# Route 221 Area Plan

A Component of the Roanoke County Comprehensive Plan

Roanoke County, Virginia
Department of Community Development

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# 1. Introduction

## 1.1. The Comprehensive Plan

Pursuant to Section 15.2 of the Code of Virginia, Article 3, the Comprehensive Plan, Roanoke County is required to "prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction." The Roanoke County Comprehensive Plan states:

> The Roanoke County Comprehensive Plan is a blueprint for the future growth and development of the County over the next 10 – 15 years. It provides direction and guidance, for both the public and private sectors, in making decisions about land development, public services and resource protection. The Plan allows decision makers to study the long-term consequences of current decisions and recognize that today's actions will impact the County for many years to come.

The Route 221 Area Plan, to be adopted into the Roanoke County Comprehensive Plan, will aid decision-making for future development along the Route 221 corridor, in an area commonly referred to as Back Creek. The area is referred to as "Back Creek" for the name of the primary stream in the area, which flows in an easterly direction from the base of Bent Mountain and generally parallels Route 221.

Recent development pressures, the planned widening of Route 221 from the end of the current four-lane section to Cotton Hill Road (Route 688) and the recent purchase agreement of the Poage Farm by the Roanoke County School Board have resulted in a need to create and implement a plan to protect the area's unique resources while planning for compatible development.

## 1.2. Purpose

The study area is comprised of some of the most rural land in Roanoke County. It is located in the southwestern portion of Roanoke County and is situated among Bent Mountain, Sugar Loaf Mountain, Twelve O'Clock Knob, the Blue Ridge Parkway, and the suburban fringes of the City of Roanoke. Route 221 is a popular scenic road that serves as a vital link connecting the citizens of Roanoke Valley to the Blue Ridge Parkway and Floyd County. Significant development pressure is occurring along the suburban fringes of Roanoke City; development pressures subside outward from Route 221 and south on Route 221 towards Floyd County. Therefore, for purposes of the Route 221 Area Plan, only a portion of the corridor is included within the boundaries of the study area.


**Image 1.1. View along Route 221 South at the intersection of Martins Creek Road**

According to the Virginia Department of Transportation's Rural Functional Classification System, U.S. Route 221 is classified as a Rural Minor Arterial from Cotton Hill Road (Rte. 668) to the Floyd County boundary. The functional classification changes to an Urban Principal Arterial (from Cotton Hill Road travelling north to the Roanoke City limits. This transition, coupled with the planned widening of Route 221, makes the Back Creek area a prime target for development. The scenic viewsheds and the pastoral quality of Route 221 make this area of Roanoke County an attractive housing market located within minutes of Roanoke City.

In order to guide development and manage growth along the Route 221 corridor, this plan was developed using input from the residents and other stakeholders in the planning area, the Planning Commission, the Board of

Supervisors, and county staff. This Plan will highlight the character of the Route 221/Back Creek community and generate a functional plan with attainable short and long-term goals, objectives and strategies. The Plan will serve as a reference for Roanoke County officials, developers and citizens when considering future growth opportunities in the Route 221 area.

## 1.3. Study Area

U.S. Route 221 is an arterial highway that serves as a north- to- south thoroughfare in Virginia. The Route 221 corridor traverses through the middle of Roanoke County, connecting the counties of Bedford, Roanoke and Floyd. The Route 221 Area Plan consists of over 5,600 acres of land located in the southwestern portion of Roanoke County. A map of the study area can be found in Appendix A.

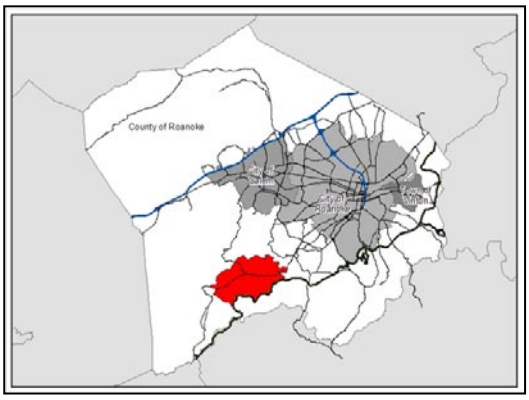



**Image 1.2. Route 221 Area Plan Study Boundary**

Over 1,570 parcels are located within the 8.76 square miles of the plan. While the study area for the Route 221 Area Plan is centered around the Route 221 corridor, the boundaries of the Route 221 Area Plan were selected based on existing neighborhoods and road boundaries, topography, as well as zoning and Future Land Use designations. The study area begins at the end of the current four-lane section of Route 221, located south of the Bridlewood, Scenic Hills and Old Mill Forest subdivisions. The length of the study area extends in a southwesterly direction along Bent Mountain Road (Route 221) to the base of Bent Mountain, ending just west of Countrywood Drive. The study area is bound to the north by the Carriage Hills and Poages Mill Estates subdivisions. The Blue Ridge Parkway forms the southern boundary of the study area, and Cotton Hill Road (Route 688) and Route 221 form the eastern boundary.

**Image 1.3. View of the Study Area from Bent Mountain**

The study area includes parts of two magisterial districts: Cave Spring and Windsor Hills. Students living in the study area attend Cave Spring and the Hidden Valley High Schools and Back Creek, Penn Forest, Cave Spring and Bent Mountain Elementary Schools. Back Creek Elementary School is located near the center of the study area, as is the Back Creek Fire and Rescue Station.

The study area is predominately rural; however, single-family homes are becoming more prominent features of the landscape. There are a few existing commercial areas located along the 221 corridor.

## 1.4. Planning Process

At the directive of the Roanoke County Planning Commission, county staff initiated the Route 221 Area Plan by examining the existing conditions in the Route 221 area. These conditions were examined by performing GIS (Geographic Information Systems) analyses to gain an understanding of the various features of the of the study area. This inventory of

existing conditions includes historical, natural and cultural resources, capital facilities, demographics, and land use patterns. The results of the inventoried data were summarized on maps for the community meetings. The analyses are discussed in detail in Chapter 2 of this Plan. In addition, staff consulted with various County departments, the Roanoke County schools, the Western Virginia Water Authority (WVWA) and the Virginia Department of Transportation (VDOT).

### *1.4.1. Community Survey*

As with any community plan, strong public input is invaluable to the success of the Route 221 Area Plan. Community visioning reflects the values of the citizens in the community and enables staff to create an appropriate development plan which is sensitive to the area. In order to develop a vision for the Route 221 community, staff distributed a community survey to 1,482 residents and landowners in the Route 221 study area. The data from the survey, in conjunction with community meetings, was used to construct goals and objectives for the Route 221 Area Plan. The survey instrument (Appendix B) examined the importance of issues such as schools, development, natural resource protection and transportation improvements. The survey was a fundamental tool in establishing the framework for the plan based upon the desires of the citizens in the Route 221 area.

The paper surveys were mailed to all residents and landowners in late March 2008. Included with each survey was a letter describing the Route 221 Area Plan, as well as an invitation to the first round of community meetings. The citizens were given the option of returning the paper survey to planning staff via a self-addressed return envelope, or opting to complete the survey online. The surveys were received until April 30, 2008. Planning staff received a total of 448 surveys, a response rate of approximately 30 percent.

### *1.4.2. Planning Process*

In addition to the community survey, a series of meetings were held in mid-April to present land use and other data and to gather insight from the community regarding their vision for the future of the Back Creek area. A total of sixty-three citizens attended these community meetings.

**Image 1.4. Community Meeting at Back Creek Elementary School on April 12, 2008**

The Roanoke County Planning Commission held a work session on May 20, 2008 to review the preliminary results of the survey and to discuss the community input received from the community meetings in April.

A second work session was held with the Planning Commission on July 15, 2008. Staff presented information on the viewsheds analysis, the transportation analysis, and stakeholder interviews. Staff inquired about potential Community meeting dates in September.

On August 19, staff presented the proposed Future Land Use Map amendment scenarios to the Planning Commission. These scenarios are discussed in detail in Chapter 5, Development Plan, and can be found in Appendix A. On September 2, 2008, the Planning Commission took a driving tour of the study area. Several locations of importance were highlighted on the tour, with the first being the location of the road-widening project at the entrance to the study corridor. Additionally, the tour consisted of several stops along the Route 221 corridor, as well as secondary routes such as Ran Lynn

Drive, Poage Valley Road, and Corntassel Lane. The Commissioners were shown the Carriage Hills, Forest Edge and Old Mill Plantation. Additional stops were made during the tour as staff explained the constraints and benefits of development at various locations, noted prominent viewsheds, and pointed out historic structures such as the Poage Farm.

The second round of community meetings were held on September 8th and 11th at 6:00 p.m. in the gymnasium of the Back Creek Elementary School. Staff presented the draft goals and objectives, a summary of the community survey results and the proposed future land use scenarios. Each meeting had an attendance rate of over 50 citizens.

**Image 1.5 Community Meeting held at Back Creek Elementary School on September 11, 2008**

Similar to the open-house format of the first round of meetings, various stations covering topics such as future land use, demographics, environment, zoning and transportation were set up throughout the gymnasium for public comment. Representatives were present from the local VDOT Residency and District offices to assist with questions and concerns regarding the Route 221 widening project. A summary of the comments and questions from these meetings can be found in Appendix B.

**Image 1.6 Citizens at the Community Meeting held on September 11, 2008 at Back Creek Elementary School**

# 2. Existing Conditions

In order to understand current and future community needs specific to the study area, along with citizen input, County staff examined current land use and zoning, as well as the future land use designations as identified in the 2005 Comprehensive Plan. Staff also looked at community facilities in and proximate to the area, such as schools, libraries, parks and public safety services, as well as organizations like churches and civic leagues. As water and sewer is a driving factor for potential development in the area, staff met with the Western Virginia Water Authority to discuss current and future needs in the study area. Additionally, other utility availability and transportation needs were examined.

Image 2.1 The rural character of the Back Creek area

Staff also performed an analysis of natural resources, such as flora and fauna, water bodies, floodplain areas, and topography; all issues that provide benefits to the study area yet may cause constraints on context-sensitive development. The following sections provide the analysis as gathered by staff.

## 2.1. Land Use

### *2.1.1. Existing Land Use*

The best available data for determining what land uses currently exist in the study area is compiled from the Roanoke County Department of Real Estate and Valuation. An analysis of land use from data accessed on January 23, 2008 shows that the most prevalent use by acreage in the study area is vacant land, meaning no structures exist on the parcel.

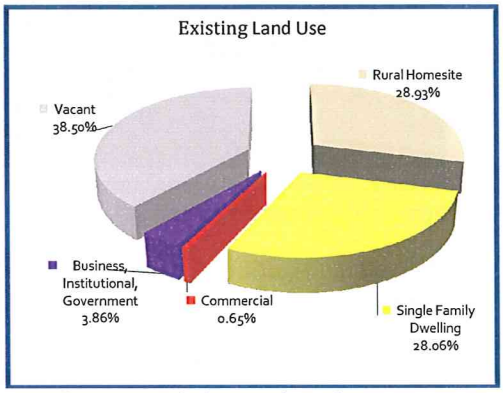



Figure 2.1 Existing Land Use by Acreage

As seen in Figure 2.1, Existing Land Use, 2,074 acres, or 3.24 square miles are classified as vacant, which makes up 39 percent of the study area. A map depicting existing land uses by parcel can be found in Appendix A. Fifty-seven percent of land in the study area is classified as either rural homesite or single-family dwelling. These categories, while classified as residential or homesite because they have a structure on their parcel, still make up a significant amount of undeveloped, forested or agricultural land. The Federal Government owns 174 acres of land along the Blue Ridge Parkway that runs along the southern boundary of the study area. Commercial uses account for 35 acres, or less than one percent of the study area.

### *2.1.2. Zoning*

Zoning is a system of land use regulation. Local governments are enabled to enforce zoning to protect the health, safety and

welfare of the public. Zoning works to segregate uses that are incompatible; it can also act as a permitting system to prevent new development from harming existing homes or businesses.

Image 2.2 Blue Ridge Parkway crossing over Poage Valley Road Extension

Shown in Figure 2.2 and Map 2.2 in Appendix A, half of the study area, or 2,684 acres, is zoned AR, or Agricultural/Residential District. This district encompasses the study area to the south of Route 221 to the Blue Ridge Parkway at its intersection to Poage Valley Road Extension. It also extends to the south from Route 221 to Old Mill Road, where Old Mill Road and Vinyard Road separate, and from Route 221 to Whistler Drive, as well as parcels fronting on Moonlight Lane to the study boundary to the west. To the north of Route 221, the AR zoning district follows the study area boundary west of Mount Chestnut Road with the exception of property along Lost Mountain Road (off Twelve O'clock Knob Road).

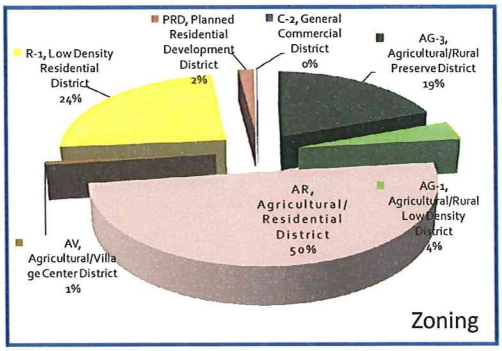



Figure 2.2 Zoning by Acreage

Twenty-four percent of the study area lies in an R-1, Low Density Residential District. The portion of the study area zoned R-1 extends from the eastern edge of the study area to the north from Route 221 to Mount Chestnut, with the exception of two-commercially zoned properties and one parcel zoned Agricultural/Residential. Additionally, the portion of Cotton Hill that lies within the study boundary is also zoned R-1.

Image 2.3 Single family dwelling in Autumn Park

Nineteen percent, of the study area is zoned AG-3, Agricultural/Rural Preserve. Land in the study area that is zoned AG-3 is found predominantly bordering the Blue Ridge Parkway, and elsewhere along the southern study area boundary where slopes are particularly steep.

Image 2.4 Agriculture is a prominent way of life in Back Creek

Other zoning districts found in the study area include AG-1, Agricultural/Rural Low Density Development District (209 acres, 4%), PRD, Planned Residential Development District (99 acres, 2%), AV,

Agricultural/Village Center District (40 acres, 1%), and C-2, General Commercial District (6 acres, less than 1%).

### 2.1.3. Future Land Use

The Future Land Use Guide and the Future Land Use Maps found in the 2005 Roanoke County Comprehensive Plan serve as a policy guide for future land use decisions. These tools identify the most desirable locations in the county for specific land uses in the future. Figure 2.3, Future Land Use illustrates the acres of land of each designation as adopted in 2005. Also, see Map 2.3 in Appendix A.

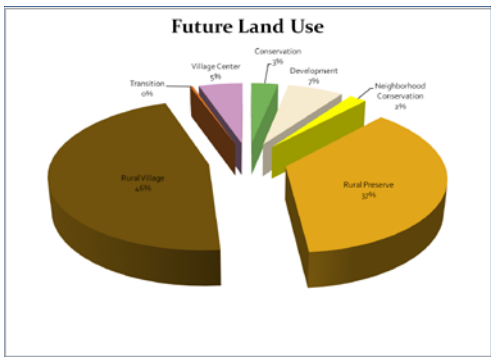



**Figure 2.3 Future Land Use (2005 Comprehensive Plan)**

In the 221 study area, 83 percent of the land is designated as either Rural Village (46 percent) or Rural Preserve (37 percent), indicating that the future land use designations in 2005 were based on the assumption that the area should remain predominantly rural in nature.

Rural Preserve areas are found in the south of the study area, along the upper portion of Mount Chestnut Road to around 1400 feet to the west and approximately 3,000 feet to the east. The study area is predominantly bound to the north, south and west by the Rural Preserve designation.

The remaining 17 percent of land is designated as Development (7 percent), Village Center (5 percent), Conservation (3 percent), Neighborhood Conservation (2 percent) and Transition, which accounts for less than half of a percent of the land in the study area.

Future Land Use designations, such as Development and Village Center, although smaller in area , are important to this area in terms of increasing residential development, rural community centers, as well as areas that may transition to suburban village.

**Image 2.5 Country Way Convenience Store**

The land designated as Development is found along Cotton Hill Road, Ran Lynn Drive, Poage Valley Road, and the Poage Valley Road extension south of the Poage Farm.

There are three areas along Route 221 that are designated as Village Center, this generally corresponds to the Poage Farm area, the Back Creek School and Fire Station area, and the area around the Martins Creek Road intersection. The area designated as Conservation includes the Blue Ridge Parkway land. The area to the northwest of Route 221 is designated as Neighborhood Conservation from the study area east towards Roanoke City. Within the "S" curves, a portion of property is designated as Transition; however, this was based on a previous land use of the property as a commercial garage. This is no longer the case, and staff suggests the change of this designation to Neighborhood Conservation.

### 2.1.4. Proposed Development

The GIS Division of the Department of Community Development, along with the Development Review Division, works with

the Roanoke County School System to provide information on all large subdivisions. This database was created in May of 2007 and comes from subdivision plats over 5 lots that were submitted from June 2005 to May of 2008. This database shows that four developments are proposed or under construction in the Route 221 Planning Area.

Image 2.6 Single family dwelling under construction in Old Mill Plantation

Map 2.4 in Appendix A shows each of the proposed developments within the study area. The first is the Hampshire Subdivision, which is located in the Cotton Hill area and along Monet Drive. The plan proposed 44 lots and has been approved. Another subdivision is Waterstone Subdivision. It is located on Waterstone Drive off Poage Valley Road Extension. It is currently under construction; there are 20 lots in this subdivision. Mercedes Heights, which is a PRD, or Planned Residential District, originally proposed 12 lots. This development is located to the south of Whistler Drive, and can be accessed by Whistler Drive and Apple Grove Lane The developer does not anticipate moving forward with this project as a PRD, and future development plans are uncertain. The last of the four major subdivisions provided in the GIS database is named Westcott subdivision. The location of this proposed development is off Ran Lynn Drive to the north of the Ferris Heights subdivision. It has not been reviewed beyond a concept plan. The developer's plans are uncertain, but no change is expected before 2009.

Image 2.7 Residential development along Cotton Hill Road

## 2.2. Community Facilities

### *2.2.1. Schools*

Most elementary school students in the study area attend Back Creek Elementary School. Original portions of Back Creek Elementary were constructed in 1937. The two-story brick and concrete building stands at 7130 Bent Mountain Road, near the intersection with Twelve O'Clock Knob Road. The structure contains in excess of 44,000 square feet, situated on seven acres that includes paved parking, a walking trail, sports field and a playground.

As of March 31, 2008, student enrollment totaled 311 children from kindergarten through fifth grade and an additional 18 pupils in pre-kindergarten. Staff includes 28 teachers, library and guidance personnel. In addition to the cafeteria and gymnasium, 20 classrooms and 2 mobile classrooms are utilized onsite. The last major expansion was constructed in the late 1980s. Since June 2006, walkway repair, extension, and blacktop resurfacing were completed.

Image 2.8 Back Creek Elementary School

A very small portion of the study area along Cotton Hill, Raintree Road and Sylvan Brook Road lie within the Penn Forest Elementary School. With 577 students, Penn Forest has the highest enrollment of students in the County. The entire study area falls within the Cave Spring Middle and Cave Spring High School district boundaries.

### 2.2.2. Libraries

The Roanoke County Headquarters Library, located on Route 419 approximately four miles from Back Creek Elementary School, serves the Route 221 Area. No specific branch library exists with study area boundaries. A small public library branch operates from Bent Mountain Elementary School, approximately six miles southwest of Back Creek Elementary.

Although not yet under construction, the new 55,000 square-foot South County Library proposed to be built on Merriman Road near Penn Forest Elementary School, will offer a vast array of services such as Wi-Fi docking stations, a business center, reading nooks, self-checkout stations, a drive-through window for pickup and return of materials, a furnished, a programmed and computerized children's' section and first and second floor views of nature trails and parks. It will be located approximately three miles from the study area's eastern border at U. S. 221 and Cotton Hill Road. The Merriman Road library is scheduled to be completed by mid 2010. The approximate cost of the project is $18 million, which includes all site access and building construction costs.

### 2.2.3. Parks and Recreation

Roanoke County does not have any park facilities located within the study boundary. The Back Creek Elementary School site includes a walking trail, playground and ball field, which serves as a small neighborhood park. One mile north of study area limits on Route 692, is possibly the county's best kept secret. Happy Hollow Gardens is located at 6697 Mount Chestnut Road. Happy Hollow offers a picnic shelter and grill, hiking trails, a natural amphitheater, outstanding spring colors and the second largest oak tree in Virginia. A few miles east of study limits are Darrell Shell Park, Starkey Park, and the Merriman Soccer Complex, which is a district park that serves the study area.

The Blue Ridge Parkway forms the Route 221 Area Plan's southern border and provides beautiful views. The Parkway is accessible from both U.S. Route 220 to the east in Clearbrook and from U.S. Route 221 on Bent Mountain to the southwest.

### 2.2.4. Public Safety

The study area is served by Back Creek Fire and Rescue Station 11, located at 7125 Bent Mountain Road, near the intersection with Twelve O'clock Knob Road. Prior to the 2008 expansion, Station 11 housed one pumper, one brush truck, one ambulance, one attack truck (a small fire truck) and one utility vehicle (used to carry additional staff or equipment). The expansion was constructed to house all of the existing equipment inside. Original portions of the two-story brick and metal building were constructed in 1989 with the assistance of the Back Creek Civic League.

In 2007, the Back Creek Station responded to 48 reported fire incidents and 147 reported rescue requests. This represents 1.75 percent of all county fire and rescue reported responses (a total of 11,131). As indicated on the "Individual Response Areas" map (Map 2.5 Appendix A), Station 11 is the first due responder in virtually all of the study area. Also see Figure 2.4.

| Back Creek Station 11<br>Call Run Order, EMS<br>Reporting District | | | | |
|---|---|---|---|---|
| Responding Station Order | 1101 | 1102 | 1103 | 1104 |
| **1** | 11 | 11 | 11 | 11 |
| **2** | 3 | 8 | 3 | 3 |
| **3** | 8 | 3 | 8 | 8 |
| **4** | 7 | 7 | 7 | 7 |

**Figure 2.4 Call Run Order, EMS, *Responding station run orders 2,3, and 4 are Cave Spring Station 3, Bent Mountain Station 8 and Clearbrook Station 7, respectively.**

| Back Creek Station 11<br>Call Run Order, Fire<br>Reporting District | | | | |
|---|---|---|---|---|
| Responding Station Order | 1101 | 1102 | 1103 | 1104 |
| **1** | 11 | 11 | 11 | 11 |
| **2** | 3 | 8 | 3 | 3 |
| **3** | 8 | 3 | 8 | 8 |
| **4** | 7 | 7 | 7 | 7 |

**Figure 2.5 Call Run Order, Fire**

Roanoke County Police operations are headquartered at the Roanoke County Public Safety Building, located at 5925 Cove Road, is the headquarters facility for county police operations. The Public Safety Building, which also houses Fire & Rescue administration and Information Technology for the county, is approximately 10 miles from the eastern fringe of the 221 Study Area. A limited satellite police station operates from Valley Forge Avenue, near the Cave Spring Rescue Squad and Brambleton Center.

**Image 2.9 Back Creek Fire Station**

Portions of seven Police Reporting Districts exist in the 221 study corridor. Spatially, three of those districts, *numbered 608, 609 and 610*, (see Map, 2.6 Police Reporting Districts) cover approximately 70 percent of the actual study area. Districts *603 and 606* calls for service appear high, but reflect more the populous subdivisions northeast of the study area than their geographically small portions that land within study area boundaries. Citizen initiated calls are those that are phoned into the emergency call center or the police stations, while officer-initiated calls are those that are initiated by the officer out in the field on patrol. The following table indicates citizen calls for service data in Back Creek:

| Citizen Calls for Police Service:<br>Jan 2006 - May 2008 | | | | |
|---|---|---|---|---|
| | Year | | | |
| **Reporting District** | 2006 | 2007 | 2008 | Total |
| **603** | 375 | 463 | 194 | 1,030 |
| **606** | 332 | 377 | 121 | 826 |
| **608** | 158 | 136 | 38 | 332 |
| **609** | 169 | 161 | 63 | 393 |
| **610** | 72 | 154 | 74 | 300 |
| **611** | 103 | 148 | 52 | 303 |
| **614** | 68 | 94 | 42 | 203 |
| **Total** | 1277 | 1533 | 584 | 3358 |

**Figure 2.6 Citizen Calls for Police Service**

Similar to above data, the Officer-Initiated Calls for Service indicate fewer incidents in the more sparsely populated southwest portion of the study area.

| Officer- Initiated Calls for Police Service: Jan 2006 - May 2008 | | | | |
|---|---|---|---|---|
| | Year | | | |
| **Reporting District** | 2006 | 2007 | 2008 | Total |
| **603** | 143 | 138 | 73 | 354 |
| **606** | 683 | 460 | 135 | 1,274 |
| **608** | 511 | 508 | 147 | 1,162 |
| **609** | 63 | 62 | 30 | 155 |
| **610** | 66 | 100 | 54 | 220 |
| **611** | 42 | 56 | 31 | 129 |
| **614** | 28 | 23 | 9 | 60 |
| **Total** | 1536 | 1347 | 479 | 3339 |

Figure 2.7 Officer Calls for Services

Uniform Crime Report statistics for the Back Creek area and adjoining neighborhoods, depending on specific reporting districts, indicated the following for offenses noted by category of crime.

| Uniform Crime Report Offenses: Jan 2006- May 2008 | | | | |
|---|---|---|---|---|
| | Year | | | |
| **Crime** | 2006 | 2007 | 2008 | Total |
| **Aggravated Assault** | 2 | 4 | 2 | 8 |
| **Arson** | 0 | 25 | 0 | 2 |
| **Burglary** | 16 | 11 | 2 | 29 |
| **Forcible Rape** | 0 | 1 | 0 | 1 |
| **Larceny** | 37 | 43 | 11 | 91 |
| **Motor Vehicle Theft** | 0 | 1 | 0 | 1 |
| **Robbery** | 0 | 0 | 1 | 1 |

Figure 2.8 Uniform Crime Report Offenses

## 2.3. Organizations

### 2.3.1. Churches

Three churches operate in the Route 221 study area. At 7464 Old Mill Road, Solid Rock Baptist Church stands on three acres near the Vinyard Road intersection. This one-story building contains 5,760 square feet, has a wood frame exterior and was constructed in 1985. Solid Rock Baptist has 60 members. Poages Mill Church of the Brethren is located on 1.98 acres at 6550 Bent Mountain Road near the Mount Chestnut Road intersection. The two-story brick building was constructed in 1948 and contains approximately 14,300 square feet. Poages Mill Church of the Brethren has 187 members. Haran Baptist Church is situated on four acres located at 7539 Bent Mountain Road. It is a two-story block building constructed in 1952 and contains approximately 13,000 square feet. Average attendance at Haran Baptist is about 110 persons, although actual membership is significantly larger per church staff.

Additionally, the Church of Jesus Christ of Latter-Day Saints operates just outside of the study area boundary, located on Cotton Hill Road. This church has an average attendance of 180 – 200 people.

Image 2.10 Haran Baptist Church

### 2.3.2. Civic Organizations

The predominant civic organization in the 221 Study Area is the Back Creek Civic League, Inc., founded in 1987, with the

stated purpose "to promote citizens' awareness of their rights; to make members of the community aware of any governmental plans, proposals, and activities relative to our community and to urge members to participate in the process; to encourage equitable use of our tax dollars; and to promote safety, health, recreation, education and beautification in the area in a nonpartisan manner." The Civic League meets quarterly at the Fire & Rescue Station across from Back Creek Elementary School.

In particular, the Back Creek Civic League was instrumental in the formation of Fire & Rescue Station 11, purchased amenities for the facility and donates continuously toward equipment purchases and assisting with fundraising events. Concerning road improvements, Civic League efforts have resulted in secondary road upgrades to dangerous curves, shoulder build-up, guardrail installation, marked centerlines, school bus turning areas and reduced speed limits. The league continues to campaign with VDOT for Route 221 improvements and to maintain funding for the segment from Coleman Road to Cotton Hill Road. State officials are regular guests at the Civic League's quarterly meetings. Also, the league assisted financially with playground equipment, library books, landscaping projects and the elementary school's picnic shelter in addition to helping remodel the elementary school. The Civic League worked together with the Parent Teacher Association to provide a full-time principal at Back Creek. The Civic League purchased numerous "Neighborhood Watch" signs and worked with county staff to provide street lights at intersections along Route 221. Annual memberships in the Back Creek Civic League are $5 per adult or $10 per household.

Particularly important to our planning efforts, the Back Creek Civic League was also instrumentally responsible for the great citizen turnout at our community meetings.

The Back Creek Community Club serves the area through social gatherings sometimes held at the Fire & Rescue station.

### 2.3.3. Other Community Resources

Fundraisers, festivals and roadside and stream clean-ups are key components of the relationship between Back Creek area residents and the elementary school, the fire & rescue station and churches in the vicinity.

The Back Creek Elementary School Parent Teacher Association (PTA) holds a fall festival and intends to add a "go green" program to raise money for new playground benches to be made from recycled materials. The PTA has also sponsored silent auctions in the past and will hold a spaghetti/bingo dinner followed by a raffle of baskets made by students. Twice a year the school also organizes an "Adopt a Stream" clean up for that portion of Back Creek running behind the building. In conjunction with Kroger, donations are made to the school through a gift card system.

**Image 2.11 Playground at Back Creek Elementary School**

Fire & Rescue Station 11 sponsors yard sales, spaghetti dinners and two chicken barbeque events each year.

Area churches participate in roadside litter clean-ups (particularly Twelve O'Clock Knob Road) and offer their facilities for senior citizens' meetings and luncheons (Haran Baptist).

In addition to the services and sense of community provided by churches and other civic organizations, other clubs and organizations tailored to special interests are located within the study area. The Spring Run Swim Club is located at the Spring Run pool off Ran Lynn Drive. Membership provides its members access to its facilities and has teams that participate as part of the Roanoke Valley Aquatic Association. For horseback enthusiasts, the Centura Equine Center located on Martins Creek Road affords riders both a venue for equestrian activities in addition to providing riding lessons.

**Image 2.12 Centura Equine Center located on Martins Creek Road**

## 2.4. Utilities

### *2.4.1. Water and Sewer*

The Western Virginia Water Authority (WVWA) provides public water to 155,000 customers and wastewater service to more than 120,000 customers in Roanoke County and Roanoke City. Approximately 960 miles of water lines, 900 miles of sewer lines, and around 4,000 fire hydrants are maintained by the authority. Although the majority of properties within the 221 Study Area are served by private wells and septic fields, potential future expansion of the WVWA lines through the corridor has the potential to affect future development within the study area. Back Cree Fire and Rescue Station and Back Creek Elementary School are served by a private well and septic system. As can be seen in Image 2.13, a water tower exists at Back Creek Elementary School.

Map 2.7, Utilities, can be found in Appendix A. The WVWA operates and maintains just over five miles of water lines in the study area, representing just over one-half percent of the total WVWA network. Of this mileage, slightly less than two miles operate as part of the *South Loop* transmission line from the Spring Hollow Reservoir. These service areas are located at Hampshire Subdivision at the far eastern extent of the area along South Roselawn Road and Woodbrook Drive to the east of Ran Lynn Drive and to the north of Route 221. The remaining 3.4 miles of water lines are classified as *Isolated Systems* and serve as a network for the Carriage Hills and Forest Edge subdivisions in the western portion of the study area.

Because of the limited number of water lines present in the study area, the number of fire hydrants is small. Only 18 hydrants are located within the area, one being located along South Roselawn Road, fourteen serving the Carriage Hills and Forest Edge subdivisions and three serving the Hampshire subdivision.

With the exception of the Hampshire subdivision, the WVWA does not provide any sewer service within the study area.
The Roanoke County School Board purchased the Poage Farm as a potential location for a new school. Construction of the new school will require extension of water and sewer services. New water and sewer line expansion would also be available for additional connections from both existing residents as well as potential new developments.

Additionally, staff from the WVWA have expressed concern with the current isolated water system serving the Carriage Hills and Forest Edge subdivisions. The water system depends on a series of wells that provide limited supplies. During periods of drought, and when the system was drawn down due

to fire suppression or water main failure, the WVWA has trucked water out to fill the storage tanks. The WVWA would like to ultimately convert the Carriage Hills and Forest Edge water system to the South Loop. When water and sewer service is extended to the Poage Farm, studies should be undertaken to evaluate future extension of water service to Carriage Hills and Forest Edge. Future planning studies coordinated with WVWA should be undertaken with the understanding that if a water supply emergency arises, quick action will be necessary to ensure potable water services for these residents.

**Image 2.13 Water supply at Back Creek Elementary School**

### 2.4.2. Stormwater Management

Stormwater management refers to the planned control of surface water runoff resulting from rainfall. The goals of stormwater management are to prevent both flooding and pollution, with various local, state, and federal regulations to guide how these goals are accomplished. Within the Route 221 study area, all development is subject to the Roanoke County Stormwater Management Ordinance, which accounts for both stormwater quantity and quality prior to its discharge into natural watercourses. At present, the only stormwater management facilities located within the study area are found within the Carriage Hills and Old Mill Plantation subdivisions. New development would be required to provide stormwater management facilities.

**Image 2.14 Stormwater management pond in the Old Mill Plantation Subdivision**

## 2.5. Transportation

### 2.5.1. Road Classifications

The total road network in the planning study area makes up almost 43 miles of road. VDOT classifies road segments as being either rural or urban, and further groups the roadways into classes according to the character of service they are intended to provide. Arterial streets provide high levels of mobility and limited levels of land access. Collector streets provide moderate traffic movement and moderate property access. Local streets provide access to land with limited mobility. Further definitions can be found in the Appendix C, in the VDOT and Roanoke County document titled "Functional Street Classifications." Map 2.8 in Appendix A shows road classifications as well as proposed road improvement projects.

The following table depicts road classifications within the study area. A breakdown of each road segment can be found in Appendix C.

| Road Classifications | Segment Miles |
|---|---|
| **Bonded Local** | 2.25 |
| **Named Driveway** | 3.09 |
| **Parkway** | 2.98 |
| **Private Road** | 1.81 |
| **Rural Local** | 14.31 |

| | |
|---|---|
| **Rural Local (Shortcut)** | 10.02 |
| **Rural Major Collector** | 1.17 |
| **Rural Minor Arterial** | 4.73 |
| **Urban Collector** | 0.29 |
| **Urban Local** | 0.64 |
| **Urban Local (Shortcut)** | 0.60 |
| **Urban Other Principal Arterial** | 0.75 |

**Figure 2.9. Types of Classification in study area**

Bent Mountain Road (Route 221) travels through the study area for 5.5 miles. For 0.75 miles, Route 221 is classified as an Urban Principle Arterial, and for 4.75 miles, a Rural Minor Arterial. When the proposed schools is built and water and sewer service extended, the County and VDOT should study extending the Urban designation out further to the Poage Farm.

### 2.5.2. Intersection Improvements

Few intersection improvements exist in the study area. As of 2008, the only intersection improvements either in the planning stages or under development include the Cotton Hill/Ran Lynn and 221/Old Mill Plantation intersections. Some deceleration or right turn lanes exist at other subdivision entrances, such as at Highfield Farms, Autumn Park, and at Falcon Ridge Estates. Map 2.9 in Appendix A, shows the conditions of intersections within the study area boundary.

Improvements are proposed for the Cotton Hill/Ran Lynn intersection as part of the current 221 VDOT improvement plans. As part of the project, the intersection will be realigned to a single point where turn lanes are proposed. The consolidation of the two intersections into a single one should have a significant impact on both safety and congestion in its vicinity. According to VDOT, the need for a traffic signal at the Cotton Hill Road and Ran Lynn Drive intersection with Route 221 will be evaluated once the project is constructed to determine if the warrants are met for installation of a traffic signal. As part of the site plan review process for all new or expanded developments, VDOT is able to make comments and has the potential to require additional infrastructure to be installed on roads directly adjacent to these developments. The development of a left turn lane into Old Mill Plantation was a VDOT requirement to mitigate for traffic impacts. All future developments will be required to make the determination if a traffic impact analysis is warranted with appropriate infrastructure improvements required when necessary before final approval is given.

**Image 2.15 Intersections of Ran Lynn Drive and Cotton Hill Road with Route 221**

### 2.5.3. Traffic Counts

The Virginia Department of Transportation defines “Annual Average Daily Traffic” as the estimate of daily traffic on a road segment for all days of the week, Sunday through Saturday, over the period of one year. Raw data collection dates to 2003 for Highfields Farm Drive, Empire Lane, Pencheck Circle, Forest Edge Drive, Autumn Park Drive and Country wood Drive. Other traffic estimates are from 2006 or 2007.

VDOT released recent traffic figures for two key secondary roads in the western portion of the study area (VA 694 and VA 696) and for four segments of U.S. 221 completed in the summer of 2008. Data for Route 694 (Twelve O’Clock Knob Road) between Poages Mill Drive and Bent Mountain Road indicated a slight increase in daily volume

from 1,041 trips per day in 2003 to 1,154 daily trips in 2006 to 1,113 daily trips in 2008. Similarly, traffic figures for Route 696 (Martin's Creek Road) between Carriage Hills Drive and Bent Mountain Road increased in daily volume from 850 trips per day in 2006 to 906 trips per day in 2008.

In regard to U.S. 221, 2008 traffic counts showed that traffic volume increases from west to east across the study corridor. The traffic load on U.S. 221 triples between Countrywood Drive and Coleman Road, largely a reflection of residential growth and the associated vehicular pressure flowing from secondary roads throughout the Back Creek valley onto U.S. 221.

At the western edge of the study area, around Apple Grove Lane, AADT (Annual Average Daily Trips) along Bent Mount Road was 4,327. Approaching Twelve O'Clock Knob Road, AADT was 7,155. From Poage Valley Road to Cotton Hill Road, AADT was 9,880. From Ran Lynn Drive to Coleman Road, AADT was 13,284. A full list of AADT counts can be found in Appendix C.

Level of Service (LOS) measures a motorist's ability to travel based on speed, congestion and overall mobility on a given roadway. LOS is measured on a scale of A to F:

LOS A: Free-flow traffic with individual users virtually unaffected by the presence of others in the traffic stream.

LOS B: Stable traffic flow with a high degree of freedom to select speed and operating conditions but with some influence from other users.

LOS C: Restricted flow that remains stable but with significant interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level.

LOS D: High-density flow in which speed and freedom to maneuver are severely restricted and comfort and convenience have declined even though flow remains stable.

LOS E: Unstable flow at or near capacity levels with poor levels of comfort and convenience.

LOS F: Forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served.

(Source: VDOT)

Per VDOT's District Planning Office, the desirable Level of Service along Bent Mountain Road in the study area is "C", or "stable flow." At LOS C, the ability to pass or change lanes is not always assured although most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity and posted speed is maintained. However, according to preliminary analysis, the study area portion of U.S. 221 indicates a LOS E, a marginal service state where flow becomes irregular. Speed varies rapidly and rarely reaches the posted limit. On highways this is consistent with a road over its designed capacity

### *2.5.4. Crash Data*

Roanoke County Police Department (latest available) statistics compiled for 2006, 2007 and the first five months of 2008 indicate that 96 crashes were reported on Route 221 or at one its intersections with secondary or private streets within U.S. 221 Corridor Study boundaries. Beginning in November, 2005, crash details, known as "accident type", became available as to property damage, personal injury or death resulting from reported crashes. The vast majority of wrecks reported are listed as having occurred at or near an actual Bent Mountain Road (Route 221) intersection with a specific road. There are no signalized intersections in the study area. An electronic caution sign is in place in front of Back Creek Elementary School.


**Image 2.16 Electronic Flashing Sign located in front of Back Creek Elementary School**

Of the 99 accidents reported within study area boundaries on or near Bent Mountain Road, or at an intersection thereof, one fatality, 36 cases of personal injury and 59 property damage incidents occurred from January 2006 through May 2008. Not all verified crashes were typed within one of the three categories. From January of 2006 through May of 2008 the Bent Mountain Road and Twelve O'Clock Knob Road intersection had 13 reported crashes, the highest rate within study area boundaries. Other high accident-verified intersections included the Route 221 and Cotton Hill Road intersection. Nine crashes occurred at Route 221's intersections with each Mount Chestnut Road and Sunnycrest Road. Please see Appendix C for more information.

Existing AADT data, LOS information, and crash data in and proximate to the study area indicate that further study of intersections will be necessary in the future. Paired with VDOT requirements to determine traffic impacts of substantial development, these studies can aid in the implementation of intersection improvements when they are warranted due to increases in traffic as well as other factors.

### *2.5.5. VDOT Six-Year Improvement Program*

The Virginia Department of Transportation (VDOT) is responsible for maintenance along roads in Roanoke County that are part of the state system. Maintenance includes repairs, repaving, snow removal, and major construction. Private roads in the county that are not in the state system are the responsibility of the homeowners along that road for maintenance and improvements. Developers are responsible for roads in subdivisions still being built out, whose roads have not yet been accepted into the state system.

The Transportation Division of the Roanoke County Department of Community Development coordinates local, regional and state efforts to help our community improve safety, traffic and congestion within the County. The Transportation Division acts as a liaison between citizens, developers, County staff and representatives, the Roanoke Valley Metropolitan Planning Organization (MPO), the Roanoke Valley-Alleghany Regional Commission (RVARC) and VDOT.

Secondary Six Year Improvement Plan, Revenue Sharing Program and Rural Addition Program projects are added, removed and prioritized each fiscal year. When projects are fully funded, Roanoke County assists VDOT in the planning, design and construction of these projects.

The Route 221 (Bent Mountain Road) Six-Year Improvement Program project has had a major influence on the Back Creek area. See Map 2.8 in Appendix A. This project was removed from the Six-Year Improvement Program, but was reinstated in FY05-06. The residential development that has occurred and is projected within the Back Creek area will place additional demands on the road system that is currently providing an inadequate level of service.

Image 2.17 The widening of Route 221 is a top priority in The Six-Year Plan

The Route 221 (Bent Mountain Road) Project entails the reconstruction of the existing two-lane primary road to a four-lane facility, constructing three bridges over Back Creek, and realigning Ran Lynn Drive with Cotton Hill Road to create an improved intersection. In addition to widening Route 221, the project will add curb and gutter to the proposed roadway, a raised median and wide outside lanes. The project will widen a 0.8-mile section of Route 221 from where the existing four-lane section ends.

The limits of the project are 0.02 miles south of Cotton Hill Road (Route 688) to 0.09 miles south of Coleman Road (Route 735). According to VDOT, traffic volume on Route 221 is expected to increase significantly over the next twenty years. This projection, along with deteriorating road conditions and high accident and fatality rates, makes this project a top priority in the Six-Year Improvement Plan.

The project will enhance the safety of the Route 221 corridor by shifting the alignment of the "S-curves" in the existing road to a linear design. This realignment of the existing curvature of Route 221 will require the construction of two bridges over Back Creek. A third bridge is proposed over Back Creek due to the realignment of Ran Lynn Drive with Cotton Hill Road (Route 688). The realignment of Ran Lynn Drive with Cotton Hill Road will form a four-way intersection with Route 221. Left and right hand turn lanes will be added to the north and southbound lanes of Route 221.


Image 2.18 "S-curve" along Route 221

The CTB returned this project to the Six-Year Improvement Plan for fiscal years 2006-2011 after being dropped due to funding reductions in previous years. The estimated projected cost of the Route 221 Widening Project is $29 million. This project is identified under the primary road program; therefore, the financial obligations will be funded from federal sources. The project is projected to be put out to bid in early 2010, with construction to follow and continue into the early summer of 2012.

### 2.5.6. Secondary Road System Six-Year Plan

The Code of Virginia requires the Board of Supervisors to approve the allocation of funds for projects identified within the Secondary Roads System Six-Year Plan. Staff receives requests throughout each fiscal year concerning secondary roads in Roanoke County. Requests are reviewed and classified as maintenance or construction projects. A full description of the program is found in Appendix C.

Construction projects usually take more than one fiscal year to complete, because these requests require right-of-way acquisition, additional funding, and/or preliminary engineering. Due to the complex nature of construction projects, these requests are put on file to be reviewed during the Six-Year or Revenue Sharing yearly updates.

The majority of Roanoke County's allocated funds are for Numbered Projects. Cotton Hill

Road (Route 688) is Priority Project Number 5 in the Secondary System Six-Year Road Plan. The proposed improvements include the reconstruction of 0.61 mile of existing roadway. A portion of these improvements fall within the boundaries of the Route 221 Area Plan. The project was added to the Six-Year Plan in 1994. The total estimated cost of the project is $3,517,039.00. There are some issues with the Blue Ridge Parkway that need to be resolved as the Blue Ridge Parkway Long Range Management Inventory is updated. At present, this project is in the preliminary design stage.

**Image 2. 19 The Six-Year Plan proposes improvements to Cotton Hill Road**

An additional Secondary System Six-year Road Plan project is Monocap Trail (Route 1728). This project is identified as Priority #13 on the Numbered Projects list. It was also added to the Six-Year Plan in 1994. The proposed improvements include the reconstruction and surface treatment of 0.20 mile of existing roadway, as well as the construction of a turnaround. The total estimated cost of this project is $80,000.00. The project is in the preliminary stages

### *2.5.7. Rural Addition Program*

The Rural Addition Program is a process for acceptance of private roads into the public, State-maintained system. A full description of the program can be found in Appendix C. Harmony Lane (Route 4087) is project number eight (8) on the Rural Addition Priority List. Harmony Lane is currently a private street that serves eight (8) families. It was added to the Rural Addition Priority List in 1993. The length of the gravel road is 900 feet. The project will involve the acquisition of right-of-way and drainage easements. The estimated cost of the project is $140,348.

On July 22, 2008, the Roanoke County Board of Supervisors voted to remove Raintree Road from the Rural Addition Priority List. Raintree Road was project number twenty-one on the Rural Addition Priority List. Raintree Road is currently a private street serving fifteen families. It was added to the Rural Addition Priority List in 1990. The length of the road is 2,600 feet. The road intersects Cotton Hill Road and is located adjacent to the Blue Ridge Parkway. The project would have involved the acquisition of right-of-way and drainage easements. The estimated cost of the project was $497,779.


**Image 2.20 The Rural Addition Program is a process for state acceptance of private roads**

### *2.5.8. Revenue Sharing Program*

The VDOT Revenue Sharing Program provides Roanoke County with an annual opportunity to receive State matching funds for the construction, maintenance, and

improvements to primary and secondary roads in the State's highway system. VDOT and County staff review and evaluate each request received for inclusion in the program. A full description of the program can be found in Appendix C.

**Image 2.21 The VDOT Revenue Sharing Program provides for improvements to secondary roads such as Ran Lynn Drive**

Ran Lynn Drive (Route 745) was added to the Revenue Sharing Program in Fiscal Year 2001-2002. It is listed as Priority Number 44. The proposed project entails horizontal road improvements and acquisition of right-of-way. The project is in the preliminary engineering stages and needs funding.

### 2.5.9. Transit

Within the Roanoke Valley, Valley Metro provides bus transit for the City of Roanoke, Salem, Vinton and limited parts of Roanoke County. When looking specifically at the 221 Study area, no existing bus routes, local or express, serve the area. The only transit service available is the CORTRAN bus service to county residents that are certified by the county as a senior citizen (60 years or older) or as ADA Paratransit Eligible. The CORTRAN service is available weekdays between 7:00 a.m. and 6:00 p.m. and provides curb to curb service for its riders between their destinations.

#### 2.5.9.1. Pedestrian and Bicycle Facilities

In order to develop a truly comprehensive transportation network, accommodation for both pedestrians and cyclists needs to be included as part of the overall network. With multiple routes being popular for cyclists located throughout the study area, these types of accommodations should be considered when possible. At present there are no accommodations available within the corridor addressing the needs of both pedestrians and cyclists, but future accommodations have been identified along the corridor as part of the *Roanoke Valley Conceptual Greenways Plan* and the *Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization*.

As addressed in the Greenways section of the document, the Back Creek Greenway is proposed to parallel the length of Back Creek in its entirety through the study area. If completed, the greenway should provide for a dedicated path for both pedestrians and cyclists to utilize completely segregated from vehicular traffic.

The Bikeway Plan for the Roanoke Valley Area MPO was developed as a plan to identify corridors, coordinate with municipalities and direct funding for bicycle accommodation. As part of the plan, one corridor was identified as *priority* and two identified as a *vision* for the placement of bicycle accommodations within the 221 Study Area. The *priority* route is located along 221 from where it enters the study area through Cotton Hill Road; the *vision* routes have been identified as 221 between Cotton Hill Road and Twelve O'clock Knob Road and Twelve O'clock Knob Road in its entirety through the study area to its terminus in Salem. A conceptual map showing the approximate location of potential greenways can be found Appendix A (Map 2.10, Conceptual Greenways and Bikeways).

## 2.6. Resource Preservation

### 2.6.1. Water Features

The Back Creek watershed covers the entire study area for this plan. Map 2.11, Drainage Areas, shows water features within the study area. The creeks and streams running through the study area total over 37 miles of watercourses. There are 131 segments of creeks and streams in the study area alone. Other surface water includes wetlands, of which there are ten freshwater ponds and one freshwater forested/shrub wetland. According to GIS data, the 11 wetlands total 3.73 acres, with the smallest mapped wetland being 1631 square feet and the largest being 33,005 square feet, or 0.86 acre.

Image 2.22 Back Creek

Land adjacent to portions of Back Creek and Martins Creek are designated by the Federal Emergency Management Agency (FEMA) as being located within the 100-year floodplain, meaning that the discharge of these waterways could encroach into the adjacent land in a significant storm event. Land within the floodplain and floodway is subject to additional land regulation as administered by the Floodplain Ordinance. The floodplain in the study area makes up just less than 200 acres. 98.4 of those acres is labeled as the floodway, in which development is prohibited. The remaining 99.92 acres in the floodplain but outside of the floodway is subject to development regulations.

### 2.6.2. Land and Geologic Resources

A *physiographic province* is a delineated area that has been shaped by a common geologic history. Geographers and geologists recognize more than 20 physiographic provinces in North America; the Commonwealth of Virginia intersects five of these.

The Route 221 study area lies almost entirely within the Blue Ridge Physiographic Province. The Blue Ridge province is composed of complexly folded and faulted igneous and metamorphic rocks. These ancient rocks date from 400 million to more than a billion years old and represent parts of the basement rock of the North American continent.

Today the general surface of the Blue Ridge Province lies 1,000 to 3,000 feet above sea level, with many peaks reaching 4,000 to 5,000 feet. The Blue Ridge is the smallest of Virginia's five provinces, but its mountains and rocks are the oldest. Typical bedrock types underlying this section of Roanoke County are Proterozoic (more than 500 million years old) and include granite, gneiss, charnockite, basalt, and meta-sedimentary rocks.

Soil surveys provide a generalized analysis of development constraints likely to be present in an area. Based upon the type of soil, slope of soil, and the depth to bedrock in the study area, certain areas are more suitable for private septic systems than others are. Slope is by far the most common limitation, followed by bedrock depth and, in a few instances, a probability of flooding. The low-lying areas along Route 221 area are most suitable for septic systems. Map 2.11, Soils, illustrates the type of soils found in and proximate to the study area.

Although soils surveys can provide general data based on soil types present, site-specific data should be collected at individual properties to determine whether that property is indeed suitable for septic systems. Often the limitations can be reduced by incorporating certain technical and design strategies.

Southwestern Virginia is known for high levels of karst. The USGS defines karst as a "landscape that is formed by the dissolution of soluble rocks, including limestone and dolomite, and contains aquifers that are capable of providing large supplies of water." While no karst is identified in the study area, Map 2.13 (Appendix A) shows that an "area of concern" related to karst is identified by the Virginia Department of Conservation and Recreation. This area is protecting the Goodwin's Cave, which has been designated state significant cave. Developed as part of the Rome Formation, and containing just over ½ mile of surveyed passages, the cave is the second longest within Roanoke County. Preservation efforts are rooted in both hydrological and biological concerns within and surrounding the formation and should be considered when reviewing potential development within the identified area.

In terms of topography, the Route 221 area follows a valley between the bases of Mount Chestnut, 12 O'clock Knob, and contains flat land as well as steeply sloped mountains. The low point in the study area is located the entrance to the study area in Back Creek in between the first two sharp curves on Route 221 entering the study area This point is 1,178 feet in elevation. The high point in the study area is 2,484 feet and is located along the Blue Ridge Parkway just prior to the Parkway traveling over Sugar Camp Creek Road. The range of elevation in the study area—from 1,178 feet to 2,484 feet, is 1,306 feet. Map 2.14, Slope identifies the high and low points in the study area.

Most residential development has occurred in subdivisions such as Cotton Hill (just outside the study area) Forest Edge, Carriage Hills and others. New development tools and engineering concepts are providing for locating homes in places that were once considered too steep or had other development constraints. The slope map, Map 2.13, shows the significant hills and valleys within the study area. Approximately, 1,450 acres exceed slopes of over 33 percent. This accounts for just over one-quarter of the study area (this area is shown as red on the Slope map). Development in these areas is regulated under the County's Erosion and Sediment Control Ordinance.

Map 2.15 shows data from the United States Geological Survey. Aside from topographical information, this map also shows some of the significant places in the study area, along with the USGS classifier, and the elevation at these locations. Appendix B lists this information.

### *2.6.3. Viewsheds*

In the survey results, open house meetings, stakeholder interviews, and through other citizen input, many identified rural character and appearance as the most important aspects of living in the area. The protection of critical viewsheds from development is critical to maintaining rural character. Viewsheds are commonly defined as areas that are visible from a particular location, and although not all viewsheds identified in this study are located immediately within the Study Area, the visual aesthetic afforded by these viewsheds adds significant character to the area.

As part of this study, twenty-one points were selected from throughout the Study Area with each associated viewshed identified and mapped, and views evaluated for those points. The locations include:

- Winterwood Trail
- Bent Mountain Road near Strawberry Lane
- Bent Mountain Road near Poage Valley Road
- Bent Mountain School
- Boxwood Drive
- Corntassel Lane at Poage Valley Road
- Forest Edge Drive
- Grape Holly Lane
- Highlands Farm
- Hollyberry Road
- Leffler Lane
- Martins Creek Drive

- Martins Creek Drive near Poplar Springs Drive
- Masons View Lane at Corntassel Lane
- Monet Drive
- Poage Valley Road Extension at Bent Mountain Road
- Poage Valley Road Extension at Dawnwood Road
- Ran Lynn Road
- Solid Rock Church
- Autumn Park Drive
- Old Mill Road

A map which shows how many places can be seen from these different places is found in Appendix A (Map 2.16). The map portrays overlapping viewsheds. Any development which is proposed to occur in areas that can be seen from many viewpoints should be considerate of surroundings.

One feature unique to the study area is that its southern boundary runs along the Blue Ridge Parkway. Through the viewshed analysis, nineteen of the twenty-one identified viewsheds included the areas south of the Parkway. With limited development existing in these areas at present, all proposed developments should be mindful to their outward appearance in preserving the visual aesthetic.

**Image 2.23 The preservation of viewsheds is a critical element in the Route 221 Area Plan**

To the west and northwest of the Study Area, a significant viewshed protection area could be enacted, as both Bent Mountain and Poor Mountain visible throughout. At present, the summit of Poor Mountain is the location for multiple radio and broadcast towers visible from throughout the Roanoke Valley. Although already existing, further tower construction requires a special use permit which allows for conditions to be placed on their construction throughout the county. At present, development pressures in these areas are not great, but policies should be adopted and implemented to ensure these sensitive areas will remain viable for future generations. The remainder of the identified areas are visible from fewer areas, but still present a preservation need in maintaining the overall visual aesthetic throughout the Route 221 study area.

### *2.6.4. Vegetation*

Although the study area is situated immediately adjacent to an urbanized, suburban area of Roanoke, much of the area exhibits vegetation associated with that of rural Appalachia. Trees and plants within the study area are typical of eastern forests and can contain both native and invasive species. Additionally, many of the areas containing level topography are utilized as farmland containing differing crops based upon the season.

**Image 2.24 Land cover in the study area is diverse, and includes an abundance amount of mixed forest and crop**

According to data from the Virginia Department of Forestry, utilizing data from 2000, 67 percent of the study area is forested, with another 19 percent utilized as farmland. The remaining 14 percent of the study area is developed; 5 percent of this is paved area. In the time since this data was collected, several new subdivisions have

been constructed or are in the planning phase. Based on these current trends, one can infer that both forest and crop lands will continue to shrink as more developed areas increase. See Figure 2.12 below and Map 2.17, Land Cover, in Appendix A.

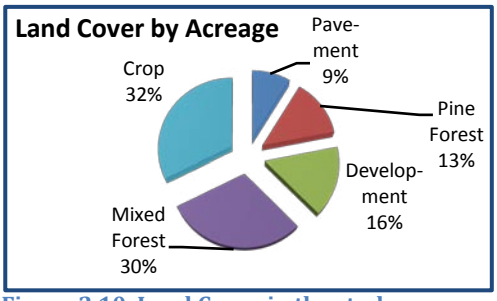



**Figure 2.10. Land Cover in the study area**

### 2.6.5. Wildlife

The Virginia Department of Game and Inland Fisheries (DGIF) have conducted inventories of animal species in Virginia and in specific regions. Although the DGIF does not have a specific listing, the 221 study area in its entirety is located within the USGS Bent Mountain quadrangle. Within this quadrangle, the Virginia DGIF has identified 124 species likely to be found in local waters, forests and other habitats. Of these, the brown creeper (*Certhia americana*) has been designated a species of *state special concern*, and the timber rattlesnake (*Crotalus horridus*) has been designated a species of *collection concern*. These state designations require permits for collection or activities affecting the species.

Additionally, 23 of the 124 species have been identified by the DGIF as Tier IV species included as part of the Virginia Wildlife Action Plan. The DGIF has noted these species for their declining populations, which if left unaddressed can potentially lead to a higher tier of protection. These species present a moderate conservation need and require appropriate planning to protect and stabilize the existing populations. The included species are listed on the following chart:

| Common Name | Scientific Name |
|---|---|
| **Timber Rattlesnake** | *Crotalus horridus* |
| **American Eel** | *Anguilla rostrata* |
| **Brown Creeper** | *Certhia americana* |
| **Northern Bobwhite** | *Colinus virginianus* |
| **Grey Catbird** | *Dumetella carolinensis* |
| **Yellow-Billed Cuckoo** | *Coccyzus americanus* |
| **Green Heron** | *Butorides virescens* |
| **Eastern Kingbird** | *Tyrannus tyrannus* |
| **Eastern Meadowlark** | *Sturnella magna* |
| **Ovenbird** | *Seiurus aurocapilla* |
| **Eastern Wood Pewee** | *Contopus virens* |
| **Field Sparrow** | *Spizella pusilla* |
| **Northern Rough-Winged Swallow** | *Stelgidopteryx serripennis* |
| **Chimney Swift** | *Chaetura pelagica* |
| **Scarlet Tanager** | *Piranga olivacea* |
| **Brown Thrasher** | *Toxostoma rufum* |
| **Wood Thrush** | *Hylocichla mustelina* |
| **Eastern Towhee** | *Pipilo erythrophthalmus* |
| **Black-and-White Warbler** | *Mniotilta varia* |
| **Kentucky Warbler** | *Oporornis formosus* |
| **Worm-Eating Warbler** | *Helmitheros vermivorus* |
| **Yellow Warbler** | *Dendroica petechia* |
| **Louisiana Waterthrush** | *Seiurus motacilla* |

**Figure 2.11. Sensitive species**

### 2.6.6. Greenways

Originally developed in 1995 and substantially updated in 2007, the *Roanoke Valley Conceptual Greenway Plan* serves as a guide for greenway development within Roanoke County. The Roanoke Valley Greenway Commission oversees all planning

and implementation of the greenway within the Roanoke Valley. From this plan, 51 potential greenways were identified along various courses throughout the valley. The prioritization of when each of these greenways is to be implemented is based on public input, the Greenway Steering Committee and the localities within the valley. The following is a description of the priority rankings:

- Priority 1 = Only applies to the Roanoke River Greenway
- Priority 2 = "important regional projects, already underway, which could be finished in 5-10 years"
- Priority 3 = These are priorities within specific localities which work to enhance "neighborhood values, economic development and public health." Most of these have had some preliminary work completed.
- Priority 4 = Greenway projects that are addressed as opportunity and resources arise on a case-by-case basis.

Of the 51 potential greenways identified in the original plan, the Back Creek Greenway directly crosses through the Route 221 study area. Identified as a Priority #4 Greenway, the Back Creek Greenway is envisioned to run alongside Back Creek between its headwaters and Merriman Road. The greenway would parallel Back Creek along Route 221 from Apple Grove Lane to its intersection with Merriman Road. In being a Priority #4 Greenway, no construction timeline has been established and will be addressed as opportunities present themselves to allow for its construction. Other greenways planned for the area include Mudlick Creek and the Blue Ridge Parkway trail network. A conceptual map of potential greenways trails can be found in Appendix A, Map 2.10.

The Mudlick Creek Greenway is proposed to have its southern terminus at its junction with the Back Creek Greenway near Cotton Hill Road. With a section already open in Garst Mill Park, the completion of this greenway has been identified as a Priority #3, being of more a local/neighborhood interest in connecting to other greenways. The completed trail is to stretch from Deyerle in southwest Roanoke City through Back Creek alongside Route 221 in Roanoke County.

The Blue Ridge Parkway trails network has been identified as a Priority #2, and is proposed to run along the entire length of the Parkway as it traverses Roanoke County. This will comprise a portion of the study area's southern boundary. At present, the focus is on areas that will connect to the existing trail network on Mill Mountain and connecting to the Wolf Creek Greenway, with the timetable for construction in the area of Back Creek not yet identified.

### 2.6.7. Gypsy Moth

Since 2006, the gypsy moth, a major invasive pest species has defoliated in excess of 16,000 acres of hardwood trees on portions of Bent Mountain and Poor Mountain in Roanoke County just west of the defined study area. Per the Virginia Department of Forestry's *2007 State of the Forest,* "the majority of defoliation detectable from aerial surveys was spread among 13 counties in the mountainous, western portion of the state from Loudoun County to Giles County. For some areas such as Bent Mountain near Roanoke, this is the second (consecutive) year of widespread, severe defoliation. A large number of oak trees suffering from complete defoliation two years in a row will inevitably die. Dry spring weather during the last three years has contributed to the gypsy moth buildup. Insecticide spraying is effective at controlling damage locally, but it cannot stop overall numbers from surging once these buildups gain momentum. This means that no matter what we do we are likely to see even greater amounts of damage, possibly hundreds of thousands of acres (statewide) in 2008 unless we have very wet

weather during the spring. During wet periods, gypsy moth caterpillars are effectively killed and controlled by a naturally occurring fungus. Over multiple dry years, the fungus is not as effective at keeping gypsy moth populations in check. A naturally occurring virus can also cause these populations to crash, but it can take a number of years of severe defoliation before this happens."

The major decrease in elevation eastward from Bent Mountain into the Back Creek valley has helped the study area escape infestation thus far, although multiple factors determine if and when a gypsy moth outbreak occurs. Appendix B contains a Map from the Virginia Department of Forestry that illustrates 2008 Gypsy Moth Defoliation.

### 2.6.8. Historic Resources

According to Deedie Kagey in her book entitled *When Past is Prologue: A History of Roanoke County*, the land comprising the Route 221 study area was settled around the mid-1700's by three men named of Martin, Webster and Willet. According to legends, these men discovered the Back Creek area while on a hunting and trapping trip. The area became more populated with the descendants of these men. Then, a man named of Jordan Woodrum, made the Back Creek area became well-known for The Back Creek Orchard, located for years at the foot of Bent Mountain, beside the present Route 221.

**Image 2.25 The Back Creek Orchard (from the Virginia State Library, p. 302 Kagey, 1988)**

The success of this orchard caused the emergence of many other orchards in the Back Creek and Bent Mountain areas, which drove the formation of the Fruit Growers' Telephone Cooperative. This Cooperative was a line of communication centered at Poages Mill that brought the inhabitants of the Back Creek area into direct communication with others outside of their area. The soil in the Back Creek and Bent Mountain areas has been well-suited for crops such as cabbage, beans and potatoes. Livestock and poultry have also been successful industries in the Back Creek area.

Elijah Poage, son of one of the earliest settlers in the Roanoke Valley, was one of the first men to move to the Back Creek area. Poage was a cabinetmaker who was famous for making intricate wooden chairs that are now collectors' items. According to records, Poage built a sawmill and gristmill in the mid-1800's on Back Creek. Due to his furniture making abilities, Poage eventually became an undertaker, manufacturing caskets and coffins. In 1882, Poage built the big frame house that still stands in the wide bottom on the west side of Route 221 known as the "Poage Farm". The Poage Farm became a community center for the Back Creek area as summer guests stayed at the Poage house for square dances in the backroom of the farmhouse and croquet games on the lawn.

**Image 2.26 The Poage Farm (VA Dept of Historic Resources 1991, Photographer: Randy Skeirik)**

The rural character of the Back Creek area has changed dramatically since the 20th century. With the construction of the

present Route 221 in 1932 and the expansion of the suburbs of Roanoke City, the countryside that was once dotted with livestock and apple orchards has steadily transformed to houses and cul-de-sacs. The protection of historic structures and cemeteries is critical for preserving the early settlement patterns of the Back Creek area.

There are several means by which to identify and document historic structures and places. National, state and local historic designations are utilized for this purpose. The Virginia Department of Historic Resources (DHR) manages the Virginia Landmarks Register (VLR) which was also established in 1966 to document Virginia's important historic properties. In the early 1990s DHR conducted architectural surveys for numerous Roanoke County structures. Another useful report is the *Historical Architecture Reconnaissance Survey Report* prepared by Frazier Associates for Roanoke County in April 1922.

**Image 2.27 Historic Structure on Landmark Circle**

It is important to note that while these sources are comprehensive in nature, they may not be an accurate reflection of the state of the historic structures in the Route 221 Area. Some of the structures may not have been surveyed, may have been demolished or were perhaps unknown by the researchers. The intent of this text is to provide a general overview of the known structures of historical significance. The Historic Resources Map (see Map 2.17 in Appendix A) provides a geographical and spatial reference for the known structures in the study area, which may lend some insight into the settlement patterns of the Back Creek area.

Within the Route 221 Study Area, there are 54 structures identified in the early 1990's by DHR staff while conducting architectural surveys of the Roanoke County. Thirty-two structures were surveyed and documented in detail. An additional 22 structures were identified on a map and noted by architectural type (i.e. Bungalow, Foursquare), but were not formally surveyed. Fifty-four historic structures are shown in map 2.18, Historic Resources, in Appendix A. Data on these structures was taken from the architectural surveys conducted by the Virginia Department of Historical Resources.

Of the 32 structures or areas surveyed, over two-thirds identified by DHR are located along or are visible from Bent Mountain Road. A list of these structures can be found in Appendix B. Many of the remaining structures are located along Martins Creek Road, Old Mill Road, Poage Valley Road and Poage Valley Road Extension which all traverse along tributaries throughout the study area where many of the early settlers felt that the land was suitable for establishing their residences, farms and businesses.

Due to its central location within the boundaries of the Route 221 Area Plan, one of the more prominent places is the Old Poage Farm. The farm is located on the corner of Bent Mountain Road (Route 221) and Poage Valley Road (Route 690). The use of the farm has not changed since the construction of the original two-story house, which is estimated to be in 1897 per County Real Estate records. This hall-parlor style house is one of the oldest surveyed structures in the study area. The rear addition was added to the house in 1930. Most of the outbuildings, silos and pole buildings are more recent constructions. The property as it stands has been recently sold to the Roanoke County School Board and is projected to be developed as a school. It is important that efforts be made

to preserve this house as it has been the focal point of the Back Creek community since the late 19th century.

Another older house in the Route 221 study area is a three-story, wood-frame I-house located at 6895 Old Mill Road. According to the Virginia Department of Historic Resources, I-houses are generally characterized with two-story height, one room depth, and length of two or more rooms. Tall, thin gables are typically found with I-houses which resemble an upper case I. The structure is estimated to have been built during the 1860's or 1870's. Similar to the house on the Old Poage Farm, this house was constructed as a hall-parlor style. The porch and the rear addition were added in the mid-1900's making the house more of a colonial-style.

The Kittingers Chapel located at 6844 Landmark Circle is also a significant historical structure within the study area. The one-room structure is currently vacant, but was originally constructed as a chapel by the Lutherans following the Civil War. The church began in 1868 and continued until 1959. The date the structure was built has not been documented. The chapel has a square cupola that sits atop a gabled front roof. Long, narrow transom windows are unique features to this structure.

**Image 2.28 Kittingers Chapel (VA Dept of Historic Resources 1991, Photographer: Nancy Shareff)**

As documented in the 2000 study *Cultural Expressions of Nature in Sacred Contexts: Documentation of Family & Community Cemeteries in Roanoke County, Virginia* by Thomas S. Klatka, Roanoke Regional Preservation Office, Virginia Department of Historic Resources, there are twenty-eight (28) cemeteries located within the boundaries of the Route 221 Area Plan. Based upon the death dates observed on headstones, the ages of these cemeteries range between 45-194 years. The Route 221 study area contains approximately 9.4% of the 298 cemeteries identified by Klatka in Roanoke County.

The most common type of cemetery found within the boundaries of the Route 221 Area Plan is the family cemetery. There are 24 family cemeteries identified in the study, ranging from 45 - 164 years old. With the exception of one family cemetery, all of the family cemeteries are small in size (less than 50 interments). Four family cemeteries appear to be active, while twenty appear to be inactive.

**Image 2.29 The Henry Family Cemetery (VA Dept of Historic Resources 1991, Photographer: Nancy Shareff)**

One of the more notable cemeteries located within the Route 221 Study Area is the Poage Cemetery. With the earliest recorded headstone in the cemetery dating 1814, this cemetery is the oldest surveyed in the study area, recorded at 194 years old. The Poage Cemetery is also the largest cemetery surveyed in the study area with at least 125 interments. This cemetery consists of three sections and is active with headstones dating as recently as 1995. The Poage Cemetery is likely a family cemetery.

Little information is known about the Harris-Arthur, Henry Webster and Little Back Creek cemeteries. The Harris-Arthur Cemetery consists of at least thirty-six (36) interments. The majority of the interments are surrounded by a dry-laid rock wall constructed of roughly shaped fieldstones. Two graves are located outside of the northwest corner of the rock wall. Most of the headstone inscriptions reflect that Arthur's and Harris' are buried in the cemetery; however, some markers reference names such as Kirkwood and Toler.

The Henry Webster Cemetery is an old abandoned graveyard consisting of at least 80 graves. The majority of the fieldstone markers in the cemetery are not marked. Two of the headstones were inscribed with the date 1899.

As of the year 2000, the Virginia Department of Historic Resources has not inspected the Little Back Creek Cemetery. It is located on the south side of a tributary to Little Back Creek and is located southwest of Twelve O'Clock Knob Road (Route 694) and just southeast of a sharp curve in Lost Mountain Road (Route 670). A list of cemeteries found in the study area can be found in Appendix B.

# 3. Participation

## 3.1 Community Survey

### 3.1.1 Survey Methodology

Planning staff conducted a survey of property owners and residents in the study area. Almost 1,500 surveys were mailed out with an invitation to the first series of community meetings. Staff also provided the opportunity for residents to mail back the survey or complete it on the web. 448 surveys were returned, which is a response rate of 30%.

The survey addressed demographics as well as community likes and concerns. The survey also queried residents about potential areas for both commercial and residential development. Finally the survey sought input about community facilities and transportation improvements.

### 3.1.2 Demographics

#### 3.1.3.2 Age

Figure 3.1 represents the breakdown of respondents by their ages. Most respondents were between 35 and 49 years of age. Just over one-quarter of respondents were between 50-65 and just under a quarter were over the age of 65. Seven percent of respondents ranged from 25-34 years of age. The remaining 5 % was made up of those who answered "other." This could be households that filled out the survey together representing multiple age groups.

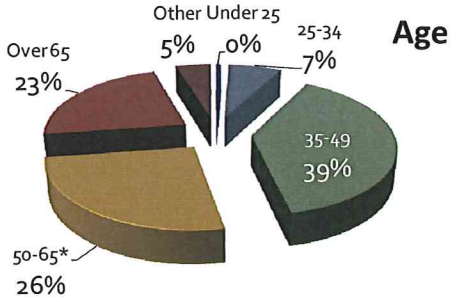



Figure 3.1 Breakdown of respondents by age

#### 3.1.3.3 Gender

The survey results show a nearly even distribution of male and female respondents. Slightly more females responded to the survey, with 49% of respondents were females and 47% were males. The remaining 4% did not provide a response.

#### 3.1.3.4 Occupancy

Planning staff hoped to receive survey responses from both owners and renters in the Route 221 area. Only 2% of respondents indicated that they were renting a home in the study area. Others indicated that they did not live in the area but owned property that was vacant or occupied by renters or family members.

#### 3.1.3.5 Length of residency

The survey results indicated an even distribution of residents who have lived in the planning area for varying amounts of time. Figure 3.2 shows that the highest number of responses, at 30%, was from the group who had lived in the study area for over 20 years. Twenty-four percent of respondents indicated they lived in the study are from 11 to 20 years, 21% reported living in the 221 area from 5-10 years and 21% reported they lived in the area less than 5 years. If the survey represents an accurate representation of all of the households living in the study area, then three-quarters of the study area is mostly made up of households who have called this section of the county their home for at least 5 years.

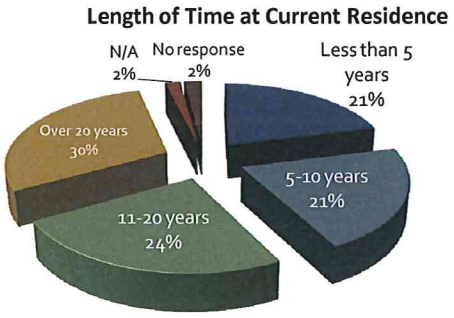



Figure 3.2 Residents were asked how long they had lived within the study area

#### 3.1.3.6 Presence of school-age children

In order to further understand the needs of residents in the planning area, we included a question in the survey which asked if there were school age children (meaning children under the age 0f 18) living in the respondent's home. Almost two-thirds (61%) responded positively, while 30% responded that there were no children living in the home.

The demographic information presented in this section is a helpful resource for Roanoke County to understand the needs of its residents. The age breakdown of survey responses, and how many households have children in school suggests what types of community facilities may be needed in the study area. Paired with other survey responses, demographic information can illustrate the types of improvements or protection the residents want in the study area.

### 3.1.3 Likes and Concerns

#### 3.1.4.2 Community Assets

The survey asked the residents to identify the top three characteristics that they most liked about the study area. Ten answer choices were provided based on staff site visits and data analysis; there was also an option to answer "other" and write in a response. Results are shown in Figure 3.3.

Responses overwhelmingly indicated the three best features about the study area were: rural character and scenery (81%), open space (70%) and "my neighborhood" (46%). Following closely with the fourth greatest number of responses valued schools and education as a top choice, with over 150 responses (34%).

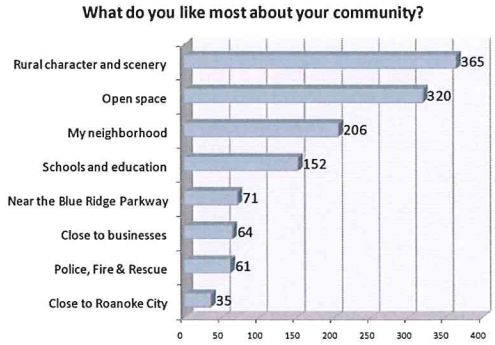



Figure 3.3 Top 8 responses

Other top characteristics were the proximity to the Blue Ridge Parkway, proximity to businesses, emergency services, proximity to Roanoke City, and recreational facilities. Write in answers included privacy, roads and utilities, growing up in area, low taxes, and lack of generally urban characteristics.

#### 3.1.4.3 Community Concerns

Residents were also asked to identify the top 3 issues facing their community. Again, 10 answer choices were provided with an opportunity to fill in an "other" concern not listed in the choices. Overwhelmingly, growth and development emerged as the most important issue, with 340 responses, or over three-quarters of respondents. Clearly, survey responses appear to indicate that citizens fear unmanaged or poor quality growth as a threat to the rural characteristics of the Route 221 corridor. Many "other" responses were received that talked about already unmanaged growth and the strain of new development on the existing transportation network. Natural resource preservation was also seen as an important issue, with 280 responses, or 63 percent. Transportation, public utilities, public health and safety, solid waste and recycling, and parks and recreation received from 117 to

59 responses, respectively. The top 8 responses are shown below.

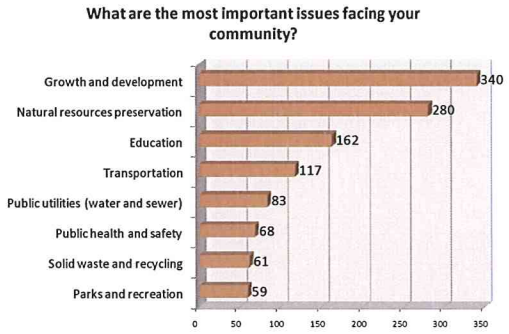



Figure 3.4 Top eight issues

## 3.1.4 Future Development

### 3.1.4.1 Residential Development

Citizens were asked to identify locations where residential development might be most appropriate. Staff provided seven choices, as well as an "other" category to provide an open-ended response. The responses did not indicate a strong preference for any individual area, in fact, among the top 7 responses, the amount of responses ranged from a high of 117, for Poage Valley Road Extension to a low of 85, on Corntassel Lane. Note that the highest amount at 117 votes only represents 26 percent of survey respondents. The lack of a response from many respondents as well as the 167 variations of "none" written into the "other" category is significant. The top seven responses, with the "other" category excluded, is shown below.


Figure 3.5 Top seven responses; "other" excluded

### 3.1.4.2 Commercial Development

The survey also provided an opportunity for residents to identify potential locations for commercial growth. With just specifically the Route 221 corridor in mind, the survey suggested three areas for consideration: the Poage Farm area, the Back Creek School area, and the Martins Creek Road area. Again, an "other" choice was possible. There were considerably less responses to this question than previous questions about likes and concerns, as well as less answers than when asked about residential development. 219 citizens wrote "none" in the other category (49%). The Poage Farm area received the most responses with 92 respondents selecting this, followed by the Back Creek School area with 78 responses. Only 29 respondents felt that the Martins Creek Road area would be suitable for commercial development. Again, no response or "none" filled into the "other" category were most common for this question.

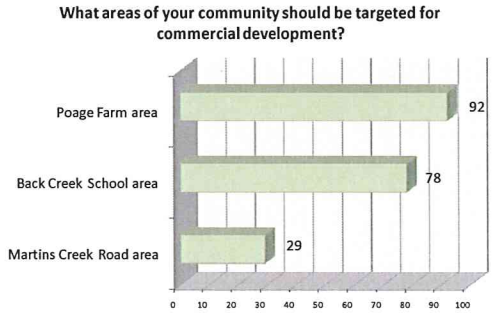



Figure 3.6 Top three responses; "other" omitted

### 3.1.4.3 Additional Services

Another survey question asked, "What types of businesses and/or services would you like to see in your community? Staff provided multiple choices, including an "other" category. Respondents were asked to check all applicable businesses or services they would like to see in the study area. The results are shown below (Figure 3.7). 176 respondents again filled some variation of "none" into the "other category (39%). There were seven categories with over fifty responses: Restaurant (sit-down, family)

received 78 votes; Gas station/convenience store, 70; Small business, 70; Grocery store, 62; Post Office, 59; Medical office, 57; and Hardware/Garden Center, 56. Answers to this query illustrate that while many people in the area are opposed to future commercial development, there does appear to be an interest or need in some types of businesses or services.

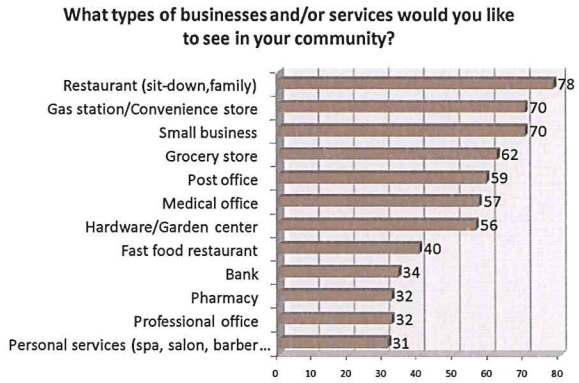


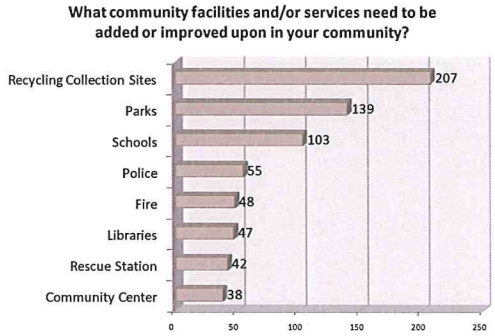

**Figure 3. 7 Top twelve responses, "other" omitted**

### 3.1.4.4 Water and Sewer

The next question regarded public water and sewer. As is stated in Chapter 2, Existing Conditions, public water is available only to a small amount of homes in the northeast edge of the study area, and the Carriage Hills and Forest Edge subdivisions are on a public well system that is maintained by the Western Virginia Water Authority. Should further school development occur along Route 221, water and sewer will likely be extended along portions of the corridor. The survey asked residents to identify areas which should be served by water, sewer or both. A fill-in category was also included, but did not differentiate between water and/or sewer. The majority of responses (172, 38% water and 155, 32% sewer) indicated that residents believe the area around Back Creek Elementary School and the fire station should be served by public water and sewer. The Poage Farm area received the next highest amount of responses for water and sewer, respectively. Then, as indicated in the chart, water services for Carriage Hills/Forest Edge, Ran Lynn Drive and Corntassel Lane received the next highest amount of responses, followed by sewer in the same ranking. 89 respondents wrote "none" in the "other" answer choice.

### 3.1.4.5 Community Facilities

Residents were asked what, if any, community facilities should be added or improved upon in the study area. Of the eight answers provided (and the fill-in "other" category), almost half of all of the respondents cited recycling collection sites as needed in the study area. Parks accounted for 139 responses. See Figure 3.8 for a list of 8 responses. The survey results illustrate that natural resource preservation does appear to be very important to the residents in the study area, as they would like to do their part to reduce waste by recycling at selected collection sites.




**3. 8 Top eight responses**

Parks and schools were chosen the next most frequently, with 139 and 103 selections, respectively. 55 residents felt the need for additional police services in the study area. Paired with the stakeholder interviews and comments taken in from the community meeting, more detail about what specific types of community facility improvements or additions are desired by the residents.

## 3.1.5 Transportation

Residents were first asked if they were aware of the proposed road widening of Route 221. Next, residents were given a series of types of transportation improvements or enhancements and then asked to list places where they might be necessary. Citizens were queried on access

points, bike lanes, guard rails, intersection realignments, sidewalks, sight distance, traffic signs, turn lanes, and again, a category for other responses. These open-ended questions were difficult to quantify as some improvements or enhancements were often provided in different categories. Planning staff has attempted to place each response in the section with the correct category and report the responses and locations where respondents felt improvements were necessary to the transportation network. The responses below indicate the top responses in each category. The entire list of suggestions provided by the respondents for each category is provided in the Appendix.

#### 3.1.5.1 VDOT Road-widening Project

Residents were asked specifically: "Are you aware of the Virginia Department of Transportation's (VDOT) road widening project planned along Route 221 near Cotton Hill Road?" Other than this question, no additional information was provided. The history, background and future plans for the road-widening project can be found in Chapter 2, Section X. The survey found that the majority of the respondents were aware of the road-widening project, as 83 percent responded "yes." Fourteen percent responded that they were not aware,

#### 3.1.5.2 Access Points

After examining the data, many of the responses entered into the "access points" category were more relevant in other sections of the transportation section. The definition of access points was not well-defined in the survey.

#### 3.1.5.3 Bike Lanes

Responses regarding bike lanes were mixed. While 109 people (24%) responded that they would like to see bike lanes along Route 221, 22 people felt like bike lanes on route 221 or on the secondary roads were dangerous. Four people said they would prefer to have bike lanes that connected to the Blue Ridge Parkway, and four respondents said that they would like to see bike lanes that follow the path of the creek.

#### 3.1.5.4 Guardrails

When asked about guardrails, 33 respondents answered that they would like to see what is assumed to be additional guardrails in the study area. Several of the responses duplicated each other, and 17 people said they would like to see more guard rails along Route 221. Ten people preferred guardrails along Twelve O'Clock Knob Road. Ten people referred to the area along Back Creek and other steep embankments in various ways. Mount Chestnut Road was also mentioned 4 times.

#### 3.1.5.5 Intersection Realignments

Staff asked the residents about intersection realignments throughout the study area, although we were aware that the intersection realignment was planned for Ran Lynn Drive and Cotton Hill Road as part of the Route 221 Road Widening Project. Forty-three people suggested this in the survey. Other responses included only single roads, which may have meant to signify the intersection of that road and Route 221. Examples of this were Cotton Hill Road (6 responses), Old Mill Road (3 responses) and Ran Lynn Drive (2 responses).

#### 3.1.5.6 Sidewalks

Although the study area is predominantly rural, the survey asked residents to identify locations where sidewalks might be appropriate. Nineteen people responded affirmatively to having sidewalks somewhere in the study area, while fifteen people felt it was not necessary. Three people suggested sidewalks around Back Creek Elementary school. A handful of respondents suggested sidewalks in various subdivisions in the study area.

#### 3.1.5.7 Sight Distances

Residents were asked to identify locations where sight distance is limited or dangerous. Thirteen people responded that the intersection of Ran Lynn Drive had sight distance issues. Other noted locations were

Highfield Farms Estates Drive, Cotton Hill Road, Mount Chestnut Road, Old Mill Road and Twelve O'Clock Knob Road.

#### *3.1.5.8 Traffic Signs*

Residents provided several examples of locations where traffic signs were needed, or spoke about certain types of signs. Seven citizens recommended posting speed limit signs on Ran Lynn Drive, 5 recommended posting them on Cotton Hill Road, and other streets on which street signs were proposed by a couple residents were Martins Creek Road, Poage Valley Road, as well as at Back Creek Elementary School. Other signs suggested included deer crossing signs and school zone markings.

#### *3.1.5.9 Turn Lanes*

The survey also asked residents where turn lanes might be appropriate. This section created the highest number of responses from citizens. Forty-seven people suggested a turn lane to Cotton Hill Road, and 19 requested a turn lane to Ran Lynn. Nine residents requested a turn lane to Back Creek Elementary School, followed by 7 for Old Mill Road, 6 for Old Mill Plantation, and 5 each for Martins Creek Road, Poage Valley Road and Poage Valley Road Extension.

#### *3.1.5.10 Other Traffic Suggestions*

Forty-seven people suggested straightening the curves and/or widening the road. Thirty-five people would like to see a traffic light at either Cotton Hill or Ran Lynn and some suggested both. Thirteen people suggested that the speed limit be reduced. Five people spoke of greenways as a form of alternative transportation to reduce traffic. There were many suggested that could not be attributed to one certain group or characteristic; therefore a chart is provided in the appendix listing all of the answers.

## 3.2 Community Meetings

In addition to the community survey, a series of meetings were held in April 2008 to present land use and other data and to gather insight from the community regarding their vision for the future of the Back Creek area. Staggered dates and times of the community meetings provided citizens with various opportunities to attend meetings. The first meeting was held on Saturday, April 12, 2008 at the Back Creek Elementary School Gymnasium. The second, third and fourth meetings were held on Monday, April 14, 2008, Wednesday, April 16, 2008 and Thursday, April 17, 2008 at the Roanoke County Administration Center. A total of 63 citizens attended these community meetings.

The community meetings were conducted in an open-house style format. This allowed citizens to have a more personal, one-on-one dialogue with members of staff in a relaxed, informal environment. Stations were set up at the community meetings based upon subject matter to facilitate discussion on various features of the Route 221 Area Plan.

Citizen concerns and questions were diverse, and addressed the plans for the future widening of Route 221, the Roanoke County School Board's purchase of the Poage Farm, plans for the existing Back Creek Elementary School, and the residential growth pressures within the study area.

A second round of community meetings in September 2008 allowed staff to present progress on the plan since the April community meetings.. The two meetings were held on September 8 and September 11. Approximately 100-120 people attended these meetings. The format of the second round of community meetings consisted of a presentation by planning staff, followed by an interactive session that allowed staff to answer questions and receive feedback from citizens. The presentation provided the background and purpose of the Route 221 Area Plan, an update on the planning process, the results of the community survey and stakeholder interviews,

the draft goals and objectives, and the proposed future land use amendments.

Stations were also set up around the gymnasium for citizens to interact with staff both before and after the presentation. A comment sheet was also available at the community meetings.

Michael Gray, P.E., and Scott Woodrum, P.E., with VDOT were present at the community meetings to discuss the status of the Route 221 road widening project and provide an update on transportation matters regarding state maintained roads within and surrounding the study area. For a copy of the presentation and a summary of the feedback received from citizens during the community meetings, please see Appendix B.

## 3.3 Stakeholder Interviews

In addition to the community meetings and survey, planning staff held stakeholder interviews with 20 residents and business owners. Citizens were chosen because they are active in the community; some are significant land owners and some are business owners. These personal interviews took place at the interviewee's homes, places of business or the Roanoke County Administrative offices, in April, May and June 2008. The focus of this stakeholder interview was to provide input on current issues in the area as well as how the area should be developed in the next 5 - 20 years. Many responses mirrored those found in the community. The stakeholder interviews also allowed for great suggestions on implementation strategies, as well as created buy-in by the stakeholders as to their role in the planning process. The stakeholder questionnaire is found in Appendix B

### *3.3.1 Responses-Background*

The length of time they had been a resident or landowner in the Route 221 area varied from less than 5 years to greater than 60 years, with the majority of responses in the 20 year range. While not all stakeholders were business owners, business experience in the study area varied, with ownership up to 20 years. These businesses include agricultural as well as commercial businesses.

### *3.3.2 Responses-Area preferences, concerns and issues*

In terms of what stakeholders regard as important qualities of the study area; three main themes were recurrent in the majority of the interviews: quality of life, community involvement and infrastructure.

Quality of life was important to stakeholders; being able to live in a rural environment yet be so close the services offered by an urban environment was touted as a benefit. Interviewees felt that large lot minimum acreage in rural zoning districts as well as the maintenance and protection of open space were tools to uphold the benefits of living in the study area.

The high level of citizen involvement adds to the sense of community. Opportunities to maintain strong citizen involvement include the recognition of the historic, rural nature of the area with the opportunity for citizens to provide input for future growth and development.

Residents voiced concerns about development that cannot be supported by current infrastructure as well as the preservation of farmland for agricultural operations. Residents mentioned transportation issues such as the widening of Route 221; intersection improvements, general traffic, and safety issues.

Other community facility needs include planning for the area schools, the need for water and sewer extensions and groundwater supplies.

### *3.3.3 Important issues in the next 5-10 years*

Development pressure on existing infrastructure was seen as the most important

issue faced by the planning area in the next 5-10 years. The ability of infrastructure to support a high level and intensity of future development is a primary concern. Also, incompatible development, commercial development and their impacts on traffic safety was another concern voiced by the stakeholders

### 3.3.4 Scaled responses

Survey interviewees were asked to use a scale of 1 (not important) to 5 (very important), to rate the following issues and were also asked to provide comments on each issue

#### 3.3.4.1 Natural Resource Protection

The interviewees rated natural resource protection as a very important (rated a 5) issue. Challenges pertaining to the preservation of tree canopy and farmland in addition to the protection of streams, groundwater and wildlife habitat were all identified as being significant. Those interviewed stated that with these types of challenges, careful attention will need to be placed on all public and private development within the study area.

#### 3.3.4.2 Education

The purchase of the Poage Farm by the Roanoke County School Board has brought an increased awareness of education issues facing the study area. These issues were viewed as important (rated as 4.5) to those interviewed. The specific concerns relating to education centered on providing the best facilities and teachers in order to keep Roanoke County schools competitive with those in neighboring jurisdictions. Additionally, opportunity for higher education in the area, such as extension centers, should be pursued if feasible.

#### 3.3.4.3 Public Health & Safety

Interviewees rated issues pertaining to public safety as important (rated as 4.125). Although many were satisfied with the Back Creek Fire Station and their efforts, interviewees mentioned improving overall response times, construction of a police satellite station and the hiring of additional rescue personnel to accommodate future growth.

#### 3.3.4.4 Parks, Recreation & Tourism

Interviewees rated parks, recreation and tourism issues as minimally important (rated as a 2). Generally, those interviewed stated that new or expanded park and recreation facilities should be developed as part of existing school facilities and available for public use during non-school hours. However, many also conceded that construction of parks should not be a priority of the county, but recognize the importance tourism plays in the local economy.

#### 3.3.4.5 Solid Waste / Recycling

Solid waste and recycling issues are identified by many as important in the future environmental impacts faced by the County. Interviewees rated issues pertaining to this as moderately important (rated 3.75).

Although the County does not have a curbside recycling program in place, a substantial number of those interviewed indicated they do recycle. Many also indicated additional recycling facilities within the area would be useful; echoing the results of the community survey.

#### 3.3.4.6 Transportation

Interviewees rated transportation issues as between important and very important (rated 4.5). The comments provided by the interviewees regarding the road infrastructure within the study area generally reflected what were collected from the citizen survey. Many believe the amount and density of development should be limited by the existing streets and highways, and that the necessary road infrastructure should be in place prior to development.

Specifically regarding road improvements, those interviewed noted the need for improvements in the area of the proposed VDOT enhancements between Ran Lynn Drive and the S-curve. Additionally, other future transportation needs that were mentioned

include guardrails, turn lanes and signage; maintenance that is more frequent and greater investment in the secondary road network.

#### 3.3.4.7 Housing, Growth & Development

The most visible aspect of the recent change within the study area is in the increased housing, growth and development that have occurred in the past 10-15 years. Interviewees view growth and development issues as important (rated 4).

Paralleling some of the sentiment from the citizen survey, many interviewees want to see road and utility improvements to accompany all proposed development in the study area. Also, it was noted that development should be encouraged in closer proximity to the developed areas of Cave Spring. Also, interviewees mentioned prohibiting development on ridges in an effort to retain critical viewsheds and overall rural aesthetic.

More specifically, some interviewees indicated that small-scale retail developments within cluster developments would be beneficial. Additionally, some also stated residential development should occur on larger lots to avoid the appearance of "being built on top of each other," and the creation of a more rural aesthetic.

#### 3.3.4.8 Utilities

The adequate provision of utilities affects the amount and intensity of development that can be supported. Within the study area, utilities provide challenges for development but also an opportunity to control the scale and intensity. Interviewees rated this issue an average of 4.25 on the 5-point scale.

Recognizing that any extension of water and/or sewer along 221 would likely result in greater residential growth pressures, many interviewed believe extensions should be carefully carried out with limited development. Additionally, it was noted that developments with private wells should be of a smaller scale in order to protect the water table and groundwater supplies.

#### 3.3.4.9 Future Proposed Development

Interviewees expressed varying opinions about how future development should or should not proceed. The one commonality with most persons interviewed involved water supplies.

Many responded that all new developments should take additional measures to guarantee that where wells are proposed, it will not affect the existing water tables. Additionally, extra attention should be paid to future developments utilizing septic fields. However, the extension of water and sewer through the study area was a very contentious proposal.

Some interviewed believed sewer and water in particular, should be developed concurrent with the VDOT project and go as far as the Poage Farm, with some desiring extension of services to Martin's Creek Road. Others took the opposite view seeing extensions as catalysts for further development and potential degradation of the natural environment.

#### 3.3.4.10 Economic Development

Responses regarding economic development mirrored those stated in the citizen survey. Interviewees rated issues pertaining to economic development as a 3.5 on a scale of 1 to 5.

Generally, those interviewed questioned the need for commercial development in the study area, especially because it presently exists in Cave Spring just outside the study area. However, they also stated that if commercial development occurs, it should be limited in scope and regulated to the Village Center areas, with a potential zoning overlay to further control these developments. Specifically, those interviewed stated they would like to see more restaurants and opportunities for "mom and pop" businesses to thrive.

#### 3.3.4.11 Additional Questions & Comments

Those interviewed provided a wide array of comments, compliments and criticisms of

issues facing the community into the future. These issues ranged from development to continuing to foster the overall sense of place that many in the area feel is important to its overall character.

Some interviewees noted that the Route 221 study area should include the entirety of the Back Creek planning area. Additionally it was suggested a citizen advisory group be established to assist and provide input to the county for development proposed within the Back Creek area.

Some interviewees stated that current development was challenging the quality of life in the Back Creek area. Although some would like to see growth stop all together, others would like to see additional measures implemented to protect the rural aesthetic and character. Some of these measures include but are not limited to the following: increasing minimum lot sizes, allowing for infrastructure and utilities to be in place prior to construction of new development, controlling growth associated with utility expansions and requiring cash proffers to help in the recouping of costs associated with the expansion of infrastructures.

# 4. Implementation Plan

This section of the document proposes goals and objectives to meet the long-range objectives identified as critical to maintaining the high quality life in the Route 221 study area. Implementation strategies can be found in Appendix B.

## 4.1 Protect community identity and character

4.1.1 Protect historic and cultural resources.

4.1.2 Encourage continued community involvement.

4.1.3 Encourage preservation of agricultural operations.

4.1.4 Continue rural residential land use.

## 4.2 Preserve and maintain environmental and natural resources

4.2.1 Protect groundwater quality and quantity.

4.2.2 Protect surface water and stream banks.

4.2.3 Protect scenic rural views and open space.

4.2.4 Effectively manage and preserve environmentally sensitive areas.

## 4.3 Continue to provide both urban and rural public services and facilities; coordinate service expansion with new development

4.3.1 Continue coordination with Roanoke County schools to monitor growth and plan for future school facilities.

4.3.2 Ensure adequate resources for fire protection and public safety.

4.3.3 Protect and enhance parkland and recreational opportunities.

4.3.4 Plan for growth associated with water and sewer service extensions to new school site at Poage Farm.

## 4.4 Provide safe and efficient transportation facilities and opportunities

4.4.1 Encourage timely and efficient construction of Route 221 improvements in order to minimize disruption of traffic flow.

4.4.2 Continue to map residential subdivision applications.

4.4.3 Provide safe alternative modes of transportation.

4.4.4 Improve safety along Route 221 and secondary streets.

4.4.5 Understand impacts of development and plan for traffic increases.

4.4.6 Improve conditions of existing streets.

## 4.5 Balance development pressures with available infrastructure

4.5.1 Encourage suburban residential growth in areas where public water and sewer area available or planned.

4.5.2 Encourage context sensitive development of the Poage Farm area when the school site is developed.

4.5.3 Limit/discourage extension of water and sewer services west of the Poage Farm area.

4.5.4 Encourage a limited mix of commercial services in areas designated Suburban Village.

# 5. Development Plan

One of the major components of the document includes proposed amendments to the future land use maps for the Route 221 area. Three alternative future land use maps were presented at the community meetings held in September 2008. The first alternative includes only minor administrative changes, the second alternative proposes a moderate growth alternative, and the third scenario is a more aggressive alternative growth scenario.

## 5.1 Suburban Village Designation

Of particular interest in the future land use maps, scenario 2 and 3 show a category that was created with the adoption of the Mount Pleasant Community Plan. This designation, entitled "Suburban Village," would apply to areas along Route 221 that are on the fringe of urban growth and services, and are transitioning from rural land use to urban, mixed-use development.

A future land use area that represents the focus of surrounding, generally lower intensity commercial, institutional and residential growth for a broad mixture of surrounding development. New neighborhood development occurs in close proximity to institutional, office and retail uses. Cluster developments and greenways are encouraged in conjunction with formerly rural land uses focusing on environmental and building and site design innovation.

### *5.1.1 Land Use Types*

#### *5.1.1.1 Agricultural Production and Services*

Services supporting the remaining agricultural community such as farm management, horticulture and veterinary services.

#### *5.1.1.2 Parks and Outdoor Recreation/ Ecotourism*

Public and private recreation from small-scale community based facilities to regional attractions with greenway linkages as appropriate. Also encouraged are ecotourism businesses that supply a niche market, usually outdoor oriented.

#### *5.1.1.3 Residential*

Suburban densities (up to six units per acre) of single and two-family housing, attached, detached, zero-lot line, cluster, low density multifamily, townhouses, and garden apartments.

#### *5.1.1.4 Community Activity Centers*

Public and private facilities serving surrounding residents including schools, religious assembly centers, community clubs and meeting areas with linkages to residential areas by greenways, bike and pedestrian paths wherever possible.

#### *5.1.1.5 Commercial*

Convenience retail establishments supplying limited goods and services to village residents. Planned small-scale or cluster retail such as local target area shopping centers with specialty businesses and personal services. Also found are small highway retail establishments providing goods and services to passing motorists. Such facilities should be designated to compliment the suburban surroundings.

### *5.1.2 Land Use Determinants*

#### *5.1.2.1 Existing Land Use Pattern*

Locations where low- to middle-density residential, institutional and commercial uses

are established, connected to existing, sometimes transitional, rural residential, agriculture and open space uses.

#### 5.1.2.2 Rural/Suburban Sector

Locations on the fringe of the urban service area.

#### 5.1.2.3 Access

Locations served by an arterial highway and a well-defined secondary street.

#### 5.1.2.4 Environmental Capacity

Locations where physical land characteristics, especially topography, have and continue to provide the opportunity for suburban development.

#### 5.1.2.5 Utility Availability

Locations where public water and sewer are in close proximity to the urban service area and expansion of these services is likely.

## 5.2 Suburban Village Design Guidelines

As a newly proposed future land use area, the purpose of "Suburban Village" as a designation is to provide a home, both in the descriptive sense and geographically, for portions of the county on the fringe of urban service areas likely to experience a high degree of development pressure. Those existing rural village centers in close proximity to urbanizing or suburbanizing communities are considered most likely for redesignation to Suburban Village. As a focus of surrounding commercial, institutional and residential growth, design guidelines are suggested to promote and protect the character and value of each Suburban Village area.

### 5.2.1 Character

Suburban Village land uses exemplify a range of activities including agricultural production and service facilities, limited small-scale commercial establishments, community centers and institutions, ecotourism, parks and outdoor recreation and suburban residential.

### 5.2.2 Goal

Provide for the transition of particular rural village center(s) to suburban village center where existing infrastructure can support and growth patterns indicate a shift to higher intensity land uses.

#### Land Use

- Encourage mixed uses such as residences, shops, employment places, civic, religious and cultural institutions.
- Provide protection for those remaining historic and cultural sites and facilities; consider tourism promotion where appropriate.
- Plan for transitional designs from rural to suburban insuring safety and aesthetics among individual sites, adjoining streets, pedestrian and bike trails and surrounding areas.
- Discourage strip development and insure operational stormwater management systems.

#### Transportation

- Advocate pedestrian and cyclist travel modes throughout suburban centers.
- Provide context sensitive design and/or traffic calming to improve traffic control and safety on collectors, arterials and corridor highways.
- Limit access points and improve vehicular circulation throughout suburban centers.

#### Community Design & Identity

- Maintain and improve existing buildings and expand the commercial mini-grant program where appropriate.
- Strictly apply landscaping, signage, exterior lighting and particularly parking regulations.

- Continue the visual continuity along rural/suburban corridors by providing a uniform right-of-way where possible and consistent highway edge treatment.

- Limit impacts on existing lower intensity uses; recognize the responsibility to adjacent, more rural areas by preventing sprawl and unwarranted utility expansions.

## *Suburban Village Suggested Guidelines*

### *Existing Conditions*

- Preserve significant onsite natural features (water bodies, floodplains, steep slopes) through proper site design.

- Maintain existing vegetation providing natural buffers, particularly where proposed development adjoins village center fringe(s).

### *Development Framework: Residential Uses*

- ***Farm and rural feature retention:*** preserve stone rows and tree lines; preserve existing agricultural structures (barns, silos, etc.) where feasible; incorporate existing farm roads into subdivision design.
  - Minimize visual impact: structures should not be placed in open fields; locate buildings adjacent to tree lines and wooded field edges – do not front directly on offsite streets; clustering is encouraged to preserve open space where active agriculture remains.
  - Minimize site disturbance: roads should follow existing contours; keep disturbance for roads, sediment basins or other construction to a minimum; limit intrusions onto individual lots.

- ***Woodland and open space retention:*** preserve stone rows and tree lines; retain select trees between any principal structure and road or driveway; the creation of extensive lawn areas is discouraged.
  - Minimize visual impact: keep tree removal from ridges to a minimum; building construction and placement should comply with steep slope regulations; water towers should not be placed on top of ridgelines and tower height should be limited to an elevation below the crown of mature on-site trees.
  - Minimize site disturbance: roads should follow existing contours; keep disturbance for roads, sediment basins or other construction to a minimum; limit intrusions onto individual lots; establish maximum building envelope size and locate in the most suitable development areas beyond which no construction should be allowed; preserve native trees where possible.

- ***Site Layout/Access/Circulation:*** The relationship of buildings and other site structures to the road network should be as follows:
  - Guide site design through a functional system of narrow streets, service lanes and sidewalks.
    - Construction of alleys with provisions for parking is encouraged; on-street parking is discouraged.
    - A network of through-streets with a rectilinear street grid is encouraged; cul-de-sacs and curvy streets are discouraged.

- Connections to adjoining pedestrian and vehicular circulation patterns should be provided. Pedestrian ways and greenways are encouraged and should be provided and coordinated with walkways from adjacent properties.

- Shared driveways are recommended wherever practical; context sensitive design and traffic calming are encouraged where appropriate.

## *Development Framework: Commercial Uses And Community Activity Centers*

- ***Existing buildings and developed site features***: Preserve architectural and site features of small-scale and clustered retail and service establishments, schools, religious assembly and civic uses that enhance the surrounding neighborhood and blend with existing topography; street access, parking and signage wherever possible.

- ***Development Location***: Mixed use and infill projects facing commercial streets should promote the following:
  - Pedestrian-friendly streetscapes and connectivity to neighboring uses;
  - Reduced curb-cuts through shared access drives;
  - Development in harmony with public utilities, facilities and transit;
  - Creation of pocket parks or small plazas providing gathering places along the commercial corridor.

- ***Site Layout: Access / Parking / Buildings***
  - Businesses should provide shared access wherever possible. Combined access may be in the form of temporary easements until additional development occurs establishing a unified parking and circulation plan.

  - Construct parking areas to the sides and rear of buildings wherever possible. Design parking areas to allow future interconnections with adjacent parcels. On large sites, disperse parking into smaller areas lessening visual and environmental impacts and utilize alternative surface materials.

  - Maintain and/or create building architecture compatible with neighboring structures. Determine appropriate setbacks in accord with the ultimate street right-of-way.

- ***Architectural Treatment: Scale / Entrances / Roofs / Materials***
  - Building mass should approach a residential scale and avoid excessive height. Apply building facades and landscaping to lessen the impact of large structures. Insure uniform building height, width, first floor elevation, style and porch detailing where applicable.

  - Provide entrances that are clearly visible and recognizable from parking lots and walkways serving a building. The principal front façade should face an arterial or collector road – the main pedestrian entrance may be in the side or rear of the structure.

  - Utilize dormers, gables and other variations in roof design and height compatible with basic façade elements adding interest to the building. Avoid flat roofs. Gable, hip and multiple-plane roofs are preferred.

  - Select materials in harmony with surrounding structures and for suitability to the building type and style in which they are used.

- ***Landscaping, Lighting and Amenities:*** Frame and soften building appearance, screen undesirable views, buffer incompatible uses and provide protection from the elements.
  - Incorporate plantings using ground covers, shrubs and vines and trees.

  - Utilize the following landscape design concepts in all project design:
    - Provide specimen trees in groups and rows at site entries and pedestrian gathering places;
    - Use flowering vines on walls and arbors where appropriate;
    - Use plantings to create shadow and patterns against walls;
    - Provide berms or walls to screen parking, refuse, storage and equipment.

- Select trees along street frontages to match or complement existing trees in the right-of-way.

- Provide planting strips along parking lot circulation aisles and along building side/rear elevations. Planters and pots placed in building recesses and adjacent to blank walls may add visual interest, color and texture.

- Select native plant materials for weather and drought tolerance.

- Light fixtures should be architecturally compatible with the development theme and illuminate entries, driveways, walkways, activity areas and building features and landscaping.

- Light sources should be indirect and shielded to avoid glare or intrusion on adjacent properties. Pathway or bollard designs are encouraged.
- Storage areas, trash enclosures, fuel tanks, generators, fire check safety valves and other mechanical devices should be located in the least visible areas of the site and screened from view. Screening should not result in hiding places or entrapment areas.

- Outdoor furniture, directional signs, trellises, raised planters, art works, benches, receptacles or fencing should be selected as integral elements of the building and landscape design.

- ***Signage***
  - Adjacent businesses are encouraged to share signage. Signs should complement building architecture and should not occupy more than five percent of the façade area. Limited maximum area for directional signage is also encouraged.

  - New and replacement freestanding signs should be monument-type and should not exceed five feet in height or seven feet in width.

  - Signs should be complemented by landscaped plots at least one and one-half times the sign area size.

## 5.3 Proposed Future Land Use Map Scenarios

### *5.3.1 Future Land Use Scenario 1*

The first proposed scenario is essentially a "no change" alternative. Some minor adjustments were made to the adopted 2005 Future Land Use Map, based on existing zoning and land use. See Map 3.1 Future Land Use Scenario 1 in Appendix A for the proposed changes in this scenario. The first recommended change occurs at the easternmost part of the study area. The Transition designation along Route 221 was the location of Harris's garage, a small family-owned auto repair shop. The original Harris residence and the garage were purchased by VDOT for right-of-way and razed. The remaining use of the property is single-family residential and therefore, the designation should be changed to Neighborhood Conservation.

Hampshire Subdivision, to the south, was designated as Development. As this subdivision is under construction staff recommends changing this designation to Neighborhood Conservation as well.

The area where Back Creek Grill is located is proposed to be changed to Village Center. The Countryway store and neighboring properties are also changed to Village Center in this scenario. The area to the east of 12 O'clock Knob Road is proposed to be changed to Rural Village, because of the topography and lack of land suitable for commercial use.

Other minor changes to the south involve adjusting lines due to boundary adjustments.

Figure 3.1 shows the change of amount of land located in the 2005 Future Land Use designation and Scenario 1 by the percentage of land in each category. As can be seen below, figures do not change in any category by more

than one percent. A full representation of this data is available in Appendix B.

| Future Land Use Designation | 2005 Comprehensive Plan | FLU Scenario 1 |
|---|---|---|
| **Conservation** | 3% | 3% |
| **Development** | 7% | 6% |
| **Neighborhood Conservation** | 2% | 3% |
| **Rural Preserve** | 37% | 36% |
| **Rural Village** | 46% | 46% |
| **Suburban Village (new designation)** | 0% | 0% |
| **Transition** | 0.35% | 0% |
| **Village Center** | 5% | 5% |

**Figure 3.1 Change of the percentage of land in each designation, in Scenario 1**

### 5.3.2 Future Land Use Scenario 2

Scenario 2 incorporates the new Suburban Village designation. This scenario is more intensive, as it takes into account the extension of water and sewer services to the Poage Farm for the proposed school site. Map 3.2 is found in Appendix A. The area to the north of the study area is changed to Development to take into account the proposal by Boone Homes for the Westcott off Ran Lynn Drive and Corntassel Lane. The area along both sides of Route 221 starting at the location of Back Creek Grill is proposed to be changed from Rural Village to Suburban Village. With the incorporation of Suburban Village Design Guidelines, creative development could be located here that serves the residents of the study area while at the same time being sensitive to the rural environment.

A significant amount of land in changed to Conservation in Scenario 2. On a large tract of land to the north of the Forest Edge and Carriage Hills subdivision, most of the land has a slope at or above 33%. A large area along the steep slopes north of the Blue Ridge Parkway is also designated Conservation in Scenario 2. Many of the slopes in the Conservation area meet or exceed 33%. Following the topography, the Conservation designation is suggested outside of the study boundary to Bent Mountain Road and south toward the Airpoint subdivision and the Franklin County boundary.

Figure 3.2 shows how land is distributed among Future Land Use designations. As can be seen, the amount of land in the Conservation designation increases significantly, from three percent to nearly twenty percent. Consequently, land designated Rural Preserve decreases sixteen percent as well. While Suburban Village increases from zero (being a new designation), note that land in the Village Center designation decreases by three percent, accounting for nearly all of the change to Suburban Village.

| Future Land Use Designation | 2005 Comprehensive Plan | FLU Scenario 2 |
|---|---|---|
| **Conservation** | 3% | 19% |
| **Development** | 7% | 10% |
| **Neighborhood Conservation** | 2% | 3% |
| **Rural Preserve** | 37% | 21% |
| **Rural Village** | 46% | 42% |
| **Suburban Village (new designation)** | 0% | 3% |
| **Transition** | 0.35% | 0% |
| **Village Center** | 5% | 2% |

**Figure 3.2 Change of the percentage of land in each designation, in Scenario 2**

### 5.3.3 Future Land Use Scenario 3

Scenario 3 represents the most intensive of the three proposed scenarios. Building on scenario 2, with the assumption that water and sewer services are extended to a new school, Scenario 3 also explores the option of running water service to the Forest Edge/Carriage Hills subdivisions. As mentioned in Chapter 2, and by many residents, the wells currently serving these subdivisions, are maintained by the Western Virginia Water Authority, but have

supply limitations, and have had significant deficiencies during drought times. Scenario 3 proposes designating these subdivisions as Neighborhood Conservation, an appropriate designation should water service be extended here. It also proposes that most areas to the north and south of the Poage Farm be designated Development. An area to the north of the Poage Farm is also designated Neighborhood Conservation, encouraging extensions of water and/or sewer services to existing residential neighborhoods. Map 3.3 details these changes (Appendix A).

Figure 3.3 below illustrates the amount of land designated to each Future Land Use category. Notable changes include the increase of lands designated Neighborhood Conservation from 2% to 9%, and the decrease of land designated Rural Village from 46% to 35%. Again, much of this decrease can be attributed to the increase in land designated as Conservation.

| Future Land Use Designation | 2005 Comprehensive Plan | FLU Scenario 3 |
|---|---|---|
| **Conservation** | 3% | 19% |
| **Development** | 7% | 11% |
| **Neighborhood Conservation** | 2% | 9% |
| **Rural Preserve** | 37% | 21% |
| **Rural Village** | 46% | 35% |
| **Suburban Village (new designation)** | 0% | 3% |
| **Transition** | 0.35% | 0% |
| **Village Center** | 5% | 2% |

**Figure 3.3 Change of the percentage of land in each designation, in Scenario 3**

### *5.3.4 Future Land Use Scenario 4*

At their December 2, 2008 public hearing, the Planning Commission recommended adoption of a modified version of Scenario 2. The recommended future land use map is identical to Scenario 2, with the addition of an area designated Development, south of Route 221, between the Poage Farm and Cotton Hill Road. This modified map is presented to the Board of Supervisors as Scenario 4. Upon adoption of the Plan by the Board of Supervisors, this section will be completed to include the final adopted Future Land Use Map.

| Future Land Use Designation | 2005 Comprehensive Plan | FLU Scenario 4 |
|---|---|---|
| **Conservation** | 3% | 19% |
| **Development** | 7% | 11% |
| **Neighborhood Conservation** | 2% | 3% |
| **Rural Preserve** | 37% | 21% |
| **Rural Village** | 46% | 42% |
| **Suburban Village (new designation)** | 0% | 3% |
| **Transition** | 0.35% | 0% |
| **Village Center** | 5% | 2% |

**Figure 3.4 Change of the percentage of land in each designation, in Scenario 4**

## 5.4 Utility Phasing Plan

Associated with each Future Land Use Map Scenario, the Planning Commission reviewed alternative maps describing potential phasing of public water and sanitary sewer extensions. The Utility Phasing Plan maps found in Appendix A describe, in 5-year increments, locations where extensions of public water and sanitary sewer are encouraged or anticipated. These proposed water and sewer expansion areas coincide with areas on the future land use maps designated Neighborhood Conservation, Development and Suburban Village. When the Planning Commission recommended adoption of a modified version of Scenario 4 of the proposed Future Land Use Map Amendments, they also recommended adoption of a modified version of Scenario 2 of the Utility Phasing Plan. This modified map is presented to the Board of Supervisors as Scenario 4. Upon adoption of the Plan by the Board of Supervisors, this section will be completed to include the final adopted Utility Phasing Plan.