Board, it provides funding for airports, seaports, rail, and public transportation. Virginia has the third-largest-state-maintained highway system in the country, behind Texas and North Carolina.

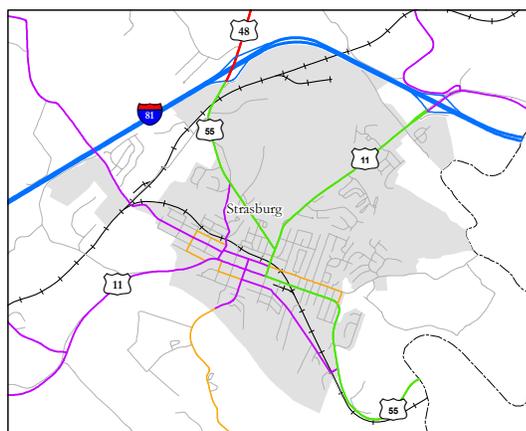
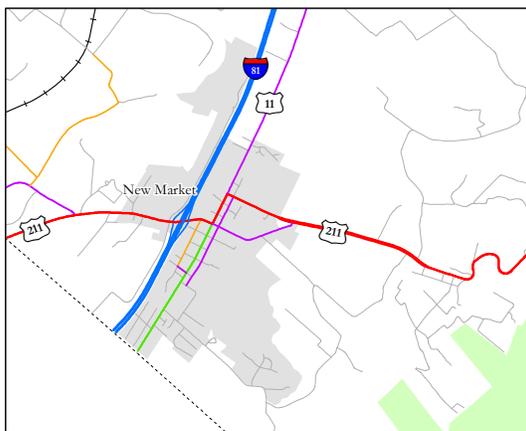
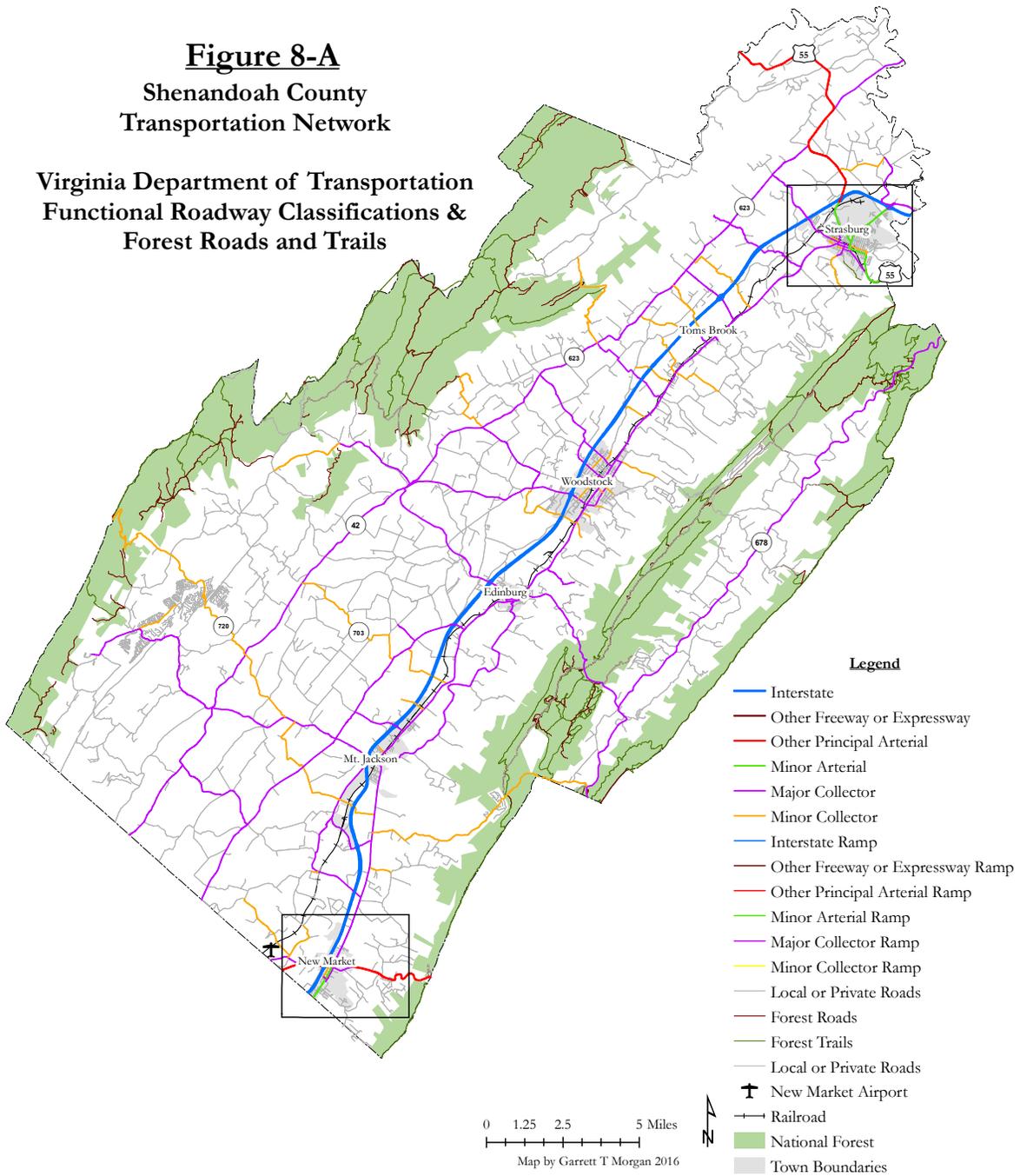
The **Virginia Department of Conservation and Recreation (DCR)** works to give individuals, businesses, communities and all levels of government the tools and information needed to make wise decisions in conserving Virginia's natural and recreational resources. The agency manages, protects and provides access to numerous state parks throughout the commonwealth.

The **Northern Shenandoah Valley Regional Commission (NSVRC)** encompasses the five counties in the northwest corner of Virginia -Clarke, Frederick, Page, Shenandoah, Warren and all jurisdictions within- as well as the City of Winchester. The NSVRC exists to bring these local governments together to pursue common goals, work together on regional issues and find efficiencies through collaboration.

The NSVRC is one of 21 planning district commissions established by the Commonwealth of Virginia. Each commission serves a planning district, which is a political subdivision of the Commonwealth chartered under the Regional Cooperation Act. The Regional Commission is made up of elected officials and citizens appointed

**Figure 8-A**  
**Shenandoah County**  
**Transportation Network**

Virginia Department of Transportation  
 Functional Roadway Classifications &  
 Forest Roads and Trails



to the Commission by local governments.

## **I.2 Functional Classification of Road Network**

Based on the National Highway Functional Classification Study, the Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration, has classified all public roads and highways in Shenandoah County into six categories: interstate, principal arterial, minor arterial, major collector, minor collector, and local access road. They are shown in Figure 8-A and discussed below:

**Interstate highways** are designed to carry a large volume of through traffic between large cities. They form a national network of multi-lane, limited-access highways which carry traffic at relatively high speeds. I-81 runs through the entire length of the county and links it to the Middle Atlantic states.

**Principal arterials** serve substantial traffic of moderate trip length. These routes are generally four lanes in width. Route 211 and Route 55 are the only principal arterials in Shenandoah County.

**Minor arterials** form a highway network that forms links between towns and other traffic generators. They also connect to principal arterials and/or the interstate system. The only minor arterial in the county is Route 55 East of Strasburg.

**Major collectors** provide service to towns not directly linked to an arterial or interstate highways, to other traffic generators, and serve the important intra-county travel corridors. Major collectors in the county include US Route 11 and State Routes 42, 263, 623, and 678.

**Minor collectors** collect traffic from local access roads, rural villages, and locally important traffic generators, and bring all developed areas within a short distance of a major collector. Minor collectors in the county include State Routes 720 and 703.

**Local access** roads provide direct access to adjacent land uses, and facilitate short distance travel.

VDOT provides design standards which must be met when developing any public roadway, depending upon the proposed road's classification and use.

## **2.0 Existing Transportation Network**

The most visible mode of transportation is the road network and the vehicles which travel on it (see Figure 8-A & 8-B for a complete Shenandoah County road inventory). As of December 31, 2013 (latest figures available) Shenandoah County contained 741.15 miles of roads in the Virginia Department of Transportation (VDOT) system, as follows:

<b>Figure 8-A: Shenandoah County Road Mileage 2013</b>	
<b>Interstate Highway</b>	<b>32.04</b>
<b>Primary Highway</b>	<b>94.19</b>
<b>Secondary Roads</b>	
Hard Surface*	439.38
All-Weather Surface**	164.69
Light Surface***	10.09
Unsurfaced****	.76
<b>Total Secondary Road Mileage</b>	<b>614.92</b>
<b>Total Road Mileage</b>	<b>741.15</b>
* concrete, pavement, or tar & chip ** graded gravel with drainage *** graded dirt with drainage **** ungraded, undrained dirt/grass <i>Source: VDOT Mileage Tables, 2013</i>	

There are 381 bridge structures in Shenandoah County, including many “low-water” bridges. This extensive system of bridges included in the County’s road system poses a significant challenge in maintaining and upgrading it. Progress has been made over the years to upgrade unsurfaced or gravel roads to hard surfaced roads. There are still existing roads that need to be upgraded. As of December 2013, 175 miles (28 percent of the secondary road system) were not hard surfaced.

## 2.1 Interstate 81

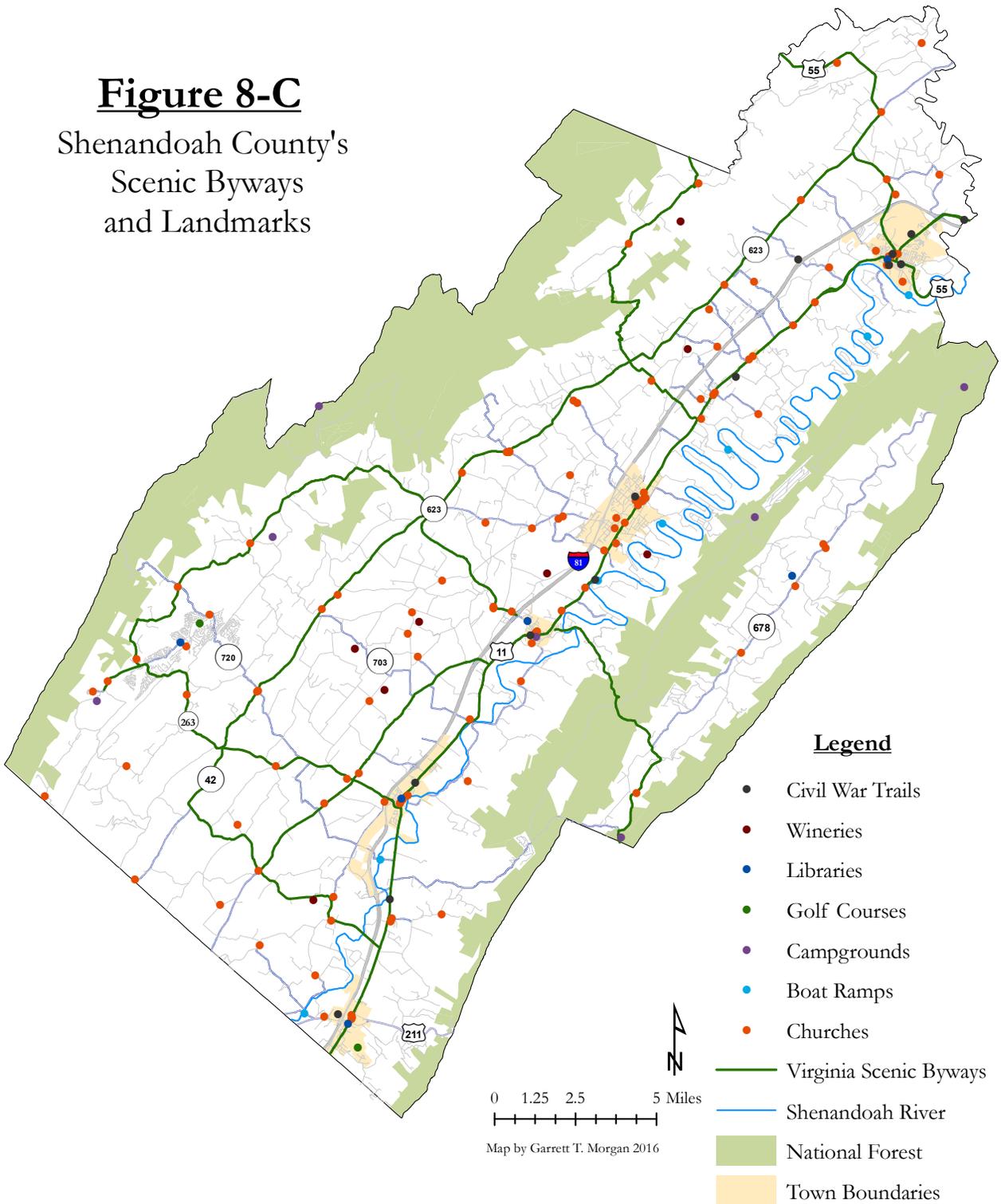
Interstate I-81 runs north and south through the entire length of Shenandoah County, approximately 32 miles. This limited access highway serves local, intrastate, and interstate traffic. Increases in traffic volumes and projections for the future have raised concerns about the need to improve this important transportation link. The Shenandoah County Board of Supervisors has supported improvement plans which increase safety and improve traffic flow, such as additional climbing lanes, etc. Any changes to the footprint of I-81 should be carefully planned and coordinated to have the minimal impact on the scenic, environmental, historic, and agricultural resources of the county.

## 2.2 Scenic Byways

In April 2000, Shenandoah County proposed several roadways that travel through scenic, historic and tourism-related areas in the County to be designated as Scenic Byways by the Commonwealth Transportation Board. After review by both VDOT and the Department of Conservation and Recreation, who jointly administer this program, the following 10 roads were designated Scenic Byways:

- Rt. 211: From New Market to Page County line
- Rt. 11: Entire length in Shenandoah County
- Rt. 42: Entire length in Shenandoah County
- Rt. 263: Entire length in Shenandoah County

**Figure 8-C**  
 Shenandoah County's  
 Scenic Byways  
 and Landmarks



- Rt. 55: Entire length in Shenandoah County
- Rt. 717: Entire length (Rt. 675 to Basye)
- Rt. 614: Bowman's Crossing to Forestville
- Rt. 675: From Page County line to intersection with Rt. 717
- Rt. 623: Entire length (from Columbia Furnace to Rt. 55)
- Rt. 600: From Rt. 11 to Frederick County line

Together, these routes form a network of roads allowing motorists access to the scenic and historic assets of the county. Scenic Byways in the county are shown in Figure 8-C.

## **2.3 Rural Rustic Roads**

The Rural Rustic Road Program is a practical approach to paving Virginia's low volume unpaved roads. The concept is the paving of existing unpaved roads with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders. The new hard-surfaced road is on the same horizontal and vertical alignment as the prior gravel impervious area. Furthermore, a focal point of the program is on leaving trees, vegetation, side slopes, and open drainage abutting the roadway, undisturbed to the maximum extent possible. The County commits to future cooperation with VDOT for the identification and implementation of unpaved roadway improvements.

## **2.4 Forest Roads**

With the George Washington National Forest comprising almost one-quarter of the land area of the county, there is a 125-mile network of forest roads owned by the federal government. The U.S. Forest Service maintains these roads, and regulates their use over the year depending on weather conditions. Only a third of the roads are open all year long, with most roads being closed a portion of the year or not open at all to public use.

## **2.5 Private Roads**

In addition to the public road system, there are many private roads in Shenandoah County serving subdivisions of various sizes. Prior to 1997, private roads were frequently constructed without adequate consideration of travel width, grade, curvature, roadbed, paving or long-term maintenance.

In 1997, the county revised its subdivision ordinance to address the difficulties created by the unregulated construction of private roads. Generally, the ordinance requires that any new private roads constructed to serve more than two lots must be constructed according to Virginia Department of Transportation Subdivision standards. Existing private roads that do not meet such standards may not be used to serve any additional lots. Subdivision ordinance 142-20 (Streets) provides specific requirements for new private roads. (<http://www.ecode360.com/9740437>).

## 2.6 State Parks and National Forests

Seven Bends State Park is located in east-central Shenandoah County near the town of Woodstock. The park consists of 1,066 acres situated in the geographically unique Seven Bends area of the North Fork of the Shenandoah River. The park is governed by the Virginia DCR. In the park's 2008 master plan, one entrance is proposed for the park. Even though two roads provide access to the park, DCR determined that the "most direct route to bring visitors to the park [is] to use East Reservoir Road and South Hollingsworth Road to the park entrance." Further, the master plan states "These roads, and the low-water bridge, will need upgrades to secondary road standards. The bridge will have to be replaced before construction of the park can begin due to restricted approaches and limited weight capacity." As the park is built, the County will work in partnership with DCR and VDOT to ensure that the potential traffic impacts of the Park's growth are properly addressed.

## 2.7 Traffic Volumes

Traffic volumes are determined at a particular section of a road at a particular time. Volumes of a day or an hour can vary greatly, depending on the different day of the week or different time period of a day. For the purpose of this Chapter, traffic volumes are measured in units of Average Annual Daily Travel, or AADT, using 2014 Virginia Department of Transportation Daily Traffic Volume Estimates Including Vehicle Classification Estimates where available in Jurisdiction Report 85 for Shenandoah County prepared by Virginia Department of Transportation Traffic Engineering Division in Cooperation with the U.S. Department of Transportation and Federal Highway Administration. Traffic Volumes for the Shenandoah County's road network are shown in Figure 8-E. A detailed breakdown of select Primary and Secondary roads are shown in Figures 8-D and 8-F.

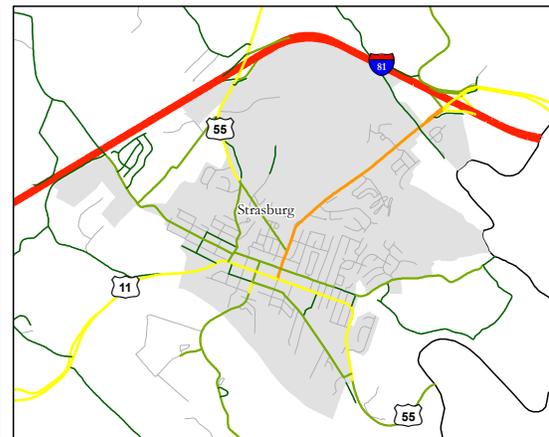
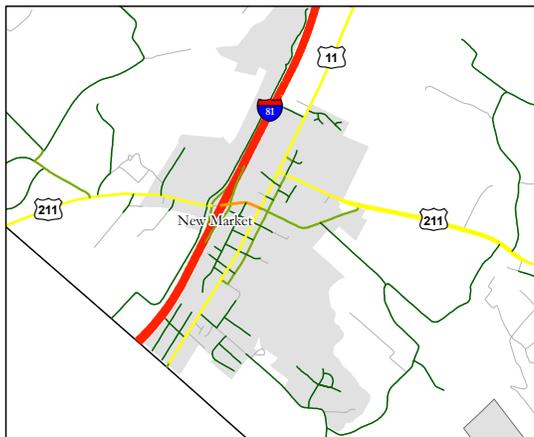
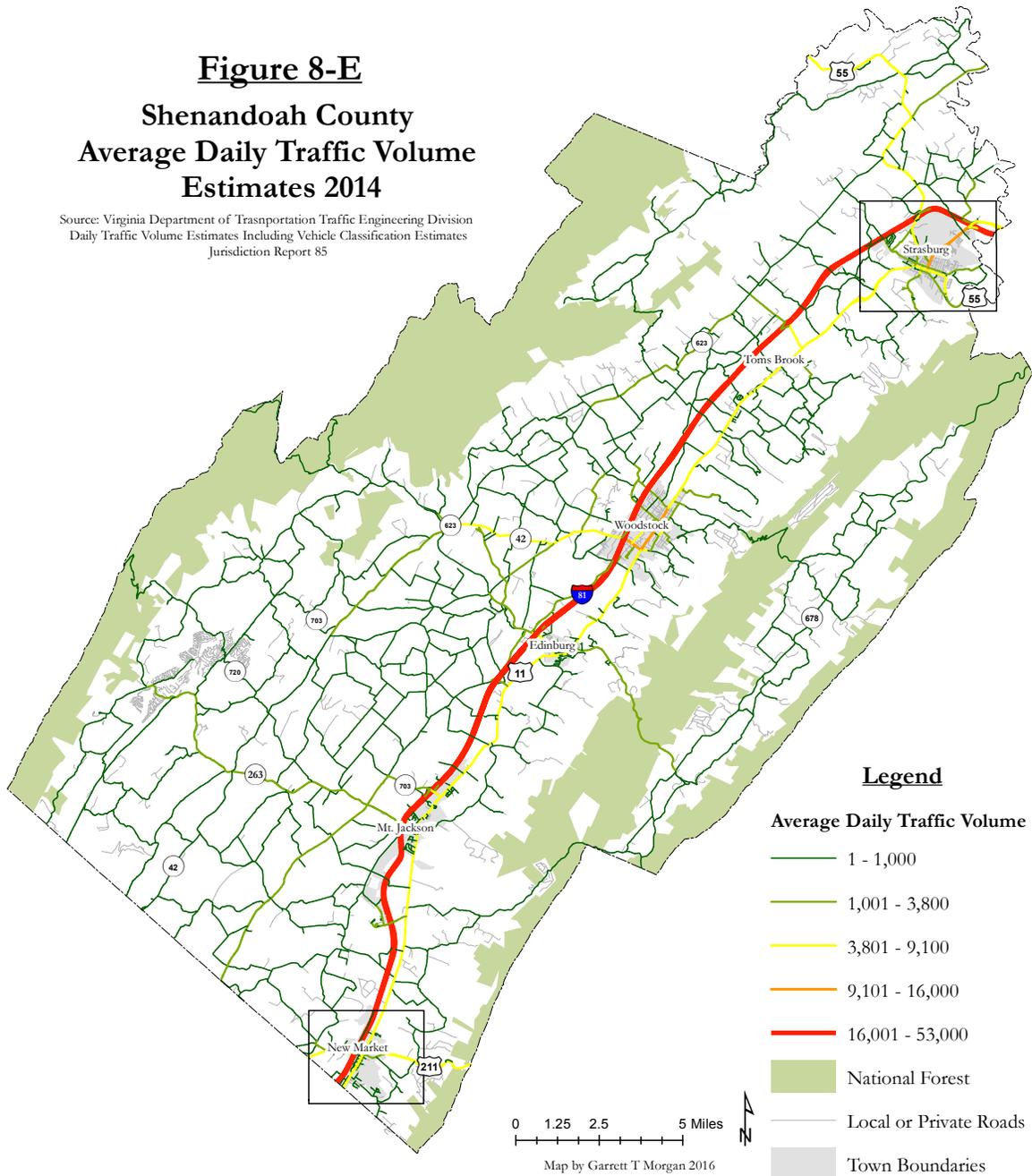
**Figure 8-D**  
**Annual Average Daily Traffic Volumes 2014**  
**Primary & Interstate**

Data from 2014 Virginia Department of Transportation Daily Traffic Volume Estimates Including Vehicle Classification Estimates  
 Jurisdiction Report 85: Shenandoah County, Towns of Edinburg, Mount Jackson, New Market, Strasburg, Toms Brook, and Woodstock  
 Prepared 4/21/2015 by Virginia Department of Transportation, Traffic Engineering Division

Route	Location	Northbound	Southbound	AADT
11	Strasburg	12,000	6,600	-
11	Toms Brook	6,900	6,900	-
11	Woodstock	7,500	7,800	-
11	Edinburg	6,100	5,500	-
11	Mount Jackson	5,500	4,900	-
11	New Market	5,200	3,900	-
42	at Woodstock	-	-	15,000
42	at I-81	-	-	14,000
42	at Columbia Furnace	-	-	3,900
42	at Rockingham County Line	-	-	1,200
55	Front Royal Road	-	-	3,600
55	at Route 11 Strasburg	-	-	6,800 (East)
55	at Route 11 Strasburg	-	-	13,000 (West)
55	at Lebanon Church	-	-	6,200
55	at Frederick County Line	-	-	4,800
81	at St. Rte. 55	25,000	25,000	50,000
81	Woodstock	21,000	24,000	45,000
81	St. Rte. 42	21,000	24,000	45,000
81	St. Rte. 292	21,000	21,000	42,000
81	New Market	19,000	19,000	37,000
81	at Rockingham County Line	21,000	20,000	41,000
211	at I-81 West of New Market	-	-	10,000
211	at New Market	-	-	5,900
211	at Rockingham County Line	-	-	6,300
263	at Mount Jackson	-	-	3,100
263	at St. Rte. 42	-	-	1,900
292	at I-81 Mount Jackson	-	-	9,100

**Figure 8-E**  
**Shenandoah County**  
**Average Daily Traffic Volume**  
**Estimates 2014**

Source: Virginia Department of Transportation Traffic Engineering Division  
 Daily Traffic Volume Estimates Including Vehicle Classification Estimates  
 Jurisdiction Report 85



**Figure 8-F**  
**Annual Average Daily Traffic Volumes 2014**  
**Select Secondary and Local Roads**

Data from 2015 Virginia Department of Transportation Daily Traffic Volume Estimates Including Vehicle Classification Estimates  
 Jurisdiction Report 85: Shenandoah County, Towns of Edinburg, Mount Jackson, New Market, Strasburg, Toms Brook, and Woodstock  
 Prepared 4/21/2015 by Virginia Department of Transportation, Traffic Engineering Division

Route	Location	AADT
600	Rte. 623 Back Rd.	220
600	Rte. 11	280
604	Rte. 677 Baker House Lane	1,400
604	Rte. 763 Patmos Road	1,300
604	at Back Road	900
611	St. Rte 263	710
611	Rte. 703	240
614	at I-81 Ramp	1,200
614	Rte. 708	960
614	St. Rte. 42	1,200
623	Zepp Rd.	1,200
623	Fairview Rd.	1,200
623	St. Luke Rd.	840
623	Wolf Gap Rd.	1,200
628	St. Rte. 55	1,400
648	85-9090	2,600
648	Strasburg Middle School	1,200
648	Lineburg Lane	290
651	Tea Berry Road	1,100
651	US Rte. 11	4,400
651	I-81	2,500
675	Wakemans Grove Rd.	2,500
675	Johnstown Rd.	1,200
703	Scothern Rd.	2,900
703	South Middle Rd.	2,800
730	I-81	3,100
730	Industrial Park Rd.	1,900

### 3.0 Community Transportation/Mobility Resources

There is no public transit system in Shenandoah County. Access to inter-city bus service is available from locations in Winchester and Harrisonburg. If a citizen does not own or have access to a car, there are few options available in Shenandoah County for getting from one place to another.

There are two taxicab services listed in the local telephone directory: one in Strasburg and one in Woodstock. Private medical transportation (wheelchair or stretcher/gurney) is also listed in the local telephone directory and is available for hire.

The Shenandoah Area Agency on Aging (SAAA) offers rides to Active Living Centers so persons without transportation may fully participate in activities offered by the centers. In Shenandoah County, the Senior Center in Edinburg (a SAAA program) provides transportation to and from the Center with its van, picking up seniors at their homes in the morning and returning them to their homes in the afternoon after activities end. The area served by the Senior Center van is north to Woodstock and south to New Market.

WellTran provides pre-arranged fee-based transportation for persons 18 years and older who have a disability and persons age 60 and older. Additional transportation and mobility options may be available from a variety of voluntary associations or agency sources serving special needs populations, specifically identified groups or individuals (e.g. veterans traveling to Veterans Administration Martinsburg WV Medical Center provided van service by the local VFW Post #2447.)

Some agencies or organizations may have limited transportation resources available to assist individual clients who are participating directly in an agency-administered program. One available resource listing mobility options for transit-dependent persons is the Coordinated Human Services Mobility Plan ([http://www.drpt.virginia.gov/media/1126/northern-shenandoah\\_chsm\\_sept13.pdf](http://www.drpt.virginia.gov/media/1126/northern-shenandoah_chsm_sept13.pdf)), last updated in September 2013, for the area covered by the NSVRC, which includes Shenandoah County.

The region-wide document lists providers, describes client types, includes the number of available vehicles and also lists local contact information. The target populations identified in this document include the mentally and/or physically disabled, elderly, and people who are involved in welfare-to-work programs. Each of the 14 organizations operates transportation programs independently of one another. Additional opportunities for collaboration, improved efficiency, and increased service levels may exist.

No comprehensive assessment exists as to the overall need for transportation for the various groups of identified transportation-dependent persons and the adequacy of available resources. It appears, at least anecdotally, that a shortfall exists in available community resources for the population that requires these resources.

In addition to those previously identified groups, there appears to be an additional group of residents lacking reliable transportation to travel to and from work. This need severely limits this population's ability to find and sustain gainful employment.



## 4.0 Commuter Services

Services in the County are limited, but the NSVRC is actively involved in helping commuters with their travels. There are two Park and Ride lots sanctioned by VDOT:

- Just east of I-81 at exit 291 (Toms Brook) on Mt. Olive Road (Rt. 651) with 10 spaces;
- The Oranda Park and Ride at Rt. 629/ Rt. 11 (exit 298) with 46 spaces.

NSVRC works with VDOT to establish lots where needed and is working to have the Oranda Park and Ride expanded to include additional spaces.

NSVRC offers Ride Smart ([ridesmartva.org](http://ridesmartva.org)) which is a free matching service that helps residents in the northern Valley connect with others having similar commuting schedules. In conjunction with Ride Smart, emergency return home transportation is offered through Guaranteed Ride Home and may be used free of charge up to four times per year.

NSVRC also subsidizes persons wishing to create a van pool and the subsidy may be utilized until the pool becomes revenue neutral. More information on the van pool subsidy may be obtained by calling the NSVRC office in Front Royal at 540-636-8800. In addition to information listed here, searching the internet also yields information on services of interest to commuters.

## 5.0 Air Transportation

There are two general aviation airports in the County serving small aircraft, one in New Market and one at the Bryce Resort near Basye. New Market Airport (FAA ID 8W2) is a privately owned public use facility, located two miles west of New Market. It has a runway 2,920 feet long and 60 feet wide, operates low-intensity lighting from dusk to 10:00 PM, and has aviation fuel (100 LL) available.

Sky Bryce Airport (FAA ID VG 18) is a privately owned public use facility

found at Bryce Resort near Basye with a 2,240-foot by 50-foot runway located between mountain ridges. The airport is open from sunrise to sunset. No fuel is available.

Shenandoah County is a member of the Winchester Regional Airport Authority which operates the publicly owned Winchester Regional Airport (FAA ID OKV), located three miles southeast of Winchester and approximately 31 miles north of Woodstock, an all-weather general aviation airport with full ILS approach system with a runway 5,498 feet by 100 feet with high intensity lighting available for 24 hour flight operations, providing fuel and line services. Improvements include a new terminal building, additional hangars and new fueling facilities. Air charter service and flight instruction services are also available.

The Shenandoah Valley Regional Airport Commission operates the publicly-owned Shenandoah Valley Regional Airport (FAA ID SHD), located between Harrisonburg and Staunton at Weyers Cave. With a 6,002-foot by 150-foot runway, the airport is served by a commuter airline providing scheduled flights daily to one or more hub cities.

Washington Dulles International Airport (FAA ID IAD) is 26 miles from downtown Washington, DC and approximately 83 miles from Woodstock. In recent years, over 1.5M passengers per month and over 20M passengers annually on domestic and international flights arrive, depart, or pass through IAD.

## 6.0 Rail Transportation

The Norfolk Southern Railway System (NS) and the CSX Corporation both own facilities in the County, and the two railroads connect at Strasburg. All rail services are freight-only; there is no passenger service available. As of 2014, NS service was halted at Timberville, and the NS facilities in Shenandoah County have been classified as inactive. NS' decision to inactivate the lines instead of abandon the lines leaves open the possibility for the restoration of rail service in the future. However, NS' desire to retain the track prohibits conversion of the dormant track to a rail trail. CSX has maintained its freight rail service to the Strasburg area.

The Virginia Inland Port is located north of Front Royal approximately 15 miles from Shenandoah County. This facility provides daily rail service direct to the international shipping port of Hampton Roads, Virginia. This is a deep-water port with at least a 45-foot channel. The Inland Port offers excellent service to any businesses that wish to import or export materials and products.

## 7.0 Land Use, Economic, and Demographic Assumptions

The land use, growth, and demographic assumptions used to identify the transportation needs in the following section are outlined in previous chapters of the Comprehensive Plan. The three primary assumptions directly related to transportation are as follows:

- The assumptions for modest population growth are unlikely to drive significant transportation improvements.

- Planned County parks are unlikely to impact roads over the next 10 years.
- Railroads in the central and southern portions of the county will likely remain in disuse.

## 8.0 Assumption, Expected Needs, Recommended Improvements, and Cost Estimates

The existing transportation network has shortcomings that need to be addressed, and reasonable projections have been made about future changes in road use. The various issues that are expected to arise are detailed below.

A map of the recommended bridge, segment, and site improvements is illustrated in Figure 8-G.

### 8.1 Commercial Development

**Assumption:** If/when the planned development called Strasburg Commercial is built; transportation will be impacted as projected by the 2013 VDOT report, “Study of Borden Mowery Drive at Route 55.” Industrial uses also are likely to expand around I-81 near Strasburg.

**Need:** The VDOT report for Strasburg Commercial outlines potential future traffic needs at the intersection of I-81 and Rt. 55. Any expansion of quarry operations north of Strasburg may require safety and/or capacity improvements. Increased commuter traffic will require additional commuter lots. Traffic increases on Rt. 55 between Strasburg and Corridor H may call for capacity and safety improvements.

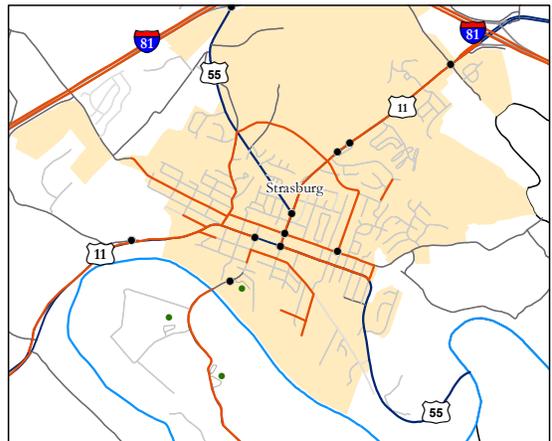
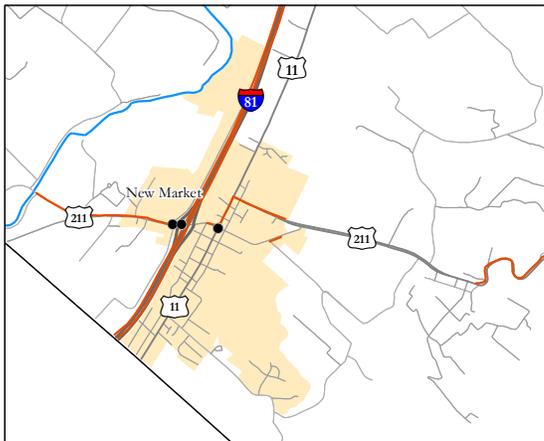
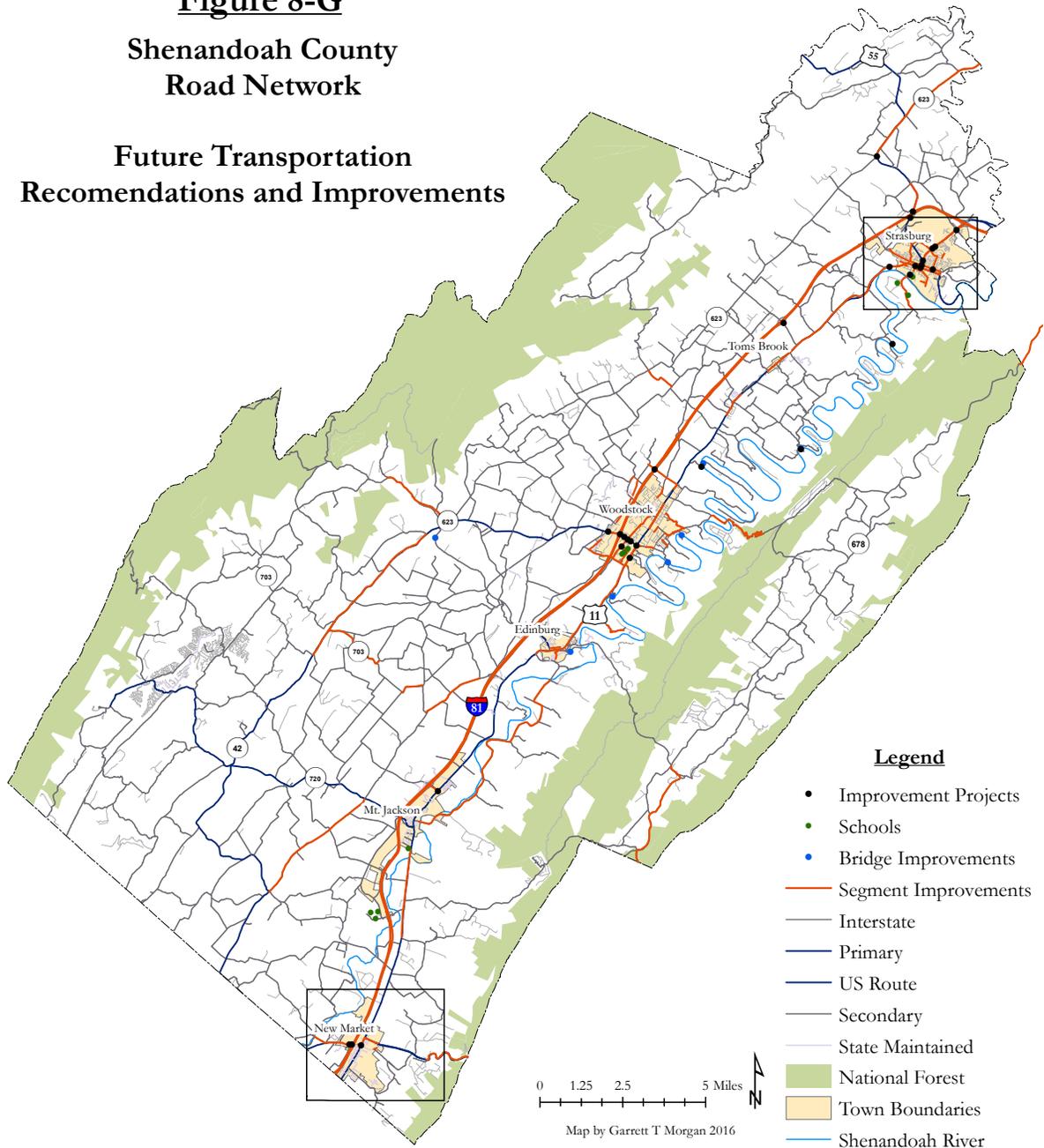
**Recommended Improvement:** As Strasburg Commercial is developed, the traffic improvements called for in the 2013 report, including a commuter park and ride, should be implemented. Near the quarry, improvements to Rt. 629 (and connecting roads) may be needed.

**Cost Estimates:** The VDOT has provided the following cost estimates for the Strasburg commercial study and the extension of Borden Mowery drive.

Strasburg Commercial Study 2020 Recommendations:

- Signalization of Rt. 55/Borden Mowery Dr. intersection and addition of South Bound left turn lane with 200’ of storage, transition tapers and modification of rail crossing: \$1,700,000.
- Rt. 55 / Aikens-Claytor development entrance intersection addition of North Bound Left turn lane with 200’ of storage, transition tapers and modifications of rail crossing (Developer to install traffic signal): \$1,200,000.

**Figure 8-G**  
**Shenandoah County**  
**Road Network**  
**Future Transportation**  
**Recomendations and Improvements**



- Signalization of Rt. 55/ 1-81B North Bound ramp intersection and addition of North Bound left turn lane with 200' of storage and transition tapers: \$1,500,000.
- Signalization of Rt. 55/ I-81 South Bound ramp intersection: \$500,000.

Extension of Borden Mowery Drive:

- Approximately 0.60 mile extension of 2 lane, ditch section road to Radio Station Road: \$1,500,000 (Estimate based on recently completed 0.43 mile extension of Borden Mowery Drive: UPC 98834: \$1,043, 416).

## 8.2 Commuter Traffic

**Assumption:** The current trend of high commuter traffic (of county residents) will continue and increase in the future, including on Rt. 55 between Strasburg and Corridor H in West Virginia.

**Need:** Traffic increases on Rt. 55 and the 298 interchange may call for capacity and safety improvements. Increased commuter traffic will require additional commuter lots. There are no commuter lots for southbound drivers in the New Market area.

**Recommended Improvement:** VDOT should monitor the traffic situation on Rt. 55 between Strasburg and Corridor H and address safety improvements as needed. Commuter lot capacity should be created at the intersection of Rt. 55 and I-81 near Strasburg (exit 296), and capacity should be increased at the intersection of Rt. 651 and I-81 near Toms Brook (exit 291). VDOT should explore the commuter needs and options for Park and Ride development in southern Shenandoah County. Commuter lot capacity should also be added at the existing Park and Ride facility at the 298 interchange.

**Cost Estimates:** Countywide Park n Ride Study to assess needs for new facilities and the expansion of existing facilities within the County: \$100,000.



*Left:* Traffic and Pedestrians visit locations during the Annual Route 11 Yard Crawl

### 8.3 Emergency Response

**Assumption:** During incidents on I-81, detours channel north-south traffic to Routes 11, 614 (Middle Road) and 623 (Back Road). These rural roads may not be designed for this traffic volume, which creates safety concerns.

**Need:** Congestion and safety issues commonly arise during detour events.

**Recommended Improvement:** VDOT should propose active and passive measures to minimize safety and congestion problems arising on Routes 11, 55, 614 and 623 during detour events. Specifically, completing the extension of Borden Mowery Dr. to Radio Station Rd. would help mitigate concerns when traffic is diverted between exits 296 and 298 on I-81. Further, VDOT should continue Designated Detour Route Planning, involving several/multiple incident location scenarios, with local first responder and County officials to further enhance safety and to further mitigate congestion conditions during incidents on I-81.

### 8.4 Farm Vehicle Traffic

**Assumption:** Large and slow-moving farm vehicles will continue to use main roads as part of daily farm activities, such as moving equipment between dispersed tracts. Drivers unfamiliar with such vehicles may cause safety problems. The sizes and speeds of these vehicles create additional issues.

**Need:** Driver education (e.g. road signs about farming equipment, ads in tourism publications, etc.) should be provided to alleviate traffic conflicts with large farm vehicles.

**Recommended Improvement:** Provide driver education (e.g. road signs about farming equipment, ads in tourism publications, etc.).

### 8.5 Schools

**Assumption:** School enrollment and delivery patterns will continue to increase and cause congestion and/or safety issues.

**Need:** Existing schools already experience traffic problems, and are at risk for more serious problems. Growing enrollment will very likely drive the need for road capacity and safety improvements.

**Recommended Improvement:** In the area of the northern school campus, the availability of only one exit road (across Sandy Hook Bridge) creates the potential for significant traffic problems. An alternative route will be needed over the long term, especially if additional enrollment capacity is added in the area. VDOT plans for a pedestrian bridge adjacent to Sandy Hook Bridge should be implemented. Further VDOT study and implementation is recommended to develop a second

crossing over the river as a second access route to the northern school campus in the event of an emergency. At the Central Campus, improvements to Hoover Road listed in the Woodstock transportation plan should be implemented.

**Cost Estimates:** Northern Campus Secondary Access Road Study to assess the need and potential location of a secondary access road to serve the northern school campus currently accessed by Sandy Hook Road: \$100,000.

Hoover Road Improvements: The relocation and realignment of roadway between Ox Road and South Main Street. VDOT UPC: 105053: \$4,600,000.

## 8.6 Bridges

**Assumption:** Many of the bridges in the county are old and past their projected use period. Additionally, low-water bridges are covered by water several times per year. Emergency vehicle (e.g. ambulances and fire trucks) access is critical, and should not be hindered by bridge disrepair or frequent flooding. Bridges must allow emergency vehicle access to provide for the safety of the community.

**Need:** Inspections of several VDOT bridges have revealed evidence of disrepair and have indicated a need for major repair or replacement. Low-water bridges subject to frequent flooding should be replaced with raised bridges less prone to flooding. Private bridges (for example, Black Bear and Helsley Bridges) also fall into this category.

**Recommended Improvement:** Bridge replacement projects within the county with their cost estimates provided by VDOT are illustrated below.

Bridge	UPC	Cost Estimate
Artz Rd. (Rt. 663) over NF of Shenandoah River	82769	\$3,220,000
Stoney Creek Rd. (Rt. 675) of Stoney Creek	97282	\$2,050,000
Headley Rd. (Rt. 600) over NF of Shenandoah River	82767	\$2,150,000
Seven Fountains Rd. (Rt. 758) over Passage Creek (Completed)	90969	\$1,530,000
Rt. 11 SB over Cedar Creek	90172	\$9,590,000
1-81 over Cedar Creek	97636	\$11,360,000
Orchard Dr. (Rt.698) over Mill Creek	98954	\$2,720,000
Rt. 620 over Smith Creek	100765	\$1,960,000
Rt. 11 over NF of Shenandoah River	104182	\$5,150,000
Lupton Rd. (Rt. 667) over NF of Shenandoah River	N/A	\$4,000,000
Hollingsworth Rd. (Rt. 609) over NF of Shenandoah River	N/A	\$3,200,000
Chapman Landing Rd. (Rt. 672) over NF of Shenandoah River	N/A	\$3,800,000

## 8.7 Tourism

**Assumption:** Tourism will increase at popular destinations (including Seven Bends State Park, Bryce Resort, breweries, wineries, and historic sites). Some of this increase will be on rural roads (e.g. Routes 42, 263, 623, 667, 691, 703, and 758) causing traffic volume to increase on those roads.

**Need:** Roads bearing tourism traffic may require capacity and safety improvements.

**Recommended Improvement:** Assess the impacts of increased tourism traffic on Routes 42, 263, 623, 667, 691, 703, and 758. Perform studies to determine what improvements are required.

**Cost Estimates:** Countywide study to assess impacts and identify needs for the County's rural road system based on anticipated future growth in tourism: \$100,000.

## 8.8 Boating Access

**Assumption:** Fishing and paddling are popular activities for both residents and visitors. Shenandoah County has four public boat access ramps, not all of which are conducive to paddlers using separate put-in and take-out locations.

**Need:** Four boat landings are insufficient to support the boating community in the county.

**Recommended Improvement:** VDOT should collaborate with VDGIF to add boat access locations at intervals along the North Fork throughout the County, especially at low-water bridges.

## 8.9 Walking and Biking Trails

**Assumption:** Walking and biking trails will be developed (e.g. proposed Fishers Hill Trail to the National Historic Park) and must be accommodated. Tuscarora Trail crosses the county and passes through the County Park. Some hikers use the park as an unofficial trailhead for parking. The County may be willing to make the park an official trailhead and allow hiker parking (at least part of the year).

**Need:** Additional trails and other recreational opportunities are needed. Wherever trails cross roads, additional safety concerns arise. If the County offers the County Park for use as a trailhead, then sanctioning by the Potomac Chapter of the Appalachian Trail Conservancy (PATC) as well as the greater Appalachian Trail Conservancy (ATC) should be pursued.

There are currently no purpose built bicycling and pedestrian facilities in the County. Opportunities to improve biking and pedestrian infrastructure are greater

in the Towns. Safety issues are paramount because of the potential danger to pedestrians, cyclists, and operators of farm vehicles on thoroughfares with high rates of speed.

**Recommended Improvement:** Provide safety signage where trails cross roads and are co-located on roads.

Collaborate with regional organizations, such as the NSVRC, and Towns to potentially develop a County Bike and Pedestrian Plan.

## 8.10 Rail to Trails

**Assumption:** Railroads in the central and southern portions of the county will likely remain in disuse.

**Need:** Pedestrian/bike-friendly access along US Route 11 is very limited. Unused (and in disrepair) rail lines take up valuable real estate through the middle of the County.

**Recommended Improvement:** Consider converting inactive rail lines to biking and pedestrian trails and/or green infrastructure elements.

## 9.0 NSVRC 2035 Rural Long Range Transportation Plan

In addition to the specific projected issues listed above, a comprehensive study of current and future road needs was completed in 2011 under the coordination of the Northern Shenandoah Valley Regional Commission. The “2035 Rural Long Range Transportation Plan” ([http://www.virginiadot.org/VDOT/Projects/asset\\_upload\\_file40\\_52028.pdf](http://www.virginiadot.org/VDOT/Projects/asset_upload_file40_52028.pdf)) specifies over one hundred improvements to the County’s transportation network. Some improvements are completed or are under way. The remainder should receive consideration for future funding. That plan is hereby incorporated by reference into this chapter.



*Above:*  
An example of a low water bridge that are common throughout the county, especially on the North Fork of the Shenandoah River

## 10.0 Conclusion

The transportation system in Shenandoah County is a critical resource for the welfare of its citizens. Generally, new construction and adequate maintenance have been successful in meeting the needs of a growing population. However, continued growth of the county's population as well as growth in tourism and employment will require future improvements. Traffic studies and engineering assessments will be needed to monitor adequacy of roads, bridges and other infrastructure. This Comprehensive Plan documents high traffic volume locations and other conditions that need to be assessed.

Of particular concern are high traffic volume roads in the vicinity of the three major public school campuses in Shenandoah County. Further, Shenandoah County still retains 175 miles of unpaved public roads, including roads that serve growing tourism traffic. The need to use public roads to move agricultural machinery complicates traffic, but must be accommodated to meet the county's vision of remaining primarily rural and agricultural. Finally, the safety and volume needs of Interstate 81, the major north-south thoroughfare in Shenandoah County will have to be met with the least possible adverse impact to the environment, agricultural, scenic and historic resources.

Adequate roads and related infrastructure are not the only elements of transportation requiring careful planning in Shenandoah County. The county's diverse population includes citizens with limited or no access to private automobiles. Dependable private transportation services such as buses and taxis are very limited. Senior citizens, citizens with disabilities and citizens without the economic means for personal vehicles frequently depend upon charitable organizations for their transportation. While these multiple sources work diligently to meet urgent transportation needs, anecdotal information suggests that more is needed. A thorough, comprehensive assessment of such needs should be undertaken.

