



**Town of Montreat  
Pedestrian, Bicycle and Greenways Master Plan**

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## Town of Montreat Pedestrian, Bicycle and Greenways Master Plan

### ACKNOWLEDGEMENTS

The Town of Montreat's Pedestrian, Bicycle and Greenways Master Plan was developed through a process initiated by the Town of Montreat and its staff and facilitated by Equinox Environmental Consultation and Design. This document represents the efforts of the Town of Montreat Board of Commissioners, the Montreat Landcare Committee (formally known as the Montreat Parks and Recreation Commission) and the Mountain Retreat Association (MRA) Wilderness Committee. The following members of these committees participated in this process:

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Eric Nichols, Mayor Pro-tem  
Dr. Ruth Currie, Commissioner  
Jack McCaskill, Commissioner  
Mary Standaert, Commissioner  
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#### MRA Wilderness Committee

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#### Montreat Landcare Committee

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Mike Sonnenberg  
Joe Standaert

Members of these committees have come from diverse points of view, but their differing ideas and opinions served as a starting point for creative discussion. Each of these individuals share a common vision for Montreat and their input is greatly appreciated and acknowledged.

The efforts and talent of Joe Standaert are also acknowledged for allowing the use of his wonderful photographs on the cover of this document.



## **Town of Montreat Pedestrian, Bicycle and Greenways Master Plan**

### **CHAPTER 1: INTRODUCTION**

The Town of Montreat recognizes the need to plan for an effective and safe bicycle, pedestrian, and greenways system as the Town continues to experience change and growth over time. A community that provides opportunities to walk to a park, jog down a meandering trail, or bicycle to work fosters and promotes a more livable town. Planning for a bikeable and walkable town while protecting open space and unique characteristics of an area strengthens a community and enriches its quality of life.

An interwoven network of bicycle and pedestrian facilities and greenways offers the benefits of providing alternate modes of transportation that can alleviate traffic congestion, maximize street volume capacity, encourage healthy living, create opportunities for outdoor recreation activities, and protect the natural environment.

#### **Purpose of the Plan**

This Plan is designed to provide guidance and a framework to implement the community's desire to create a bikeable, walkable, and environmentally aware and active Town. This Plan is an element of the Town's Comprehensive Plan adopted in April of 2008. The goals and strategies recommended in that planning process relative to the bicycle, pedestrian, and greenways system are echoed in this Plan. They reflect the desires of Montreat residents and community leaders to "improve mobility through a safe, efficient, and well-connected multi-modal transportation system designed to be sensitive to the surrounding land uses" as well as to "protect environmental assets, both for their ecological functions and as key elements of community character and livability."

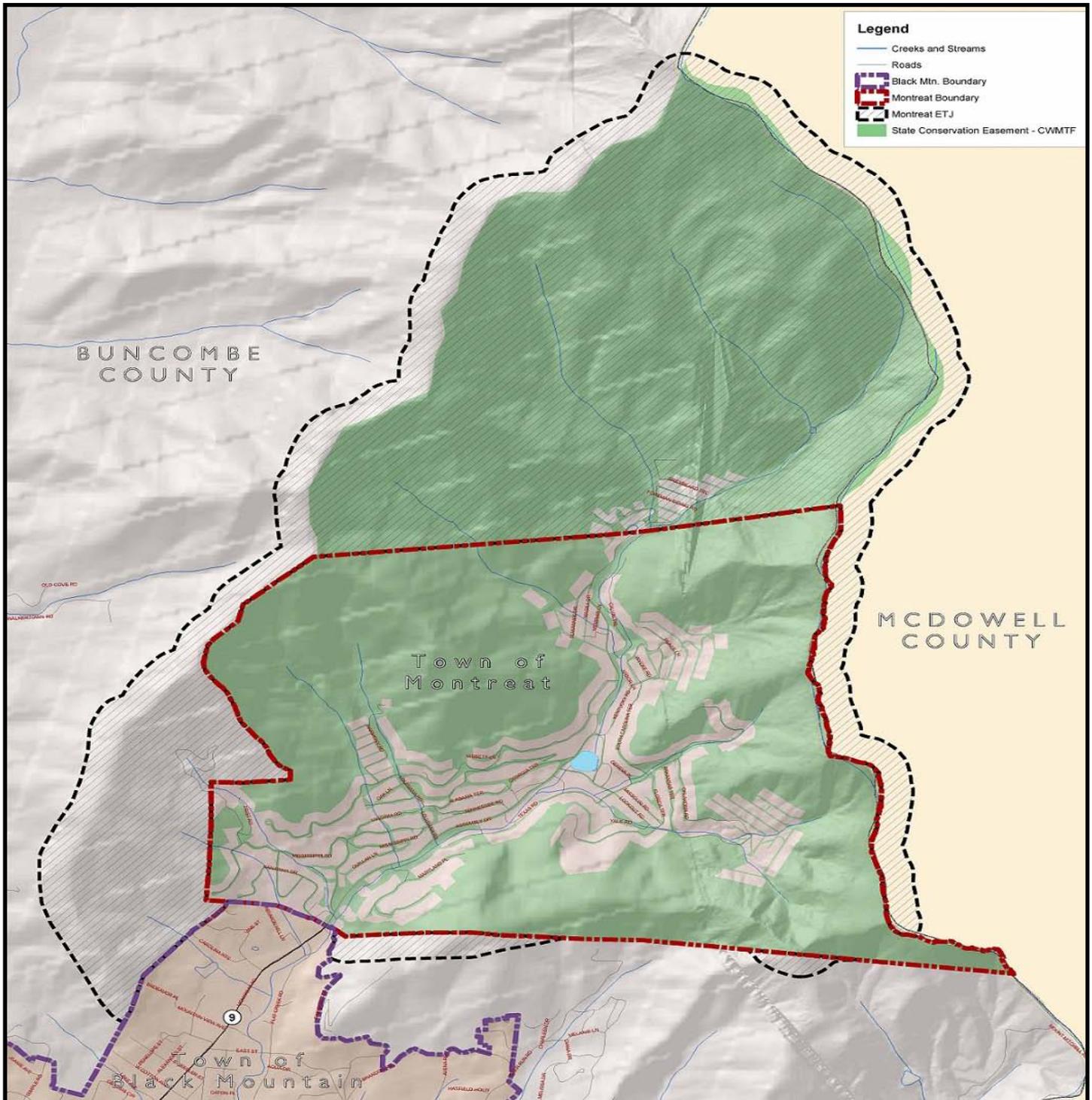
This Plan builds upon previous recommendations and implementation strategies found in the Montreat Comprehensive Plan of 2008, the Comprehensive Plan Alternatives of 2003 and the Montreat Tomorrow Committee Reports of 1984 and 1996. This Plan not only builds upon previous recommendations and implementation strategies but also improves the plans by refining recommended strategies and utilizing current best practices as well as the most recent design guidelines to more effectively implement the system.

This Plan also recognizes that each multi-modal facility and types of users are different. Various planning approaches and strategies will be required to address these differences and needs. The Town, however, also sees the value in planning for an interconnected system. An all-inclusive plan can help identify gaps in service that hinder connectivity and help present a complete vision and action plan for improving bicycling, walking, and the natural environment in which they interweave.

## Planning Area

The Town of Montreat, with a population of approximately 730, comprises an area of approximately six square miles in Western North Carolina. The Town is best known as a national conference center for the Presbyterian Church (USA), which is managed by the Mountain Retreat Association (MRA), and for Montreat College, a small liberal arts institution. The Town accommodates 35,000 visitors each year, with an estimated 17,000 of those visitors during just ten weeks of the year.

The Town is surrounded by lush mountains and recreational opportunities abound. Montreat's



natural and architectural beauty, moderate climate, and the area's strong job market and outstanding educational and health care facilities make it one of the most attractive locations in the United States. The Western North Carolina area is consistently ranked high among the best places to live, work and retire.

The area evaluated as a part of this Plan includes the Town limits and Extraterritorial Jurisdiction of Montreat. A portion of the Town's southern municipal boundary is shared with the Town of Black Mountain. Opportunities to connect key access points between Montreat and Black Mountain were explored and considered as part of this Plan.

## **Plan Development**

The Town of Montreat initiated this planning effort as a part of the Town's Comprehensive Plan. A variety of methods were used for involving the public, including the involvement of elected officials, town staff, local private entities, and appointed boards and committees.

Public participation is vital to creating a plan that meets the needs of a community. A variety of techniques were used to gain input from citizens including a survey used during the Comprehensive Planning Process, community meetings, and focus group meetings. The Town's Comprehensive Plan also relied heavily on citizen involvement. Information gathered during that effort was utilized in the development of this plan.

## **Scope and Organization of the Plan**

This Plan provides goals, strategies, and action items for system development, management, and implementation over the next 10 years. These recommendations also provide a long term vision that should be referenced to build and improve the system over the next few decades.

This Plan includes the following major sections:

- Introduction – Presents an explanation of the planning purpose, planning area, scope and organization of the Plan, public involvement and other planning efforts.
- Existing Conditions – Provides an overview of the Town of Montreat; describes natural and manmade features; and describes the existing bicycle, pedestrian, and greenways system.
- Needs Assessment – Provides an overview of the benefits of the system; identifies types of users and their preferences; evaluates existing data on use and safety; and summarizes needs and preferences expressed through the citizen engagement process and other planning efforts.
- Goals and Strategies – Presents the goals and strategies of the Plan.
- System Development – Proposes the addition of bicycle and pedestrian facilities and greenways needed for the future. This section also includes policy statements.
- System Management – Provides recommendations on how to manage the system including operations, programs, maintenance, and safety. This section also includes policy statements.
- Implementation – Outlines implementation methods; identifies funding sources and planning level costs; and prioritizes projects.

## Related Planning Efforts

Other planning efforts were considered and have influenced the recommendations of this Plan. They include the following:

- Montreat Tomorrow Committee Report – 1984
- Montreat Tomorrow Committee Report – 1996
- Comprehensive Plan Alternatives for the Town of Montreat – 2003
- Town of Montreat Comprehensive Plan – 2008

## Terminology

Definitions to key terms used in this Plan are provided below.



**Bike Lane** – A designated part of the roadway, typically four feet wide, that is striped, signed and has pavement markings to be used exclusively by bicyclists.

**Picture Source:** [www.pedbikeimages.org/Jennifer Campos](http://www.pedbikeimages.org/Jennifer_Campos)



**Sidewalks** – Walkways alongside roads, typically five to eight feet wide, for pedestrian use.

**Picture Source:** [www.pedbikeimages.org/Dan Burden](http://www.pedbikeimages.org/Dan_Burden)



**Greenways/Trails** – Linear open space corridors that follow natural features such as creeks and rivers, and their floodplains, or human-made features such as utility or road corridors. Greenways and trails tend to be used interchangeably within this Plan.

**Picture Source:** [www.pedbikeimages.org/Laura Sandt](http://www.pedbikeimages.org/Laura_Sandt)

## **Public Involvement**

An important part of developing a successful and implementable plan is to integrate citizen input into the planning process and project prioritization. To gather input from the public, the following strategies were used as part of the Comprehensive Planning process, the Assembly Drive Corridor Study and the Pedestrian, Bicycle and Greenways Master Plan:

1. Focus Group Meetings with the Board of Commissioners, Montreat Landcare Committee (formally the Montreat Parks and Recreation Committee), and MRA Wilderness Committee
2. Public Workshops and Meetings; interviews with key stakeholders; steering committee meetings (Comprehensive Plan); and public hearings
3. Public Opinion Survey distributed during the Comprehensive Planning process

Focus Group Meetings – The Town of Montreat with help from Equinox Environmental Group conducted three focus group meetings:

- Montreat Landcare Committee (Former Parks and Recreation Committee) (6/1/2010)
- MRA Wilderness Committee (7/3/10)
- The Montreat Board of Commissioners (12-16-10)

The goal of these meetings was to promote dialogue among the focus groups pertaining to sidewalk locations, connectivity issues within Montreat from key facilities, pedestrian safety improvements, and to explore alternative transportation possibilities. Utilizing a base map, attendees were asked to identify key destination locations and indicate (based on local knowledge and opinion) potential routes that should be further examined to provide connectivity to these areas. Locations of existing sidewalk connections and pathways were captured and overlaid onto the base map. Although Equinox did not provide trail design, they served as a facilitator to collect the desired layout for the pedestrian system from the focus groups and also provided professional input during the meetings as needed. No field reconnaissance was conducted to verify the feasibility of the ideas discussed. The intent was to capture the ideas of citizens that are well acquainted with the pedestrian challenges around Montreat, and who could provide ideas to help overcome these challenges. Equinox compiled information from each of the three meetings in order to develop a final trail and walkability map.

Public Workshops – During July of 2010, the Town along with assistance from Equinox Environmental Group conducted a site assessment of the Assembly Drive Corridor and held a community meeting in which input was obtained from the residents of Montreat. Equinox also reviewed past Comprehensive Plans in which the needs for improvements along Assembly Drive had been identified. The 2008 Comprehensive Plan provided a recommendation to “define, prioritize and construct an improved pedestrian network for the greater town area.” This included the strategy “to widen, improve and maintain the existing path or by building six-foot to eight-foot pathways for hiking and biking along Flat Creek.” Several options were presented that addressed this strategy at the community meeting. The concepts focused on providing a system for multiple user types and multiple age groups and included options for college students to ride their bikes to Black Mountain and other destinations and the means for older generations and young families to walk to local parks or around town more safely. After considering the

information from the workshop, past studies, and assessing the Assembly Drive Corridor, Equinox provided the following recommendations:

- Recommendation #1- Add Uphill Bicycle Lane - A bicycle lane along the uphill section of Assembly Drive should be provided to promote a safer travel option for bicyclists. The desire from the community is to minimize any visual or physical impacts to the character of the Assembly Drive corridor. For this reason, a bicycle lane on the downhill section is not recommended. Bicycle lanes provide a safer environment for the bicyclist and the low traffic speeds make Assembly Drive a very suitable road for an uphill bicycle lane. Striping and marking for the bicycle lane can be minimal if desired. The existing travel lane width of 10'-6" should be maintained for both travel lanes.
  
- Recommendation #2- Improve the Existing Path along the West side of Assembly Drive - During the public input session, this was the option (Alignment C) which generated the most interest from the participants. The benefits of enhancing the existing "gravel trail" to a five foot hard surface trail include the following:
  - Less expensive option as compared to the other options
  - Located on higher density side of Assembly Drive
  - Fewer long term maintenance implications
  - Reduces sedimentation to Flat Creek with proper stormwater treatment
  - Defines crossing locations at key intersections of Assembly Drive
  - Provide ADA accessibility for disabled users
  - Provide a more suitable walking surface for older generations and stroller use
  
- Recommendation # 3- Improve crosswalks within the Assembly Drive Corridor - Crosswalks at key locations should be clearly demarcated and signage or change in surfaces used as cues for motorists to slow down should be provided. If signage is not desired within the corridor, changes in the crosswalk surfaces at the intersections will be sufficient. The existing crosswalk with stamped and dyed asphalt located on Appalachian Way was suggested as a template or a standard template could be created.

Public Opinion Survey – During the 2008 Comprehensive Plan process, a public opinion survey was conducted to reach out to all residents, particularly out-of-town property owners, to gather feedback on many town related services including recreation. Of 728 surveys sent out, 373 were returned, a remarkable response rate of 51%. The results of the survey appear in the Appendix.





## Town of Montreat Pedestrian, Bicycle and Greenways Master Plan

### CHAPTER 2: EXISTING CONDITIONS

To determine and plan for future needs, it is important to consider existing factors that will influence and affect a successful bicycle, pedestrian, and greenways system. This chapter provides an overview of the Town of Montreat, a description of its natural and manmade features, and the bicycle pedestrian, and greenway/trail facilities currently available.

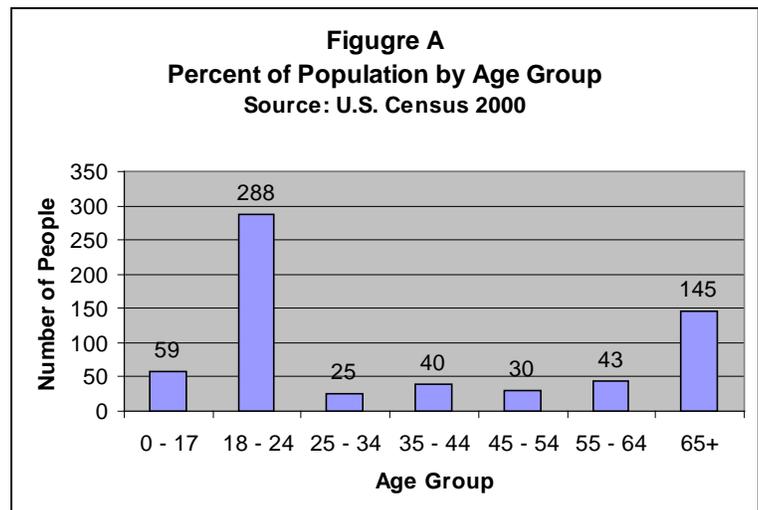
As a part of the Comprehensive Plan process, an Existing Conditions report was formulated which gave an understanding of the current conditions in Montreat. Included in this chapter are relevant findings from that report and from the 2003 Comprehensive Plan Alternatives for Montreat prepared by the University of North Carolina Department of City and Regional Planning.

#### Demographics

According to the 2000 Census, Montreat has a population of 630, but because of the nature of the community, it is difficult to estimate the actual number of permanent residents. The North Carolina Office of State Budget and Management estimates Montreat's current population at 730. As mentioned earlier, the Town receives 35,000 visitors each year. The Conference Center attracts the largest volume of people as part of its extensive retreat programs. During the summer months, the Conference Center hosts 7,000 youth in various camps and other programs. The distinct seasonal population shift poses both important challenges and opportunities for Montreat.

The age structure of Montreat residents also shows distinct trends. The largest population groups are 18-24 year olds and 62-79 year olds, representative of the large college student and retired populations (see Figure A).

Approximately 350 college students reside in Montreat during the traditional school year of fall through spring, but many of them leave Montreat in the summer months. One hundred thirty-seven older individuals have chosen to retire in Montreat due to the beautiful and peaceful surroundings. The large number of elderly in the Town poses specific issues when considering the mountain terrain, narrow roads and limited recreational paths in town.



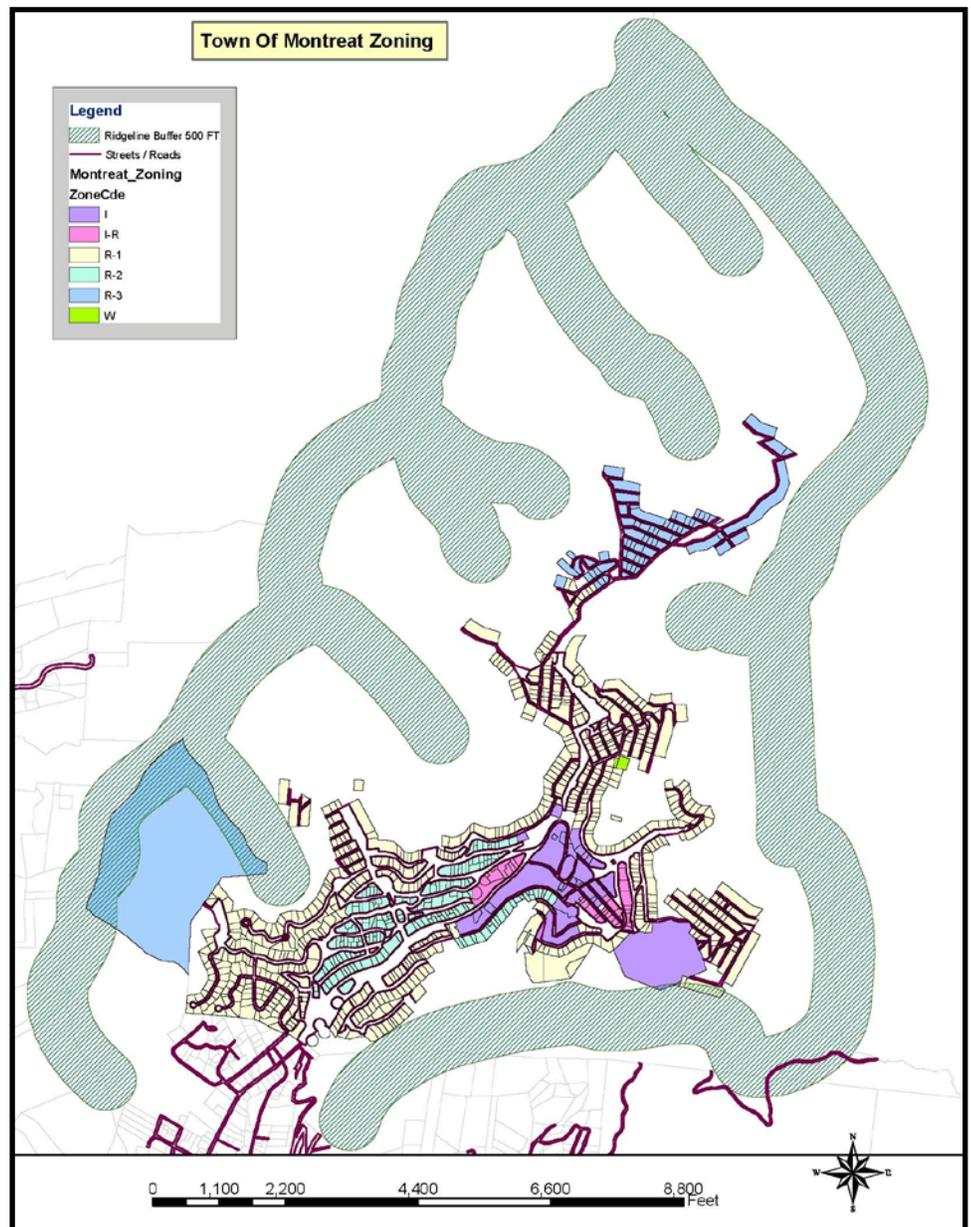
## Land Use Characteristics

Montreat encompasses 1,779 acres and six square miles. Including the Extra Territorial Jurisdiction (ETJ) area, Montreat stretches from the ridgelines surrounding the valley in which the Town sits, down to the city limits of the Town of Black Mountain. Not all of the property in the valley lies within the town limits of Montreat as the Town's ETJ extends 500 feet beyond the surrounding ridgeline. Therefore, through zoning and other regulations, the Town has the authority to enact land use controls over the entire valley.

The majority of the land along the valley walls is undeveloped and still in its naturally wooded state. Developed land in Montreat consists of private housing units, MRA conference center facilities and Montreat College property. Platted lots are centered on the streams that run throughout the town and are mostly zoned R-1, Low Density Residential.

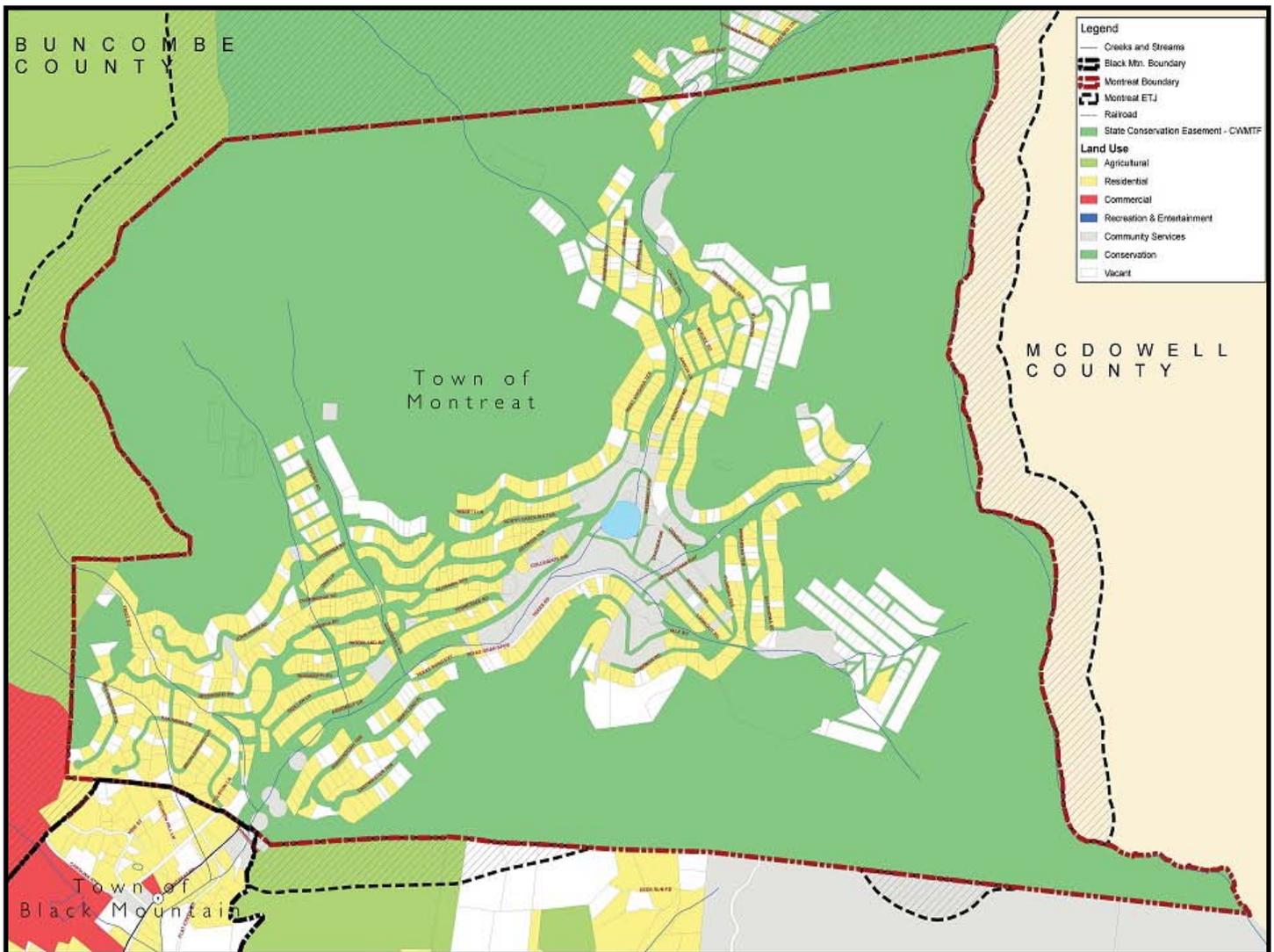
Approximately one third of the platted lots are designated R-2, Medium Density Residential. The remainder of the Town is owned by either the MRA or Montreat College and is divided into Institutional and Institutional/Residential zones, depending on use. No traditional commercial facilities exist in Montreat; therefore no land is currently zoned for commercial use although a small number of Institutional properties are commercial in nature.

Further detail on the zoning districts is found in the Montreat Zoning Map below.

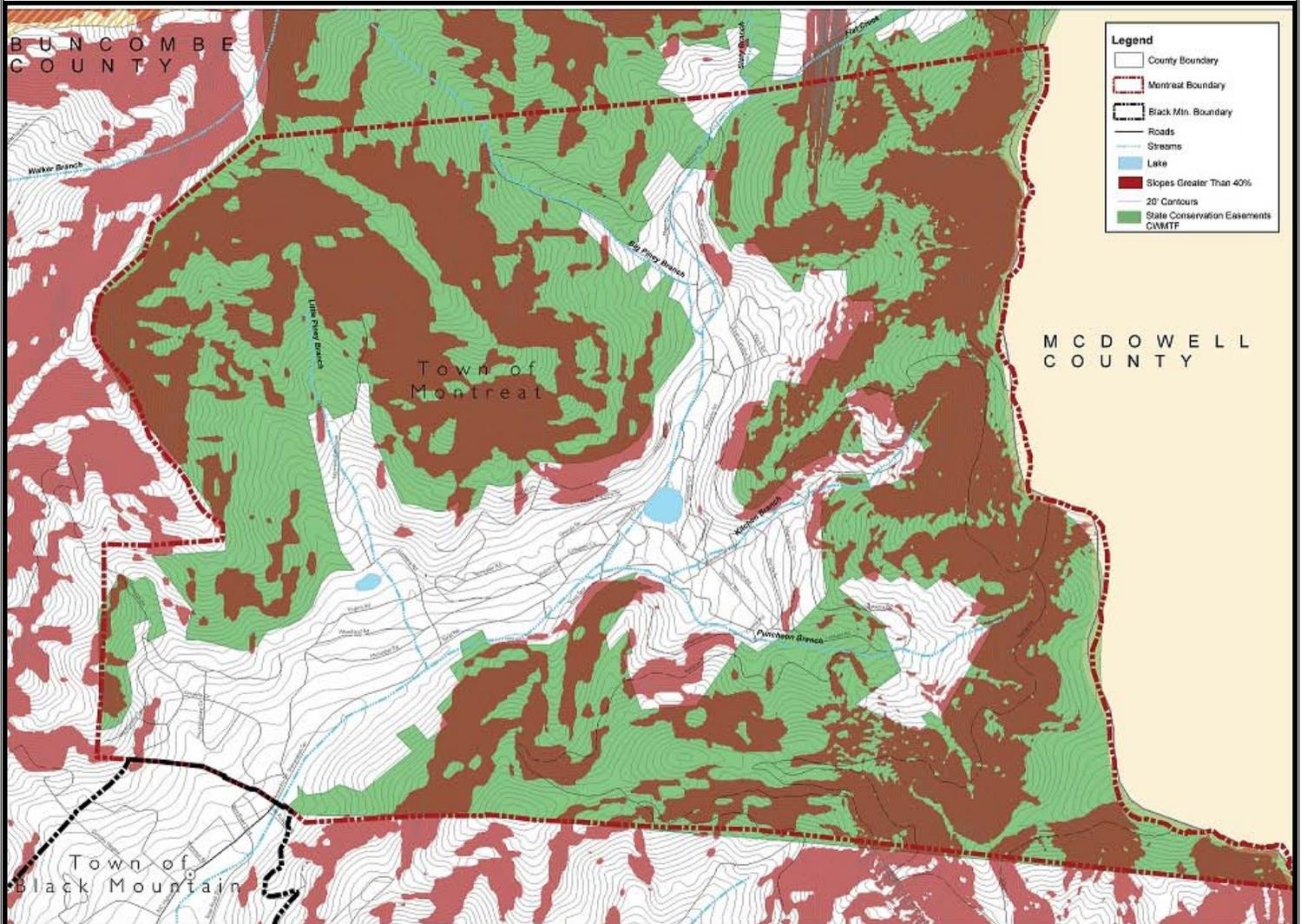


Montreat is a unique community in that typical growth and planning models simply do not apply. Montreat also cannot grow in the traditional sense. The physical limits of the community are reasonably fixed. Bounded almost completely by a conservation easement and the Town of Black Mountain, the prospect for expansion through annexation is limited. Approximately 75% (or 63% excluding roads and rights-of-way) of the town is restricted from development. Areas of town in permanent conservation, including open space, public roads and rights-of-way, are perceived as valuable by town residents and visitors.

Significant portions of the town are already developed predominately for residential use. These areas are reflected in the Existing Land Use Map.



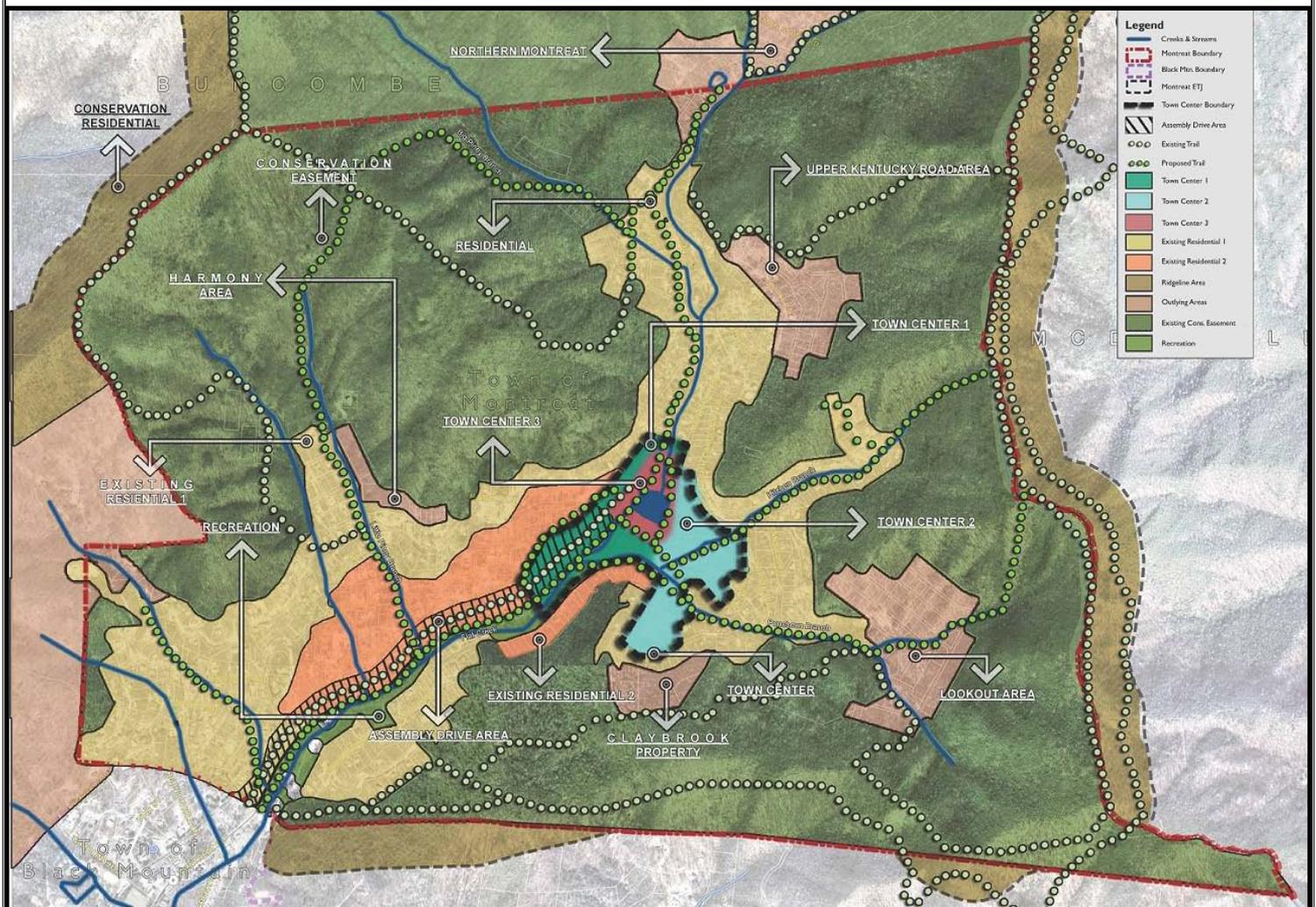
Much of the remaining areas have been subdivided, but what will be further developed and to what degree is unclear. Although there seems to be some uncertainty as to the actual number of vacant lots left to develop, it is certain that developing many of these lots would be very challenging, if not impractical, due to the steep terrain as evidenced on the Steep Slopes Map. Street access and extension of utilities to undeveloped areas may be difficult and expensive in some places. In addition, construction of roads to provide access to some lots could be potentially disruptive to the natural vegetation.



## Community Destinations and Attractions

Connecting people and places is an important component of this Plan. This section identifies destinations that individuals are likely to walk or bike to work, school, or for recreation. The map below identifies the Town Center boundary and the connections either in place or needed for better access to community destinations and attractions around Montreat.

- Major employers: Montreat Conference Center and Montreat College
- Residential Districts: Kentucky Road Area; Appalachian Way Area; Lookout Road Area; Greybeard Trail Area; Shenandoah Terrace area, North Carolina Terrace area; Mississippi, Virginia, and Louisiana Roads Area
- Key Destinations: Parks and Playgrounds, Presbyterian Heritage Center, Chapel of the Prodigal, Library, Post Office, Assembly Inn, Anderson Auditorium, Student Center and Parking areas, as well as limited Shopping at the Bookstore, General Store and Gift Shop
- Parks and Trailheads
- Schools: Montreat College facilities



## Natural Setting

Located in the southern Appalachian's Blue Ridge Mountains, Montreat's natural setting is striking. Key ingredients that define the natural setting of the town are its mountains and ridges, creeks and streams, and natural habitats.

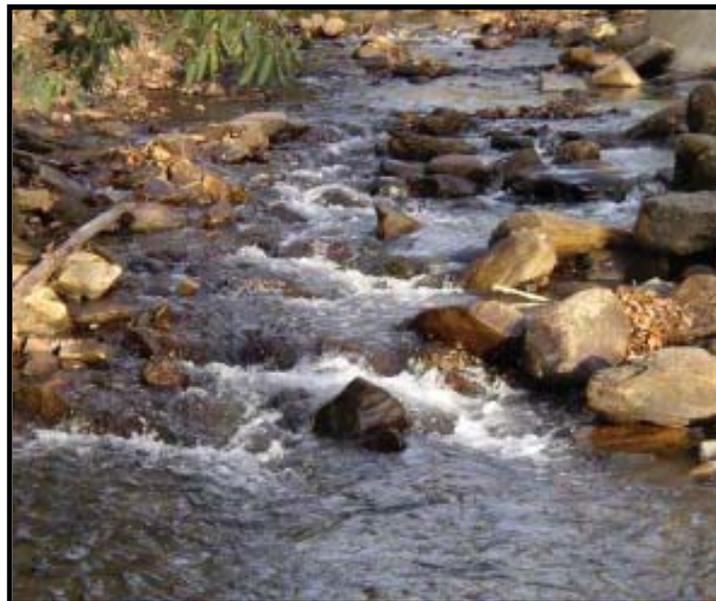
The town core is surrounded by beautiful mountains and scenic ridges. With names and histories of their own prior to the founding of Montreat, these remarkable hilltops were standardized by name by the federal government in the 1930s. Greybeard Mountain, Lookout Mountain, and Brushy Knob gracefully rise above Montreat. The naming of these mountains and how they are tied to local history makes them part of a collective experience that has transcended through various generations. Most of these mountaintops are accessible via a network of wilderness trails that were built by volunteers of the Mountain Retreat Association. They are currently maintained by volunteers of the MRA Wilderness Committee, the Cottager's Wilderness Committee, and Montreat Landcare Committee. Today, over 28 miles of trails are enjoyed by hikers and those who seek beauty and inner renewal. There has been a sense of stewardship and a desire to preserve the land by town residents, the MRA, and volunteers, as well the users of this wilderness area. This lasting stewardship has kept the area in its natural state for more than a century. Montreat has recognized the ridgelines as a valuable aspect of the town and has taken measures to ensure that the visual link to the surrounding environment is preserved. The town's Ridgeline Protection Overlay District enforces regulations to ensure the view. This overlay district, designed while the State of North Carolina enacted the North Carolina Mountain Ridge Protection Act, reinforces the visual connection. Further, the town established an Extra-Territorial Jurisdiction (ETJ) area. With the corresponding conservation easement established by the MRA, the ETJ extends "500 feet on all sides of the summit of certain ridges." This regulation will preserve ridges within the town's jurisdiction and beyond. The purpose of the district is to "protect sensitive woodlands on the ridge tops in and around the Flat Creek Basin which contains the Town of Montreat."



A web of creeks and streams permeates the landscape, performing the environmental function of drainage, while also creating an ambiance that reinforces the spiritual nature of the place. The largest stream, Flat Creek, runs north to south through the town's core along Assembly Drive. Flat Creek's ever-flowing waters are faithfully fed by Slaty Branch, Big Piney Branch, Kitchen Branch, and Puncheon Branch. The water of Flat Creek backs up behind a dam constructed in 1924 to form Lake Susan. Recent development in Montreat has increased run-off into these creeks and streams, and erosion is a concern. The town is currently mapping the floodplain and floodways of major creeks and green space and defining areas where development might be further regulated to help preserve land along the waterways.

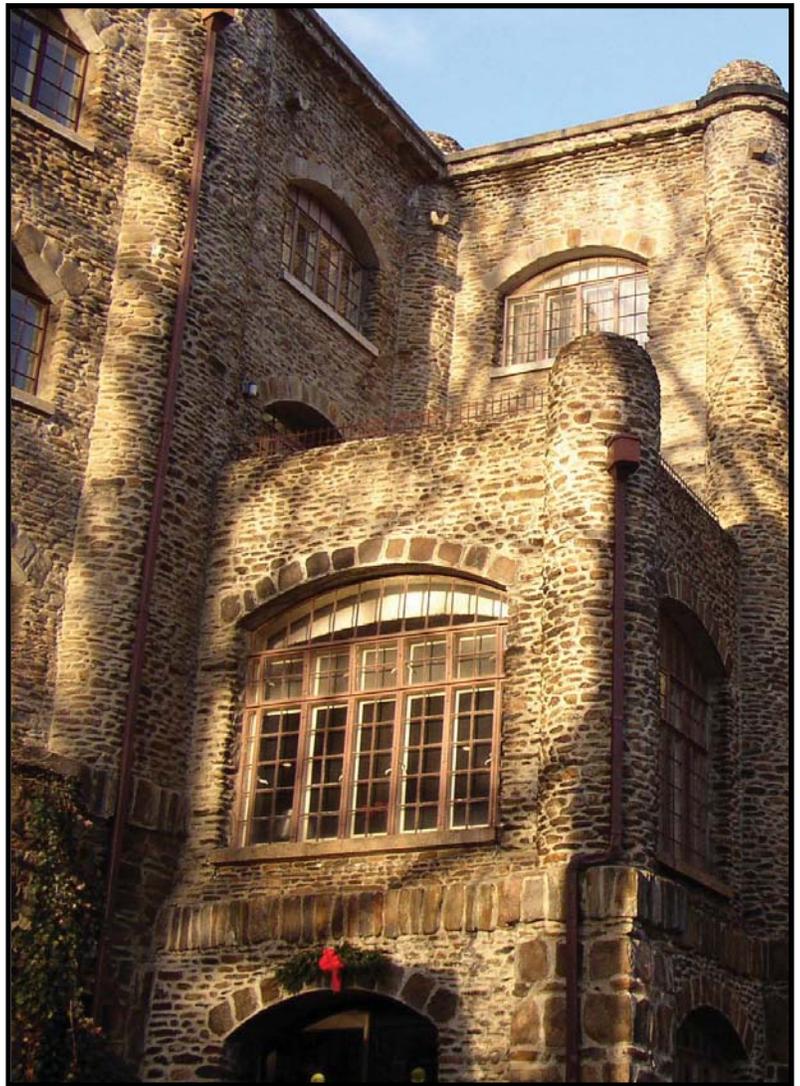
Lush green vegetation consisting of many native species of plants dot the wilderness area and the core of Montreat. Preservation of native plant species and natural wildlife habitats was one of the issues identified during stakeholder meetings. In fact, preservation of this remarkable area is so important that the National Wildlife Federation has designated Montreat's wilderness area North Carolina's first Community Wildlife Habitat. Surrounding the town is natural habitat for black bear and other wildlife, which poses safety issues for the users of wilderness trails, as it does for animals as well. Native plant species, such as Carolina and Eastern Hemlock, have also become endangered due to the continued spread of a non-native insect, the Hemlock Woolly Adelgid.

Furthermore, a large percentage of Montreat's land, both public and private, has been preserved by residents and groups through conservation easements. This benefits vantage points from within the town as the land protected by conservation easements limits the obstruction of viewsheds to the ridgelines. Montreat's extensive conservation easement has limited the future development to a large extent, and has potential to spur redevelopment activity. Given the small, fixed number of lots available for development and continued growth in Montreat, the redevelopment and expansion of existing units could create larger housing units than what currently exists in the town. This has the potential to alter, if not obstruct, the views of the mountains and their ridgelines. To help resolve this issue, Montreat has recently adopted an ordinance that limits the visible area of highly reflective surfaces.



## **Built Form**

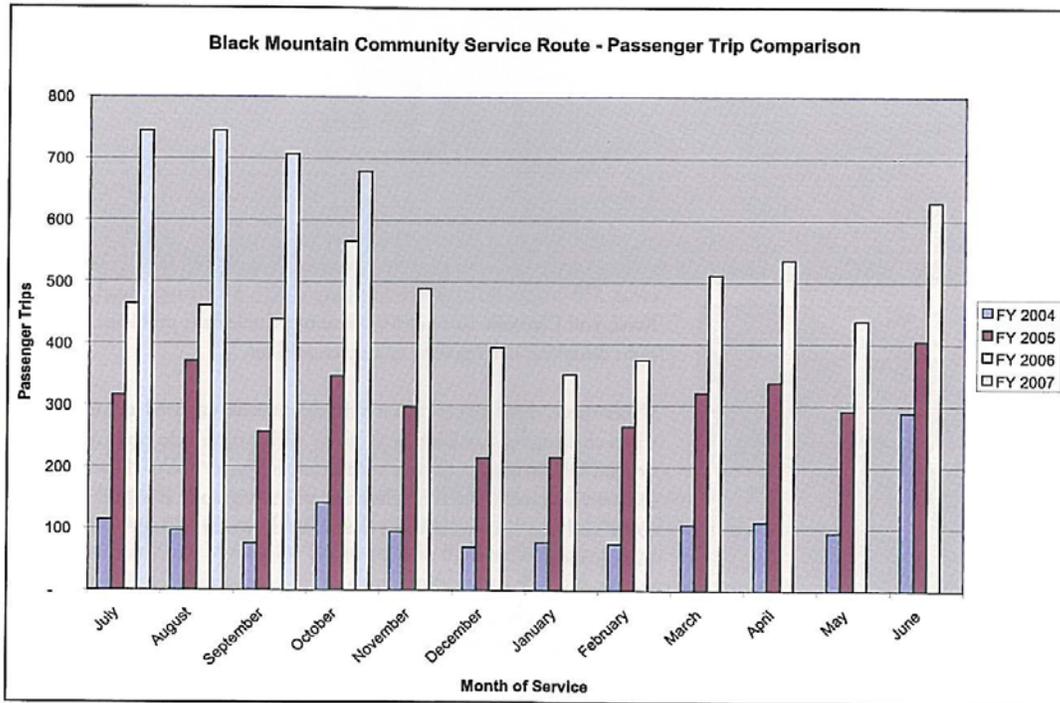
The built environment of Montreat is deeply rooted in its history. The stone archway gate at the entrance of the town gives the visitor a first glimpse of the historic built fabric. Prominent buildings such as Assembly Inn, buildings on the Montreat College campus, and cottages further reinforce this historic character. More than half of Montreat's housing stock is historic. In fact, much of Montreat's historic residential construction was completed during the community's first 20 years, as half of these homes were built between 1897 and 1917. The uniform style of architecture of key MRA buildings such as Assembly Inn and Anderson Auditorium, Montreat College, as well as the cottage-style residential architecture, reinforces a common architectural vocabulary that complements the beautiful native setting. The use of stone as construction material for prominent buildings such as Assembly Inn, Anderson Auditorium and Howerton Hall reinforces the style of built form unique to Montreat.



## **Transportation System**

The Town of Montreat is unique in its transportation infrastructure since it has only one way in and one way out of the community. Although a restrictive element from a transportation network perspective, the stone arches are an artful entry monument to the town. Topography and the limited connectivity to areas outside of town are a challenge. The core of Montreat is accessed by Assembly Drive. It connects the town to NC Highway 9 and the nearby town of Black Mountain. It also provides access to Interstate 40. Roads such as Louisiana Road, Virginia Road, Mississippi Road, Shenandoah Terrace, Texas Road and Lookout Road connect residential areas to the town center. They are accessed from the main spine that is Assembly Drive. The town maintains 15.23 miles of roadway within its limits. Most of the roads that provide access to higher elevations from the town center are winding roads with sharp turns. Only during peak summer weeks is traffic congestion an issue. Based on a North Carolina Department of Transportation traffic survey in 2004, the Average Annual Daily Traffic (AADT) count outside the town limits on NC Highway 9 is 3,700 vehicle trips per day. This number, although a good indicator of average traffic flow in and out of the town, does not reflect peak traffic volumes during summer months.

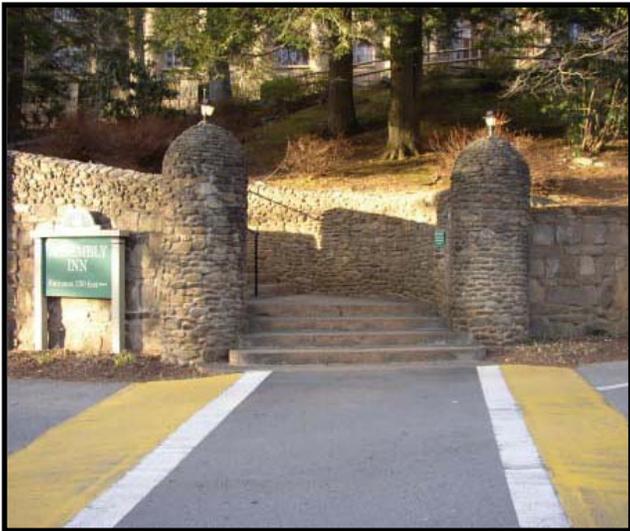
Transit service provided by Buncombe County, known as Mountain Mobility, connects Montreat to Black Mountain and Asheville. The maximum usage during the 2006 calendar year was in June when 629 passenger trips were made. This roughly corresponds with the peak periods for MRA activities and the fall opening of Montreat College. A detailed breakdown of passenger trips from 2004 to date and projections for July, August, September and October of 2007, is shown below. A quick look at the chart reveals that the number of passenger trips has increased in recent years and that the demand for such service is at its peak between June and October.



### Pedestrian Bicycle and Greenways System

The scale of the town, with its compact form and well-defined core lends itself to a very walkable environment. There are two kinds of walking pathways. First is the series of hiking trails that connect the town with the surrounding wilderness areas. Of these trails, Old Mitchell Toll Road Trail connects the entrance of Montreat to the Blue Ridge Parkway via Rainbow Mountain Trail. It is one of the longest trails in the town’s vicinity. Greybeard Trail connects the town to Greybeard Mountain. West Ridge Trail runs along the ridgeline northwest of the town and connects various unnamed peaks before ending at Big Slaty (False Greybeard). The second set of trails is the in-town trail network that provides connectivity within the town. One such trail is the Gate Trail. One may walk from town entrance to town core along Assembly Drive and Flat Creek on this trail, characterized by its very narrow dirt path. Montreat is a relatively safe place to walk and bicycle, although existing walking paths are inadequate and there is a lack of dedicated bicycle lanes. 75% of survey respondents said they feel safe and comfortable walking in town, largely due to the community’s low crime rate. Although there are many long-distance hiking trails in the wilderness areas, and some opportunities for biking, the internal trail system is weak. It would benefit from greater connectivity to key destinations within Montreat. There is an identified need for a multi-use trail within the town core that could be used by different demographic groups for different purposes – jogging, walking, and biking. Such a system of trails would be especially useful for students who want to connect to various

destinations and for visitors during summer months to walk from lodging to campsites. Lastly, there is a need to link pedestrian walkways to parking lots. The Montreat Landcare Committee (formerly the Parks and Recreation Committee) is looking into strengthening the internal trail system, as well as connecting trails to other communities, such as Black Mountain. During the stakeholder interview process, town residents suggested that they prefer pathways and walkways to sidewalks. Organic pathways and walkways are found to be more in keeping with the character of Montreat. Over half of survey respondents, 58%, opposed the idea of the town building sidewalks. Nearly half of residents, 49%, said the town should build multi-purpose trails.





## Town of Montreat Pedestrian, Bicycle and Greenways Master Plan

### CHAPTER 3: NEEDS ASSESSMENT

A comprehensive bicycle, pedestrian, and greenways system can provide the community with a number of benefits and can support a variety of needs. The system can create a positive impact that contributes to the community's overall quality of life by creating transportation, recreation, health, environmental, and economic benefits. Identifying and evaluating the existing use of facilities, as well as preferences and safety concerns will help with the development and management of the system. This chapter provides an overview of the benefits described above, identifies types of users and their preferences, evaluates existing data on use and safety, and summarizes needs and preferences expressed through the citizen engagement process and other planning efforts.

#### **Benefits**

##### Transportation

Well designed bicycle, pedestrian, and greenway facilities can play an important role in the overall transportation system. They provide opportunities to bicycle and walk short distances to work, school, or to run errands. A 2001 National Household Transportation Study found that almost half of all trips are less than three miles in length. With the right facilities in place, a destination one mile away would take on average 20 minutes by foot or 6 minutes by bicycle.

Pedestrian, bicycle and greenway facilities create alternative transportation choices that can minimize automobile dependency, reduce traffic congestion, and offer an affordable means of travel. For citizens who do not have an automobile or cannot drive, pedestrian, bicycle and greenway facilities are a necessity. Along with on-street facilities, multi-use paths along greenways create off-street corridors that connect users to various key destinations such as parks, work, schools, shopping and neighborhoods without the need for an automobile.

##### Healthy Living

There is a correlation between the greater amount of time a person spends exercising and their improved health. Physical activity increases strength, flexibility, and endurance; relieves stress; improves mood; and enhances psychological well-being. Prevention and control of chronic conditions that lead to cardiovascular disease, cancer, and diabetes can begin with physical activity. The U.S. Surgeon General recommends a daily amount of physical exercise of at least 30 minutes for adults and 60 minutes for children.

A community that plans and develops a bicycle, pedestrian, and greenway system provides residents with a safe environment that supports an active lifestyle. Studies have shown that

people who exercise regularly have 14% lower claims against their medical insurance, 41% fewer claims greater than \$5,000 and spend 30% fewer days in the hospital. This can, in turn, reduce health care costs for an individual and their employer.

### Environmental

Significant environmental benefits can result from a bicycle, pedestrian, and greenways system. The use of bicycle, pedestrian, and greenway facilities instead of an automobile can help improve air quality, minimize noise pollution, and reduce energy consumption. Greenways and trails along streams and rivers help with floodplain management; protect open space and riparian areas; maintain corridors for wildlife and plant habitat; and improve water quality.

Bicycling and walking reduce congestion on streets which, in effect, helps reduce air pollution associated with vehicle exhaust emissions and fossil fuel consumption. Greenways protect the natural, cultural and historical significance of open spaces that would otherwise be lost to development. They also serve to prevent development from encroaching in flood prone areas that need to remain in their natural state to function properly and provide appropriate flood water storage capacity. This prevents flooding that can be costly to the property owner and can sometimes save lives.

As the Town expands residentially, additional impervious surfaces, such as building footprints, streets, and parking lots, create increased storm water runoff that carry pollutants (i.e. sediment, oil, gas, pesticides, fertilizers) into streams and can degrade water quality. Development also has an adverse impact on streams through possible stream channelization, tree canopy removal, and stream bank erosion from increased flows. Wildlife and plant habitats that receive food, shelter, and overall protection from open space are also affected. Greenways serve to mitigate these negative impacts by filtering pollutants in the water and air, retaining water to help prevent erosion, and sustaining their ecological importance for wildlife and plants. They also allow for the reclamation and restoration of degraded stream channels, provide vegetated buffers between different land uses, and create opportunities for environmental education.

### Economic

The most successful communities – those most attractive to permanent and seasonal residents, visitors, conferees and college students – offer easy access to outdoor recreation activities through bicycle, pedestrian, and greenway facilities. The National Parks Service reports that greenways and trails can increase a community's local economic activity by enhancing property values, increasing the municipality's tax base, and attracting and retaining businesses to the area.

Many communities have begun to see development of greenways and pedestrian facilities as a way to save money. Walking and bicycling versus using an automobile to commute and run errands results in significant personal cost savings. A decrease in traffic volume also lowers the costs that local municipalities must put towards maintenance and the repair of streets.

### Other Benefits

Getting outdoors and using available facilities also creates opportunities to recreate, strengthen ones social network of friends, and interact with neighbors. It creates a sense of place and a healthy, stable community atmosphere that contributes to an overall quality of life. Greenways

also provide the ability to connect with nature, escape from the built environment, and create buffers between land uses.

## Types of Users

Understanding the needs and preferences of bicyclists and pedestrians can affect how to plan for a system that will result in increased use. Below, different types of bicyclists and pedestrians are described.

### Bicyclists

A bicyclist has the same rights on a street as a motorist and must abide by the same rules. The table below outlines three different types of bicycle users as identified by the American Association of State Highway Transportation Officials (AASTHO). Most bicyclists or potential bicyclists will fall within Group B, adults who are basic or beginner riders and may not prefer or have the confidence to use the street as a motorist. Special accommodations should be considered such as bike lanes or routes where there are lower amounts of traffic or no automobiles at all. In order to encourage ridership, facilities that meet the needs of each user group will require consideration in the system and this Plan.

### **Bicyclist User Groups**

<b>User Group</b>	<b>Preferences</b>	<b>Skill Level</b>
<b>Group A Adult – Advanced</b>	Fast, convenient, and direct route. Facility type: Entire road lane or bicycle lane.	Can ride on street with motor vehicles comfortably and under most traffic conditions.
<b>Group B Adult – Basic/Beginner</b>	Avoid roads with fast or busy motor vehicle traffic. Facility type: Bicycle routes, bicycle lanes, or multi-use paths away from traffic.	Less confident of their ability to ride in traffic; unfamiliar with rules of the road; and may walk across intersections.
<b>Group C Children</b>	Usually avoid using on-street facilities to avoid motorists. Facility type: Sidewalks and multi-use paths.	Limited bicycle handling skills.

### Pedestrians

All trips begin and end on foot as a pedestrian. Pedestrians include those that walk, jog, and run and range in age from toddlers to the elderly. There is a need to provide accommodations for all types of users including children, those using wheelchairs, and the visually impaired. Preferences include safe routes that are free from obstacles and gaps and buffered from motor vehicles.

## Types of Trips

Whether walking or bicycling, two main types of trips exist: utilitarian and recreation. A utilitarian trip is usually a commute to work and school or to run errands. Users typically want the shortest, most direct on street route. Users who are bicycling or walking for recreation are

doing so for their leisure or health. They mostly prefer off street multi-use paths that are scenic, winding, provide shade, and perhaps create a loop.

## **Bicycle and Pedestrian Safety**

Safe bicycle and pedestrian facilities are of paramount importance to retaining users and encouraging increased activity. The survey responses collected for the Comprehensive Plan reinforced this statement with safety being of utmost concern.

A number of factors can affect safety, including the physical condition and level of maintenance of facilities; comfort and experience levels of users; knowledge of and adherence to traffic laws; and weather conditions. In order to improve safety and use of facilities in Montreat, these factors should be considered in maintenance, education, and enforcement. Bicycle and Pedestrian crash data were analyzed to assess the current level of safety. This analysis, however, is limited to crashes that were reported to the Montreat Police Department.

Fortunately for Montreat, there is no record of a vehicle and pedestrian/bicycle accident. The Police Department reviewed records dating back to the 1970's and while several "near misses" were recorded on log sheets, no record of an actual accident was found. During a recent ten year traffic study, the following accidents were recorded along the Assembly Drive corridor:

### **Assembly Drive Corridor Vehicular Accidents**

<b>Year</b>	<b>Number of Accidents</b>
2000	1
2001	2
2002	1
2003	1
2004	1
2005	1
2006	2
2007	2
2008 *	2
2009	0
2010	0

\* One accident in 2008 resulted from a child running out into the road. The first car avoided the child by stopping suddenly. The second car was unable to stop and hit the first car.

## **Major Themes**

A number of themes emerged throughout the public input process and were considered and analyzed in the development of the goals, strategies, and actions items presented in this Plan. They are representative of the desires of the residents of Montreat. Some of these themes are listed below.

## Land Use and Streets

Walking and bicycling facilities should protect open space and natural features. The Assembly Drive corridor is limited in that the road is designed exclusively for automobiles and carries a high volume of traffic. There is also a need to provide parking lots that are pedestrian friendly; greenway trails that follow streams; and trees that provide shade and create buffers between the sidewalk/trail and the street.

## More Facilities

Additional pedestrian, bicycle and greenway facilities such as a dedicated bike lane, sidewalks in the core of Montreat, and multi-use paths should be added to the system. Increasing right-of-way widths, road diets (a technique used to reduce the number of lanes on a roadway to encourage multi-modal travel), signage, and grade separations should all be considered. Facilities should accommodate all types of users such as walkers, joggers, commuters, recreational cyclists, etc.

## Connectivity

Some facilities are currently disjointed or do not connect to anything. There is a need and desire to connect key destinations, especially neighborhoods, conference center and college facilities, parks, and trailheads.

## Safety

Intersections were a major concern along a number of street and right-of-way corridors. Multi-use paths are needed to allow students and conference center attendees to reach destinations without the need to cross intersections. If crossings are required, additional work and design is needed to delineate a pedestrian safety zone. Additional safety related issues are referenced in the education and management sections below.

## Education

There is a need to educate users on where and how to bicycle and walk, legally and safely. Some bicyclists go the wrong way in bike lanes and ignore stop signs which can be dangerous for motorists and bicyclists. Motorists need to be educated on sharing the road to prevent aggressive behavior and parking in bike lanes. Potential users also need to be informed of the benefits (creating alternate modes of transportation, encouraging healthy living, and protecting the environment) of the system. Greater awareness and advocacy of greenways and greenway trails should also be established.

## Management

Existing facilities need routine maintenance to prevent hazards. Bike lanes need to be swept to clear debris such as broken glass, trash, and gravel. Other hazards include gutters filled with debris, pot holes, and fading bike lane striping. Some sidewalks are also deteriorating and are in need of repair. Concerns in regards to trails included the lack of vegetation, and the existing negative impacts of urbanization to wildlife and aquatic species.



## Town of Montreat Pedestrian, Bicycle and Greenways Master Plan

### CHAPTER 4: VISION, GOALS AND STRATEGIES

#### Montreat's Vision

“To seek ways to maintain and improve the quality of life, preserve the natural beauty and promote responsible growth while maintaining our community image, heritage and traditions.”

The following Goals and Strategies were established as a guideline for the development of the Montreat Pedestrian, Bicycle and Greenways Master Plan. The purpose of these goals is to ensure that the development of the Plan complies with the needs and input of the residents in Montreat. These goals exemplify the foremost pedestrian principles for local stakeholders, elected officials and residents, based on input provided by the Town of Montreat focus group committee members and town staff.

Project prioritization criteria are tied to these goals in order to ensure that the most economic and efficient pedestrian, bicycle and greenway improvement projects and programs are ranked according to the needs of the community. Any improvements completed within the town that address these goals will help Montreat become a better community for pedestrians, bicyclists and residents.

#### **Goals**

The Plan consists of four primary goals, provided below, that will shape the bicycle, pedestrian and greenway (trail) system. These goals are not organized by priority since they are of equal importance.

##### **Goal #1: Improve Connectivity and Accessibility**

Develop a comprehensive system of bicycle, pedestrian, and greenway (trail) facilities that increases and improves connectivity for accessibility and mobility while accommodating all types of users. Provide a continuous network for transportation and/or recreation that allows users to reach key destinations such as residential areas, Montreat Conference Center facilities, Montreat College facilities, parks, book store, general store, gift shop, and parking.

##### **Goal #2: Increase Safety**

Provide a bicycle, pedestrian, and greenway/trail system and surrounding environment that is safe and secure for bicyclists and pedestrians to enjoy.

### **Goal #3: Increase Bicycling and Walking Outdoors**

Encourage a bicycling and walking culture that motivates more people to utilize the system for its health, transportation, recreation, environmental, economic, and social benefits while reducing dependence on the automobile.

### **Goal #4: Encourage Environmental Stewardship**

Create a network of open space and stream corridors including floodplain and riparian areas that is protected and restored to enhance the integrity of the natural environment and provide access for multi-use paths. Reduce man-made impacts of stream corridors to improve water quality and support wildlife and plant habitat through floodplain and storm water management.

## **Strategies**

Strategies are used to accomplish the goals described above. They include how the system will be developed, managed, and implemented.

**Strategy #1:** Increase and enhance the safety of pedestrians and bicyclists in the town of Montreat.

Actions:

- Change the perception that roads are for cars only, particularly in low volume, low speed areas
- Implement measures to enhance pedestrian visibility during the day and night
- Ensure that pedestrian facilities are accessible to all persons, regardless of their ability.
- Create facilities that provide separation from the travel lanes
- Promote the enforcement of current pedestrian laws
- Provide well marked crosswalks
- Promote appropriate vehicular speed through the design of pedestrian facilities

**Strategy #2:** Enhance public awareness and education of pedestrians in the town of Montreat.

Actions:

- Promote the town of Montreat to be a walkable community
- Promote walking through various events held within the town
- Create a pedestrian friendly environment that encourages people to think about “walking first”

**Strategy #3:** Adopt policies that promote connectivity, coordination and continuity of pedestrian facilities throughout the town of Montreat.

Actions:

- Identify a network of sidewalks and shared use paths that serve all user groups, including commuting, recreation and utilitarian trips
- Review sidewalks, roadways, bicycle lanes and trails as an integral transportation network interconnecting these multi-modal uses to allow for connectivity and function.

- Utilize innovative designs, where appropriate, to promote pedestrian activity and safety
- Continue to pursue the expansion of the pedestrian trail system
- Promote the provision of handicapped accessible pedestrian facilities throughout the town
- Coordinate with adjoining communities to ensure that consistent pedestrian facilities are constructed

**Strategy #4:** Enhance personal and environmental health in the town of Montreat

Actions:

- Promote walking to children in the town
- Encourage residents of the town to increase physical activity and reduce automobile use
- Coordinate with the Conference Center and College to promote walking

**Strategy #5:** Develop a maintenance and implementation plan that allows for a safe and well maintained system.

Actions:

- Ensure that pedestrian facilities are routinely maintained for the safe operation of pedestrians
- Locate safety signage where appropriate
- Develop a signage program that includes directional signage to services and parking facilities
- Develop an evaluation matrix that evaluates existing facilities to ensure that facilities adequate for pedestrian use are being provided by Montreat and to identify appropriate routes for pedestrian travel.
- Develop a combination of soft and paved pedestrian facilities where possible and appropriate
- Update the pedestrian, bicycle and trail system inventories on an annual basis

**Strategy #6:** Improve connectivity of the pedestrian system within the town and to the regional pedestrian system.

Objectives:

- Complete missing pedestrian connections and links
- Address pedestrian and bicycle path connections by Black Mountain to assure that they connect to the pedestrian and bicycle system in Montreat
- Support connection to the regional trail system
- Partner with other local governments in the coordination of master planning and facility development where significant mutual benefit exists.



## **Town of Montreat Pedestrian, Bicycle and Greenways Master Plan**

### **CHAPTER 5: SYSTEM DEVELOPMENT**

This chapter includes recommendations for the development of bicycle and pedestrian facilities and the protection of the greenways. The future growth of Montreat's transportation system, as determined by the Comprehensive Plan, will require the multi-modal design of new streets and expansion of the existing bicycle, pedestrian, and greenway system. Planning for a multi-modal system can help alleviate congestion and reduce dependence on the automobile. Providing a well connected, safe, and accessible system to reach key destinations can encourage bicycling and walking in the community. This chapter is organized by facility type, followed by a section on policy recommendations.

The horizon of this Plan is the next ten years. The study area evaluated includes the Town limits of Montreat, the extraterritorial zoning jurisdiction and consideration of connections to a regional planning area. The projects proposed for implementation in the next ten years, however, are made up of a smaller study area, as described in Chapter 7: Implementation. Identifying facilities in the larger study area will help facilitate the long term success of the system.

Recommendations came from the citizen involvement and focus group process. Other factors that played a role in the proposed physical location of facilities included a lack of connectivity, traffic volumes, right-of-way availability, and the location of key destinations.

#### **Planning Scope**

The proposed system development recommendations (physical location of facilities) identified in this Plan includes bicycle lanes, sidewalks, multi-use paths/trails and improved crosswalks. The conditions of these facilities, such as the need to restripe a street or replace a sidewalk, were not considered as a part of this Plan. They will be evaluated during the implementation of this Plan. Other components that will require more in-depth evaluation and analysis include the following:

- Intersections (i.e. bicycle and pedestrian signalization, termination of bicycle lanes, ADA accessibility, crosswalks, curb ramps)
- Bicycle Parking (i.e. locations and need)
- Signage (i.e. locations and need)
- Greenways (i.e. trail heads, stream crossings), and
- Sidewalks (i.e. need on more than one side of a street)

The recommendations proposed in this Plan are only at a conceptual level and will require additional planning analysis and evaluation before they reach design and construction. This process is described in more detail in Chapter 7.

## **Design**

The design of facilities will conform to local, state and national standards and guidelines. National standards have been established by the Americans with Disabilities Act (ADA), the American Association of State Highway and Transportation Officials (AASHTO), and the Manual on Uniform Traffic Control Devices (MUTCD). AASHTO has documents that provide guidance for both bicycle and pedestrian facilities. These documents provide significant flexibility in accomplishing the goals identified in this Plan and meeting the objective of using context sensitive solutions in design. Local standards include the Street Standards Ordinance.

Design for new facilities should incorporate public involvement early on and continuously throughout the planning and development process, which ensures that projects respond to the community's needs, values, and vision for the future. It will also offer flexibility in designing facilities that are safe and effective for users while considering community and environmental goals.

## **Bicycle Facility Recommendations**

Facilities for bicyclists can include bicycle lanes and bicycle routes. As mentioned previously, a bicyclist has the same rights as a motorist to use a street as determined by state law. However, many bicyclists who are uncomfortable using the street and require special accommodations such as dedicated bicycle lanes.

### **Bicycle Lanes**

A bike lane is a designated bicycle facility on part of the street this is striped, signed, and has pavement markings for the exclusive or preferential use of bicyclists. Bicyclists need a place to travel that is safe and convenient. Although bicyclists have the right to use an entire travel lane, designating a bicycle lane creates awareness for the motorist and reduces stress levels for the bicyclist. A study conducted in 2006 by the Center for Transportation Research, University of Texas for the Texas Department of Transportation determined that on-street bicycle facilities (bike lanes) prevent over-correction by drivers, creating a safer environment for bicyclists and motorists. In 1996, League of American Bicyclist members were surveyed about the crashes in which they were involved over the course of the previous year. From the information provided, a relative danger index was calculated which showed that streets with bike lanes were the safest places to ride, having a significantly lower crash rate than either major or minor streets without any bicycle facilities.

### **Current Bicycle Lanes**

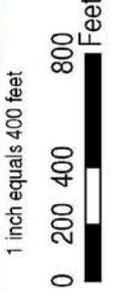
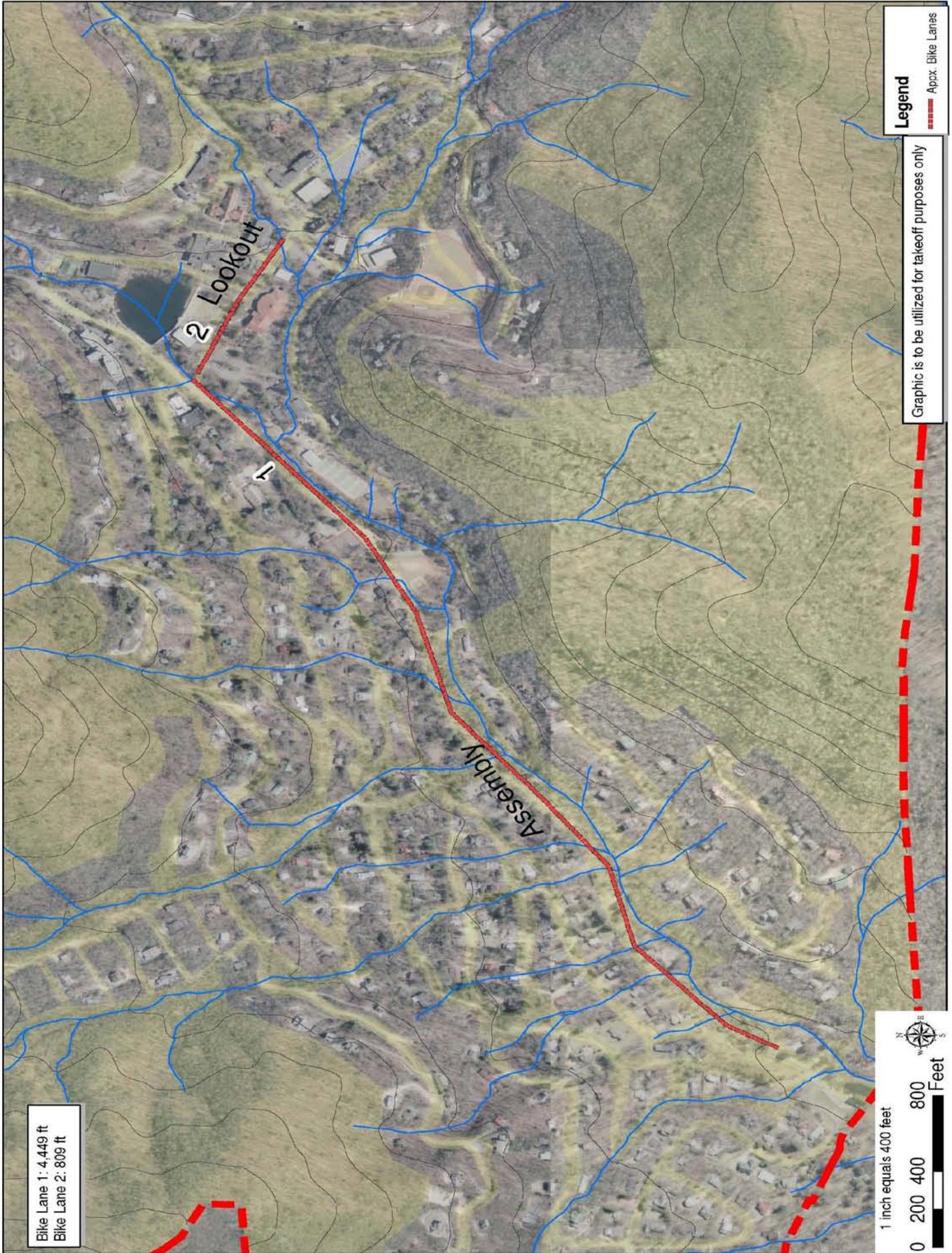
None

### **Proposed Bicycle Lanes**

Assembly Drive - From the Gate to Lookout Road

Lookout Road - From Assembly Drive to Appalachian Way

Bike Lane 1: 4,449 ft  
Bike Lane 2: 809 ft



Graphic is to be utilized for takeoff purposes only

**Legend**  
----- Appx. Bike Lanes

## **Bicycle Routes**

A bicycle route is a street that is shared by both bicycles and motor vehicles. It is marked with appropriate signage and may have shared lane markings also called sharrows. A bicycle route can include a street with wide outside lanes or a paved shoulder. It should provide connections to bicycle lanes and multi-use paths. Preferences for designating bicycle routes include low speed limits and low traffic volumes. These ideal conditions, however, are not always possible where a route is needed to provide a bicyclist with a connected system and may require the addition of some high speed limits and high traffic volume streets.

### **Current Bicycle Routes**

Montreat Road - While not in the town limits, Montreat Road connects the Town of Montreat to the Town of Black Mountain. The North Carolina Department of Transportation designated Montreat Road as a Bicycle Route. The Town of Black Mountain had designated Flat Creek Road as a bicycle route.

### **Proposed Bicycle Routes**

None

## **Pedestrian Facility Recommendations**

Pedestrian facilities include sidewalks and greenways or trails. A number of corridors will require additional evaluation and analysis before determining if a proposed facility can be accomplished. Constraints may include limited right-of-way, mature trees, existing utilities, conservation easement restrictions, and other factors, that would be too costly to relocate.

### **Sidewalks**

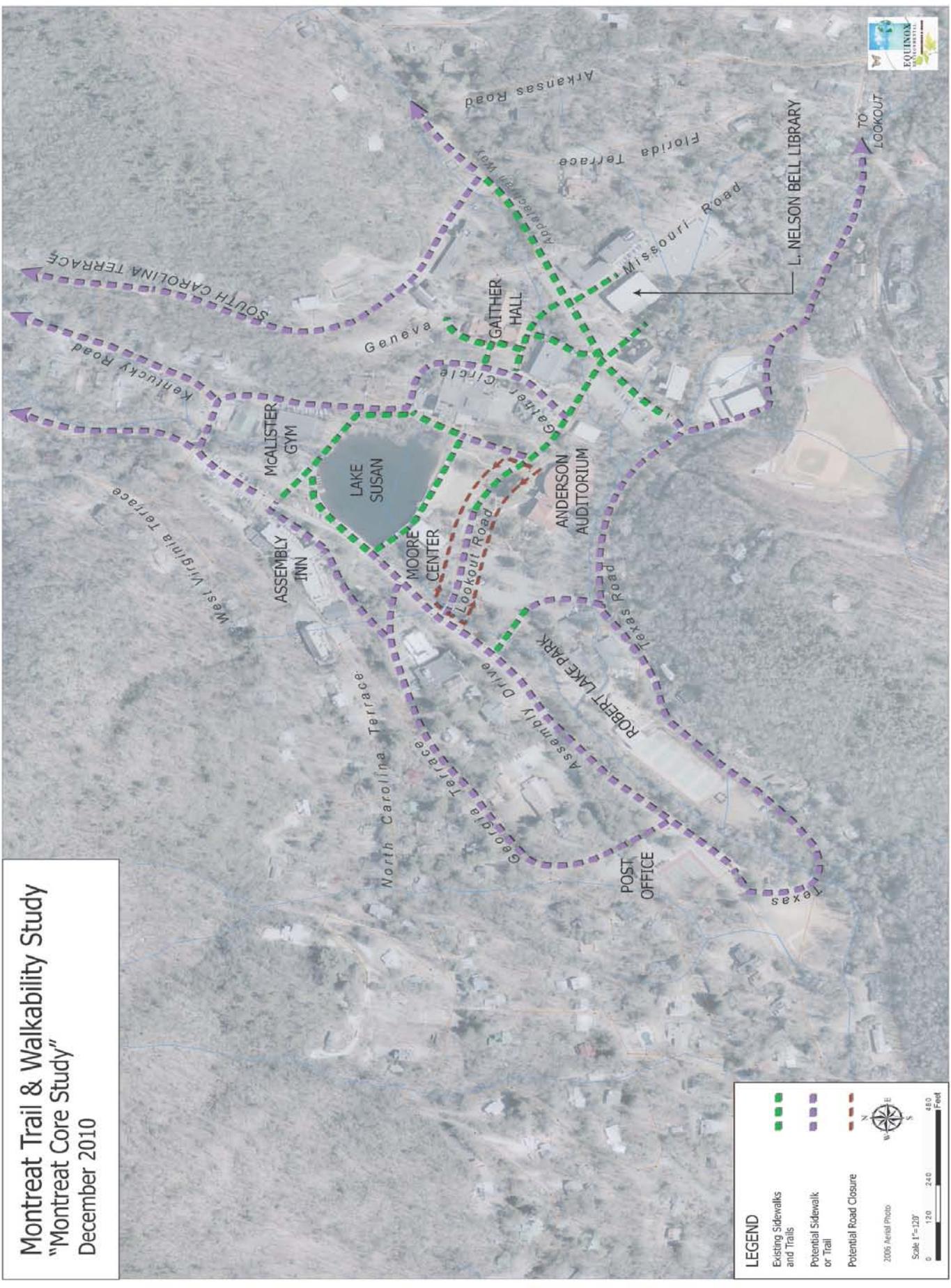
A sidewalk is a paved walkway for pedestrians, typically located alongside a street. It is preferred that a landscaped buffer be placed between the sidewalk and street rather than only a curb, although both options currently exist. The buffer creates a separation between pedestrians and motor vehicles that creates a safe place to walk. The landscaping, however, should not obstruct views for safety and security reasons. Some streets or sections of streets only have a sidewalk on one side, which is often acceptable in Montreat. The necessity of locating sidewalks on either one or both sides of the street should be evaluated during the implementation process.

### **Current Sidewalks**

The map on the next page indicates areas in Montreat that currently have sidewalks. These areas are located in the core of Montreat and include places such as around Lake Susan, Lookout Road, and Appalachian Way.

### **Proposed Sidewalks**

The map on the next page also indicates areas in Montreat that citizens and focus group committee members felt needed sidewalk connections. Again, these areas are located in the core of Montreat and connect key destinations.



**Montreat Trail & Walkability Study**  
**"Montreat Core Study"**  
 December 2010

**LEGEND**

-  Existing Sidewalks and Trails
-  Potential Sidewalk or Trail
-  Potential Road Closure

2006 Aerial Photo  
 Scale 1"=120'  
 0 120 240 480 Feet



## **Greenway and Trail Recommendations**

Greenways include open space or stream corridors and multi-use paths. Greenways have numerous benefits and accomplish multiple goals. A greenway may or may not have a multi-use trail or path.

### **Current Greenways**

None

### **Current Trails or Paths**

There are many formal and informal trails and paths throughout Montreat. A sampling of these trails is found on the map on the next page. There are also many trails located on Montreat Conference Center property located outside the town limits. This Plan did not attempt to duplicate through mapping the Montreat Trail Map produced by the Conference Center and available at the Montreat General Store.

### **Proposed Greenway**

Assembly Drive

### **Proposed Trails or Paths**

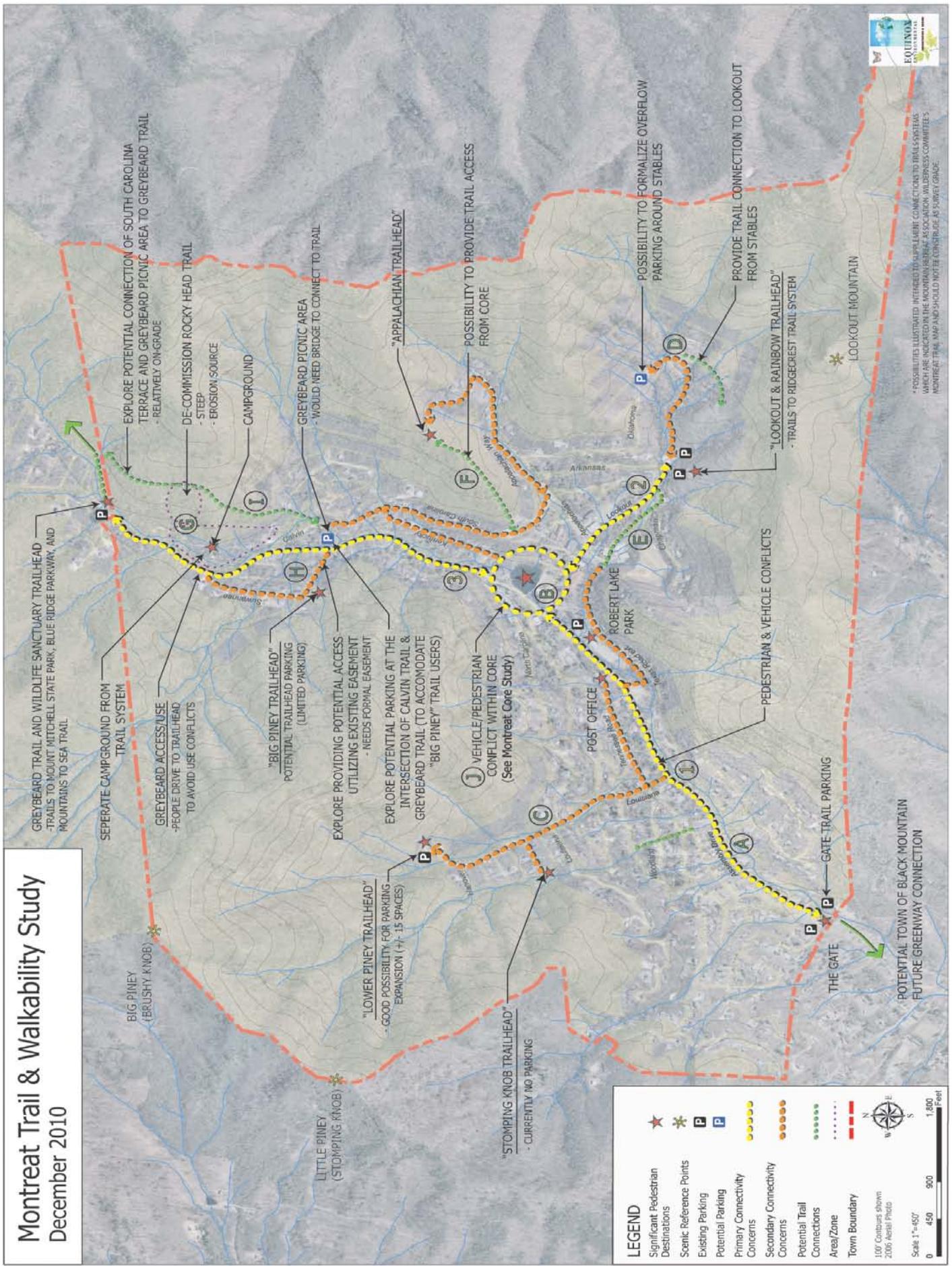
Several corridors are outlined on the map on the next page detailing proposed trail or path connections. These connections were recommended in order to provide safer more convenient access to the trailheads. Some of these include Greybeard Trail, Lookout Road and Trail, Appalachian Way and Harmony Lane.

## **POLICY RECOMMENDATIONS**

- All facilities should be designed in compliance with local, state and national standards and guidelines.
- Public input during the planning and design process should be employed as a part of the implementation of the proposed system.
- Any large new development in Montreat should be required to complete a pedestrian circulation plan.
- On-street and off-street bicycle and pedestrian facilities should connect to one another.
- Safety and design guidelines should be utilized for greenways and trails, which recommend strategies for the built environment.
- Best management practices should be utilized in the protection of floodplains, riparian areas, and other open space vegetation (e.g., trees, shrubs, and herbaceous vegetation) as well as the enhancement or restoration of impacted areas.
- The proposed system should reflect and be reflected in related planning documents and encourage the connection of facilities into the regional system.

# Montreat Trail & Walkability Study

December 2010



\* POSSIBILITIES ILLUSTRATED INCREASED TO SUPPLEMENT CONNECTIONS TO TRAIL SYSTEMS WHICH ARE INDICATED ON THE MOUNTAIN SETBACK AS LOCATION, WILDERNESS COMMITTEES MONTREAT TRAIL, AND SHOULD NOTE CONSTRUCTION AS SURVEY GRADE.

**LEGEND**

- ★ Significant Pedestrian Destinations
- \* Scenic Reference Points
- P Existing Parking
- P Potential Parking
- Primary Connectivity
- Secondary Connectivity
- Potential Trail Connections
- Area/Zone
- Town Boundary

100' Contours shown 2006 Aerial Photo  
Scale 1"=400'  
0 450 900 1,800 Feet



## Town of Montreat Pedestrian, Bicycle and Greenways Master Plan

### CHAPTER 6: SYSTEM MANAGEMENT

A comprehensive bicycle, pedestrian, and greenway system should go beyond adding physical improvements as recommended in Chapter 5. Adding bike lanes to a street, or trails to a greenway are inarguably key components, but a successful system is not complete without considering how those improvements will be managed and utilized. To be a successful system, management should increase awareness and use, improve safety, and foster personal ownership of the system.

System Management should encompass a number of management elements including operations, land stewardship, programs, maintenance, and safety. Each of these elements is discussed, followed by policy recommendations.

#### Operations

Operations - Determine and establish roles and responsibilities of Town departments and staff to successfully manage the system.

Collaboration and coordination from every department within the Town is needed to ensure ownership and commitment to the system's vision, goals, and strategies. The Town should also work with external local and state agencies and organizations to enhance the system and reduce any possible duplication of efforts.

The Administration Department will continue to take the lead on the planning and any land acquisition elements and will assume responsibility for safety and programs. This department will also serve as a single point of contact or liaison between departments and other agencies and organizations. The Public Works Department will continue project management for the design and construction of capital improvement projects and to lead efforts to maintain the system.

Element	Lead Department		Supporting Department	Supporting Department
	Greenways	Bike/Ped.		
<b>Planning</b>	Administration	Administration	Public Works	Planning/Zoning
<b>Design and Construction</b>	Public Works	Public Works	Administration	Finance
<b>Land Stewardship</b>	Administration	Not Applicable	Planning/Zoning	
<b>Safety</b>	Administration	Administration	Police	Public Works
<b>Programs</b>	Administration	Administration	Planning/Zoning	Public Works
<b>Maintenance</b>	Public Works	Public Works	Public Works	

The Montreat Landcare Committee should provide general guidance and recommendations to Town staff and elected officials on issues related to the development and management of the system. The committee would assist in the implementation and updates to this Plan, make recommendations on policies, increase public awareness and be a liaison to the community.

## **Land Stewardship**

Land Stewardship - Support land acquisition through the Montreat Open Space Conservation Plan for greenway protection and trail construction. Evaluate corridors to determine level of resource protection and potential for trail development.

The purpose of the Open Space Conservation Plan is to enhance the Town's ability to protect lands with high natural resource value. More specifically, the Plan aims to:

- Provide the strategies, plans, and guidance that will realize the Town's long-term vision for conserving important open spaces and natural resources;
- Establish a ranking system to set priorities for use when evaluating properties in the Town for conservation;
- Inform the public on open space and land conservation issues, policy, process and plans;
- Enhance public awareness about the benefits derived from – and threats posed to- Montreat's diverse natural resources; and
- Establish and guide the use of the Town's Conservation Fund.

This growing system will require a management plan that identifies methods for effective stewardship of property for the enjoyment of users now and in the future. The plan may include identifying existing resources and conditions of the corridor, determining methods for protecting its natural resources, defining maintenance and establishing safety procedures.

Depending on the desired goals, different types of property ownership and methods to achieve them are available. These types of ownership include private ownership, private ownership with public access and public ownership.

- **Private Ownership** - Under private ownership, greenways and trails can be protected through regulation or conservation easements. Regulation is the government's ability to control the use and development of land as the Town grows. It allows for the encouragement or prohibition of certain types of uses that can have an impact on the protection of open space. Land use, zoning, and subdivision regulations are three common methods. A conservation easement is a legal agreement that establishes permanent limits on use and development or imposes certain restrictions such as protection of open space. Easements are typically individually crafted to meet the needs of the landowner. Public access should be encouraged as a part of the agreement.
- **Private Ownership/Public Access** - Under private ownership with public access, greenways and trails can be protected through private ownership while also allowing for the development of greenway trails. This is mainly accomplished through the use of easements.

- Public Ownership - Under public ownership, the Town would have the right to control use as well as provide public access and protect greenways. It may also be desirable to place greenways in conservation easements to set additional restrictions that protect greenways for future generations. Methods for obtaining public ownership may include fee simple purchase, dedication/donation, and condemnation.

## Programs

Programs - Develop and implement community outreach programs that enhance public awareness, use of facilities, and safety through education, encouragement, and enforcement of the system.

A diversity of programs should be offered to help educate and encourage the use and support of the bicycle, pedestrian, and greenway system as well as enforce laws to make the system safer. They should also promote the benefits of the system and teach users of all ages how to use and share a multi-modal system. Different methods can be used to convey these messages such as campaigns, training, and events with the use of electronic and print media such as television, radio, internet, public service announcements, brochures, booklets and maps.

Programs considered below represent only some examples of what can be done to begin efforts in the community. The level of expenditures and resources available will need to be evaluated in relation to effectiveness of the programs offered to determine what a comprehensive and successful program should entail.

- Education Programs - An effective education and public awareness program should teach walking and bicycling skills, as well as safety, to adults and children. It should provide a basic understanding of existing federal, state, and local laws and an understanding of environmental stewardship. These efforts combined with physical improvements, encouragement and enforcement can create a lasting effect and improve the community's quality of life. Motorists, bicyclists and pedestrians should all be targeted differently based on user type and age.
- Encouragement Programs - Building a safe and healthy bicycle and pedestrian environment also requires motivating a community to bicycle and walk as well as become stewards of greenway property. Events, incentives, and campaigns should be initiated to encourage bicycling, walking and the protection of natural resources in the community.
- Enforcement Programs - Enforcement is critical to ensuring a safe driving, bicycling, and walking environment and reducing conflicts and crashes. The rights of bicyclists, pedestrians, and motorists should be recognized through public awareness and law enforcement. Evaluating traffic concerns such as speeding, disobeying signs, and signals as well as failure to yield right-of-way requires determining how to change behaviors of bicyclists, pedestrians, and motorists. Promoting and enforcing safe travel through enforcement is vital.

## **Maintenance**

Maintenance - Ensure the Town's facilities and property are well maintained, functioning properly, and safe for all users.

The manner in which the system is maintained plays a significant role in the level of use, safety, and longevity of the system. A well maintained system should minimize road hazards; maximize public funds invested; promote safety and security; and create support and stewardship of the system.

Different types of maintenance by facility type are performed on a regular or as needed basis. This includes preventive and corrective maintenance of streets as well as rehabilitation of streets, sidewalks, and trails. Currently, the focus of maintenance efforts within greenways has been on drainage issues and flood control. Greenways should be maintained and restored to maximize their ecological functions and health for water quality, wildlife and plant habitat and visual appearance.

Historically, volunteers in the community play a major role in maintaining trails and paths as well as monitoring and reporting maintenance problems. This role should be encouraged and expanded.

## **Safety**

Safety - Increase safety as well as identify policies and procedures that will reduce risk and liability.

Ensuring safety along facilities consists of maintenance, law enforcement, and education on user policies that promote safety and security. Additional ways to ensure safety are to create and implement an emergency response plan, risk management plan, and address security needs along greenways and trails as they expand around the Town into the Montreat Conference Center wilderness

Overall user safety and security should also be explored, including evaluating the patrol of trails with rangers or volunteers, creating a citizen watch program, and posting rules and regulations at trailheads.

## **Policy Recommendations**

- Work with inter-departmental and external partners in programming opportunities.
- Assure that greenways and trails are properly maintained and environmentally safe methods are used in maintenance.
- Maintain all roads, sidewalks, and trails to meet reasonable safety standards while making immediate repairs to identified hazards. All ages and users of different skill levels should be accommodated.
- Inform citizens on development, available programs, volunteer opportunities, user safety and accessibility to the system.



# Town of Montreat Pedestrian, Bicycle and Greenways Master Plan

## CHAPTER 7: IMPLEMENTATION

The long term success of the system requires the Town’s commitment to creating a bikeable and walkable community and the preservation of open space. This can only be accomplished through an understanding of what is required to implement and achieve all of the goals, strategies, and action items outlined in this Plan. This chapter sets the course for how to turn recommendations drawn from Chapter Five: System Development and Chapter Six: System Management into reality to generate change over the next 10 years. It outlines priorities and costs; implementation methods; administration of the system; and evaluation procedures for the system as the Plan progresses.

### PRIORITIES

A proposed one (1) mile of bicycle lanes, three (3) miles of greenways, trails or other formal improvements and one-half (1/2) mile of sidewalks were identified in Chapter 5: System Development. This section provides recommendations on priorities and phasing as well as the criteria and methodology used in reaching those recommendations. The proposed priorities will be reviewed and may be modified over time as a result of changes in land use, development, and transportation patterns as well as other opportunities or constraints

<b>Facility Miles</b>			
	<b>Proposed</b>		
<b>Facility</b>	<b>Short Term (10 years)</b>	<b>Long Term</b>	<b>Total</b>
<b>Bicycle Lanes</b>	0.850	0.150	1.00
<b>Greenways/Trails</b>	1.350	1.650	3.00
<b>Sidewalks</b>	0.125	0.375	0.50

### Criteria and Methodology

Factors considered in prioritizing each facility type were compiled based on the goals established in this Plan; input from the general public; and input from the focus groups. Some factors included connectivity to key destinations, safety, and public requests. All facility types (bike lanes, trails, and sidewalks) were analyzed. Other factors used included connectivity gaps and important corridor connections. Factors to determine land acquisition priorities include likelihood of development, zoning, and the presence of a proposed multi-use path; however, the analysis and results will not be performed as part of this Plan but during implementation.

Once each proposed facility type was prioritized, they were placed into one of the following categories: Short-term (0-10 years) and Long-term (11+ years). Proposed facilities were further prioritized by likelihood of the facility being built in conjunction with a street project; and finally by the location of the proposed facility. Although all of the proposed facilities are needed, the factors identified above influence the need of one project over the other.

Bike Lane 1: 4,449 ft  
Bike Lane 2: 809 ft  
Connectors\_Paths: 9,736 ft  
Potential Sidewalks: 2,538 ft  
Formal Improvement: 7,004 ft

### Legend

- Appx. Bike Lanes
- Connectors\_paths
- p\_sidewalk
- Formal Improvement

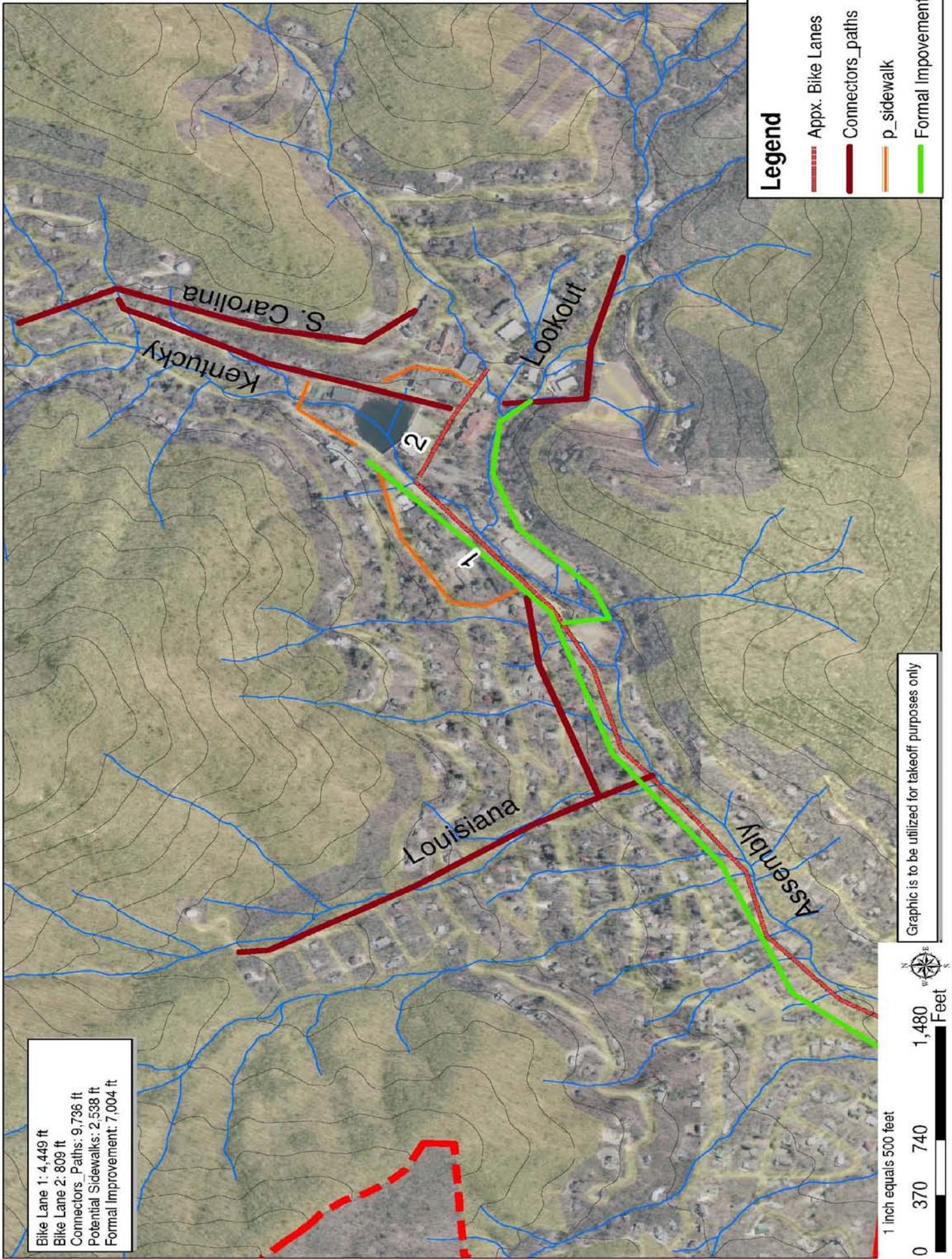
Graphic is to be utilized for takeoff purposes only



1,480 Feet

0 370 740 Feet

1 inch equals 500 feet



## **PRIORITIZED PROJECT LIST**

### Bicycle Lanes

1. Assembly Drive – From the Montreat Gate to Lookout Road
2. Lookout Road – From Assembly Drive to Appalachian Way

### Greenways/Trails

1. Assembly Drive – From the Montreat Gate to Lookout Road
2. Connection to the Lookout Trail Corridor
3. Connection to the Greybeard Trail Corridor
4. Connection to the Harmony Lane Trail Corridor

### Sidewalks

1. Assembly Drive – From Lookout Road to Crosswalk at Lake
2. Connection to Post Office
3. Complete Connections around Lake Susan

## **COSTS**

Costs were estimated for design and construction; maintenance; and programming of the bicycle, pedestrian and greenway system. These estimates should only be used as a preliminary guide and further study should be given to arrive at more concrete cost projections. Costs associated with each facility are provided based on short-term and long-term priorities. Short-term priorities include inflation while long-term only include 2010 estimates. They do not, for the most part, consider any land acquisition that may be required or unforeseen design and construction issues. Estimated costs for bicycle lanes and sidewalks are only included if they are not already included with street construction to widen or construct a new street.

<b>Facility</b>	<b>Short-term</b>			<b>Long-term</b>	
	<b>Proposed Miles</b>	<b>Design and Construction</b>	<b>Maintenance</b>	<b>Proposed Miles</b>	<b>2010 Cost Estimate</b>
<b>Bicycle Lanes</b>	0.850	\$ 135,000.00	\$ 1,100.00	0.150	\$ 21,000.00
<b>Greenways/Trails</b>	1.350	\$ 297,000.00	\$ 6,500.00	1.650	\$ 363,000.00
<b>Sidewalks</b>	0.125	\$ 15,000.00	\$ 500.00	0.375	\$ 42,100.00

The design and construction estimates do not include contingency. The 2010 cost estimates do not include inflation. Additional analysis will be needed to guarantee that all factors and issues were considered before funding for facilities, programs or other resources is allocated.

## **IMPLEMENTATION METHODS**

The recommendations described in this Plan for development and management of the system will require various methods to progress from a concept into programs and constructed facilities.

This section provides a description of phases a project might go through as a project progresses and funds are appropriated. They include the following phases:

1. Policy, Regulations, and Standards;
2. Plans and Studies;
3. Partnerships;
4. Funding; and
5. Facility Development and Management.

Policies, Regulations, and Standards – In order for the system to grow and be successful, adopting clear policies, regulations, and standards that support the addition of bicycling and walking infrastructure is vital to supplementing limited funding sources. As development occurs, zoning, land use, and subdivision regulations can have a positive and long lasting impact. Adopting and amending existing policies, subdivision regulations, and engineering standards will be necessary to implement this Plan.

Plans and Studies – The Comprehensive Plan identified smaller areas where change and development will take place. These areas should be reviewed for needs and opportunities in regards to bicycling, walking, and greenways. Corridor planning areas further incorporate opportunities for resource protection or recreational activities. The Open Space Conservation Plan provides guidance on the community's parks and open space that this system will help connect to neighborhoods. The Bicycle, Pedestrian, and Greenways Master Plan will need to take direction on where to put proposed facilities based on where future parks and open space are expected to be developed. Furthermore, greenway corridor analysis and evaluation should be prepared in order to plan for identified trail corridors within the greenway system to generate a deeper level of analysis than the conceptual level of planning that is provided in this Plan. These studies could include a detailed existing conditions inventory and analysis; citizen engagement; possible routes for the trail; environmental factors; and preliminary cost estimates. The existing conditions inventory could include the following: site conditions and constraints; existing natural, cultural, or historical resources; and an inventory of existing wildlife and plants. Additional analysis would help determine the level and need for managing the corridor. If a trail is in the corridor, trail alignment options could be identified along with preliminary cost estimates. Citizens should be engaged in this process and it should involve surrounding neighborhoods, including property owners of residences, businesses, etc.

Partnerships - Collaboration will need to occur on a number of levels in order to accomplish what is recommended in this Plan. This includes the Montreat Conference Center, Montreat College, other government agencies, as well as others in the community who are committed to the bicycle, pedestrian, and greenway system.

Funding – The availability of a secure and annual source of funding will play an integral role in the establishment, growth, and maintenance of the system. Implementation will require capital and operational funds for land acquisition, the development of facilities, and management of the system. Maximizing available funds will be essential and will require adopting strong policies and ordinances, leveraging local funds with state and federal sources, and capitalizing on

opportunities to develop facilities, as well as establish greenways as part of utility or street improvement and maintenance projects. Potential funding sources can be found in Appendix E of the Comprehensive Plan.

Facility Development and Management - Facility development may include stream restoration, establishment of riparian areas, flood mitigation for greenways, as well as design and construction of bicycle and pedestrian facilities. Design and construction could include land acquisition; a corridor/site inventory and analysis; site planning; citizen engagement (described below); cost estimates; and construction. Land identification and acquisition of greenway corridors will require the identification of ownership interest and the potential need to pursue fee simple purchase or easements along the corridor if the Town does not already have access along the preferred route. Design should include detailed construction documents and cost estimates. Responsible departments and associated funding sources for maintenance of a facility should be determined when funds for the development of the facility are allocated.

Citizen Engagement - An important part of implementation is the need to continue to engage citizens as the system grows and ensure that needs are met. This should include bringing all stakeholders such as property owners, neighborhoods, and the private entities together to identify existing dynamics and circumstances that will play a role in the success of the project. During the design phase of a project, notification and public comments should be solicited at the conceptual (30% design) stage and may include input on alternative design methods or route alignments. If additional analysis and evaluation are needed along greenway corridors, public input will also be solicited. Engaging the community through programs for education, encouragement and enforcement, as well as recruiting volunteers to help with land stewardship (e.g., Adopt a Greenway) will also be fundamental.

## **ADMINISTRATION**

Collaborative initiatives by various public and private partners will be required to create a supportive environment for bicycling and walking in Montreat. As mentioned in this Plan, a number of components are involved in developing and managing the system and require a network of participants including town, state, and federal agencies; perhaps other municipalities; private entities; and citizens. Each of these groups can play a role in creating change and enhancing the system. Below are the roles and responsibilities for the Board of Commissioners, the Montreat Planning and Zoning Commission, Town Staff, and Montreat Landcare.

The Montreat Board of Commissioners will take the lead in the following areas:

- Adopt and amend the Plan by ordinance after receiving recommendations from Montreat Landcare and the Planning and Zoning Commission;
- Support and act as champions for the Plan;
- Adopt new or amended ordinances and regulations to implement the Plan;
- Approve inter-local agreements that implement the Plan;
- Consider and approve the funding commitments that will be required to implement the Plan;
- Provide final approval of projects and activities with associated costs during the budget process;
- Adopt and amend policies that support and help implement the Plan; and

- Provide policy direction to Montreat Landcare, the Planning and Zoning Commission, and Town staff.

The Montreat Planning and Zoning Commission will take the lead in the following areas:

- Recommend changes in the zoning ordinance to the Town Council that reflects the Plan's goals, strategies, and action items;
- Adopt, amend or modify the Plan for subsequent approval and adoption by the Town Council; and
- Review applications for consistency with this Plan and the Comprehensive Plan that reflect the Plan's goals and strategies.

Montreat Landcare will take the lead in the following areas:

- Periodically obtain public input to keep the Plan up to date using a variety of community outreach, citizen and stakeholder involvement methods;
- Guide in the implementation and integration of the Plan's goals, strategies and action items;
- Monitor and evaluate the performance, implementation and effectiveness of this plan;
- Advise the Planning and Zoning Commission and Town Council regarding the status of needs of the system annually during the consideration of the Capital Improvement Program and annual operating budget;
- Establish overall action priorities and timeframes by which each action item identified in this Plan will be initiated and completed;
- Provide guidance on various components of the system relevant to areas of expertise;
- Provide advocacy, awareness, and promotion of the Plan; and
- Develop partnerships with a network of private, public, and non-profit partners to encourage financial support, development, and maintenance of the system.

Town staff will take the lead in the following areas:

- Manage day-to-day implementation of the Plan;
- Support and carry out capital improvement project efforts and programming;
- Manage the drafting of new or amended regulations and ordinances that further the goals of the Plan;
- Conduct studies and develop additional plans;
- Review development applications for consistency with this Plan and the Comprehensive Plan;
- Negotiate the details of inter-local agreements;
- Administer collaborative programs and ensure open channels of communication with various private, public, and non-profit implementation partners; and
- Maintain an inventory of potential Plan amendments as suggested by Town staff and others for consideration during annual and periodic Plan review and updates to Montreat Landcare, the Montreat Planning and Zoning Commission, and Town Council.

## **EVALUATION**

An evaluation of the system's success and effectiveness should be conducted on a periodic basis. Establishing performance measures that reflect the goals established in this Plan is the first step in achieving them. Baseline data and target goals will also need to be established. The performance measures should address the following areas:

- System Development – number of facilities/projects completed that have incorporated bicycle and pedestrian accommodations; number of linear miles of facilities; number of facilities that have bicycle parking or are accessible; number of projects that have been reviewed for bicycle and pedestrian circulation;
- Safety – number of crashes involving bicyclists and pedestrians;
- Usage – number of people bicycling and walking;
- Education, Encouragement, and Enforcement – number of people being educated including staff and citizens, number of bicyclists or pedestrians being ticketed;
- Environment – water quality levels, number of acres preserved;
- Maintenance – quality of facilities; and
- Cost – amount of funding allocated to the bicycle, pedestrian, and greenway system.

Additional resources may be required to generate some of these performance measures including funding and/or equipment. Utilizing volunteers, local organizations and developing relationships with professors and students at Montreat College to develop projects as a part of their classes may be essential.

Once this Plan is adopted, annual progress reports will be needed as the Plan is implemented. A comprehensive update to the Plan will occur in five years. Interim amendments to the Plan will occur with changes, updates, or adoption of the following documents: the Town's Comprehensive Plan; corridor plans; and regional plans. Other considerations may include changes in circumstances such as population growth, land use, or unforeseen opportunities.