

**New River Valley  
2035 Rural Long Range Transportation Plan  
Technical Report**

\* This Document is the first half of the Technical Report for The New River Valley Rural Long-Range Transportation Plan. Mapping and proposed improvements to the designated areas of interest are anticipated to be released for review by mid February 2010. Upon completing the technical portion of this document a public report will be prepared that will compile findings and condense the information provided within this technical report. \*

**PLEASE SUBMIT CORRECTION REQUESTS OR IMPROVEMENT SUGGESTIONS TO THE NEW RIVER VALLEY PLANNING DISTRICT COMMISSION BY FEBRUARY 5, 2010.**

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## **CHAPTER 1 – INTRODUCTION**

The *New River Valley Planning District Commission 2035 Rural Long Range Transportation Plan* (the Plan) provides a blueprint for the development and maintenance of a rural multi-modal transportation system that supports existing and projected travel demands to the year 2035 and complements previously established metropolitan area plans throughout the State. This Technical Report provides details on the identification of existing transportation needs, forecasting of future travel demands, identification of future travel needs, and the development of transportation improvement recommendations for the region's transportation system. Recommendations were developed to satisfy both current and future needs.

### **Purpose and Scope**

The Plan was developed as a cooperative effort between the Virginia Department of Transportation (VDOT), the New River Valley Planning District Commission (NRVPDC), and the member jurisdictions represented. The purpose of the study was to evaluate the region's rural transportation system and recommend a set of transportation improvements that could best satisfy existing and future travel needs. The study identified needs for all modes of transportation, and interaction between modes where a reduction in vehicle trips might be possible.

Improved transportation systems remain vital to Virginia's, as well as the region's, continued economic growth and development. The provision for the effective, safe, and efficient movement of people and goods is a basic goal of all transportation programs in the Commonwealth of Virginia. This guiding principle, together with consideration of environmental issues, local mobility needs, and associated development policies, was the basis for the development of this transportation Plan.

The region, its member localities, and VDOT will use this plan when initiating or evaluating requests for specific transportation projects. The list of recommendations will also be used in the statewide transportation planning process in order to better quantify the magnitude of statewide needs.

### **Study Area**

The New River Valley is located in southwest Virginia and surrounds the New River as it flows north to West Virginia on the district's northern edge. The NRVPDC serves the Counties of Floyd, Giles, Montgomery, and Pulaski, the City of Radford, and the Towns of Blacksburg, Christiansburg, Dublin, Floyd, Glen Lyn, Narrows, Pearisburg, Pembroke, Pulaski, and Rich Creek (Exhibit 1). The region's estimated population was 172,105 in 2008 (Weldon, 2009). Within the region, the Blacksburg/Christiansburg/Montgomery Area Metropolitan Planning Organization (BCM-MPO) specifically serves the Towns of Blacksburg and Christiansburg, and the urbanized areas of Montgomery County. The transportation needs of this more urban area are addressed in the Blacksburg-Christiansburg-Montgomery MPO 2035 Transportation Plan.

I-81 passes through the center of the region running northeast to southwest. Primary east-west corridors include US 11, US 460, US 221, VA 114, VA 42, and VA 61. The main north-south corridors are US 460, VA 100, VA 99, and VA 8 (Exhibit 2). Improving access to and from I-81 and enhancing safety and congestion deficiencies along local commuter routes US 11, VA 114 and VA 100 continue to be ongoing concerns in the region. Ridesharing and commuting, between the New River Valley and the Roanoke Valley, has also been a concern in the region.

Exhibit 1 Location Map

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Exhibit 2 Functional Classification

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### **Demographic Overview**

The region and the individual jurisdictions are focusing on developing and sustaining a growing economy and providing jobs and opportunities within the region, while maintaining environmental quality. Agriculture and forestry comprise a considerable portion of the current land use. Farming, particularly cattle and cattle feed, are the bulk of the agricultural production. Multiple parcels of the Jefferson National Forest lie within the region as well as additional areas that are forested. Based on topography, most developable land for high intensity land use is in Pulaski and Montgomery Counties. Floyd County also has developable land but at different intensities due to varying slopes (NRVPDC, *Data*, 2008).

The region has experienced moderate growth in population, by 8.2% between 1990 and 2000, and by 4.2 % between 2000 and 2008 (Exhibit 3). Most jurisdictions' populations are expected to continue to increase, particularly Montgomery County with the largest growth. By the year 2030, over 192,000 people are estimated to reside in the region, an increase of 12% from 2008.

**Exhibit 3. Current and Projected Population**

	1990	2000	2008	2010	2020	2030
Floyd County	11,965	13,874	15,094	15,201	16,448	17,796
Giles County	16,366	16,657	16,518	17,312	17,962	18,661
Montgomery County	73,913	83,629	90,517	91,363	96,782	103,244
Pulaski County	34,496	35,127	34,391	35,025	35,126	35,418
City of Radford	15,940	15,859	15,584	16,435	16,890	17,708
New River Valley	152,680	165,146	172,105	175,336	183,208	192,827

Source: NRVPDC, *Data*, 2008; Weldon, 2009; VEC 2008.

The three largest employment sectors within the region are government, manufacturing, and retail trade (VEC, 2009). The government numbers are high due to the classification of Virginia Tech staff as state government employees. Only the top five industry employment sectors are shown in Exhibit 4.

**Exhibit 4. Employment by Industry**

	Manufacturing	Retail Trade	Health Care and Social Assistance	Accommodation and Food Services	Government Total
Floyd County	290	280	342	166	641
Giles County	1,088	693	520	288	937
Montgomery County	5,023	4,839	3,703	4,281	12,394
Pulaski County	3,369	1,621	1,112	910	2,297
City of Radford	1,204	487	492	739	2,258

New River Valley	10,974	7,920	6,169	6,384	18,527
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Source: VEC, 2009.

The unemployment rates in the region’s jurisdictions have remained above the Virginia rate since 2000, except for Montgomery County, which has been at or below the rate in the Commonwealth (VEC, 2009). Median household income in the counties has a range of \$31-34,000, which was below the Commonwealth median in 2000 (US Census, 2000). The City of Radford has a lower median household income (\$24,654) due to the presence of full-time students.

**CHAPTER 2 - STUDY APPROACH AND ANALYSIS METHODS**

The Transportation Plan was developed as part of a structured approach including:

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

**Goals and Objectives**

It is important for each region to develop transportation goals and objectives to serve as a guide for future development. These goals directly and indirectly affect transportation in the individual PDCs. Goals with direct impacts upon transportation include improvements to various modes of travel, greater multi-modal coordination, and enhanced ridesharing opportunities. Goals with indirect impacts upon transportation include designated growth and development areas, preservation of conservation areas, and the enhancement of tourism.

Goals and objectives for the study were developed by the NRVPC. While it is crucial for the well-being of the general public and important for economic development purposes to have a safe and efficient statewide and regional fully integrated multi-modal transportation system, it is also recognized that each region has its own unique perspective on how this can best be accomplished. The Transportation Technical Advisory Committee (TTAC) of the NRVPC has developed goals and objectives to use in this plan to ensure the productivity, efficiency, and safety of the region. These goals and objectives, combined with the deficiencies of the transportation network, support the Plan recommendations.

**Exhibit 5. Regional Goals and Objectives**

<b>Goal 1. Support and improve the economic vitality of the region.</b>		
<b>Objective</b>	<b>Measurement</b>	<b>Definition</b>
Encourage projects within all modes of transportation that improve the global competitiveness of the region.	Number of projects related to global competitiveness.	The RPO, its committees, and staff will work with regional partners in planning, coordinating, and supporting transportation projects that will improve the region's ability to utilize transportation assets in support of global trade and the economic vitality of the region.
Support tourist and recreational activities within the region.	Number of projects supported.	The RPO, its committees, and staff will work in support of new, improved, and enhanced recreational and tourist infrastructure in the region. This includes utilizing green infrastructure strategies to encourage plans to beautify the region's viewshed from major highway and roadways and working to help enhance tourism in the region.
Assist in diversifying the movement of goods and commodities by linking major transportation infrastructure and developing transportation facilities in the region.	Freight movement statistics.	The ability to move goods across multiple transportation modes (air, road, rail) and links to shipping ports is vital for the region's economy. By examining freight movement, the region should be able to identify strengths and weaknesses and plan for infrastructure investments.
Encourage efforts that improve the efficiency and access to the highway system in the region.	Traffic flow rate information, access management studies, traffic delay information, and traffic counts.	Evaluating traffic flows, counts, and delay information help to identify the overall movement of traffic throughout the region as well as to identify areas experiencing significant congestion and delays that require special attention or design changes.
Work regionally to encourage economical commercial air service that is convenient for the citizens of the region and ensure that air facilities offer adequate and affordable service for all users.	Roanoke Regional Airport reports and airline information analysis.	Roanoke Regional Airport's reports on flight counts and destinations. Airline and other commercially available information can be used to track average fares.
Promote the development, implementation, and main-	Number of enhancement	The RPO, its committees, and staff will work in support of new, improved, and

tenance of regional hiking, walking, biking and driving routes as an economic development strategy for the region.	applications filed.	enhanced recreational and tourist infrastructure in the New River Valley. This includes support of regional walking, hiking, and biking trails that directly link major transportation corridors and take into consideration land use development patterns in determining where new pathway infrastructure is necessary.
Encourage the development of passenger rail service in the region.	No direct measure available.	If requested, the RPO, its committees, and staff will assist in coordinating with localities and passenger rail providers to develop information necessary to support passenger rail service to the region.
<b>Goal 2. Provide a safe and secure transportation system.</b>		
<b>Objective</b>	<b>Measurement</b>	<b>Definition</b>
Encourage efforts that improve the safety and security of the region's transportation system for all users.	Crash Statistics, Enforcement Information Rate Law	By examining crash statistics and in discussion with law enforcement, the region should be able to identify strengths and weaknesses and plan for safety and security investments.
Support the identification of dangerous transportation mode/user conflicts within the transportation system.	Crash Statistics, activity of local safety committees. Rate	By examining crash statistics, the region should be able to identify areas where a significant focus on safety would be beneficial. Statistics should include information on conflicts across various modes, for example vehicle/pedestrian, vehicle/bicycle, train/pedestrian, train/bicycle, and when available specific details such as the type of vehicle involved (passenger car, truck, SUV), road conditions (day, night, dry, wet) and any other details that would be helpful toward developing recommendations for safety improvements.
Support the development of safety policies and a comprehensive regional plan that addresses the identified safety and security concerns.	No direct measure available.	The RPO, its committees, and staff will integrate available statistics, information and planning documents from various agencies and localities to guide implementation and consideration of safety policies, provided the availability of funding. This information could include data from various state agencies.
Promote and support implementation strategies	Number of assistance visits or	The RPO, its committees, and staff will work with regional partners to help

through educational initiatives and infrastructure improvements that will implement the developed regional safety plan and policies.	training opportunities in which staff participated.	facilitate educational initiatives and support infrastructure improvements aimed at the safety and security of our regional transportation network and surrounding communities.
<b>Goal 3. Preserve the existing transportation network and promote efficient system management to increase accessibility and mobility of the transportation system.</b>		
<b>Objective</b>	<b>Measurement</b>	<b>Definition</b>
Work with federal, state, and local officials to highlight the need for adequate funding in the region to maintain and improve the region’s transportation system.	Annual Transportation Appropriations	The RPO, its committees, and staff will work with regional partners to highlight the needs and the benefits to the region of adequate transportation funding.
Support the implementation of traffic flow measures to alternative routes through the region in times of highway accidents, congestion, and lane closures.	Flow Rates, Highway Planning Documents	The RPO, its committees, and staff will work with VDOT to discuss various measures that could be implemented in the region to ease congestion and delays during times of accidents, road closures or construction, especially along the I-81 corridor.
Work with local transportation officials, planners, and designers as well as citizens, schools, businesses, churches and other traffic generators to help maintain traffic flow.	Traffic Flow Data	Traffic flow data should provide an accurate portrayal of when traffic flows are increased. The RPO, its committees, and staff will participate in any attempt to quantify if there is a specific event that causes such increases (shift change, church, school, etc.).
Support the development of alternative passenger transportation efforts such as programs for elderly/handicap mobility transit in the region and promoting ride share and other alternative transportation options.	Transit data and Ride Share data	The RPO, its committees, and staff will work with regional transit and carpool providers to accomplish this goal towards developing programs and encouraging their use within the region with particular emphasis on promoting comprehensive planning that integrates transit, bicycle, pedestrian, and other alternative transportation options for the region.
<b>Goal 4. Enhance the links and connectivity of the transportation system throughout the region across and between modes for people and freight.</b>		
<b>Objective</b>	<b>Measurement</b>	<b>Definition</b>
Promote connectivity and	Number of	The RPO, its committees, and staff will

diversity amongst all modes of transportation to enhance and optimize the efficiency of the region’s transportation system.	connection points	work with regional partners and VDOT staff to promote connectivity and diversity among all modes of transportation, including promoting efforts to connect bikeways with mass transit points, etc.
Promote efforts to improve connectivity of transit system throughout the region.	Number of connection points	The RPO, its committees, and staff will work with regional partners to promote transit operations, increase the number of connection points, develop new transit options, and improve the interconnectivity of transit operations in order to provide a transit system able to connect the entire region.
Encourage cooperation among the regional airports and support the unique role each airport offers in the region’s air transportation network.	No direct measure available	The two public airports in the region offer unique services and together complement each other in providing the region with vital air transportation assets. The RPO, its committees, and staff will offer their assistance to both airports to continue to develop a strong regional air transportation system that is able to accommodate a variety of aviation users.
Support the development of passenger rail options such as short routes or local connectivity.	Passenger Rail Statistics	The RPO, its committees, and staff will be supportive of increased passenger rail service and options throughout the region.

**Goal 5. Develop regional land use and transportation coordination measures.**

<b>Objective</b>	<b>Measurement</b>	<b>Definition</b>
Promote the coordination of transportation improvement with land use changes in the region.	Implemented Land Use Measures	The RPO, its committees, and staff will work with regional partners to evaluate and coordinate transportation improvements with land use changes in cooperation with present or future federal and state laws.
Coordinate green infrastructure planning to help to minimize community, cultural, and environmental effects of the transportation system.	Environmental and Land Use Measures	The RPO, its committees, and staff will work with regional partners to identify, promote, and educate the region on the benefits of green infrastructure and the effects it can have on the transportation system and benefits to the environment.
Promote mass transit ridership and alternative transportation measures as a way to encourage environ-	Transit Ridership Statistics, RIDE Solutions Statistics	The RPO, its committees, and staff will work with transit providers and regional programs to encourage transit ridership and alternative transportation such as biking or

mental health.		carpooling.
Utilize green infrastructure strategies to help implement long term land use measures and goals to enable the future growth and development of the transportation system.	Land Use Measures	The RPO, its committees, and staff will evaluate green infrastructure strategies and suggest those that may be implemented in the region to help enable and plan the future growth of the transportation system.
When rail facilities are proposed to be abandoned, give priority to use those facilities as trails or scenic railroads.	Number of rail facility conversions	The RPO, its committees, and staff will evaluate methods and tactics to promote rail conversion to trails or scenic railroads.
Facilitate the integration of emergency response, hazard mitigation, and environmental planning efforts.	Number of assistance visits or training opportunities in which staff participated	The RPO, its committees, and staff will work with regional partners to include emergency response and hazard mitigation plans with environmental planning efforts.

In addition, goals and objectives have been developed to address rural transportation planning across the Commonwealth. These were developed using the regional goals and objectives from each of the 20 PDCs in Virginia that include rural areas within their boundaries. Similar concepts within the goals of the PDCs were found and used to shape these common goals. These goals are also consistent with the goals 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.**

**Objectives**

Enhance access and connections to ports, airports, transit stations, or other modal facilities, as well as between neighborhoods and subdivisions, in order to enhance and optimize the efficiency of the region’s transportation system.

Encourage the development of passenger rail service in regions where it is limited or unavailable.

Improve roadway and intersections on key trucking corridors.

Support existing and expand fixed route rural transit, park and ride lots serving designated growth areas, and demand-responsive services.

Ensure adequate access to major activity centers for vehicles, mass transit, pedestrians, and bicyclists.

Evaluate alternative transportation modes during the development of transportation plans.

**Goal 2. Provide a safe and secure transportation system.**

**Objectives**

Identify dangerous transportation mode/user conflicts within the transportation system.

Increase safety awareness of users and providers of transportation systems.

Use traffic calming measures at appropriate locations.

Use intelligent transportation systems, such as variable message signs, on appropriate roadways.

Increase visibility on roadways as an additional safety measure.

**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.**

**Objectives**

Encourage projects within all modes of transportation that improve the global competitiveness of the region.

Encourage regional transportation planning, investment, and projects that support new and/or expanding economic development opportunities.

Develop individual bicycle and pedestrian trails within the PDCs that have been identified as priorities for tourism and recreation as well as coordinating with local park and recreation plans and the small urban area plans.

Designate additional scenic byways as needed to promote tourism.

Emphasize commercial rail as an increasingly important means of goods movement.

Promote and establish attractive gateway/entrance corridors.

**Goal 4. Ensure continued quality of life during project development and implementation by considering natural, historic, and community environments, including special populations.**

**Objectives**

Design and build developments and transportation facilities that are compatible with the aesthetic, historic, and physical characteristics of area localities.

Minimize transportation impacts to historic, cultural, and environmental resources and local communities.

Include public awareness and outreach in planning and development of projects.

Develop a set of design criteria, including landscaping, setbacks, and buffers, specifically for rural roadways that improve mobility and safety while keeping rural aesthetic conditions intact.

Formulate and adopt Context Sensitive Design criteria in transportation planning and project development.

**Goal 5. Preserve the existing transportation network and promote efficient system management in order to promote access and mobility for both people and freight.**

**Objectives**

Coordinate transportation planning between jurisdictions and between PDCs to improve mobility.

Support the implementation of traffic flow measures to alternative routes through the region in

times of highway accidents, congestion, and lane closures.

Support and expand alternative passenger transportation efforts such as public transit, transit programs for the elderly or disabled within and between regions, ride sharing, and other alternative transportation options.

Consider congestion management techniques in transportation planning, such as using secondary roads, inter-parcel connection, and shared commercial streets/entrances.

Ensure corridor preservation by identifying and preserving right-of-way for future transportation improvements.

**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.**

**Objectives**

Promote the coordination of transportation improvements as land use changes and focus the majority of improvements within designated growth areas.

Within designated growth areas, encourage mixed-use developments with adequate internal circulation systems to minimize the length and number of vehicular trips and optimize traffic flow.

Promote street design in proposed new developments that facilitates non-motorized trips and investments in an interconnected transportation network (transit and bicycle/pedestrian facilities).

Consider innovative land development patterns and site designs to prevent additional congestion and improve accessibility.

Coordinate planning and development with Indian Tribal governments, governmental transportation agencies at all levels, and environmental land use plans and regulations.

Information contained in this chapter served as a guide in the transportation needs assessment and development phases of the Plan.

**Public Involvement**

The advancement and acceptance of the study depended greatly upon outreach to the public, local governing bodies, and the PDCs. An effective and efficient communications effort must be well-planned and flexible. Public involvement elements incorporated into this study included:

- Development of a Master Communications Plan,
- Information sharing with the general public and public officials through meetings and use of the VDOT website,
- Provision of media relations through the development and use of press kits, press releases, and the coordination of media-related events,
- Focus groups to determine needs of the traditionally underserved, and
- Public meetings and public hearings.

Events held to date include the public meeting introducing the project to the public on July 24,

2008. Comments from this meeting included particular locations of desired road improvements. Almost all fell within the MPO boundaries.

Comments on the draft of this plan obtained from the Public Hearing will be addressed in the final report.

### **Data Compilation and Collection**

An extensive effort was made to compile and collect data to be used in the study analysis. The information obtained and how it was used is described below:

- Socioeconomic, US Census, and employment data was used not only to determine where trip origins and destinations occur, but also to assist in determining those areas where the greatest demands for improvements might take place.
- Previously identified needs from other studies (by mode of travel) were reviewed to determine how the needs were identified and recommendations defined, and as a tool to identify those potential improvements that are still applicable.
- Capital improvement programs (by mode of travel) were needed to gain insight on modal deficiencies receiving top priority for improvement through the assignment of funding. These funded improvements automatically qualify for the top tier of needs due to their advanced status as active projects.
- Facility inventory (by mode of travel) was used to determine what currently exists and to help assess how much of the inventory may be deficient.
- Roadway accident data were used in the determination of high accident locations in need of improvement to reduce the levels of occurrence.
- Freight generator inventory information was crucial both in the determination of work activity destination centers and the goods movement analysis.
- Location and attributes of major activity centers and high growth areas were necessary to assist in the determination of areas likely having the greatest current needs and where additional needs might exist in the future.
- Location and attributes of water and sewer infrastructure proved useful as a tool in determining areas within the NRVPDC where future growth can be anticipated.
- Data on commuting patterns and labor market trends were used in the determination of trip origins and destinations and the analysis for ridesharing potential.
- Mapping of disadvantaged population groups was used in the determination of recommendations for improvements to accommodate those groups.
- Summaries and copies of existing regional and local plans and studies provided insight on regional and local development scenarios and proposals for the accommodation of transportation needs.
- Aerial photography was used for a myriad of needs from determination of development patterns to serving as a check on mapping accuracy.
- Traffic count data (roadway segments and intersections) were necessary to determine existing needs for both mobility and safety and to serve as the basis for determination of future traffic growth and how that growth could best be accommodated.

All information and data obtained were reviewed for sufficiency in extent and quality through the consideration of its comprehensiveness, age, and degree of geographic coverage. Through this review, identification was made of the extent to which the available data supported analysis that either quantified or qualified transportation and safety concerns, along with regional goals and objectives. The information and data obtained was supplemented with input received from meetings held with local elected and other government officials and the general public, whereby additional transportation and safety concerns were discussed.

### **CHAPTER 3 – TRANSPORTATION DATA ANALYSIS**

Data for each mode was analyzed for the current and forecast year conditions.

#### **Roadways**

Traffic data collected for the priority locations were incorporated into the VDOT Statewide Planning System (SPS) data base. Traffic forecasts were developed for 2035 based on **appropriate trend lines** and further modified with consideration given to available information on projections for growth areas and water and sewer line extension. Forecast year peak hour to daily travel demand ratios generally followed existing peak hour to daily volume ratios, unless available information indicated a different ratio was appropriate.

Roadway analysis consisted of four separate reviews:

- Roadway link-level mobility performance, measured through Level-of-Service (LOS) analysis. Relevant information available in the VDOT SPS database and other travel data collected for this Plan was reviewed for reasonableness for both the base year and forecast year conditions. Deficiencies noted from the database and additional analysis, coupled with information received at public meetings and from local officials, constituted those roadway locations considered deficient based on mobility.
- Safety and accidents. Safety and crash database information and input from local officials and the public were used to identify 23 locations within the NRVPDC for which field safety assessments were conducted; assessments were also performed for the detailed study locations. The assessments identified physical features, traffic control features, operational issues, and other factors contributing to safety concerns.
- Structure sufficiency. Any structure with a current sufficiency rating of less than 50 was considered deficient and in need of structural upgrade or replacement.
- Roadway geometric sufficiency. Roadway segments were reviewed for geometric sufficiency, such as insufficient lane or shoulder width; inadequate horizontal or vertical alignment, passing sight distance, and/or crossover spacing; and availability of turn lanes.

Roadways analyzed for all four categories of deficiencies were those assigned a Federal Functional Classification as an arterial or collector, which together generally comprise between 30-40 percent of total jurisdictional mileage. The remaining mileage, functionally classified as local roadways, was not included in this study. Appendix G includes the full definition of functional classification.

The NRVPDC, in conjunction with the local jurisdictions, prepared a list of roadway detailed study locations based on reviews of available data sources, input at public meetings, and information provided by local and regional officials. The 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 NRVPC, 23 detailed study locations were identified and traffic count data (24 hour machine counts and/or peak hour intersection turning movements) were collected at these locations (Exhibits 6 and 7). Data appear in Appendix F.

**Exhibit 6. Roadway Detailed Study Locations**

<b>Jurisdiction</b>	<b>Detailed Study Location</b>
Floyd County	Intersection of VA 8 and VA 221
Giles County	Intersection of US 460 and US 219
	Intersection of US 460 and Thomas Road (VA 640)
	Segment of US 460 Business near Wal-Mart
Montgomery County	Intersection of VA 808 and VA 657
	Intersection of VA 642 and VA 603
	Intersection of Childress Road and Dry Valley Road
	Intersection of US 460 and VA 621
Pulaski County	Intersection of US 11 and Old US 11 Speedway
	I-81 Interchange at Exit 98
	Intersection of US 11 and VA 114
	VA 611 at I-81
	I-81 Interchange at Exit 94
	Intersection of VA 114 and Old VA 114
	Intersection of US 11 and Ruebush Road
	I-81 Interchange at Exit 101
	One Lane Bridge on Julia Simpkins Road near Mack Creek Village
	I-81 Interchange at Exit 92
	Segment of VA 114 from Belspring Road to US 11
	US 11 from VA 114 Intersection to City of Radford
	VA 100 from I-81 to US 11 through Dublin
City of Radford	Intersection of Rock Road and Tyler Road
	Main Street from Memorial Bridge to beyond Grove Avenue

Exhibit 7 Detailed Study Locations - GIS data

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## **Public Transportation**

Fixed-route transit service in the region is provided within and between individual jurisdictions by separate service providers. Demand-responsive transit is also available in the region through the New River Valley Senior Services (NRVSS). In addition, the NRVPCD has collaborated with the Roanoke Valley-Alleghany Regional Commission (RVARC) to address mobility concerns in both PDCs.

Blacksburg Transit (BT) is managed by the Town of Blacksburg and supported by Virginia Tech. The service offers eleven fixed routes, including the Two Town Trolley to Christiansburg and the New River Valley Mall (Exhibit 8). Current annual ridership is approximately 2.5 million passengers (NRVPCD, *Interview BT*, 2008). BT also provides BT Access, a door-through-door accessible van service throughout Blacksburg.

Radford University operates the Tartan Transit within the university and the City of Radford. There are two fixed routes, a City Loop and Campus Loop, that access locations throughout the city and parking areas throughout the university.

Pulaski Area Transit (PAT) originally provided service both as a fixed-route and demand-responsive transit service. It currently operates as an on-demand service, with increasing ridership. Ridership in 2004 was 25 riders per day; currently, the system has served up to 277 riders per day with an average response time to a service call of 13 minutes (NRVPCD, *Interview PAT*, 2008).

NRVSS is a non-profit agency and the primary provider responsible for the administration of demand-responsive transit in the New River Valley. NRVSS is also the largest services provider for the elderly in the region. NRVSS has agreements with multiple government agencies and private partners to provide transportation throughout the region to their respective clients for nutrition, medical, and disability services, and even shopping. Clients include those of the individual agencies, the general public 60 years of age or older who have no transportation available, and disabled people under 60 on a space available basis (Center, 2006). The NRVSS Program Director also serves as the Pulaski Area Transit system manager.

Several smaller organizations also provide transportation services. In general, transportation services are provided in order to accomplish activities associated with the agencies' missions, for example, access to medical care. Transportation services are supplemental to the agencies' primary missions. These providers include both non-profit agencies and private companies (Center, 2006). The following organizations were identified as providing transportation services to their clients/customers: Brain Injury Services of Southwest Virginia, Montgomery County and City of Radford Department of Social Services, and New River Community Action.

Disadvantaged population groups were studied as a part of this Plan's process in order to determine deficiencies in the transportation network which affect these groups. For the purposes of this Plan, disadvantaged groups include persons with low-income, minorities, the elderly, and persons with disabilities. US Census 2000 data at the block group level were examined in order to determine locations and densities of all these groups. These are graphically displayed in Exhibits 9-12. This information was reviewed for possible areas of service expansion for all transit providers.

Exhibit 8 Transit Routes (Existing) PDC GIS data

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Exhibit 9 Minority Population GIS data

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Exhibit 10 Population with Disabilities GIS data

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Exhibit 11 Age 65 and Over GIS data

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Exhibit 12 Low-Income Population GIS data

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Montgomery County and the City of Radford have smaller portions of older residents due to the presence of Virginia Tech and Radford University. The low-income population has decreased in all of the jurisdictions, except Pulaski County, which had a small increase. Coupled with the increase in population, it is an overall decrease in the percentage of those in poverty for all jurisdictions (NRVPDC, *Data*, 2008). In the region, the portion of the population over the age of five with a disability is 18.2%; in the Commonwealth, it is 18.1% (US Census, 2000). The presence of long term care facilities, such as Skyline Manor northeast of the Town of Floyd, can influence census tract data.

The Public Mobility Project is a continuing joint effort between the Roanoke and New River valleys coordinated by the Center for Transportation Policy at Virginia Tech. To date, extensive research and assessment of public transit in the two regions and a community planning summit of transportation providers, public service agencies, and government officials have resulted in a report documenting mobility in the regions. The report summarizes the existing services of public transportation and other government or non-profit transportation agencies, presents findings, and makes recommendations for improved mobility in both regions (Center, 2006).

### **Bicycle and Pedestrian Facilities**

The bicycle and pedestrian facilities in the region are currently used both for recreation and basic transportation. The scenic beauty of the area promotes the development of recreational bikeways and multi-use trails. In addition, due to the location of universities in the region, bicycle usage within several of the developed areas is also prevalent. In 2000, the NRVPDC produced the New River Valley Bikeway-Walkway-Blueway Plan, which is currently being updated. The plan identified routes for improvement and prioritized their development. Montgomery and Pulaski Counties, the City of Radford, and the Towns of Blacksburg, Christiansburg, and Pulaski have established bicycle routes and facilities throughout their respective jurisdictions (Exhibit 13). These include shared-road designations, bike lanes, and multi-purpose designated trails. The Bikeway-Walkway-Blueway Plan details the existing and proposed future facilities for the region and the individual jurisdictions. As its name suggests, the plan also includes a blueway or canoe/kayak designated waterway route along the New River, with appropriate support services such as access locations, campsites, potable water, and sanitation facilities.

### **Airports**

There are two general aviation airports within the region, the New River Valley Airport just north of Dublin in Pulaski County and the Virginia Tech-Montgomery Executive Airport in Blacksburg (Exhibit 14). The New River Valley airport is within thirty minutes of I-77 and US 460 and is located four miles north of I-81. It has the fifth longest runway in the Commonwealth, the only one that is located adjacent to major industrial lands, and the only one west of Richmond that has US Customs services at the airport and is served by Foreign Trade Zone designation. The Virginia Air Transportation System Plan Update of 2003 showed 0.6% average annual growth at both airports (DOAV, 2003). The Virginia Tech-Montgomery Executive Airport Authority recently completed a master plan update which had average annual growth of based aircraft of 1.6%. Roanoke Regional Airport, east of the region, provides commercial passenger service and is one of the four top freight airports in the Commonwealth.

Exhibit 13 Bicycle and Pedestrian Facilities BW-WW BW plan and its update

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### **Goods Movement**

Norfolk Southern is the rail carrier with several lines running through the region. The lines are a part of the Crescent Corridor, Heartland Corridor, and Coal Corridor. The Crescent Corridor has two segments that generally parallel I-81 and US 29, respectively, through the state and carry intermodal trains, general cargo, and auto trains (DRPT, *Virginia*, 2008). The Heartland Corridor generally parallels US 460 and is the primary east-west carrier of intermodal stacked trains. The Crescent runs northeast to southwest through Montgomery County and continues through Pulaski County and southwest through to Tennessee. The Heartland and Coal corridors travel through Radford and Christiansburg and then along the New River running towards Pembroke along the New River valley (Exhibit 14). The lines run north through Giles County and then turn west and connect to lines running north through coal areas in both Virginia and West Virginia. In addition to the freight lines, both I-81 and US 460 are critical corridors to truck freight movement within the region and throughout the Commonwealth (VDOT, 2006).

### **Land Use and Future Growth**

Existing land use and potential future growth areas were reviewed and identified by the TTAC. The land use in the region varies widely from agricultural and rural residential in most of Floyd and Giles Counties to urban residential, commercial, and industrial uses in the larger towns and Blacksburg, Christiansburg, and Radford.

### **Travel Demand Management**

With diminishing resources of fossil fuels coupled with increasing travel demand, and a need to preserve and enhance environmental quality, every effort needs to be made to reduce the number of vehicle trips, especially single-occupant trips. While in some rural areas, low population densities and dispersed trip attractors may not be conducive to major shifts to mass transit, in the NRVPCD, there is some concentration of commuter destinations: Blacksburg, Christiansburg, Radford, and Roanoke. Therefore, gains in ridership can be realized. Public transportation, a key component of commuter transportation, is discussed above. Additional commuter-oriented pieces of the regional transportation network include ridesharing, commuter bus, and park and ride lots.

In all of the jurisdictions except Floyd County, 50% of the working resident population remains within their respective jurisdictions (Exhibit 15). Of those who do commute to another locality, a large majority remain within the region. Only Floyd County has a large percentage commuting beyond the region, 30% (NRVPDC, *Data*, 2008).

Exhibit 14 Rail and Air Network Rail in GIS data “railroad” PDC would like mainlines and spurs to be separated on the graphic/in the legend

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**Exhibit 15. Commuting Locations**

Work Location	Jurisdiction of Residence				
	Floyd County	Giles County	Montgomery County	Pulaski County	City of Radford
Floyd County	43%	--	1%	--	1%
Giles County	--	54%	1%	--	--
Montgomery County	19%	26%	76%	14%	26%
Pulaski County	4%	10%	5%	66%	14%
City of Radford	4%	2%	5%	13%	52%
Outside of Region	30%	8%	12%	7%	7%

Source: NRVPCD, *Data*, 2008.

RIDE Solutions offers alternative transportation information and assistance in the New River Valley and Roanoke Valley-Alleghany region. It provides commuter matching, a guaranteed ride home program, vanpool assistance, and bicycle information and resources. The commuter matching includes an online interactive map with posts of potential carpools. There are two main clusters of commuters, in Roanoke and in Blacksburg/Christiansburg. The commuter service has riders from the surrounding regions as well.

The SmartWay bus is another example of cooperation between the Roanoke and New River valleys to improve mobility. The service is operated by Valley Metro (Greater Roanoke Transit Company) in Roanoke and operates between Roanoke and the Towns of Blacksburg and Christiansburg, with stops within the jurisdictions and at park and ride lots on I-81. The service also cooperates with Blacksburg Transit, Ride Solution's Guaranteed Ride Home program, and Roanoke Airport Transportation Services. For example, Roanoke Airport Transportation Services will provide return service for the same fare as SmartWay service if a commuter returns to the airport on a Sunday after using the SmartWay Bus.

There are 14 formal and informal park and ride lots in the region (Exhibit 16). RIDE Solutions has recently completed a study of the park and ride lots in both the New River Valley and the Roanoke Valley, particularly along I-81, US 460, VA 100 in Giles and Pulaski Counties, and US 220 in Franklin County. There have been two additional informal lots in use in the past, but one has since restricted access and the other has signs posted banning park and ride usage.

There is currently no intercity rail or commuter rail service within the region. The nearest Amtrak services are provided in Danville or Lynchburg on the Crescent service (New York to New Orleans) and at Clifton Forge on the Cardinal/Hoosier State line (New York to Chicago). TransDominion Express is a proposed rail service which would connect Bristol to Lynchburg and then divide with a line to Washington, DC and a line to Richmond. Stops in the region are proposed at Pulaski, Radford, and Christiansburg, on the mainline. The new regional service from Lynchburg north to Washington, DC and beyond implements part of the full service planned by TDX.

Exhibit 16 Park and Ride Lots Use map from park and ride lot survey

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## **CHAPTER 4 – TRANSPORTATION DEFICIENCIES AND RECOMMENDATIONS**

The products of the transportation data compilation/collection and analyses resulted in a determination of deficiencies and recommendations for improvements. These are discussed by mode.

### **Roadways – Base Year**

Deficiencies and recommendations were determined both for the base year and forecast year (2035) conditions. Deficiencies were identified based on mobility measures (LOS), safety concerns, a determination of structures requiring improvement or replacement, and a determination of geometric deficiencies. The road system analyzed included facilities functionally classified as arterials and collectors. For the purposes of this Plan, only those portions of the NRVPCD lying outside of the Blacksburg/Christiansburg/Montgomery Area Metropolitan Planning area were analyzed.

### **Mobility**

Within the NRVPCD, **XX** roadway segments and intersections were combined from the following studies/projects: the detailed study locations, the Statewide Mobility System (SMS), private development Traffic Impact Analysis (TIA), the STARS component of this project, local recommendations, other separate studies, and the Six Year Transportation Improvement Program (SYIP). For some of the locations, recommendations have already been proposed, which were reviewed to determine if any updates needed to be made. The remaining locations were analyzed for a determination of current mobility LOS and degree of congestion encountered. Deficiencies based on these analyses or input provided are presented in Exhibit 17.

Possible recommendations for improvements included measures such as:

- Addition of a new, parallel facility;
- Grade separation (new interchange) of current at-grade intersection;
- Additional lanes to the existing facility;
- Widen existing lanes;
- Improved horizontal and/or vertical alignment;
- Improved shoulders;
- Addition of turn lanes;
- Crossover (addition or closing);
- Signalization (new or updated);
- Removal of parking;
- Roundabouts;
- Replacing shoulders with curb-and-gutter sections;
- Possible reduction in traffic levels to improve LOS; and
- Conversion of two parallel roadways with two-way traffic to a one-way pair.

Potential for map with existing multijurisdictional connector routes and inter regional principal routes. Add future routes promoting connectivity utilizing existing comprehensive plans for each of the 5 primary jurisdictions (Montgomery, Pulaski, Giles, Floyd Counties and the City of Radford)

**Exhibit 17. Roadway Base Year and Forecast Year Deficiencies and Recommendations**

Large Recommendation Table to be inserted here.

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## Safety

Roadway segments and intersections with high levels of incidents were supplied by VDOT and supplemented with additional information obtained from the NRVPDC. Within the NRVPDC, XX road segments and intersections were reviewed for causes of high incident rates, and recommendations were developed to reduce or eliminate the concerns. Possible remedial measures included many of those noted for LOS deficiencies, and supplemented by others, for example:

- Improved sight distance;
- Reduced speed limit;
- Advance signage with safety-related messages; and
- Removal of objects within the roadway right-of-way.

The safety analysis is limited to the base year condition (Exhibit 17).

We can insert a graphic here with high risk safety issue corridors and intersections in the region based on LOS and incident information.

## Structures

Information on structures and their current degree of adequacy was obtained from inventory information provided by VDOT. Within the NRVPDC, XX structures were considered deficient or obsolete, with recommendations offered for their upgrade or replacement (Exhibit 17).

## Roadway Geometrics

Data related to roadway geometrics provided by VDOT was compared to adequacy criteria, also made available by VDOT, to determine road segments and spot locations considered deficient. Geometric deficiencies were noted for XX road segments and spot locations. Recommendations for improvements included many of the remedial actions noted for mobility and safety improvements.

## Deficiencies, Recommendations and Cost Estimates

Base year deficiencies (mobility, safety, structures, and geometrics) and recommendations to alleviate the deficiencies are listed in Exhibit 17 and mapped by jurisdiction in Exhibits 18 through 25.

### Roadways - Forecast Year (2035)

Deficiencies were based on mobility analysis (LOS) only. The same roadway segments and intersections analyzed for the base year condition, together with any new roadways (arterials or collectors) expected to be constructed in the NRVPDC were analyzed again using year 2035 traffic projections. For the XX segments and intersections analyzed, XX segments and intersections are anticipated to need improvements. If some segments and intersections are determined to be deficient for both the base year and forecast year, the recommendation for 2035 will override the recommendation for the base year (Exhibit 17).

We need to insert a 2035 LOS graphic here.

Exhibit 18

Roadway System Deficiencies (2009-2035)

Floyd County

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 19

Roadway System Deficiencies (2009-2035)

Giles County

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 20

Roadway System Deficiencies (2009-2035)

Montgomery County and City of Radford

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 21

Roadway System Deficiencies (2009-2035)

Pulaski County

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 22

Roadway System Recommendations

Floyd County

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 23

Roadway System Recommendations

Giles County

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 24

Roadway System Recommendations

Montgomery County and City of Radford

- Legend has mobility; safety; geometric deficiency; structures

Exhibit 25

Roadway System Recommendations

Pulaski County

- Legend has mobility; safety; geometric deficiency; structures

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## **Public Transportation**

One set of deficiencies and recommendations (base year and forecast year) was developed for the public transportation component of the Plan. The individual public transit services all have plans for expansion which were identified during interviews with the NRVPC in 2008. In general, the planning horizon is of shorter duration than the forecast year used for roadway analysis.

Blacksburg Transit is currently has recently expanded of services into Christiansburg beyond the Two Town Trolley. A future route via Peppers Ferry/VA 114 to the Pulaski County border is also anticipated which will enable rural residents of both Pulaski and Montgomery Counties to access Blacksburg and Christiansburg and Roanoke via the SmartWay bus (Exhibits 26 and 27).

The future plans for Pulaski Area Transit are to extend the on-demand service beyond the Town of Pulaski and into more parts of Pulaski County, particularly eastward into the Town of Dublin and the community of Fairlawn. As PAT expands eastward, regional connections beyond Pulaski County become important. Connections to an expanded Blacksburg Transit system via an extended PAT would enable residents of Pulaski County to travel to Roanoke by way of the SmartWay Bus.

Neither of the Tartan Transit loops run on Saturday and the Campus Loop runs a limited service on Sunday evening from 6:00 pm to 1:00 am. Expansion to serve the student population and the City of Radford residents is greatly needed. Improving the existing system could assist the region in making connections between Pulaski Area Transit and Blacksburg Transit as those systems expand.

Demand-responsive transit is a vital service offered in many rural areas throughout the state because the providers offer transportation services to those with no other means of travel to necessary trip destinations. The Center for Transportation Policy at Virginia Tech prepared the Public Mobility Project Final Report for the New River Valley and Roanoke Valley-Alleghany region, which identified unmet transportation needs including:

- A need for additional human service transportation for transportation disadvantaged populations in the region.
- There are sufficient transportation providers to provide human service transportation if sufficient resources (funds) are made available.
- There is sufficient interest in coordination of services among current transportation providers and human service agencies to achieve a coordinated human service transportation environment. Ongoing coordination is necessary to meet the demand for human service transportation.
- A region-wide coordination effort is possible. To succeed, such an effort requires sustained leadership and commitment.

The recommendations that the report made include:

- Identify a leadership committee of transportation providers and human service agencies. The group should designate one person as the “champion” who will facilitate meetings, ensure momentum is continuous, serve as spokesperson, and who will be looked to as a neutral participant without an organizational agenda;
- Begin monthly meetings specifically designed to move toward coordination. At the time,

the Center for Transportation Policy was prepared to initiate monthly meetings until such time as another organization could take the responsibility;

- Bring the funding agencies to the table;
- Enlist and designate the New River Valley Senior Services Agency as the organization to lead coordinating service provision in the New River Valley. Initially, this agency could begin to serve as the interim brokerage agency for its service area;
- Bring RouteMatch technology into the coordinated effort for the entire region;
- Create a 501(C)3 organization to provide a centralized point of administration of a region-wide brokerage system; and
- Given the rural character of the region, an aggressive and coordinated car ownership program would be highly desirable.

The last bullet would be a program through the New River Valley Community Action (Center, 2006). This agency hoped to form a coalition with Total Action Against Poverty, Freedom First Credit Union, and other private companies to function as a non-profit car dealer and offer subsidized vehicles to low-income families (NRCA, 2008).

The Coordinated Human Service Mobility plan identified some of the same needs as the Public Mobility Project but also observed that expanded fixed-route and demand-responsive transit service should be on weekends, during later shifts, during the summer, and to employment centers (DRPT, *New River*, 2008). In addition, increased publicity of the services available should come from the state level and should include how to use the service and outreach to both medical facilities (doctor offices) and human service agencies.

**Exhibit 26. Public Transportation Recommendations**

<b>Jurisdiction</b>	<b>Identified Need</b>	<b>Recommendation</b>
Blacksburg, Christiansburg, Pulaski County	Regional transit connections	Expand Blacksburg Transit connections between MPO and Pulaski County
Pulaski County	Additional demand-responsive transit in region and regional transit connections	Expand demand-responsive service outside of the Town of Pulaski to Dublin and Fairlawn
City of Radford	Regional transit connections	Expand Tartan Transit service to improve inter-city and regional connections
Blacksburg, Christiansburg, Pulaski County, City of Radford	Needs of transportation disadvantaged including access to employment centers and medical facilities	Implement expanded hours and days of operation of demand-responsive service for each service provider

All of these recommendations address the regional goals of enhancing the links and connectivity of the transportation system throughout the region and preserving the existing transportation network and promoting efficient system management to increase accessibility and mobility of the transportation system.

Exhibit 27 Potential Future Transit Routes include additional future routes in Radford if available in time

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The review of disadvantaged population groups determined that the three transit systems are providing access to low-income, elderly, and disabled populations within their respective jurisdictions and expansion of services would further increase access. This does not apply to either Floyd County or Giles County which have no current public transit. A regional brokerage entity that could assign trips throughout the region to an available provider could provide access to the transportation disadvantaged groups in these counties.

### **Bicycle and Pedestrian Facilities**

As with public transportation, one set of deficiencies and recommendations (base year and forecast year combined) was developed for this component of the Plan. Analysis is more qualitative than quantitative in nature with recommendations closely aligned with local desires. With system development desires usually addressing present day or near-term needs, consolidation of recommendations was appropriate.

Determination 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.

The primary source of recommendations was the individual jurisdictions' bike plans and/or comprehensive plans. Floyd County does not have a bicycle plan and does not have a specific portion of its comprehensive plan devoted to bicycle facilities, but the comprehensive plan does encourage bikeway/walkway development and states that these facilities should be considered during roadway development (Floyd, 2002). Giles County also does not have a bicycle plan or facilities in its comprehensive plan, but the plan does recommend developing "bike lanes, if possible, in conjunction with upgrades of existing roads and construction of new road facilities where appropriate" (Giles, 2005). Pulaski County does not have a bicycle plan and the current comprehensive plan does not indicate that bicycle and pedestrian facilities are being planned for in the future. The comprehensive plan is currently being revised and may include proposed bicycle and pedestrian facilities.

Montgomery County established the existing system of trails in its Bikeway/Walkway Plan of 1990. Since then, the MPO has been formed and the majority of these trails fall within the MPO boundaries and are therefore not addressed here. Both the MPO and the County wish to cooperate in further bikeway development in order to provide connectivity between jurisdictions. For example, plans are underway to extend the Huckleberry trail, a rails to trails project which currently connects Blacksburg and Christiansburg, north of Blacksburg towards the Jefferson National Forest. Ultimately, the Huckleberry Trail is proposed to connect to the New River Trail in Pulaski County. The Montgomery County Comprehensive Plan proposed that the Huckleberry Trail, Mid-County Park Market Place Connection, and New River Trails are facilities that should link with other local and regional facilities (Montgomery, 2004). The TransAmerica Bike Route (US Bike Route 76) traverses portion of Montgomery and Pulaski Counties. It is a shared road facility that crosses the entire country.

### **Airports**

The two general aviation airports in the NRVPDC are expected to continue to be important to the transportation network in the future. In development of recommendations, the primary source of information was the Virginia Air Transportation System Plan Update with supplemental

information from the NRVPC. Future forecasts (2020) of operations and aircraft based at the airports are for growth of 0.5% of based aircraft at the Virginia Tech-Montgomery Executive Airport and no growth at the New River Valley Airport (VADOA, 2003). The Master Plan update for the Virginia Tech-Montgomery Executive Airport forecasts annual growth rates of 2.5% (Virginia Tech, 2008). Based on these forecasts, the airport master plan recommends improvements in order to develop two distinct/separate areas for the corporate aircraft versus single engine aircraft. Part of these improvements include re-aligning Tech Center Drive and the Huckleberry Trail in order to extend the runway. In this area, these facilities lie within the MPO but almost all of the costs associated with this re-alignment are being funded by the FAA. Other recommendations made in the master plan are for specific improvements to facilities, including hangars, aprons, land acquisition, and the terminal (Virginia Tech, 2008).

### **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). A recent study of freight movements conducted by the MPO included a survey of freight generators, all of whom responded that they use trucks to move freight, 30% of whom also use rail. I-81 was identified as the primary corridor for truck freight movement. Other issues included access, road capacity, and bridge load limits (NRVPDC, *Blacksburg*, 2008). Even though this report and survey were conducted for the MPO, the assessment and conclusions apply to the region as well. Not all of those surveyed are in the MPO itself and there are other freight generators in Radford, Floyd, and along US 460 in Giles County.

There is an intermodal transfer facility currently planned in eastern Montgomery County in Elliston. The completion of the facility would have effects on both the rail and roadway networks within the NRV and surrounding regions. The possibility exists that shipments could be transferred to rail combined with a short-haul truck trip, as opposed to a long-haul truck trip. The intermodal facility is a part of the Heartland Corridor which Norfolk Southern is constructing in cooperation with the Federal Highway Administration-Eastern Federal Lands Highway Division, the Commonwealth, and the states of Ohio and West Virginia (DRPT, *Roanoke*, 2008). The corridor is expected to double the intermodal rail capacity along the existing line terminating in Hampton Roads. Ten sites in the New River Valley and Roanoke Valley were identified and reviewed for their ability to meet the criteria needed for an intermodal facility. This general regional location was necessary to provide proximity to I-81 and to lie within an area along the corridor to ensure competitive time for freight shipments (DRPT, *Roanoke*, 2008). More specific criteria included: size of the site, topography, rail line configurations, and minimizing additional grade separations or roadway modifications. The site at Elliston is the best of the proposed locations to meet the criteria.

There are currently improvements proposed for the other Norfolk Southern rail corridors. The Heartland Corridor has improvements in addition to the intermodal facility; when combined these are expected to double the freight capacity on the line that parallels US 460 (DRPT, *Virginia*, 2008). Added capacity along the Crescent Corridor, which parallels US 29 through the region, is expected to transfer more truck shipments from I-81 to this rail corridor.

### **Land Use and Future Growth**

Potential future growth areas were identified by the TTAC (Exhibit 28). The land uses in the region are not expected to change dramatically. All of the jurisdictions have goals and strategies within their comprehensive plans to focus growth where there is existing residential, commercial, or industrial uses. Directed growth is a strategy being used in order to provide needed services to residents in the most efficient way possible and to maintain the rural settings and existing green space within the jurisdictions.

Exhibit 28 Potential Future Growth Areas (PDC has data)

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**Travel Demand Management**

In rural areas, low residential densities and dispersed work destinations are generally not conducive to high public transportation use. However, the New River Valley does have concentration of work destinations in Blacksburg, Christiansburg, Radford, and Roanoke. Decreases in single-occupant vehicle trips are possible in and around the towns and on heavily traveled commuter routes, particularly I-81, US 460, US 221, and VA 8.

The services of Blacksburg Transit, Tartan Transit, Pulaski Area Transit, the New River Valley Senior Services, and RIDE Solutions will continue to be important tools for decreasing single-occupant vehicle trips, particularly during the peak hour. The NRVPCD recently conducted an employee transportation study and survey. The purpose of the study was to develop a vision for rural commuter transportation within the New River Valley. The project analyzed commuter patterns, barriers to transportation, and explored transportation solutions. A final report is not yet completed but preliminary results were combined with reviews of local comprehensive plans and other existing studies in order to have an inclusive set of recommendations.

**Exhibit 29. Travel Demand Management Recommendations**

<b>Jurisdiction</b>	<b>Recommendation</b>
All Jurisdictions	Utilize existing providers to implement commuter service: Glen Lyn to Blacksburg Pearisburg to Dublin Draper to Fairlawn Radford to Christiansburg Floyd to Christiansburg Blacksburg, Radford, Christiansburg Christiansburg to Shawsville
All Jurisdictions	Establish vanpools on semi-fixed routes from transit stops to employment centers
All Jurisdictions	Refine routes as needed to provide connections between service providers
All Jurisdictions	Initially serve commuters during standard hours, expand as necessary
All Jurisdictions	Coordinate between PDC and MPO to establish agency roles, identify funding partners, maintain program vision
Giles, Montgomery, Pulaski Counties	Addition of bicycle racks in park and ride lots with connections to surface streets
Giles, Montgomery, Pulaski Counties	Bus shelters at park and ride lots with future transit connections (Existing SmartWay stops at park and ride lots are within the MPO)
All Jurisdictions	Consideration of other modes in the design of future facilities

Jurisdiction	Recommendation
Floyd, Giles, Montgomery, Pulaski Counties	Evaluation of the need to formalize some park and ride lots or create VDOT-owned facilities in close proximity to highly used informal lots
Floyd, Giles, Montgomery, Pulaski Counties	Addition/improvement of signs for lots along corridors and at key intersections
Floyd, Giles, Montgomery, Pulaski Counties	Continued maintenance of sites e.g. trash pick-up, lighting
Montgomery County	Formalize the I-81 Exit 114 park and ride lot

As with public transportation, all of these recommendations address the regional goals of enhancing the links and connectivity of the transportation system throughout the region and preserving the existing transportation network and promoting efficient system management to increase accessibility and mobility. These recommendations also improve the regional transit connections, access to employment centers and medical facilities, and the mobility of the population.

Regional human services transportation is supported in some of the jurisdictions’ comprehensive plans. Implementation of the routes could take place incrementally, with each route launched separately. All of the routes could be launched in the near-term, depending on the needs for commuter transportation on an individual route. The needs are expected to increase as the population increases in the region. These recommendations are in the beginning of planning phases and the NRVPC will be working to procure ongoing funding in order to continue this study.

Park and ride lots in the region are expected to continue to be of importance to the commuting population. In anticipation of this, RIDE Solutions recently conducted a new study of park and ride lots in both the New River Valley and the Roanoke Valley-Alleghany region. Recommendations from the report are in Exhibit 29.

A previous study prepared by RIDE Solutions identified several deficiencies for the lots on I-81 at Exits 118 and 128 (RIDE Solutions, 2005). At the time, the Falling Branch lot at Exit 118 was not lighted, had no signs identifying it as a bus stop for the SmartWay bus, no signs identifying it as a park and ride lot - to separate it from the adjacent school, and no signs on I-81 or US 460 alerting motorists to its presence. It was recommended that the Pedlar Road-Exit 128 lot should also have signs posted for it on I-81 as well as its surface repaired and maintained trash receptacles placed in the lot.

**Environmental Overview**

The environmental analysis utilized the Alternatives and Purpose and Need templates provided by VDOT to assess and document potential environmental impacts at a general overview level and to provide coordination. This broad brush review of environmental issues is not considered to be a complete review in terms of any future NEPA documents required for any proposed recommendations.

**Exhibit 30. Environmental Review of Recommendations**

<b>Jurisdiction</b>	<b>Recommendation</b>	<b>Potential Environmental Issue</b>
Floyd County	Transit Recommendations	N/A
Giles County	Transit Recommendations	N/A
Montgomery County		
Pulaski County		
City of Radford		

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**APPENDICES**

Appendix A – Floyd County Plan Summary

Appendix B – Giles County Plan Summary

Appendix C – Montgomery County Plan Summary

Appendix D – Pulaski County Plan Summary

Appendix E – City of Radford Plan Summary

Appendix F – Methods

Level of service definitions

SPS database and planning definition for network deficiencies

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