

CHAPTER 7.

WHAT ARE OUR TRANSPORTATION MODES?



Photo by Jack Whitmore

In a rural area with a widely dispersed population such as Floyd County, transportation is not taken for granted. There is no rail, water or public air transport in the County. Roads provide the only access to employment, services, and social activities as well as the transport of consumer items and agricultural and industrial materials.

A review of the road infrastructure and travel information is, thus, the core of transportation planning here. Road classifications, traffic count, intersections and traffic control, safety and crash data, and travel and commuting information are all elements that should be considered.

Existing Road Infrastructure and Travel

Road Classifications

(background narrative adapted from the Route 8 Corridor Study and the draft 2035 NRV Rural Long Range Transportation Plan, not adopted)

There are over 600 miles of state-maintained roads in Floyd County. There are no four-lane roads in the County. Only four VDOT functional road classifications exist throughout Floyd County: Rural Minor Arterial, Rural Major Collector, Rural Minor Collector, and Not Classified/Rural Local. Rural Minor Arterial Roads, which includes Route 8 and U.S. Highway 221, are generally characterized by the following according to the FWHA:

- Link cities and larger towns and provide interstate and inter-County service
- Spaced so all developed areas in State within reasonable distance
- Provide service to corridors with trip lengths and travel density greater than rural collector or local systems
- Contain high overall traffic speeds.

Rural major collector roads provide service to the County seat not on an arterial route, to larger towns not directly served by the higher systems, and to other traffic generators of

equivalent importance. Minor collector roads collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road. Finally, local roads or unclassified roads generally provide access to adjacent land and serve short distance travel needs.

Nearly half (48.6%) of all roads in Floyd County are untreated roads. This is the highest percentage in the Salem VDOT district (see table below). Untreated roads require more maintenance. At least once per year the road needs machining and ditching. VDOT is putting more money into road improvements and fewer into maintenance. Further, it is focusing funds on interstates and key primary roads. This combination of factors has resulted in Floyd County losing a large amount of essential transportation funds.

Table 39
Salem District
Secondary System by Road Types, 2006

COUNTY	HARD SURFACED	UNTREATED ALL WEATHER SURFACE	UNTREATED LIGHT SURFACE	UNSURFACED	TOTAL	PERCENT WITHOUT HARD SURFACE
BEDFORD	732.69	216.78	26.29	0.00	975.76	24.9%
BOTETOURT	394.10	145.20	7.06	6.31	552.67	28.7%
CARROLL	514.35	262.72	56.06	6.62	839.75	38.7%
CRAIG	144.60	35.29	0.92	0.00	180.81	20.0%
FLOYD	320.38	209.71	84.36	9.29	623.74	48.6%
FRANKLIN	919.05	76.62	69.82	1.40	1,066.89	13.9%
GILES	208.79	101.74	22.48	0.00	333.01	37.3%
HENRY	684.09	0.77	1.07	0.00	685.93	0.3%
MONTGOMERY	328.03	92.81	28.45	6.10	455.39	28.0%
PATRICK	478.80	84.54	62.23	0.73	626.30	23.6%
PULASKI	301.75	64.83	12.62	0.27	379.47	20.5%
ROANOKE	548.27	21.74	0.16	0.24	570.41	3.9%
DISTRICT TOTAL	5,574.90	1,312.75	371.52	30.96	7,290.13	23.5%

Source: VDOT, 2011

Road Intersections and Traffic Control

The existing road network in Floyd County consists mainly of collector and local routes. Two roads considered minor arterial by State standards serve as major access routes: U.S. Route 221 (Floyd Highway North and South) and Virginia Route 8 (Webbs Mill Road North and Parkway Lane South). The intersection of U.S. 221 and VA Route 8 occurs in the Town of Floyd and is the only intersection in the County with a traffic light. Interstate 81, the closest limited-access highway designed for high volume traffic, lies about 20 miles North-

Northwest of the Town of Floyd via Route 8. Interstate 77 lies about 28 miles west of Floyd via U.S Route 221.

In the past 15 to 20 years, significant improvements have been made in the County to Route 8 and Route 221. Yet, several improvements are still needed to offset increases in traffic volume from population increase and roadway straightening improvements. Currently VA Routes 8 and 221 suffer from difficult intersections located within areas that do not provide appropriate sight distances to prevent accidents when traveling at the posted speed limit or greater. Horizontal and vertical sight distance improvements could be made to improve safety along those primary corridors. Additional improvements must be examined around the County's heavy truck traffics areas, such as the Floyd Regional Commerce Center.

There is not a significant amount of intersection and traffic control within the study area, but three general characteristics should be noted. First, the intersection of Route 8 (Locust Street) and Highway 221 (Main Street) in downtown Floyd is the location for the one traffic light in all of Floyd County. This intersection sees extensive use. Due to the use by semi-trucks, the lines are set back from the intersection to allow vehicles with larger turning radii to safely execute turns.

In addition, traffic is controlled upon entering the Town of Floyd through a gradual reduction of the speed limit along Route 8. On the approach to town coming from the north or the south, the speed limit drops to 45 mph from the standard 55 mph. After a short interval, the speed limit drops again to 35 mph. After another short interval before the town limits, the speed limit drops to 25 mph.

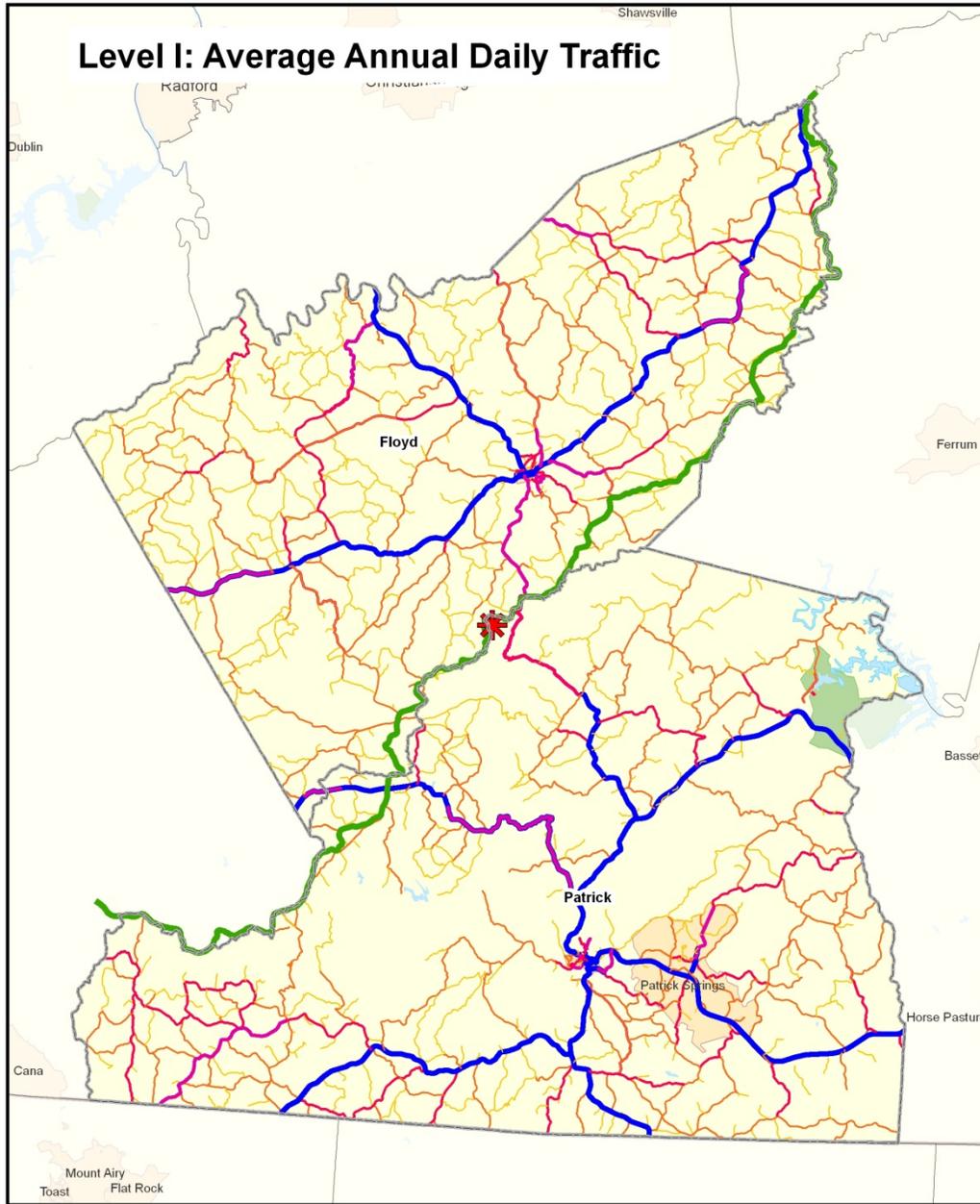
The final form of traffic control to be mentioned occurs at several intersection points where there are right-turn deceleration lanes for traffic to safely maneuver from Route 8 or Highway 221 onto an adjoining road.

Travel Information

Trucks and private automobiles are the conveyers of almost all cargo and people in Floyd County. Much of the car traffic is commuters, about 16% of which carpool. Informal car poolers' parking exist at various locations along Highway 221, such as near intersections with Routes 799 (Conner's Grove Road Southwest) and 610 (Daniels Run Road Northeast) and Route 8, such as near intersections of Blue Ridge Parkway and Route 750 (Alum Ridge Road Northwest.)

The highest volume of traffic along Route 8 within Floyd County occurs at the intersection of Route 8 (Locust Street) and Route 221 (Main Street), according to the latest VDOT traffic counts (2009). The highest volume (Average Annual Daily Traffic) for any stretch of road in Floyd County is 8,100, which occurs along Route 221 between the town of Floyd and Route 860 (Shooting Creek Road Southeast). Locust Street (Route 8) has 6,800 vehicles. Traffic count numbers outside of this interchange are considerably smaller and generally include: 4,600 along Route 8 at the intersection of northern Floyd County and Montgomery County, 2,900 along Route 221 at the intersection of Floyd County and Roanoke County, 1,900 along Route 221 at the intersection of Floyd County and Carroll County, and 1,800 along Route 8 from the Blue Ridge Parkway north towards the town of Floyd. (See Map 18 below for traffic volumes).

Map 18



<p>Blue Ridge Heritage Inc.</p> <p>Virginia Tech</p> <p>Virginia Cooperative Extension</p>	<p>Sustainable Tourism Destination and Centerpiece Project for Floyd and Patrick Counties</p>	<p>Legend</p> <p> Rocky Knob</p> <p> Blue Ridge Parkway</p> <p>Average Annual Daily Traffic</p> <ul style="list-style-type: none"> 0 - 100 101 - 500 501 - 1000 1001 - 2000 2001 - 9300
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Safety/Crash Data

Crash density data on major rural collectors reveals areas of concern (see table and figure below). Portions of Alum Ridge Road (750) and Christiansburg Pike (615) had the highest number of crashes per mile.

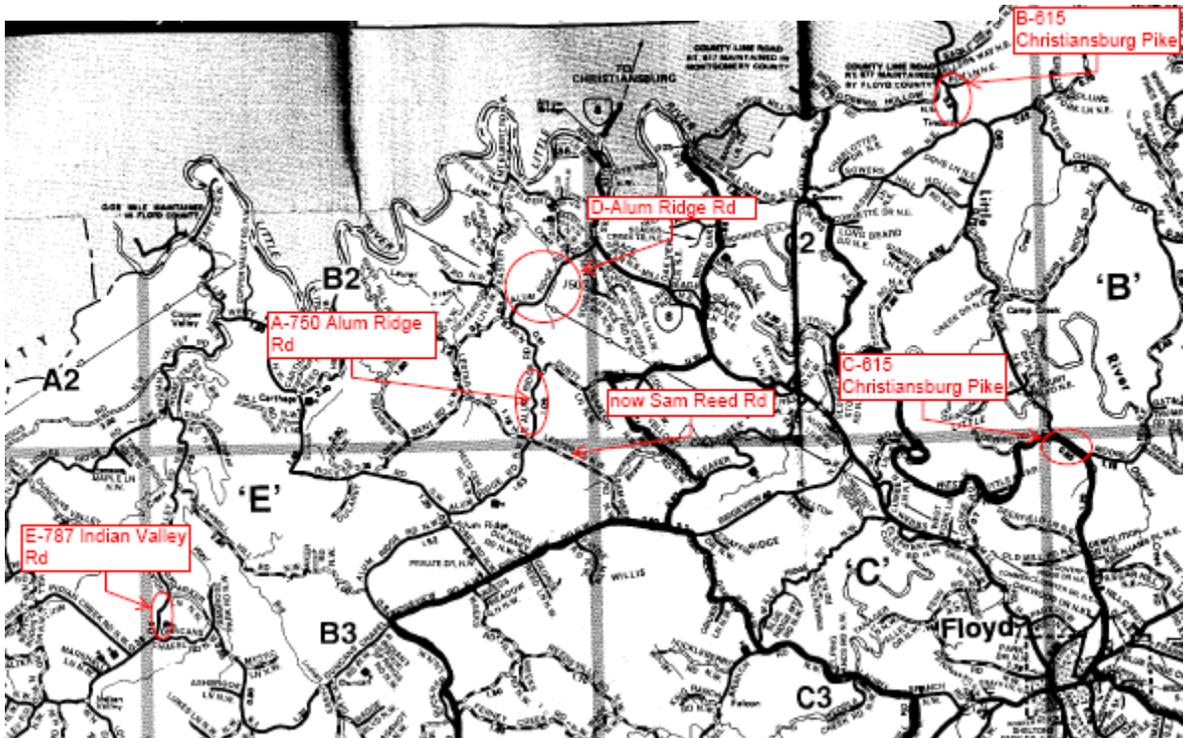
Table 40
Prioritized Crash Density on Segments Classified as Major Rural Collectors

ROUTE ID	LENGTH (MILE)	Approx. Start	Approx. End	AADT	2006 - 2008 CRASH	DENSITY (CRASH/MILE)
3100750	0.90	#739, Sam Reed	#735, Dusty Rock	1021	8	8.89
3100615	0.80	#705, Sowers	Mont. County Line	695	5	6.25
3100615	0.50	#686, Moore	#699, Bluebird	590	3	6.00
3100750	1.31	#738, S. Easter	#738, Mt. Elbert	1223	7	5.34
3100787	0.63	#751, Duncan Chapel	#730, Parker's Lane	372	3	4.76

AADT is Average Annual Daily Traffic

Source: VDOT (Dan Huff)

Map 19
Prioritized Crash Density on Segments Classified as Major Rural Collectors



Also, according to the Virginia Department of Motor Vehicles (DMV), there were a total of 47 automobile accidents in the Town of Floyd, with 1 fatality and 24 injuries from 1999 to 2008. The VA State Police respond to all traffic accidents in the town limits but they do not keep records on the exact locations of crashes. Over the same time period, there were 9 accidents involving pedestrians in Floyd.

Additional Safety/Crash Data for the remainder of the County should be made available in the upcoming NRV Rural Transportation plan.

Future Road Infrastructure

Due to Floyd County's roadway network type, regulations found in the Virginia Administrative Code for Minor Arterials, Collectors, and Local Streets (see Figure 23) will be of importance for future land development. These regulations call for decreasing the number of access points on roadways to prevent avoidable accidents. These standards are to be taken into account by Floyd County when reviewing land development applications.

The VTrans2035 Final Report to the General Assembly designates the New River Valley as an "Emerging Growth Area," which means it may demonstrate a 12-25% increase in jobs and population between 2010 and 2035. Next, key elements of the draft 2035 New River Valley Long Range Transportation Plan will be shared.

Appendix E contains a map of all the public roads in the County.

Figure 23
Changes to the Code of Virginia Related to Transportation Issues

Since 2000 the Virginia General Assembly enacted significant changes to the Code of Virginia pertaining to Transportation. The General Assembly made these changes in large part to increase the coordination between Land Use and Transportation, and provide guidance for land development.

Secondary Street Acceptance Requirements:

The Secondary Street Acceptance Requirements (SSAR) became effective on March 9, 2009. The SSAR includes the requirements that the new secondary streets must meet in order to be accepted by VDOT for ongoing maintenance.

Primary Requirements within the SSAR new to VDOT:

Area Types –

- The division of the state into three categories based on long-term local, regional and federal planning boundaries.
- These area types are Compact, Suburban, and Rural. Floyd County is considered Rural under these requirements. As a result the following requirements are to be utilized:
 - a. The streets are designed and constructed in compliance with the rural design standards pursuant to the Secondary Street Acceptance Requirements, the Road Design Manual, and the Subdivision Street Design Guide (24VAC30-92- 150); and
 - b. The network addition provides multiple connections to adjacent properties or streets in varying directions.
- The importance of area types within the SSAR is that a parcel’s area type will determine the connectivity and may impact pedestrian accommodation requirements which need to be met.

Connectivity Requirements –

- Standards to ensure multiple connections with existing streets and adjacent properties.
- The “connectivity index” requirement is based upon a development’s area type. (It should be noted that these requirements do allow for “connectivity exceptions.” These include: railroad tracks, limited access highway, navigable river or standing body of water that is greater in depth than 4 ft., terrain grades in excess of 20%, and government owned property.)
- The connectivity index can be found by dividing the development’s street segments by its intersections (street segments/intersections). The SSAR Guidance Document has an extensive section on these calculations and definitions.

- Compact and Suburban area types must meet a 1.6 and a 1.4 index, respectively, while developments in the Rural area type are not required to meet an index amount.
- All newly built developments, regardless of area type, must have multiple transportation connections in different directions. This can be accomplished with connections to existing roads in the state system or “stub outs” constructed to the property line for a future connection.

Pedestrian and Bicycle Accommodations –

- Sidewalk, trail, and path requirements are based upon density, proximity to public schools, and the functional classification of streets.
- Pedestrian accommodations are required on both sides of streets for developments with a median lot size of one half acre or less, a floor area ratio of 0.4 or greater, and along collector and arterial roads with three or more lanes.
- Accommodations must be provided on one side of the street for developments with median lot sizes between one half acre and two acres, developments within one half centerline mile of a public school in Compact and Suburban area types, and along collector and arterial roads with less than three lanes.
- If a development can be categorized into both groups requiring sidewalks on both and one side of a street, the higher requirement (pedestrian accommodations on both sides of the street) shall apply.

Network Additions –

- In most but not all cases, streets accepted under the SSAR will be accepted as part of a “network addition.” Each network addition must meet the public benefit requirements on its own.
- A network addition is a group of interconnected street segments and intersections shown in a plan of development that are connected to the state highway system and are intended to be accepted into the system at the same time.

Access Management Regulations and Standards:

Access management focuses on the location, spacing, and design of entrances, street intersections, median openings, and location of traffic signals. Each of these creates conflict points where vehicles have to stop or slow down, disrupting the flow of traffic.

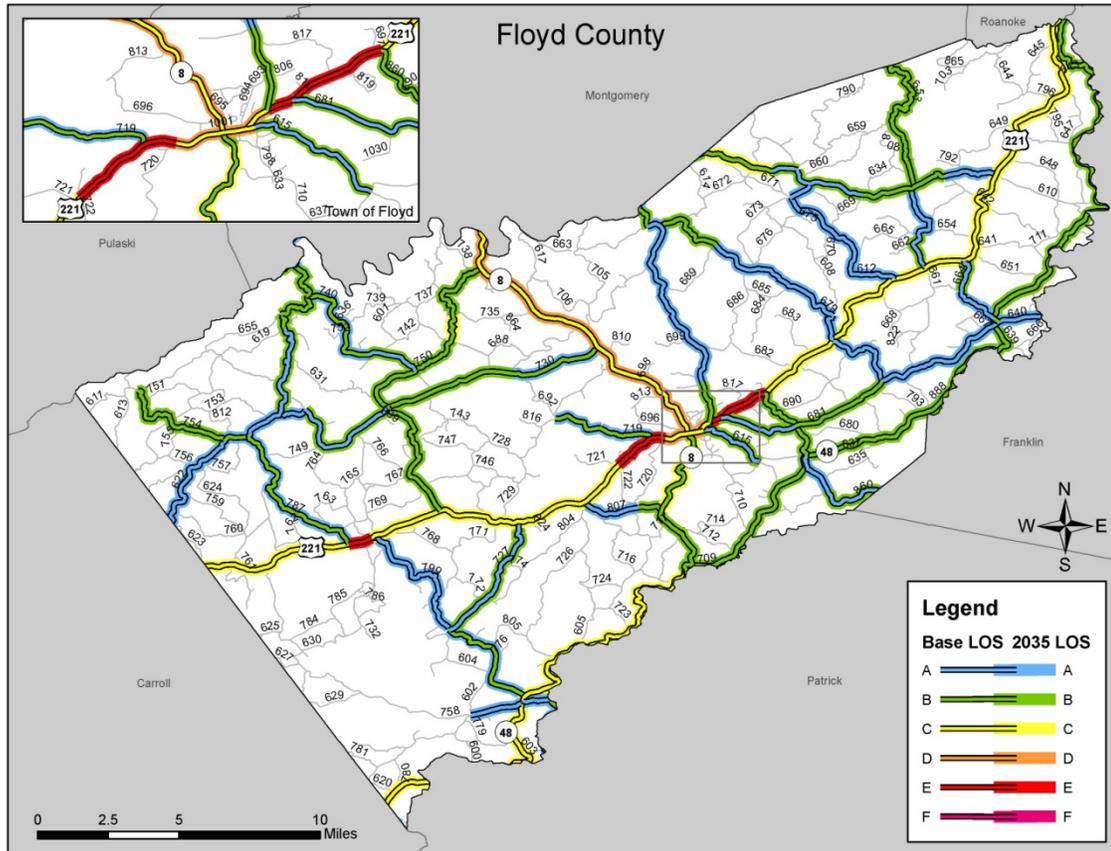
Draft 2035 Rural Long Range Transportation Plan (not adopted)

The New River Valley Planning District Commission 2035 Rural Long Range Transportation Plan is currently being developed (New River Valley Planning District Commission, 2010). This plan will provide an overview for the development and maintenance of rural transportation systems to support existing and projected travel demands to the year 2035. This plan specifically identifies needed roadway improvements throughout the New River Valley, including Floyd County.

In developing the 2035 Rural Long Range Transportation Plan jurisdictions, the NRVPC and consultants for the Virginia Department of Transportation, reviewed the rural transportation system (including hot spots identified by the locality, accident data, traffic counts, etc.) and recommended improvements to satisfy existing and future travel needs. The study specifically consolidated local and statewide deficiencies and recommendations into one plan. Recommended improvements by VDOT consultants identified in the 2035 Rural Long Range Transportation Plan can be found in the Transportation Policies section on the following page, and additional information from the VDOT plan can be found in Appendix C. Please note that the County has not adopted or endorsed the draft VDOT 2035 Rural Long Range Transportation Plan.

Many of the improvements identified in the 2035 Rural Long Range Plan include tiered recommendations for improvements. Many of the Short Term improvements can be achieved by Floyd County with small investment. When moving to Mid-Term to Long Term recommendations, many of the improvements identified will require incorporation into the Six Year Improvement Plan for appropriate funding. Also, the Plan identified the Level of Service (traffic compared to capacity) of important roads in the County both now and in the future (in 2035), based on general growth (see Map 20). Like a school grading scale, an A is excellent and F is failing. Anything below a C will need improvement.

Map 20 Level of Service, 2009 and 2035



Source: draft New River Valley 2035 Rural Long Range Transportation Plan

Transportation Policies

Short Term:

- Greater maintenance resources and attention are critical to improve safety and functionality of the many unpaved roads in Floyd County (for example, Sowers Mill Road)
- Address high crash density areas as much as possible with limited “6-Year Plan” funds from VDOT
- Continue increased communication with VDOT regarding Floyd County’s unique need for road maintenance assistance
- Maintain existing bridge infrastructure within existing transportation network
- Route 8 (Webbs Mill Road N) and Route 730 (Ridgeview Road NW) intersection improvements as outlined in the RLRP (\$50,000)
- Route 8 (Webbs Mill Road N) and Route 750 (Alum Ridge Road NW) intersection

improvements as outlined in the RLRP
(\$750,000)

- Adding advance warning signage along Route 221 and Route 8 for intersections identified as having poor horizontal or vertical sight distances
- Remove obscure abandoned structures and clear debris and vegetation to improve sight distances for traffic entering Route 221 and Route 8
- Apply access management standards to high traffic areas to improve safety (in conjunction with VDOT)

Mid Term:

- Improve stormwater management along existing roadway networks
- Higher traffic roads without hard-surface may need surface treatment to help reduce maintenance requirements.
- Add right and left run lanes along Route 221 and Route 8 at high volume intersections with the local roadway network
- Increase turning radii for truck traffic in high volume areas
- Improve pedestrian transportation network through the development of ADA accessible sidewalks or multipurpose paths
- Route 221 and Route 681 (Franklin Pike SE) intersection improvements as outlined in the RLRP (\$1.0M)
- Route 221 and Route 642 (Locust Grove Road NE) intersection improvements as outlined in the RLRP (\$1.9M)

Long Term:

- Reconstruct substandard transportation elements that improve: sight distance, reaction time, capacity, widths, safety, and roadway horizontal/vertical alignment.
- Examine alternative routing for Route 221 (including truck safety corridor to keep trucks from the narrow streets and sharp turns in downtown Floyd.)

The maps on the following pages represent transportation infrastructure projects identified within these policies.

Map 21



Map 22



Floyd County, VA

Proposed Route 750 & 8 Improvements

Description of Safety Deficiencies:
 Stop bar is missing on northbound approach. Single lane configuration westbound creates potential for rear-end crashes given posted speed limit of 55 mph. VA 750 slopes downward and away from intersection and is not highly visible.

Congestion Deficiencies:
 None

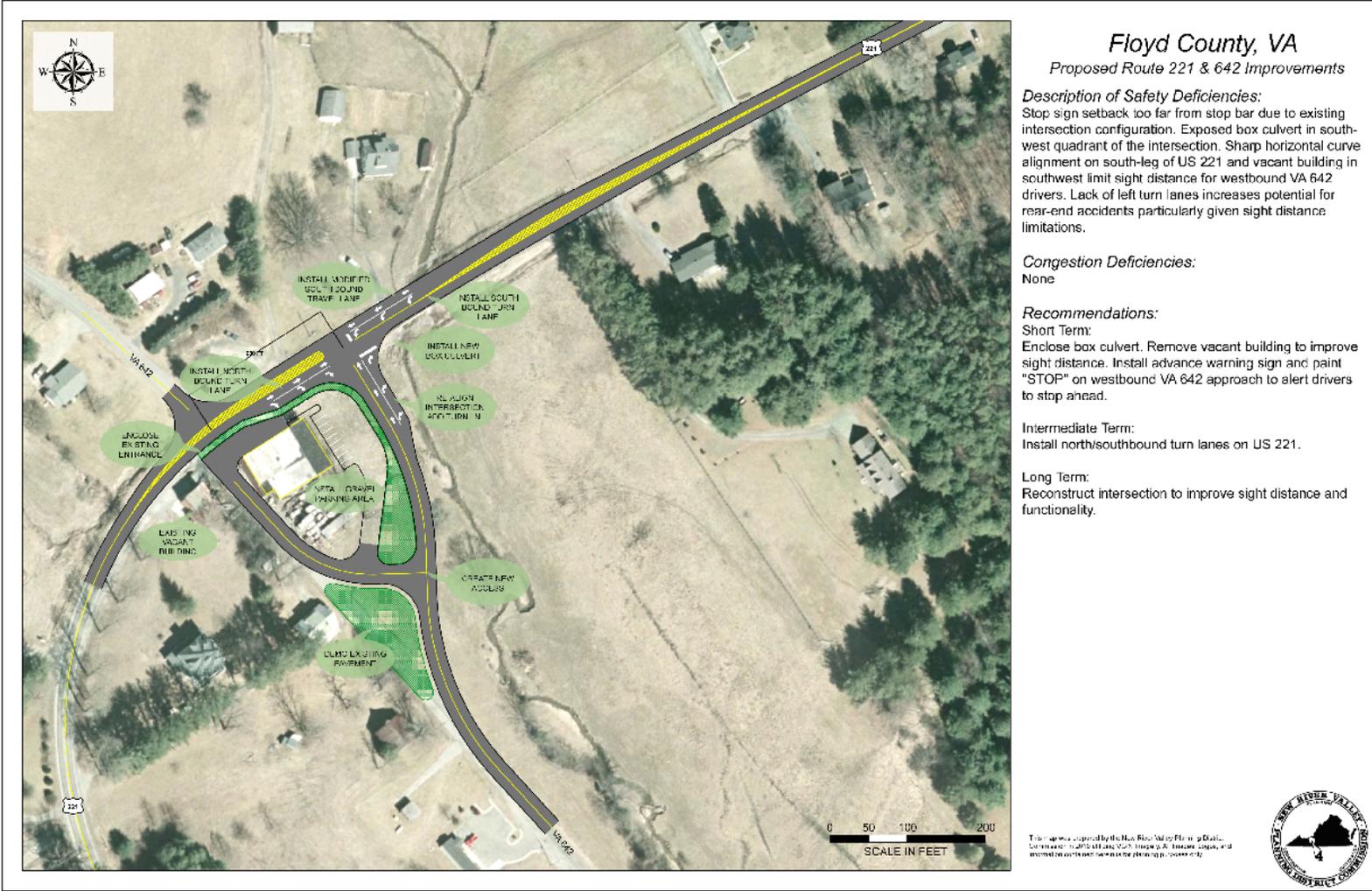
Recommendations:
Short Term:
 Install stop bar on northbound approach. Install advance warning signage along east/westbound approaches of US 8 to alert drivers of intersection ahead.

Intermediate Term:
 Install westbound left turn lane on Route 8 (100 foot storage length with 200 feet taper).

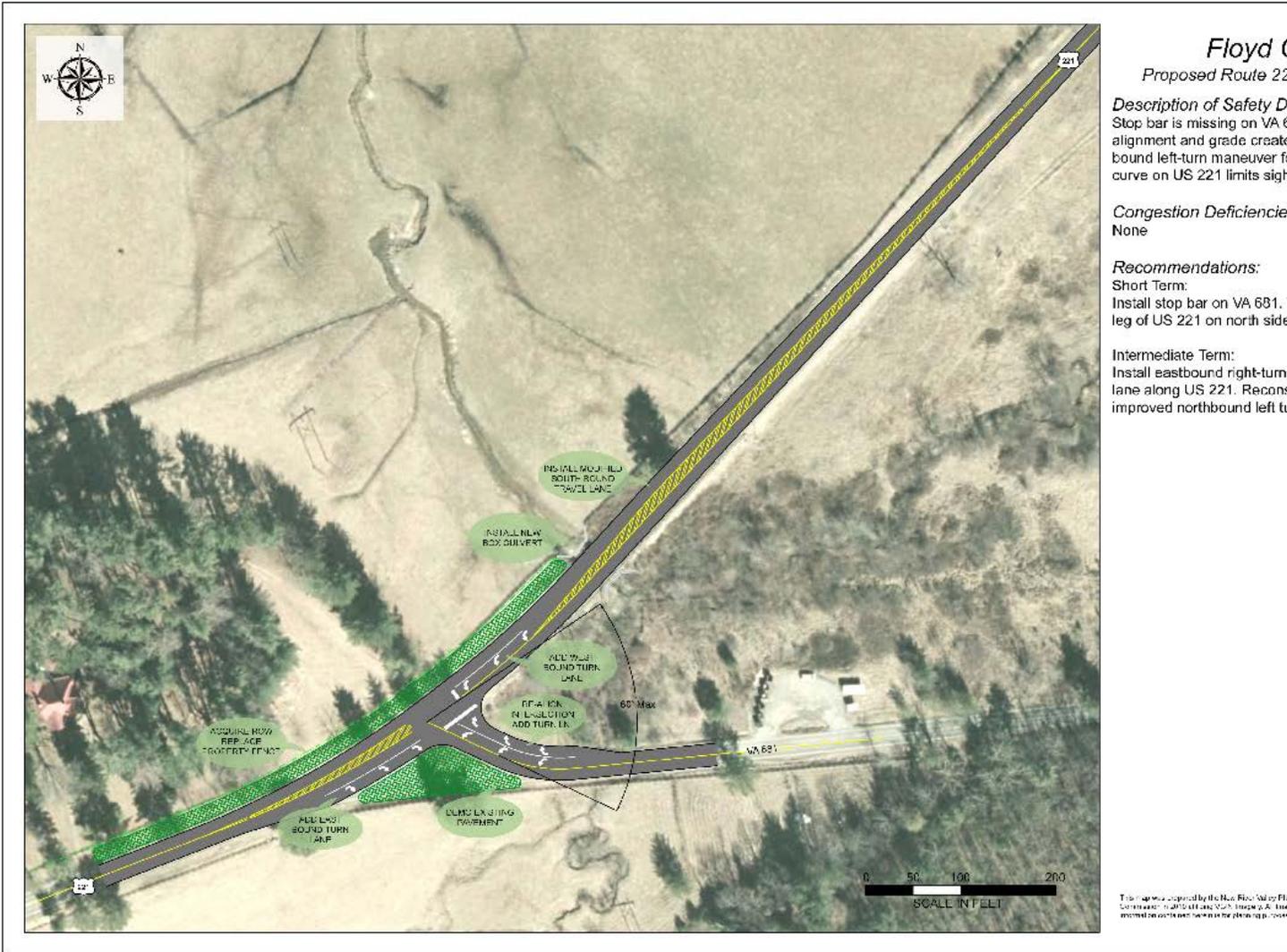


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Map 23



Map 24



Floyd C

Proposed Route 221

Description of Safety Deficiency:
 Stop bar is missing on VA 681 alignment and grade creates bound left-turn maneuver for curve on US 221 limits sight

Congestion Deficiency:
 None

Recommendations:
Short Term:
 Install stop bar on VA 681 leg of US 221 on north side

Intermediate Term:
 Install eastbound right-turn lane along US 221. Reconstruct improved northbound left turn

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Map 25



Floyd County, VA

Proposed Sowers Mill Road Improvements

Description of Safety Deficiencies:
Drainage ditches on west side of roadway are eroding and impact travel lanes. Sub-standard roadway conditions that include poor geometric, surface and edge of road conditions.

Congestion Deficiencies:
None

Recommendations:
Improved maintenance.

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Road Maintenance

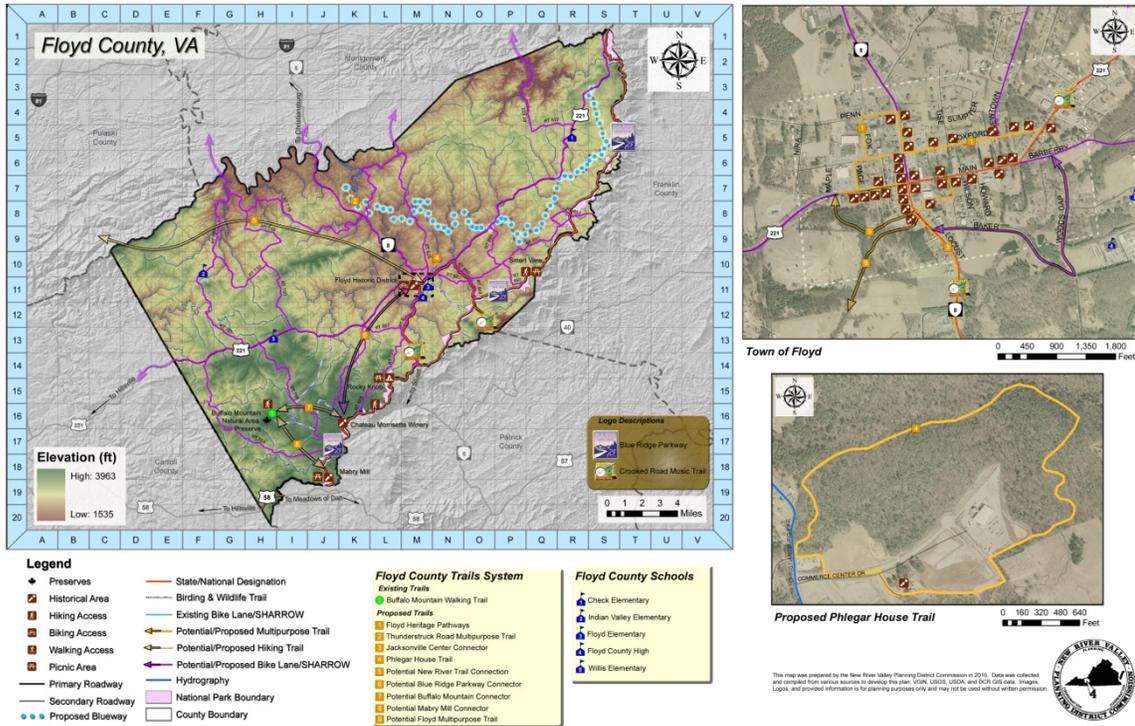
It must be noted that while needed long-term structural improvements have been identified by the VDOT-sponsored study, there is great local concern over the immediate need for road maintenance. As noted earlier, Floyd County has a disproportionate share of roads without a hard surface. These roads require regular maintenance to be safely passable. While the state has the responsibility to provide road maintenance resources, fewer of those resources are being shared with rural counties like Floyd. Because roads provide the only means of transportation in the County, it is critical that VDOT provide safe roads here, which requires improved maintenance.

Alternative Transportation

In addition to the roadway network in Floyd County a number of trails have been created or proposed. These trails can be seen as both necessary routes for pedestrians and bicycles and a recreational asset. Construction of trails identified in the New River Valley Bikeway Walkway Plan (New River Valley Planning District Commission, 2010) should be considered (see Map 26). Lands identified as potential trail areas are recommended to be preserved for future use. Pedestrian connection opportunities include linking County focal points, like the Jacksonville Center, the Floyd Regional Commerce Center and the Floyd schools to the Town sidewalk network. See map below for bikeway/walkway possibilities.

In addition to trails, alternative transportation systems that decrease automobile traffic should be examined. These solutions may include transit service integrated into the region with local and regional routes to Radford, Christiansburg, and Roanoke. Recent studies from the Virginia Department of Rail and Public Transportation show that Floyd County has characteristics of a community in which bus services may be viable. An additional component to Floyd County's transportation system includes development of informal park and ride lots into a standardized system that could be utilized to provide commuters access to carpooling services.

Map 26 Potential Bikeways/Walkways in Floyd County



Chapter 7.

What are Our Transportation Modes?

Summary and Conclusion

- Absent rail, air and water transport, Floyd County transportation relies entirely on roads.
- There are over 600 miles of state-maintained roads in the County, many of which lack hard surface (often they are gravel.) Unpaved roads require regular maintenance to be safely passable. More state resources and attention are needed.
- There are no four-lane roads in the County. Route 8 and Highway 221 are the main thoroughfares and their intersection in the Town of Floyd is the only signaled intersection.
- Several high-crash density and other “hotspots” of road safety concerns are identified here.
- Further, VDOT has indicated that traffic will exceed safe road capacity (level of service) along main corridors in the next 25 years. VDOT indicates portions of Route 8 will need to be four-lanes and that turning lanes will need to be added in and around Floyd and Willis on Highway 221.
- There is interest in alternative transportation, such as bikeways and walkways, as well as service by public transit.
- There are already significant unmet needs for road maintenance, due to the high proportion of roads without a hard surface and dwindling VDOT resources for maintenance. This is the responsibility of the Commonwealth of Virginia and VDOT. It appears that Floyd County is getting a smaller portion of dollars as they flow to more urban areas with a high percentage of improved and primary roads and interstates. Safe travel in the County demands more action by VDOT.