



THE TOWN *of* BLACK MOUNTAIN



PEDESTRIAN TRANSPORTATION PLAN



*Prepared for the Town of Black Mountain, NC
Prepared by Greenways Inc*

SPRING 2008



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DOWNTOWN BLACK MOUNTAIN



VISION STATEMENT

“We see Black Mountain as one of the most walkable communities in the region. We see the entire community, from school-aged children to senior citizens, out walking in the normal course of each day’s activities. Sidewalks border nearly every street, and are connected to a communitywide network of trails, walking paths, and bikeways. In most parts of town, speed limits are kept purposefully low and are strictly enforced. Reliable bus and passenger train services support the pedestrian and cut down on the use of cars, thereby alleviating traffic congestion.”

*Vision Statement #2, “Getting Around”
2005 Town of Black Mountain Comprehensive Plan*



This Pedestrian Plan will also help achieve the following visions of the Town of Black Mountain Comprehensive Plan:

Small Town Character and Community Identity

We see Black Mountain as a charming, village-like community, nestled in the midst of beautiful Appalachian Mountain scenery. Our views from town to surrounding mountain vistas have been preserved. Development has been sensitive to the natural features of the land, and has avoided the destruction of ridge tops, in particular. While growing, we've maintained our small town atmosphere and have honored the historic character of the community. We have avoided the tacky tacky development that sometimes comes with undesirable growth.

Recreation, Parks and Open Space

We see upgraded recreation and park facilities serving the Black Mountain community. Indoor facilities include a multi-purpose teen center and a community-wide recreation complex with indoor swimming pool. Outdoor facilities include more neighborhood parks, soccer/multipurpose fields, and a skateboard/roller-blading/extreme bike park. We see a well developed system of walking and biking trails adjacent to area streams, enjoyed by hikers, bicyclists, and others. This "greenway" system connects an assortment of schools, parks, open spaces, and neighborhoods. Lake Tomahawk has been maintained and enhanced as the crown jewel of Black Mountain's system of park properties.

Downtown Black Mountain

We see a healthy, vibrant downtown with a wide range of shopping, dining, working, and cultural attractions. Our downtown streets are filled with people and activity during daytime, as well as evening hours. Storefronts and sidewalks exhibit a colorful, inviting mixture of merchandise, flower-filled planters, benches and other amenities. Additional parking has been provided on the interior of blocks or at perimeter parking lots, so as not to detract from the tightly woven, pedestrian character of the area. Downtown buildings, new and old, have retained and respected the modest architectural scale and design detail that is so much a part of the heritage of Black Mountain.

Community Planning

We see a well-planned community, not only within the planning jurisdiction of the Town, but also within unincorporated areas surrounding Black Mountain. Previously unzoned areas of the County have been zoned to encourage better development practices. The Town's zoning ordinance has been updated to allow for more creative, sympathetic use of the land and to combat urban sprawl. As a result, we see more mixed-use neighborhoods, allowing for residents to walk or bike to nearby shopping, jobs, schools, and parks. The Town has put in place a regulatory system that firmly but equitably enforces our community's standards for development.

Community Appearance

We see a community of clean, tree-lined streets, tasteful commercial signage, subdued outdoor lighting and an absence of billboards. Town entrances and main roads into the community have been well landscaped in accordance with a carefully developed town-wide beautification plan. Newly developed areas are free of utility poles and wires; some older parts of town have had existing overhead wires placed underground. Continued enhancements to Broadway Street have transformed this important street into an attractive, landscaped entryway into the downtown. US 70 has been gradually enhanced in a similar attractive fashion.



1. INTRODUCTION AND OVERVIEW

Chapter Outline:

A Scope and Purpose

B Benefits

C Goals and Objectives

D Plan Components

A. SCOPE AND PURPOSE

Black Mountain, North Carolina is a growing community with an attractive and charming small-town feel in the beautiful Appalachian mountains. Its overall quality of life and relatively mild, four-season climate and proximity to Asheville promise continued growth. A town of 5,418 people in 1990, the population grew to 7,511 people in 2000. According to the 2005 Town of Black Mountain Comprehensive Plan, steady growth is anticipated with nearly 12,000 people by 2020. New development continues to occur in and around Black Mountain, increasing the need for infrastructure and facilities. Yet, the Town is promoting sustainable growth, with a desire to keep its small-town feel, protect its scenic mountain vistas, and retain its historic character. This is made clear in its first vision statement of the Comprehensive Plan. The development of this Pedestrian Plan comes at the right time to help Black Mountain achieve its vision by providing a safe, connected, pedestrian-friendly community that enhances its small-town charm. This Plan will guide the Town of Black Mountain by more specifically achieving its desire to make itself one of the most walkable communities in the region (reflected in Vision Statement of this Plan taken from the Comprehensive Plan).

The planning study area covers the jurisdiction of Black Mountain which encompasses about 6.5 square miles. In general, most places throughout Town are reachable by foot. Because the Town is expanding outwards, it is important to maintain and develop a connected pedestrian network keeping transportation and recreational trips possible by foot. Connectivity of pedestrian facilities is an achievable goal when building upon existing pedestrian facilities.

The Plan seeks to address retrofitting pedestrian facilities where connectivity is lacking and provide sound policy and ordinance recommendations to ensure future pedestrian-friendly growth. It addresses all users from children to seniors and seeks to provide pedestrian accessibility to multiple land uses including schools, residential areas, commercial areas, trip attractors, and downtown.



The planning process utilized a participatory method involving residents, a Steering Committee, public open house meetings, and an Internet-based public opinion survey.

Maintaining a high quality pedestrian system requires comprehensive planning and long term funding. This Pedestrian Transportation Plan will be a key resource for the Town in securing grants from a growing supply of funds dedicated to pedestrian safety and livable communities.

This document presents findings of a public input process along with an assessment of existing pedestrian facilities in Black Mountain. A set of phased recommendations have been developed for a pedestrian system that meets the future needs of area residents and tourists. Recommendations include integration of both on-road and off-road pedestrian facilities, improved roadway crossings and guidelines for their development, and physical and policy changes to guide pedestrian-friendly growth. The Plan also suggests programs to promote walking and funding sources to facilitate implementation.

B. BENEFITS OF A WALKABLE BLACK MOUNTAIN

Communities across the United States have been implementing strategies to improve walking environments and serve pedestrians. Creating connected and accessible pedestrian systems and engaging the community in encouragement programs lay the groundwork for creating more pedestrian-friendly communities. This not only promotes public safety, health and welfare, but also increases awareness of the multiple benefits of walking. These benefits include alternative transportation options, active-living opportunities, environmental benefits, economic benefits, and an increased quality of life among residents.

Alternative Transportation Options

Walking is the most inexpensive and broadly accessible form of transportation.

People engage in multiple walking trips everyday, mostly by necessity, to get from place to place. By making these often short trips on foot, rather than a car, citizens can have a substantial impact on local traffic and congestion. Additionally, many people do not have access to a vehicle or license and simply cannot afford other modes of transportation. In an auto-dependent environment, this situation leaves the elderly, the young, and the underprivileged without a means to get around for even basic daily trips. An improved pedestrian network provides greater and safer mobility for all residents, and allows for equity and a more productive community overall.

Surveys by the Federal Highway Administration show that Americans are willing to walk as far as two miles to a destination and bicycle as far as five miles. Two-thirds of all trips we make are for a distance of five miles or less. Because of Black Mountain's size, it is often possible to reach schools, grocery stores, parks, and the downtown in a short distance. A comprehensive pedestrian network, as part of the local transportation system, will offer effective transportation alternatives by connecting homes, workplaces, parks, downtown, and cultural attractions.

Healthy, Active-living Opportunities

An improved pedestrian network will contribute to the overall health of residents by offering attractive, safe, accessible places to walk, hike, jog, skate, and enjoy scenery. In short, the pedestrian network will create better opportunities for active lifestyles. The design of our communities—including towns, subdivisions, transportation systems, parks, trails and other public recreational facilities—affects people's ability to reach the recommended 30 minutes each day of moderately intense physical activity (60 minutes for youth). According to the Centers for Disease Control and Prevention (CDC), "Physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic" (1).

In identifying a solution, the CDC determined that by creating and improving places in our communities to be physically active, there could be a 25 percent increase in the percentage of people who exercise at least three times a week (2). This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits (3). Additionally, as people become more physically active outdoors, they make connections with their neighbors that contribute to the health of their community.

A safe, comprehensive pedestrian network of both on-road and off-road facilities will connect people directly from their homes and places of work into a long system of trails that provide safe, enjoyable areas to exercise.

Environmental Benefits

Having adequate pedestrian facilities helps to reduce dependence on automobile travel which improves air quality. When people choose to get out of their cars and make trips by foot, they make a positive environmental impact. They



Walkways like the one around Lake Tomahawk provide an excellent means to exercise and enjoy nature.

reduce their use and dependence on gasoline and reduce the volume of air pollutants. According to the EPA there is strong evidence that reducing air pollution from automobile use can protect children's health (4). For example, during the 1996 Atlanta Olympic Games, when driving was reduced and ambient ozone levels fell by 27.9 percent, emergency room visits for asthma dropped by 41.6 percent. These results suggest that while pedestrians are improving their own health through physical activity, they are also improving the health of those around them by not contributing to air pollution with their automobile trips. Other impacts can be a reduction in overall neighborhood noise levels and improvements in local water quality as fewer automobile-related discharges wind up in the local rivers, streams, and lakes.

Greenways help protect and preserve important natural landscapes, linking fragmented habitats and providing wildlife corridors. They enhance water quality by providing natural buffer zones that protect water bodies from runoff. Air quality is improved by protecting the plants that naturally create oxygen and filter out air pollutants. They also encourage interaction between humans and their environment and provide a means for environmental education.

Economic Benefits

A pedestrian friendly town can help both the individual and the community economically. In Black Mountain, a connected pedestrian network will attract residents and visitors to the area, improve quality of life, raise property values, and connect people to businesses. Walking is a free means of transportation and for some, the only means of getting around. The cost of owning and operating a car alone with surging gas prices is a significant percentage of our incomes.

The small-town charm is a tourist attraction in itself, ushering people into the downtown area. Numerous shops and restaurants in a walkable downtown cre-

ate spaces to generate economic revenue. While the downtown is rather walkable today, there are opportunities to make improvements such as roadway crossings and streetscape improvements to deal with heavy traffic and enhance public space to connect shoppers to businesses.

Greenways and sidewalks also provide economic value for both adjacent property owners and communities as a whole. In Apex, NC, the Shepard's Vineyard housing development added \$5,000 to the price of 40 homes adjacent to the regional greenway – and those homes were still the first to sell (5). In Oakland, CA, a three-mile greenbelt around Lake Merritt, near the city center, was found to add \$41 million to surrounding property values. In Black Mountain, the trail around Lake Tomahawk is a very attractive feature that experiences tremendous use and appeals to new homebuyers.

Quality of Life

The first two visions of the Town's Comprehensive Plan speak to retaining the small-town character and making the community more pedestrian friendly. These visions improve the quality of life by providing all the above-mentioned benefits, along with encouraging residents to get outside, interact socially, and build community. Sidewalks and greenways function as positive places to meet, play, live, work, and shop. Happy, active citizens radiate a high degree of livability within a community and this livability factor can, as mentioned above, attract visitors, new businesses, new residents, and new opportunities - all important components of maintaining a high quality of life in the community.

Summary and Additional Resources

The ideas presented above are only a small sample of the information that is available. If you would like to learn more about the benefits of walking, the Internet can be a great source of information. An excellent starting-point for resources is

Pedestrian facilities provide a nice opportunity to relax in Downtown Black Mountain.



the Pedestrian and Bicycle Information Center's website (www.walkinginfo.org/pp/benefits), based out of Chapel Hill, NC. Another excellent resource is Active Living by Design, (www.activelivingbydesign.org), a program of the Robert Wood Johnson Foundation and part of the UNC School of Public Health, also in Chapel Hill, NC.

C. PEDESTRIAN PLAN GOALS AND OBJECTIVES

The following goals and objectives were articulated for the Town of Black Mountain in 2007 from Steering Committee representatives and public participants. They were also derived from the 2005 Town of Black Mountain Comprehensive Plan's Vision Statements.

- Improve connectivity across Town by filling sidewalk gaps
- Create a cohesive network that provides accessibility for residents throughout Town and connects different land uses to help achieve Vision #1 of Comprehensive Plan
- Connect outlying areas of Black Mountain to downtown
- Develop a network that is a combination of on-road and off-road pedestrian facilities
- Expand greenway system as a means for connecting to parks, open space, and schools and increasing recreation options along stream corridors to help achieve Vision #4 of Comprehensive Plan
- Promote safe walking opportunities for all users in Black Mountain including those with disabilities
- Focus on improving pedestrian safety near schools, commercial areas, major corridors, and downtown
- Improve an already walkable, vibrant downtown with inviting streetscapes and plantings help achieve Vision #6 of Comprehensive Plan
- Improve unsafe intersections and crossings throughout Black Mountain
- Integrate pedestrian network with neighbor communities and regional trails
- Prioritize pedestrian needs and projects
- Develop a Plan that is integrated with other existing and future Black Mountain planning efforts such as the Greenway Plan and US 70 Corridor Study

The In the Oaks Trail provides a comfortable, off-road option for walking. A connected greenway system in Black Mountain would increase accessibility for more trail users.



- Develop policies and ordinances that guide pedestrian-friendly growth, require developers to construct pedestrian facilities, encourage mixed-use, but also respect the local topography and environment, to help achieve Vision #9 of Comprehensive Plan
- Provide streetscape, planting, and pedestrian cross section design guidelines for pedestrian facilities that enhance the overall appearance of Black Mountain, to help achieve Vision #3 of Comprehensive Plan
- Provide funding opportunities for future implementation

D. PLAN COMPONENTS

This Plan document includes the following major components:

This Introduction that presents the mission, goals, planning process, and guiding principles of this Plan along with the benefits of a walkable town (Chapter 1).

An assessment of Existing Conditions that overviews existing pedestrian conditions, land use, trip attractors, and also summarizes existing related plans of Black Mountain (Chapter 2).

A recommended Pedestrian Network that puts forward a framework of recommended facilities (pedestrian corridors, intersection improvement projects, and greenways) (Chapter 3).

Program Recommendations for education, encouragement, enforcement, and Policy Review (Chapter 4).

Implementation recommendations that outline specific steps for achieving the plan's key elements including phasing and prioritization of the Pedestrian Net-

work (Chapter 5).

Design Guidelines to guide the Town of Black Mountain in current facility design and standards (Chapter 6).

Appendices that provide a summary of public input, the prioritization matrix, cost estimates for the Pedestrian Network, funding recommendations, acquisition strategies, a glossary, and recommended trail cutsheets.

Footnotes

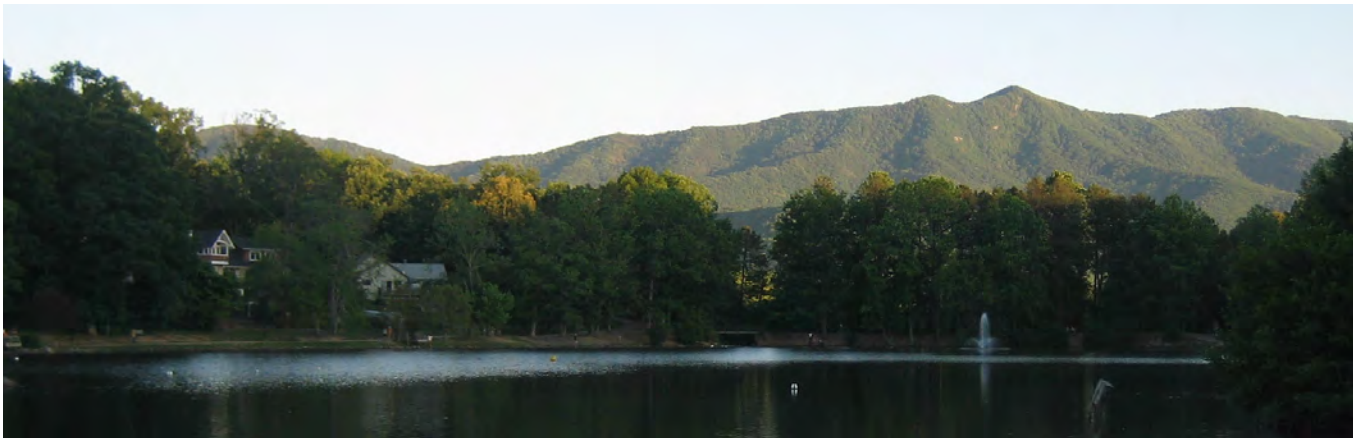
1 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (1996). Physical Activity and Health: A Report of the Surgeon General.

2 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (2002). Guide to Community Preventive Services.

3 Rails-to-Trails Conservancy. (2006) Health and Wellness Benefits.

4 U.S. Environmental Protection Agency (EPA). (2003). Travel and Environmental Implications of School Siting.

5 Rails to Trails Conservancy. (2005). Economic Benefits of Trails and Greenways.





2. EXISTING CONDITIONS

Chapter Outline:

A Overview

B Demographics

C Land Use

D Trip Attractors

E Pedestrian Conditions

F Summary of Existing Documents

A. OVERVIEW

The Town of Black Mountain is located in Buncombe County, ten miles to the east of Asheville, NC. The Town is known for its small-town environment and its desire to preserve that atmosphere. Still, the Town has experienced significant growth with the population rising from 5,418 in 1990 to nearly 8,000 in 2007. The Town intends to promote smart growth, protect its natural resources, and provide walkable conditions throughout its Town boundary and to surrounding towns such as Montreat, Swannanoa, and Old Fort.

In order to propose a comprehensive pedestrian system for the Town of Black Mountain, the existing conditions, such as demographics, land use and development, trip attractors, and pedestrian conditions need to be examined. The Towns' geographic and population characteristics significantly affect transportation, the environment, and everyday decisions by motorists and pedestrians. In addition, numerous plans, guidelines, and strategies have addressed issues related to pedestrian planning in Black Mountain such as connectivity, alternative transportation, land use, and greenways.

A comprehensive approach consisting of intensive research, analysis, fieldwork, GIS organization and analysis, and Committee meeting discussion was conducted to examine existing conditions. To understand pedestrian conditions in Black Mountain, it is important to consider a number of specific factors that affect the overall character of the community. This work lays the foundation for the recommendations found later in this Plan. The findings are presented below.

B. DEMOGRAPHICS (1)

To help demonstrate pedestrian needs, it is useful to understand population changes and composition. The Town of Black Mountain, like many areas of North Carolina, has experienced very steady growth in the latter half of the 20th century into the 21st century. Each decade since 1970 has seen around a 30% growth in population. Population projections put the population of Black Mountain over

10,000 by 2015.

Map 1 shows 2000 population density throughout the Town of Black Mountain and surrounding areas. The densest, most populated areas are found north of US 70, especially along the Montreat Road corridor where there are single-family homes and apartments. South of Interstate 40, population pockets are concentrated along NC 9 and Blue Ridge Road. Areas of future development are designated in orange and include the Settings on the southern end of Town. Development, with consideration for topography and natural landscape protection, will continue to occur especially on the west and northwest side of Town along the US 70 corridor.

The Town of Black Mountain experiences an overall pattern of relatively fewer youth and more senior citizens when comparing percentage of population by age group across the State. This supports its long-time reputation as a peaceful, retreat area. In 2000, the median age of Black Mountain was 43.8 compared to 38.9 for Buncombe County and 35.3 for all of North Carolina. When comparing percent of population by age group, Black Mountain ranks below the rest of the County and State below the age of 45 and has a higher percentage above the age of 45 (as seen by chart below taken from the Comprehensive Plan). The average household size is significantly smaller than the household size for the State of North Carolina.

Map 2 shows median age across Black Mountain and surrounding areas. Interestingly, there are pockets of people above age 55, including areas surrounding Lake Tomahawk, Highland Farms, a retirement community area off Old West US 70, and in patchy areas in the south along Blue Ridge Road and NC 9. Areas where the median age is 35 and below are typically census blocks that hold apartments and multi-family housing. One significant area is in multi-family housing and new development on Montreat Road and Flat Creek Road on the north side of Town.



People of all ages frequent the Downtown. This Plan seeks to address needs of all population groups.

Despite the current population structure, it is likely that a mix of population groups will move into the Black Mountain area through the coming years. Development pressure from Asheville will continue along US 70. As Asheville continues to grow, it is quite possible that Black Mountain will become even more desirable with families considering the area.

Considering the existing population totals, composition, median age distributions, and density, it is important to provide pedestrian access for current populations and future populations. Senior citizens are a large part of the community and special attention should be given to providing safe, convenient, and ADA-accessible pedestrian facilities, especially near their homes. New population centers inside future development should be connected into the Town's pedestrian network with access to downtown. Residential areas north of US 70, where a large percentage of the population currently reside, should have safe, connected pedestrian facilities into the downtown area where commercial facilities and other destinations can be found. Also, growing areas south of Interstate 40 should have pedestrian access into downtown as well.

C. LAND USE AND DEVELOPMENT

Current land use (shown in Map 3) is a result of development activity over the past few decades. Multiple land uses can be found across the Town of Black Mountain with distinct patterns emerging. These patterns and characteristics have a major influence on pedestrian transportation. Proximity of uses and types of uses matter in a person's choice to walk, along with the quality of environment, ease of access, and safety.

Black Mountain is largely residential, with single-family homes dominating. Multi-family housing is scattered in some parts of Town. Cheshire Village is a Traditional Neighborhood Development (TND) with excellent pedestrian connectivity, shops, and restaurants within its development.

The chief commercial areas are found along the roadway corridors of US 70 and NC 9 and downtown. The downtown area is walkable with boutique shopping, locally-owned restaurants, arts and crafts stores, and other appealing tourist stops. Businesses, fast-food restaurants, and shopping centers occur on NC 9 south and just north of Interstate 40 and along US 70, west of downtown. There are three significant shopping and dining destinations: 1) downtown, 2) Bi-Lo shopping Center on NC 9 just north of I-40 and 3) Ingles Shopping Center on NC 9 just south of I-40.

Existing recreational sites are found in three parts of Town. The Riverwalk Park and associated trails are found on the southeastern portion of downtown behind the Bi-Lo Center. It contains a dog park, benches, rain gardens, and a walking trail. The Black Mountain Recreation Park is found between US 70 and I-40 on the southwestern portion of Town. It is the largest recreational facility and contains ballfields, soccer fields, and a multi-use paved trail and greenway that con-

nects to Vance Avenue and Montreat College. Directly across I-40, connected by an underpass, is the Community Garden and Gray Eagle Arena. The third recreational complex has Lake Tomahawk Park in its center where residents walk for exercise and recreation with its nature trail around the lake. Connected to the south is Cragmont Park and to the north is the Black Mountain Golf Course.

Due to area growth and demand, large residential areas may develop on the western side of Town (between Asheville and Black Mountain). These homes will be longer distances from the center of Town resulting in some reduced pedestrian connectivity to various land uses. Multiple uses within new development and pedestrian connections towards the center of Town along US 70 and Blue Ridge Road should be considered.



A variety of land uses can be found around Black Mountain, all of which should be accessible for pedestrians.



D. TRIP ATTRACTORS

People currently walk to a variety of destinations across Black Mountain for various purposes. These destination points are referred to in this document as trip attractors. The most common categories of pedestrian trip attractors in Black Mountain include:

- Downtown
- Schools (Black Mountain Elementary, Black Mountain Primary, Owen Middle, Owen High)
- Shopping locations (grocery stores, shopping centers, restaurants, downtown)
- Parks (Black Mountain Recreation Park, Lake Tomahawk Park/Cragmont Park, Riverwalk Park, Community Garden)
- Community and recreation centers (Carver Community Center)
- Historic and other points of interest (Library, Arts Center, Museum)
- Places of employment (downtown, Town offices; US 70 area)

Each of these categories of pedestrian trip attractors was considered when determining locations for the physical pedestrian improvements recommended in Chapter 3. They represent important starting and ending points for pedestrian travel and provide a good basis for planning ideal walking routes. Many citizens have expressed a desire to be able to walk to places such as Lake Tomahawk Park and Carver Community Center.

E. PEDESTRIAN CONDITIONS

The Town of Black Mountain takes great pride in its walkable conditions and small-town feel. The downtown is lined with sidewalks, street furniture, plantings, and windowed storefronts. Many smaller residential roads leading to downtown provide relatively safe places to walk despite not always having sidewalks. Still there is room for improvement to achieve its vision of being one of the most walkable communities in the region. Map 4 shows locations of existing sidewalks, greenways, and trip attractors.

Sidewalks

Throughout Black Mountain, there is a lack of connectivity in its sidewalk network. The immediate downtown and areas radiating out from downtown mostly have adequate sidewalk connectivity. However, sidewalk gaps or missing sidewalks can be found in several areas of Town. Growth that has occurred outside of downtown has not always provided connected, safe, pedestrian facilities leaving gaps between downtown, trip attractors, and residences. This happened because adequate ordinances were not in place and/or topographic constraints made it difficult to find adequate space. Significant corridor deficiencies include:

- US 70 (State): Key gaps in the pedestrian network and don't always feature sidewalks on both sides.
- NC 9 (south of I-40): Key gaps in the pedestrian network and don't always feature sidewalks on both sides. Sidewalk lacking south of Blue Ridge Road connecting Cheshire Village and the Settings into downtown. Evidence of foot paths

can be found along east side of NC 9, south of I-40

- NC 9/Montreat (north of US 70): North of Fourth Street, sidewalks do not exist. Evidence of foot paths can be found here.
- Blue Ridge Road: Only features shoulders for a short segment.
- NC 9/I-40: I-40 ramps provide a significant obstacle to connectivity between southern portions of Town and the downtown.
- Flat Creek Road near Black Mountain Elementary School



Worn foot paths, here along Montreat Road, are signs that people are walking here and that sidewalks are needed.

Greenways

Three off-road walkway facilities exist throughout Town with a fourth in development. These are not all well connected to other pedestrian facilities within Town. The Lake Tomahawk Trail is the most popular around Lake Tomahawk with residents getting exercise. Still, many residents have to drive to the Lake's parking lot to walk there. The In the Oaks Trail is a lovely, multi-use trail extending from the Black Mountain Recreation Park towards downtown parallel to I-40. There is no formal connection yet to downtown though. The Riverwalk Park trail, behind the Bi-Lo Center, is a great facility as well but mostly only accessible by automobile or folks living near downtown. A fourth off-road facility, that will be built soon, connects Black Mountain Elementary and Primary northward along the Flat Creek.

While connectivity is lacking in many locations, there are many opportunities to fill in key gaps in the Greenway Master Plan:

- Swannanoa River corridor: Opportunities for trail segments that can connect the already existing Riverwalk Park trails and the In the Oaks Trail. Connection parallel to US 70 to Swannanoa, but NCDOT has already communicated that they will not allow underpass.
- I-40 Pedestrian Underpass: An I-40 pedestrian underpass, already used informally, connects the Community Gardens/Gray Eagle Arena/Blue Ridge Road community to the Black Mountain Recreation Center, the In-the-Oaks Trail and eventually to downtown.
- Flat Creek: Connecting the existing trail at the Black Mountain Primary School northward to the lovely trails in Montreat would be an excellent connection for residents in the northeast section of Black Mountain. There are some areas of ownership/easement conflict that need to be addressed. (Phase I from Primary School to Cotton Avenue has been master planned while Phase II needs to be master planned from Cotton Avenue to Montreat Gate.)

The I-40 underpass is an excellent opportunity to formally connect the In the Oaks Trail and Black Mountain Recreation Park to the Community Gardens and Blue Ridge Road area.



- Black Mountain to Ridgcrest to Old Fort along “Old US 70.”

Intersections

Most significant, signalized intersections in Black Mountain need some form of improvement. Safe crosswalks are important because there is much greater risk for a pedestrian when entering the roadway environment. Safe crossing conditions are a necessity at intersections and in high pedestrian activity zones such as downtown, schools, and shopping centers. Many intersection crosswalks in Black Mountain have no markings and those that do are simple and not as noticeable with only two solid parallel lines. In some cases, sight distance is inadequate, curb radii are too wide, and curb ramps are not found. Crossing signals only exist

in a few locations (along US 70 downtown).

Traffic congestion and pedestrian movement is most significant downtown and the crossing features are fair to good. Some intersections feature wide curb radii which allow automobile traffic to move too quickly around a turn. Marked crosswalks are not always present. Countdown signals should also be considered for some of the crossings of US 70 (State) in downtown. Tree vegetation also covers some of the pedestrian-activated signals including the intersection of Vance and NC 9.

Intersections outside of downtown are very deficient in pedestrian crossing features. In many cases, there are not marked crosswalks. Black Mountain Elementary and Black Mountain Primary feature some marked crosswalks but more are needed and better placement of some of these crosswalks should be considered.

Intersections of particular significance and need for improvement are:

- Blue Ridge/US 70
- Blue Ridge/Old US 70
- NC 9/Interstate 40 ramps
- Blue Ridge/NC 9
- NC 9/Vance (downtown)
- Black Mountain/Sutton (downtown)

A complete inventory and description of each intersection and their recommendations for improvements may be found in Chapter 3.

F. SUMMARY OF EXISTING DOCUMENTS

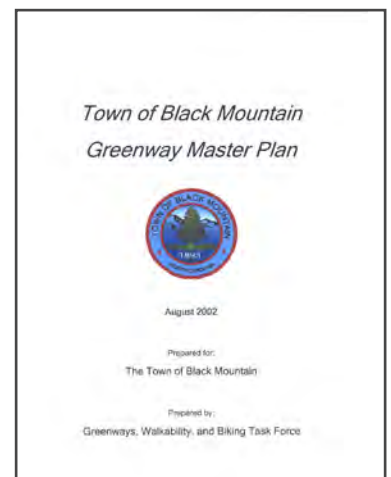
The following documents represent important efforts, provide valuable insight and background, and have influenced the development of this plan. The current plans are reviewed and summarized below only as they relate to pedestrian planning in Black Mountain. Land use ordinances are addressed in Chapter 4 - Program and Policy Recommendations. For further information on each plan, please consult the specific document in its entirety.

Document: Town of Black Mountain Greenway Master Plan

Date: August 2002

Preparer: Greenways, Walkability, and Biking Task Force

The Town of Black Mountain has a vision to be the first city in North Carolina to be connected by an off-road transportation network. Greenways will: enhance to quality of life for residents, provide alternative transportation, allow for greenspace conservation and restoration, and provide economic benefits to the community. There already exists a network of regional bikeways in western



North Carolina. These roads that have been designated as “bikeways” by NC-DOT and have “Share the Road” signs in place.

The master plan would connect a series of destinations including: Lake Tomahawk, which is encircled by a walking path that connects the Lakeview Senior Center, tennis courts, playground, botanical garden, and community gardens; Black Mountain Recreational Park, located half a mile south of Lake Tomahawk, and has 0.25 mile unpaved nature trail along the Swannanoa River as well as a 0.5 mile ‘In the Oaks’ paved trail; Montreat Conference Center; and the Ridgecrest Conference Center. The following trails make up the Greenways Master Plan and maps can be found in Appendix G:

From West to East:

1. The Owen Spur (1.0 miles) connects the Swannanoa Connector to Owen High School, Owen Middle School, the Owen District Pool, and the Swannanoa 4-H Camp. A majority of this connector will have the advantage of following an abandoned section of railway line. In addition, this section of trail will use and existing trestle to cross the north branch of the Swannanoa River.
2. The Swannanoa River Trail (1.6 miles) connects the Oaks Trail Connector with the proposed Owen Spur. This portion of the trail is critical in joining the business and historic districts of Black Mountain to the middle and high schools, the existing community pool, and the 4-H camp. A majority of this connector will follow beside the Swannanoa River on mostly pastureland positioned between Interstate 40 and Norfolk-Southern Railroad. An alternate is along US 70.
3. The Lake Tomahawk Spur (1.8 miles) connects the Oaks Trail, Black Mountain Recreation Park, Lake Tomahawk, and densely populated neighborhoods in the downtown area. Permission has been granted to use MSD rights-of-way. An existing traffic light across US Highway 70 at Cragmont Road could be used as well as an unopened dedicated street right-of-way. Challenges include crossing the railroad and two busy intersections at two crossings of Cragmont Road.
4. The Community Garden Trail (approx. 0.25 miles) connects the Black Mountain Recreation Park to the Community Garden and Grey Eagle Arena. In addition this trail provides a safe and easy connection between communities north and south of Interstate 40.
5. The Oaks Trail (0.5 miles) connects the Black Mountain Recreation Park to the sidewalks in the heart of downtown Black Mountain and to the Grey Eagle Trail skirting the town along the river. Existing amenities include a donation of right-of-way by ‘In the Oaks’ Episcopal Conference Center, and a well constructed and maintained paved route with benches and trash receptacles. This is completed section of the proposed trail system is heavily used, despite lacking complete connectivity to downtown Black Mountain.

6. The Grey Eagle Trail (0.7 miles) connects the Oaks Trail with the Riverwalk Trail and Riverwalk Park. A portion of this trail will follow the MSD right-of-way that follows the Swannanoa River. MSD has indicated they will grant permission to use this right of way for a trail, but permission must also be obtained from the landowners. This trail will end at Highway 9, which is a high traffic road and will need to be crossed safely.

7. The Riverwalk Trail (0.5 miles) connects the Grey Eagle Trail with the Primary School Trail, and with the two future Ridgecrest greenways. The completed portion of this trail, currently called Riverwalk Park, follows the Swannanoa River behind Bi-Lo and is used frequently by the community. The trail will continue to follow the MSD right-of-way along the Swannanoa River to its junction with Flat Creek and the north side of Flat Creek to end at US70, which will need to be safely crossed to reach Black Mountain Primary School.

8. The Britain Creek Trail connects the entrance of Christmount and neighborhoods adjoining NC Highway 9 with the Cheshire Health and Fitness Club and the Ingles shopping center. It will also expand the overall Town pedestrian and bicycle network to the south and east creating future connections to Blue Ridge Road and parks within the Town system. For the majority of its alignment, the Greenway will run adjacent to Britain Creek, which flows out of Christmount and joins Camp Branch before flowing into the Swannanoa River.

9. The Primary School Trail/Village Way Spur (0.7 miles) connects the Riverwalk Trail and Flat Creek trail. Combined, these three provide access from Montreat to the Ridgecrest greenways to the east. It also connects the elementary schools to the Riverwalk Park behind Bi-Lo. The Village Way Spur is currently in place and connects the Elementary and Primary Schools to each other. Other existing amenities include paths and roads in the lower part of the trail and MSD permission in the upper part of the trail.

10. The Flat Creek Trail (0.9 miles) connects the Town of Montreat to downtown Black Mountain and the Ridgecrest greenways to the east of town. Additionally, it helps to connect Montreat College's north and south campuses. Existing amenities include very good terrain, partly along Flat Creek Road, and the possibility of using MSD right-of-way in some locations. At least one bridge must be built across Flat Creek.

11. The Ridgecrest Trail (1.8 miles) connects the Riverwalk Trail and Ridgecrest Loop, connecting downtown Black Mountain to Ridgecrest. There exists an MSD easement into Ridgecrest and Old US 70 East. One of the challenges is crossing Flat Creek. The site is rich in scenic beauty and historically significant areas.

12. The Ridgecrest Loop (2.1 miles) connects to the Ridgecrest Trail and is not only a full loop but also a connector to the closed portion of Old US 70 that goes to Old Fort and the Kitzuma trails complex, both of which are open to and used

by hikers and bikers. A wide shoulder exists on Yates Avenue in Ridgecrest, which could be helpful in construction. The loop offers excellent scenery and historical landmarks, especially at the crest of Swannanoa Gap.

Sidewalks provide valuable links to the Greenway Master Plan. They provide connections where greenways are not feasible. The Town is committed to adding sidewalks to give citizens more access to the greenways network and other Black Mountain amenities.

Several steps are recommended to adopt the Greenway Master Plan.

- First, adopt the Black Mountain Greenway Master Plan as a part of the Town of Black Mountain's Comprehensive Plan.
- Second, authorize the Greenways Commission to work through an existing non-profit organization, such as the Community Foundation to form the public-private partnerships needed to develop the Black Mountain Greenway System.
- Third, apply for funding as appropriate from government grant organizations, the State Assembly and NCDOT.
- Fourth, determine which subsection of Town administration will have oversight of the greenways system, including both construction and maintenance.
- Fifth, adopt an ordinance to enforce trail rules and use restrictions.

Document: Black Mountain Comprehensive Plan

Date: August 2004

Preparer: Board of Aldermen, Comprehensive Plan Steering Committee, Glenn Harbeck Associates

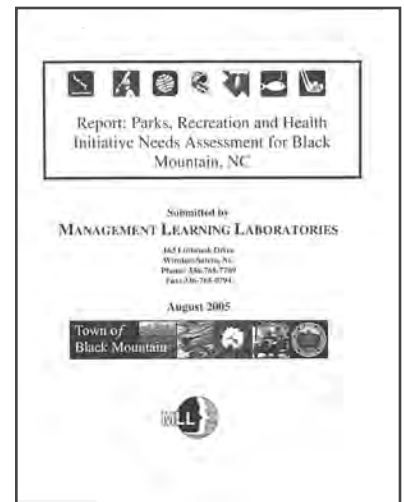
The Town of Black Mountain has been growing steadily over the past several decades. In order to address the concerns that come with increased growth and development, a comprehensive plan was designed to provide guidance for priorities and actions. One of the most important results of the Comprehensive Plan is the Community's Vision for Black Mountain as it could be in the year 2020. The statement on 'Getting Around' is particularly relevant to the development of a greenway system:

"We see Black Mountain as one of the most walkable communities in the region. WE see the entire community, from school-aged children to senior citizens, out walking in the normal course of each day's activities. Sidewalks, border nearly every street, and are connected to a community-wide network of trails, walking paths, and bikeways. In most parts of town, speed limits are kept purposefully low and are strictly enforced. Reliable bus and passenger train services support the pedestrian and cut down on the use of cars, thereby alleviating traffic congestion. (Comprehensive Plan, Part D, Page D-10)"



The community's vision also included upgraded recreation and park facilities, clean air due to the reduced dependency on motorized vehicles, and increased water quality through storm water management.

Several action items listed in the Comprehensive Plan directly address sidewalk, greenway, trail and open space development. One action item proposes to develop a comprehensive plan that ties together all of the desired transportation improvements within the community. This plan should address not only automotive traffic, but also alternative transportation methods designed to safely conduct persons, especially children and differently-abled individuals through all sections of the community without forcing them to compete with cars for existing space. Another action item proposes to specifically address the desire of the community to have alternative transportation methods. This is specifically associated with the existing Greenway Master Plan document, created in 2002, and calls for continually updating the document to meet new needs of the community. In continuing to provide alternate means of transportation, another goal of the Comprehensive Plan is to expand the existing network of sidewalks and roadside trails in Black Mountain. The pedestrian connection from Black Mountain to Montreat was mentioned specifically. Additional recreational space, in the form of a park in the watershed, is also proposed.



Document: Official Notes from Safe Routes to School National Course
Date: February 2007

The meeting, held at Black Mountain Elementary School, discussed how to implement a Safe Routes to School Program for the Black Mountain school system. Two main action teams identified the following problems and solutions for Black Mountain:

- Engineering:
- Sidewalks and Greenway connections
- Improved maintenance for existing sidewalks
- New crosswalks needed
- New sidewalks: Flat Creek Road, Ninth Street
- Rumble strips/ alerts where Highways 40 and 70 meet on the East side of town
- Establish visible, coordinated crosswalks
- Analyze adjacent area for walking
- Sidewalk at Flat Creek and Ninth
- Develop sidewalk plan to integrate with comprehensive pedestrian master plan and Greenways plan

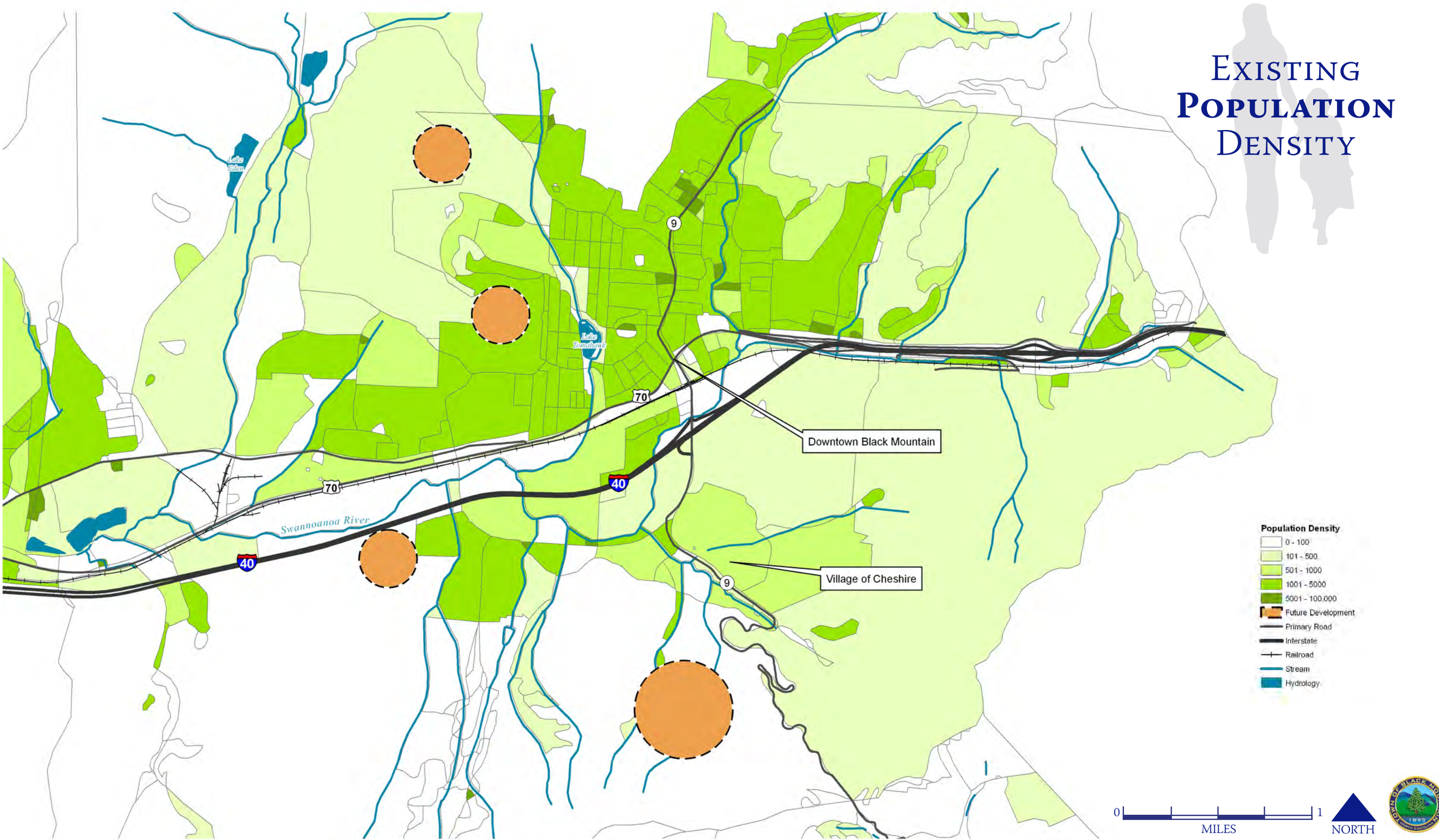
Based on input from this planning process, the Town has been funded \$250,000 as a demonstration project. This project will improve crosswalks around the primary and elementary schools and sidewalk along US 70 and Flat Creek Road.

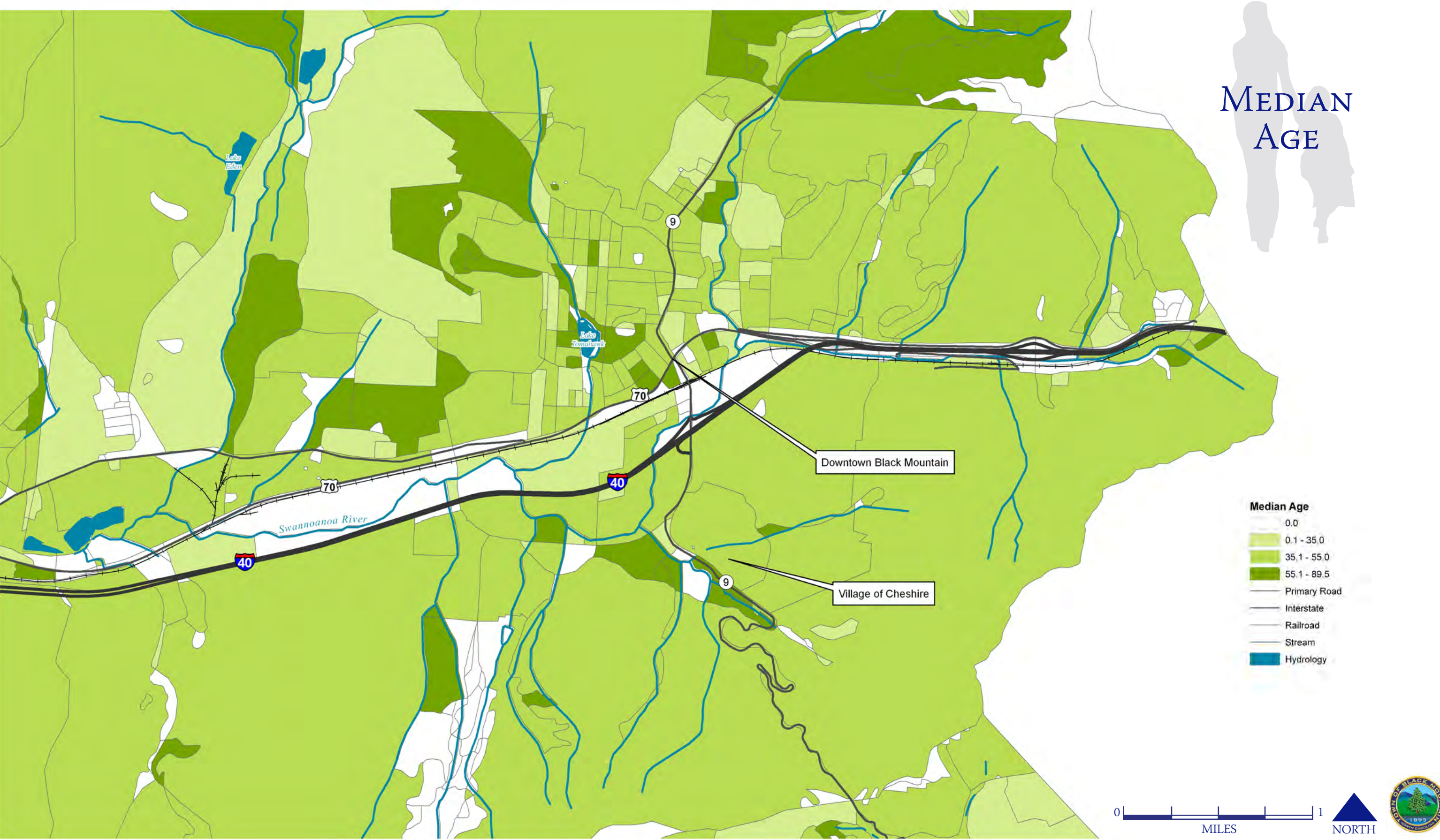
Document: Report: Parks, Recreation and Health Initiative Needs Assessment for Black Mountain, NC**Date: August 2005****Prepared by: Management Learning Laboratories**

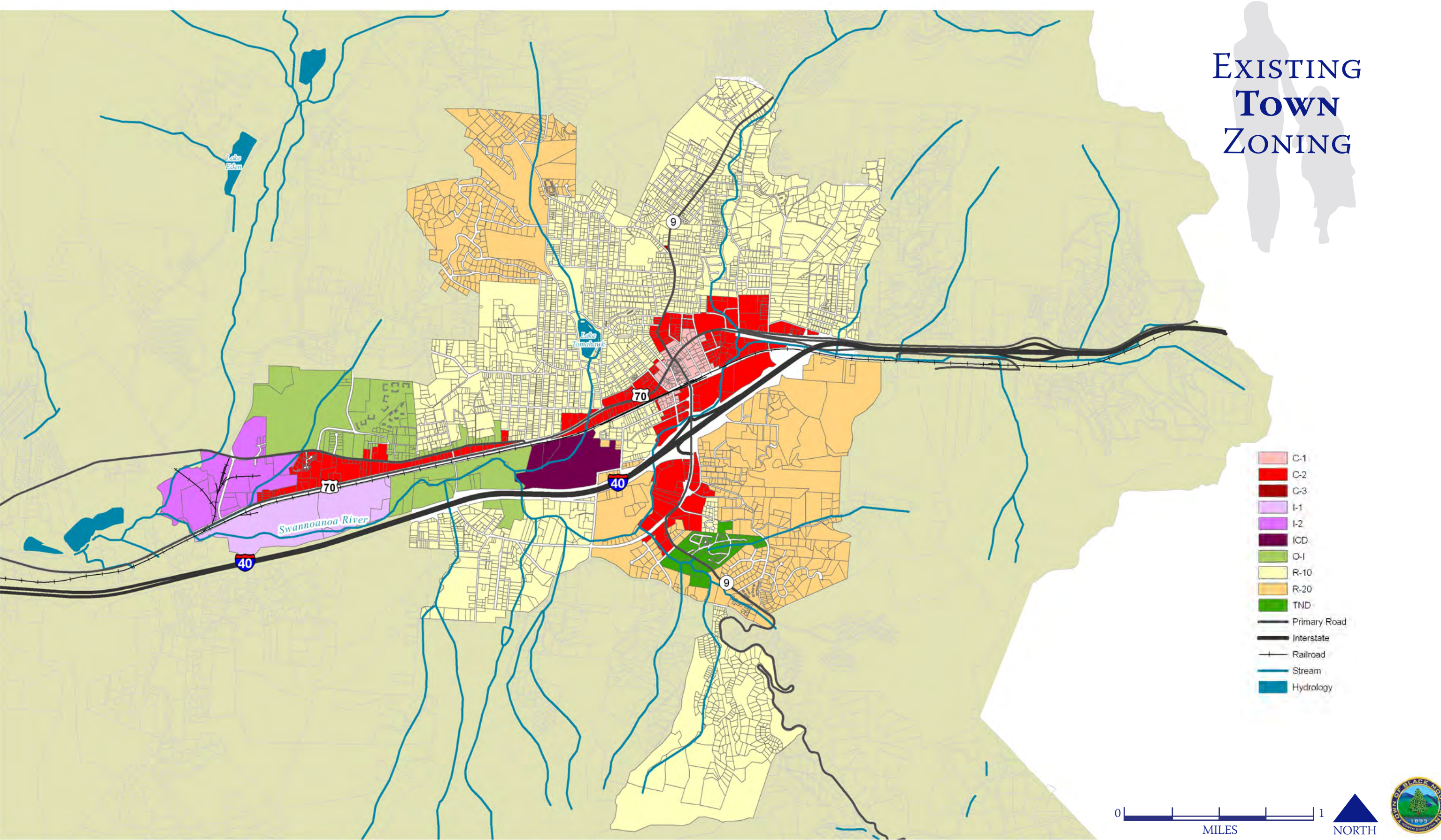
The study was not a user's survey, but a more comprehensive assessment of the recreation needs, attitudes and opinions of the residents of the entire community. The primary goal of the study was to obtain information about parks and recreation in the area. According to the survey, trails, sidewalks, and bike path lanes ranked at the top of types of facilities needed within the community. Walking trails ranked at the top of 28 areas of need with 87% expressing a need for walking trails, while other trails included greenway trails (78%), fitness trails (77%) and mountain bike trails (63%). An interest was expressed in promoting healthier living in Black Mountain, and 85% of respondents agree that one way to promote healthier living is to provide more opportunities for walking and hiking.

Footnotes

1 2005 Town of Black Mountain Comprehensive Plan, Town of Black Mountain, NC

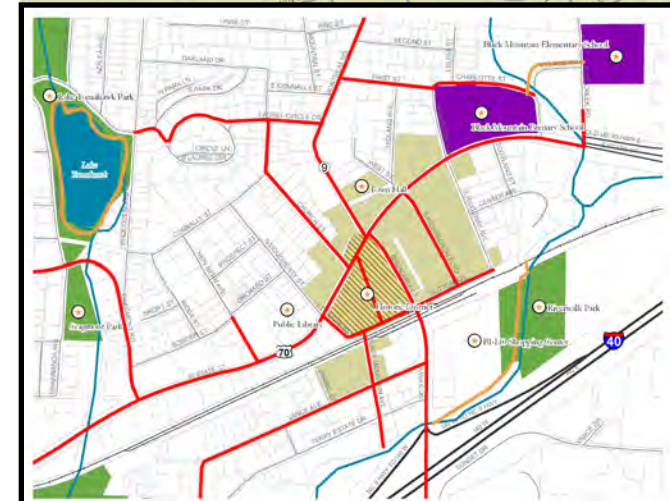


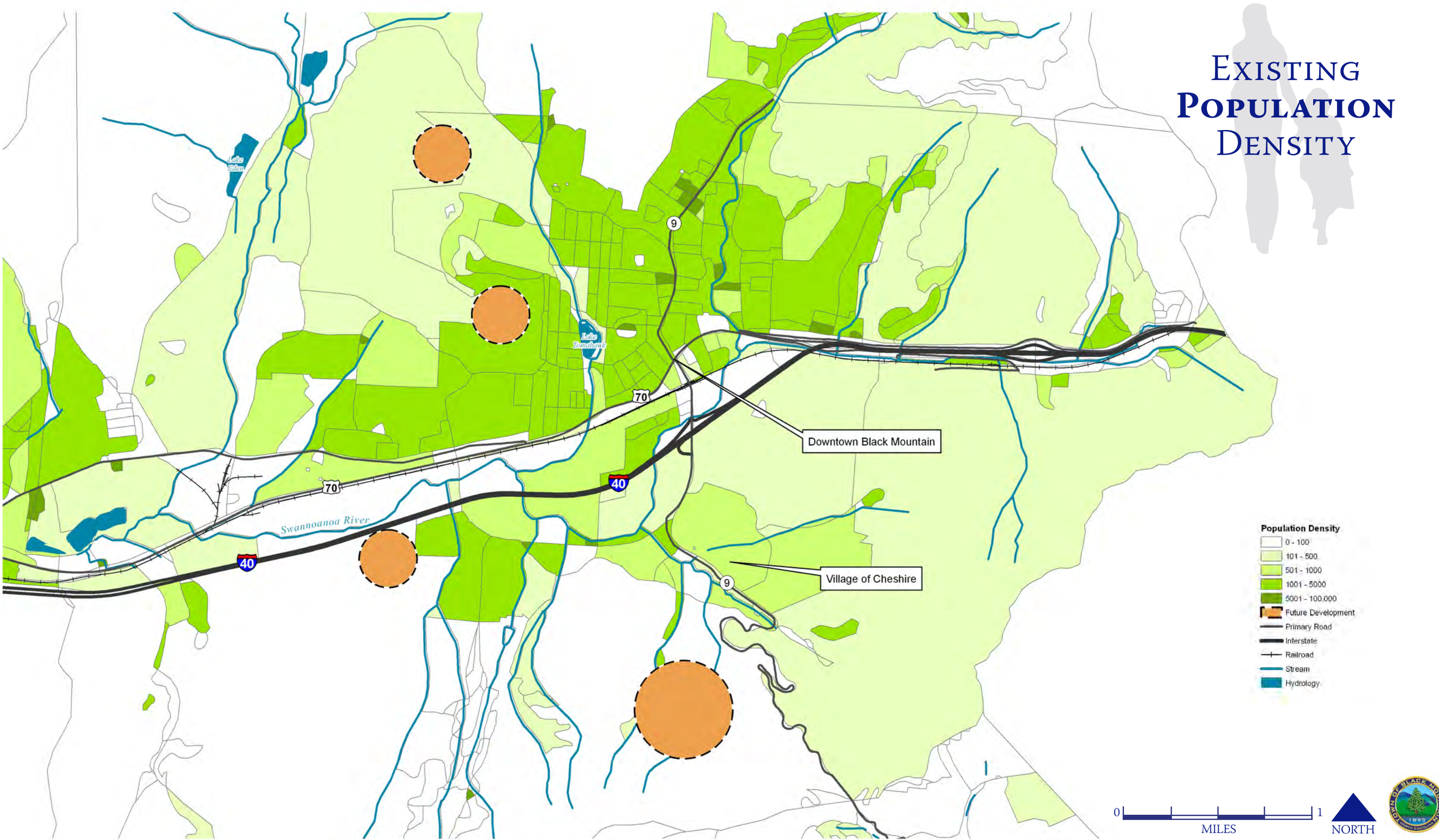


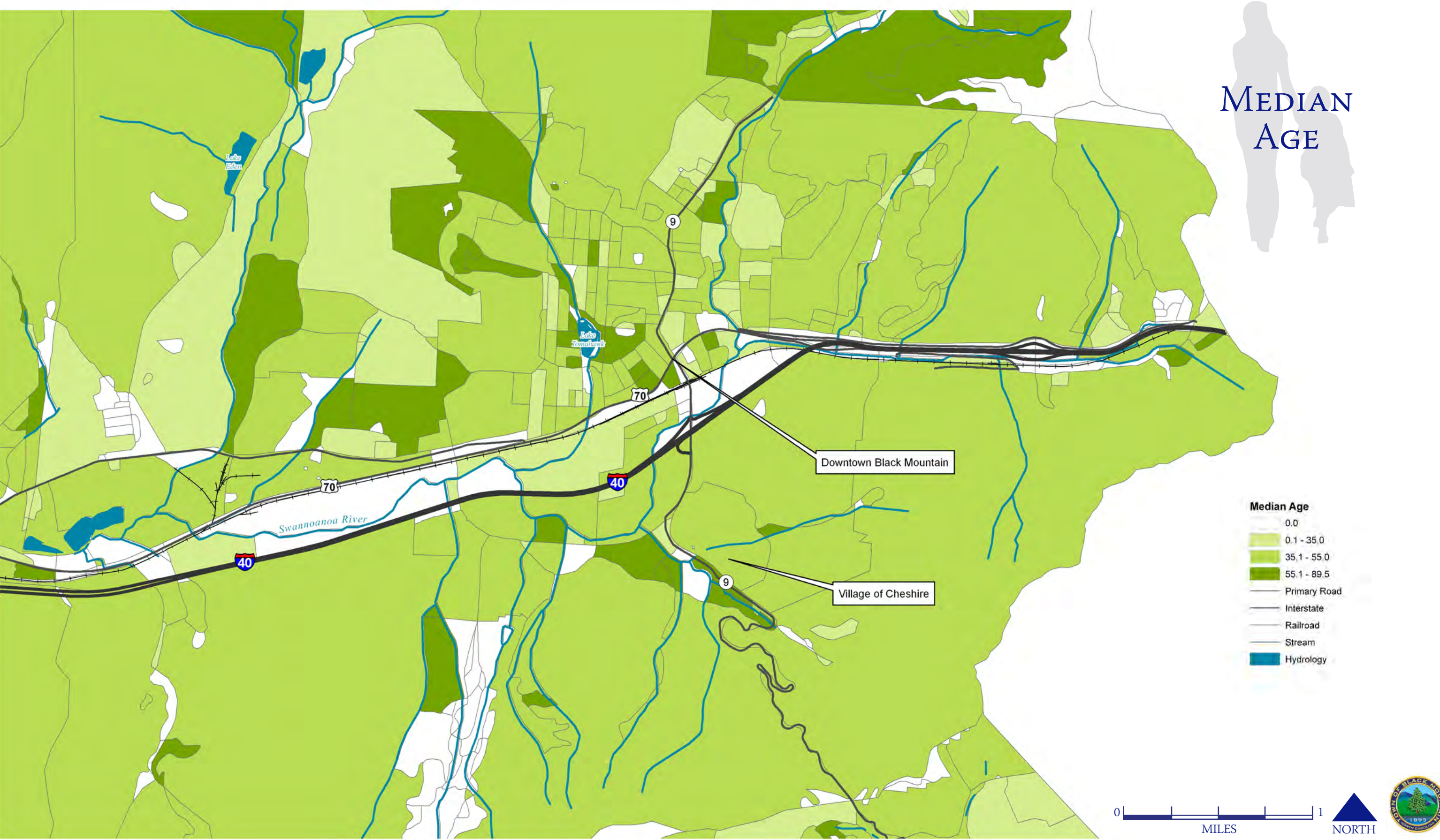


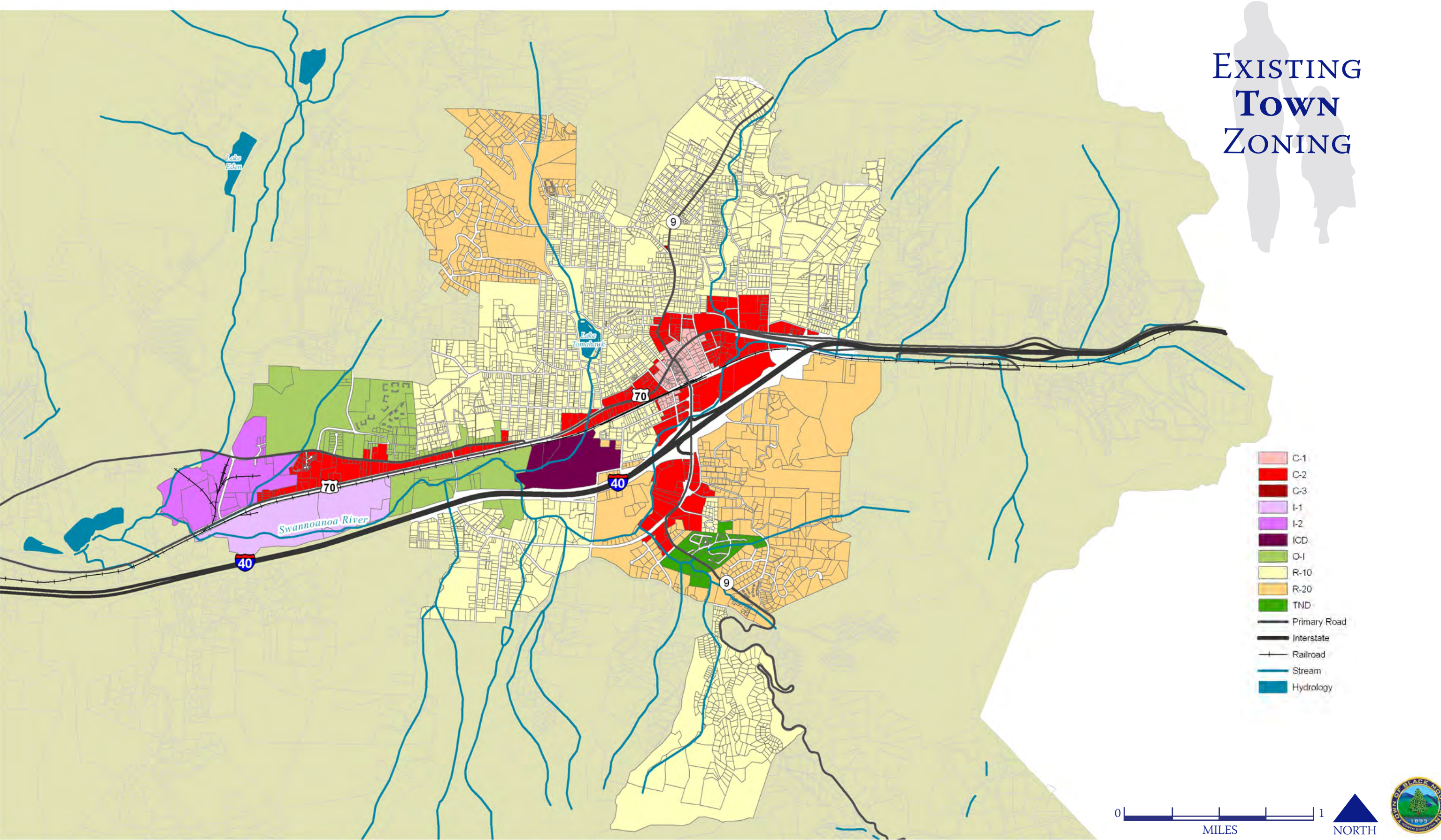


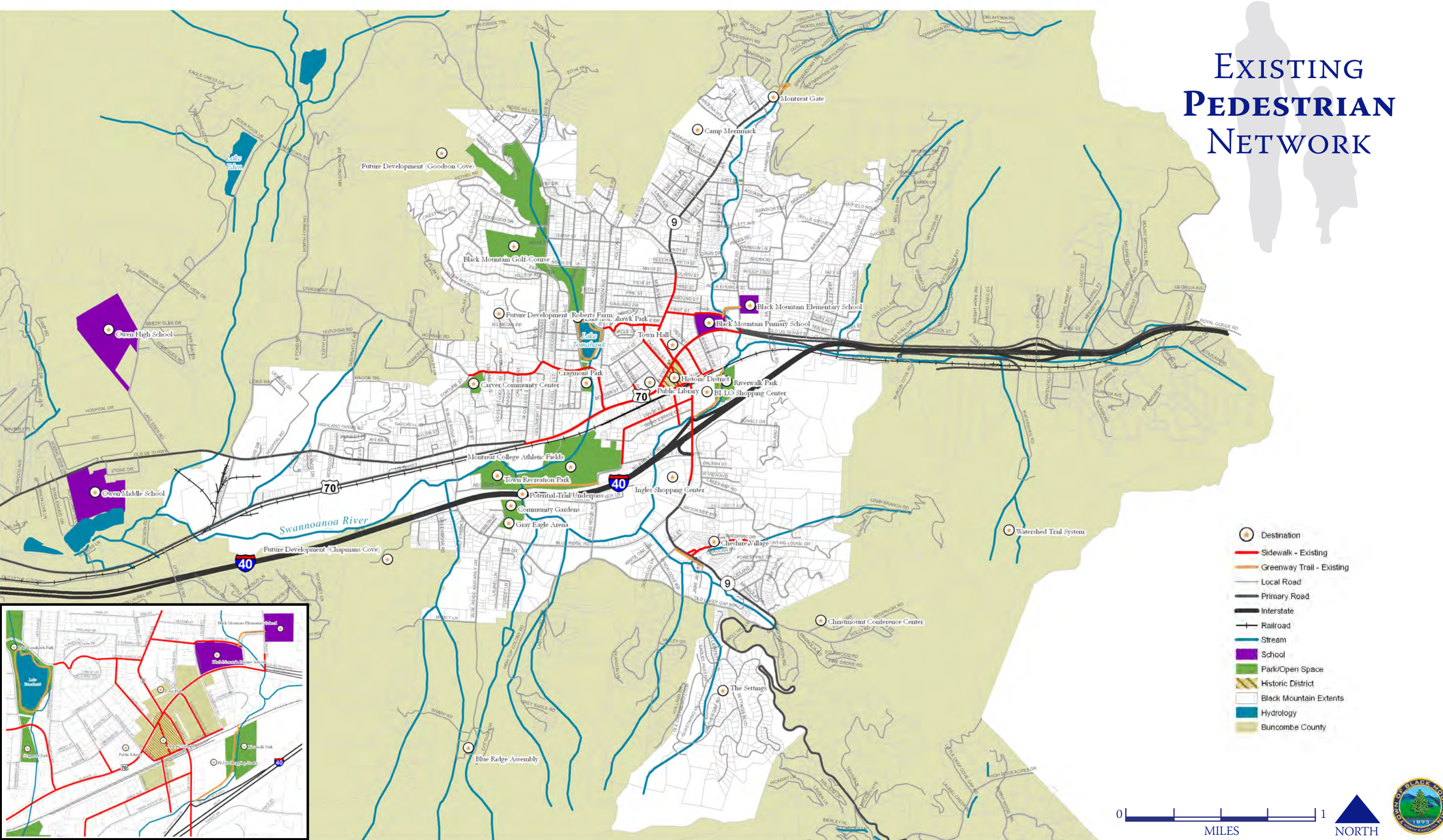
EXISTING DESTRIA NETWORK

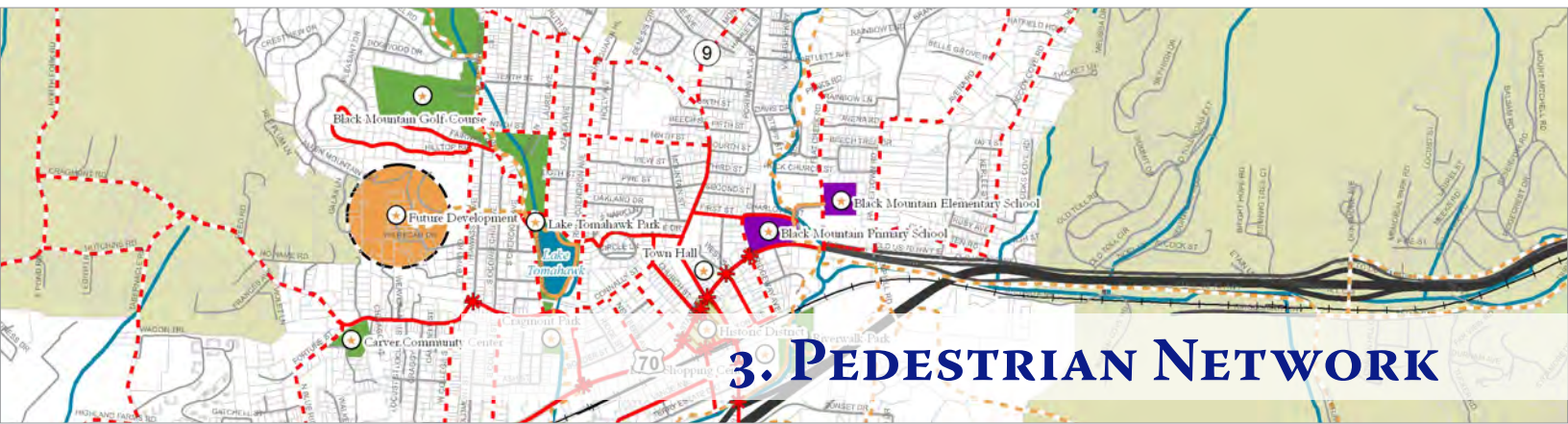












Chapter Outline:

A Overview

B Methodology

C Pedestrian Network

D Network Corridors

E Regional Connections

A. OVERVIEW

A proposed pedestrian network plan for the Town of Black Mountain has been developed based on existing conditions (Chapter 2) and the community's vision and goals for an improved pedestrian network (Chapter 1). A review of the methodology and prioritization process used to create the Pedestrian Network Plan is provided below, followed by descriptions of the individual pedestrian corridor components: sidewalk projects, intersection improvements, and multi-use greenway trails.

Achieving overall pedestrian connectivity is a major goal for this Plan. Also important is the provision of facilities that meet ADA requirements. Currently, there is a lack of connectivity between pedestrian facilities and trip attractors. Some of the connections are minor and will be relatively easy to implement, such as filling minor gaps within the existing sidewalk system. Other pedestrian connections will be more difficult and expensive to implement, such as the provision of sidewalks and crosswalks along roadway corridors such as US 70, Montreat Road, and Blue Ridge Road. These latter improvements, however, are highly valuable to the community in allowing pedestrian options throughout Town.

B. PEDESTRIAN NETWORK METHODOLOGY

A variety of sources were consulted during the development of the Pedestrian Network: previous plans and studies, maps of existing pedestrian conditions, the consultants' fieldwork, public input, and noted pedestrian trip attractors. Detailed fieldwork included an examination of intersection conditions, greenway feasibility, areas of higher pedestrian activity such as Downtown and schools, and a consideration of gap connectivity. Map discussion and analysis was conducted at Steering Committee meetings and public meetings to pinpoint areas that need pedestrian improvements, including:

- Locations of existing facilities
- Observed gaps in existing facilities or deficiencies in facilities
- Locations of the existing arterial roads
- Locations of existing and future trip attractors, including schools, parks, shop-

ping areas, downtown historic district, high density residential areas, etc.

- Locations of major street intersections and crossings
- Locations of safety concern (high pedestrian and auto traffic and inadequate facilities)
- Connectivity of regional pedestrian and greenway networks
- Opportunities for greenway development including open space, available land, easements, and new developments
- Public comments collected from area residents via an online survey and during Park Rhythms.
- Recommendations from representatives of the Steering Committee
- Field observations made by the consultant
- Projects and recommendations from previous planning efforts, especially the Greenway Master Plan, summarized in Chapter 2.

C. THE PEDESTRIAN NETWORK

The Proposed Pedestrian Network for Black Mountain consists of sidewalk projects, intersection improvements and greenways corridor development. Together these proposed facilities should be developed or improved to create a safe and connected pedestrian network throughout the Town. The network includes on-road pedestrian facilities (sidewalks, intersection improvements, and crosswalk improvements) and off-road facilities (multi-use greenway trails). On-road and off-road components should be integrated to provide a connected pedestrian transportation and recreation network.

The network should be completed in phases as prioritized in Chapter 5, Implementation. However, network segments should be developed when there is opportunity, regardless of the order. Successful development of the Black Mountain Pedestrian Network will require a long-term, cooperative effort between the Town, the North Carolina Department of Transportation, and other local and state agencies. Regional connectivity should also be considered during future development of the sidewalk and greenway network.

All pedestrian corridor projects undertaken by the Town of Black Mountain should aim to meet the highest standards possible when topography and right-of-way allows. At a minimum, each pedestrian corridor should possess curb cuts with ramps at all driveways and intersections and be paved to increase accessibility and decrease maintenance costs. Within each identified corridor, roadway intersections should have marked crosswalks, and major intersections should have pedestrian crossing signals. Sidewalks should be constructed on both sides of the street along thoroughfares and residential collectors. Wider sidewalks, with curb cuts and improved surface conditions will correct sidewalks that currently do not satisfy the standards set forth by the American Disability Act of 1991.

Traffic calming measures, such as curb extensions, traffic circles, medians, and pedestrian refuge islands should be used to create a more hospitable environment for pedestrians in neighborhoods and commercial districts. See Chapter 6, De-

sign Guidelines for specific descriptions on recommended facilities. Finally, opportunities should be taken to incorporate pedestrian facilities into all municipal and state roadway improvement and widening projects.

Three main types of pedestrian projects have been identified for the Town of Black Mountain and are outlined below. They include sidewalks, intersection improvements, and greenway corridors. Design guidelines in Chapter 6 provide detailed information regarding proper placement and facility treatments.

Sidewalk Projects

Sidewalk projects are the major component of the proposed pedestrian corridors in Black Mountain. Sidewalks are located along road segments and should be on **both sides** of the roadway wherever possible to provide adequate pedestrian connections throughout the Town of Black Mountain. The pedestrian corridor network is focused on significant roadways that provide service to major destinations within Black Mountain and link multiple land uses, such as residential, recreational, institutional, and commercial. The proposed pedestrian facilities along significant roadways craft the spine of the entire pedestrian network. Some sections along these significant roadways have existing sidewalk. However, the existing sidewalk is segmented, creating gaps in the connectivity or lacking sidewalk on one side of the street. Sidewalk projects are prioritized in Appendix B and high priority segments are illustrated on Map B.1.

While most ideal, sidewalks on both sides is not always feasible with limited right-of-way and steep topography. Priority should be given to the following roadways for providing sidewalks on both sides of the road:

Road	To	From
US 70	Blue Ridge Rd.	Flat Creek Rd.
NC 9	Blue Ridge Rd.	State St.
Flat Creek Rd.	US 70	Rock Church St.

In many cases, a sidewalk may only be possible on one side with no buffer between the roadway and the sidewalk. Determinations will need to be made on a site-by-site basis. Generally, the following roadways can only support a small sidewalk on one side of the road:

Road	To	From
Avena Rd.	Padgettown Rd.	McCoy Cove Rd.
Cragmont Rd.	Fortune St.	North Fork Rd.
Lakey Gap Rd.	Sunset Dr.	NC 9
McCoy Cove Rd.	Old State 10 Rd.	Avena Rd.
NC 9	Blue Ridge Rd.	Old Lakey Gap Rd.
North Fork Rd.	NC 9/Montreat Rd.	Town Limits
Old Lakey Gap Rd.	Blue Ridge Rd.	NC 9
Sunset Dr.	NC 9	Lakey Gap Rd.
Tabernacle Rd.	Highland Farms Rd.	Cragmont Rd.

Intersection Improvement Projects

Consultant fieldwork and public input identified numerous intersections in Black Mountain that are in need of minor to significant pedestrian facility improvements. Intersections present situations where a pedestrian must traverse the motor vehicle environment and adequate facilities should be provided specific to the intersection, to provide a safe crossing environment. Below is a list of intersections targeted for pedestrian facility improvement. Specific observations and recommendations are outlined in Table 3.1 and illustrated on Map 3.1.

- NC 9 and Blue Ridge Road
- NC 9 and I-40 Ramps (West and East side)
- NC 9 and Vance Avenue
- Old US 70 and Blue Ridge Road
- Old US 70 and Highland Farms Road
- Rhododendron Avenue and Byrd Road
- State Street (US 70) and Broadway Street
- State Street (US 70) and Cherry Street
- State Street (US 70) and Church Street
- State Street (US 70) and Cragmont Road
- State Street (US 70) and Dougherty Street
- State Street (US 70) and Ridgeway Avenue
- State Street (US 70) and West Street
- Sutton Avenue and Black Mountain Avenue
- Sutton Avenue and Broadway Street
- US 70 and Blue Ridge Road
- US 70 and West College Street

Greenway Corridors

Greenway corridors are off-road, multi-use facilities that provide an excellent source for alternative transportation and recreation. Greenway corridors can also serve an environmental purposes, to protect forests and enhance water quality. Greenway corridors can be constructed of natural materials, gravel, crushed stone, asphalt, or concrete, depending upon the projected usage and surrounding landscape. These corridors typically take advantage of linear stream corridors, easements, and other tracts of open space. Greenway trails in Black Mountain should be integrated with and serve as an off-road extension of the on-road pedestrian network. Numerous greenway opportunities were identified throughout Black Mountain, via consultant fieldwork, public input, the Town's Greenway Master Plan, and other local and regional planning efforts. Proposed greenway corridors are illustrated on Map 3.1 and in Appendix G.

D. NETWORK CORRIDORS

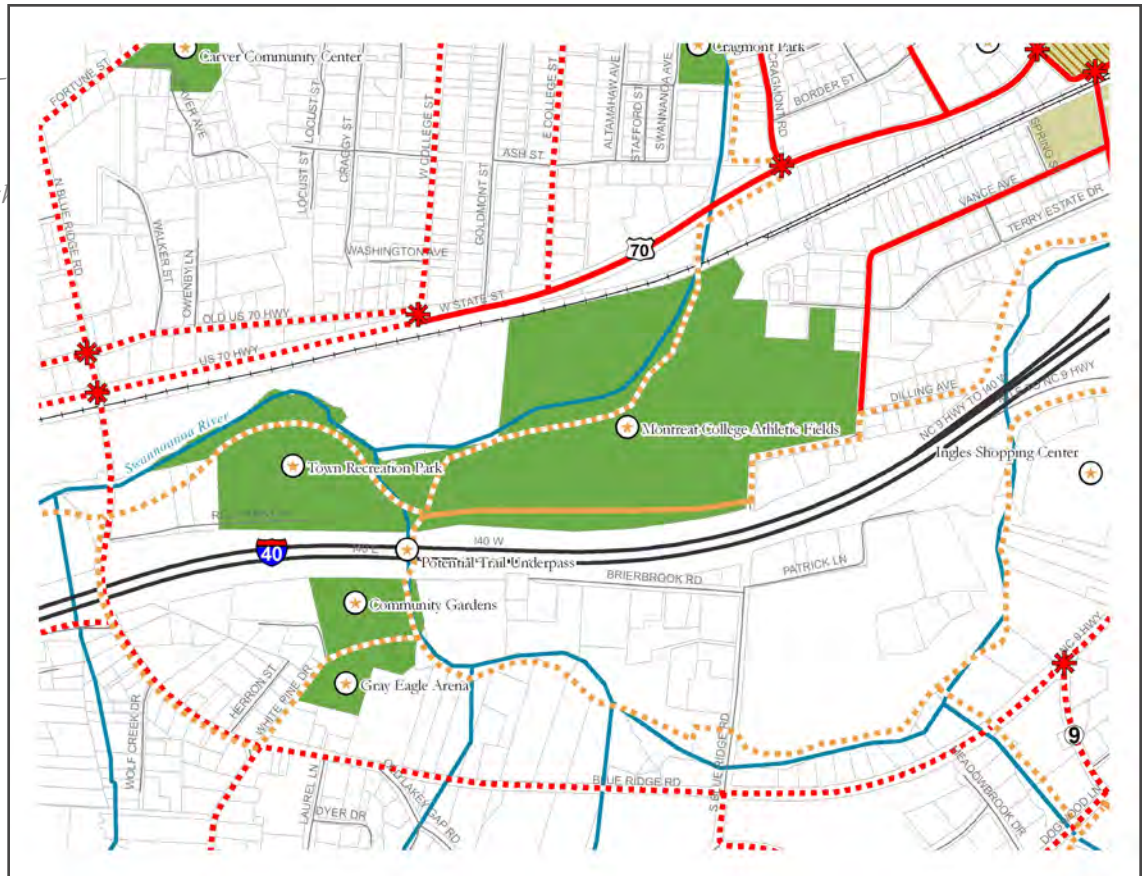
Select corridors were selected based on their importance to the network.

US 70 Corridor

Importance: Major artery through Black Mountain; Traverses Downtown, connects multiple land uses and near schools

Recommendation: Sidewalks along both sides throughout Black Mountain Town limits. Adequate buffer between sidewalk and roadway necessary especially along segments where speed limits is 45mph and above. Signalized intersections should include pedestrian phasing and striped crosswalks.

US 70 and Blue Ridge Road corridors focus map. Sidewalks should be developed alongside both sides of the road. Connections between these corridors should be provided through the Community Gardens/ In the Oaks Trail area.



Conceptual photo renderings:

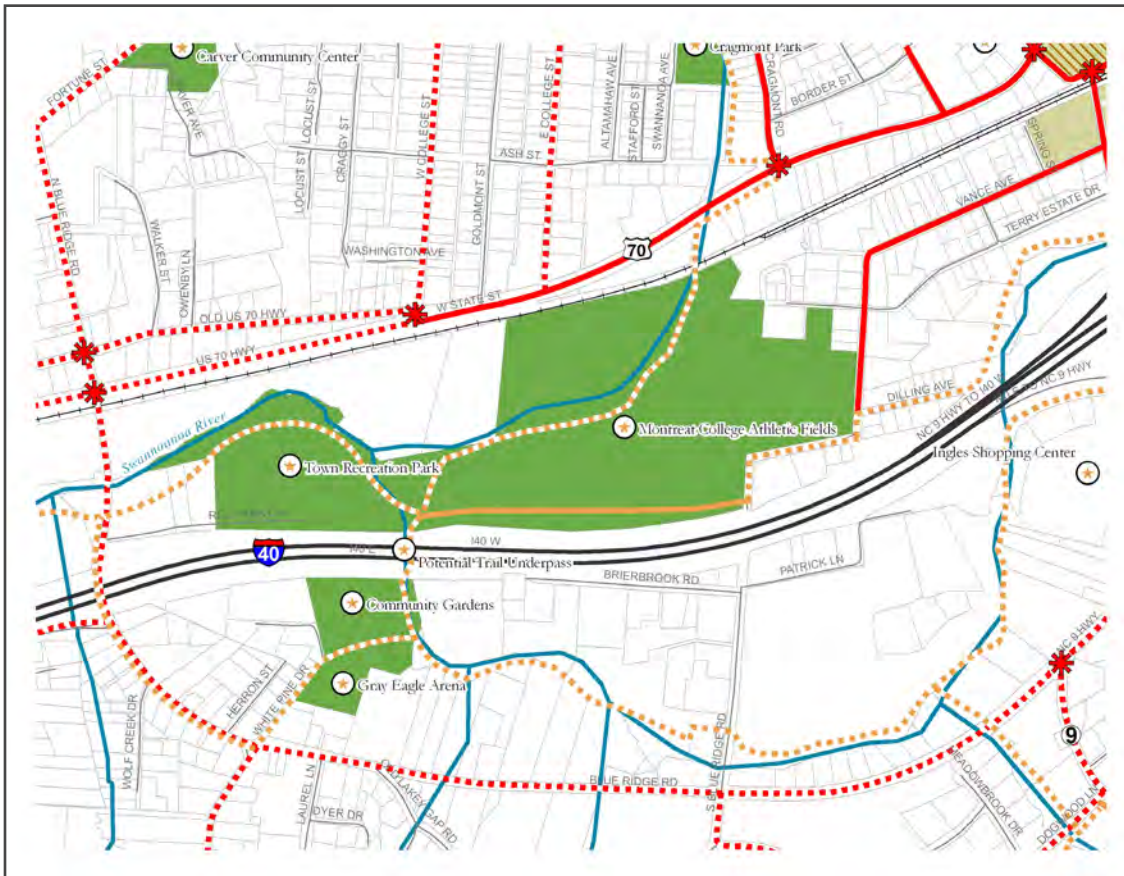
US 70



Blue Ridge Road Corridor

Importance: Major roadway in the south end of Town; Connects residential areas to/from NC 9 and US 70 along with the Black Mountain Recreation Park

Recommendation: Sidewalks along both sides where possible. Intersections should have pedestrian improvements.



US 70 and Blue Ridge Road corridors focus map. Sidewalks should be developed alongside both sides of the road. Connections between these corridors should be provided through the Community Gardens/In the Oaks Trail area.



Conceptual photo rendering:

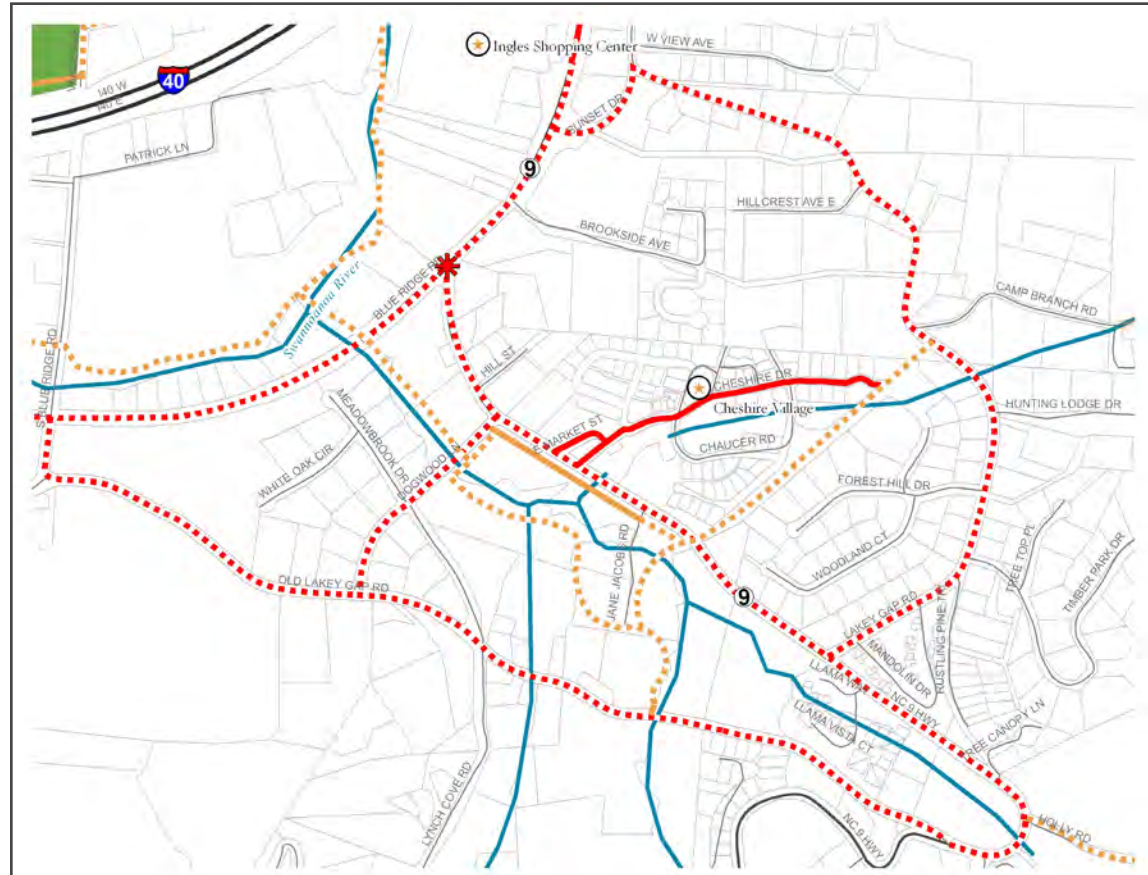
Blue Ridge Road

NC 9 South

Importance: Major roadway in the south end of Town; Connects residential areas to/from shopping centers and Downtown

Recommendation: Sidewalks along both sides except just south of Blue Ridge intersection where space is limited (one side is adequate here). Intersections should have pedestrian improvements. I-40 Exit ramps need significant pedestrian improvements with a separate study involving NCDOT engineers.

The NC 9 South corridor focus map. Sidewalks should be provided along-side both sides where possible.



Conceptual Photo Rendering:

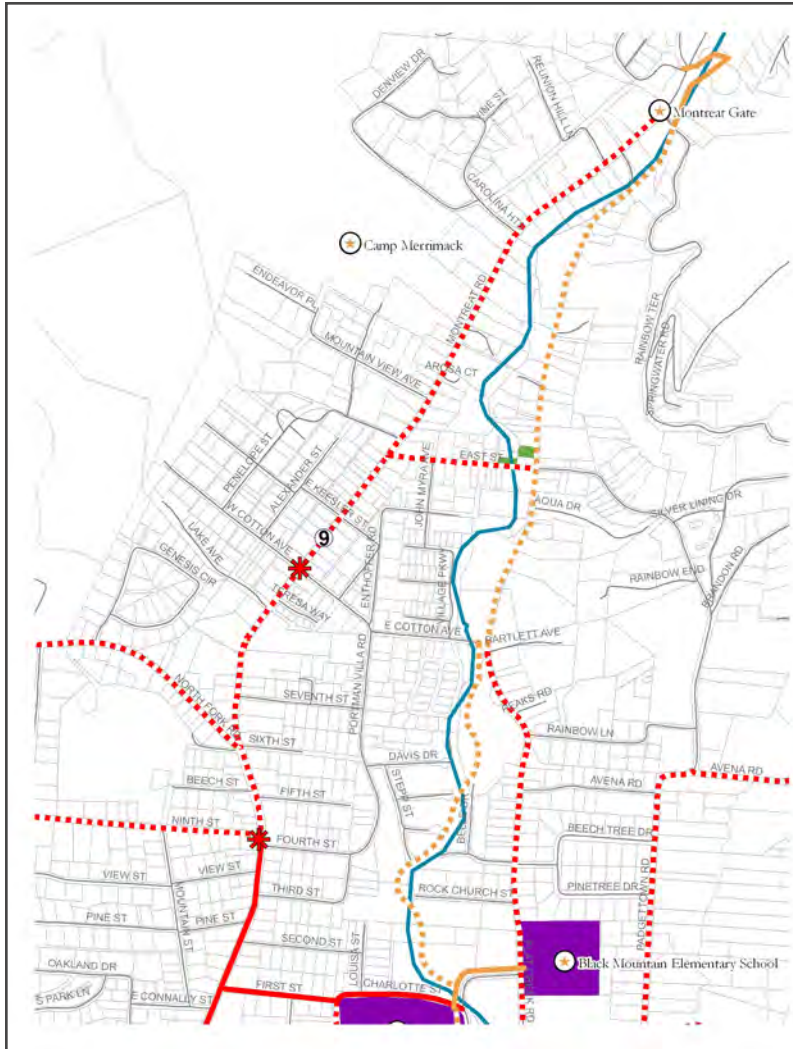
NC 9, just South of Interstate 40



NC 9 North (Montreat Road)

Importance: Major roadway in the north end of Town; Connects Black Mountain to Montreat and trails in Montreat

Recommendation: Sidewalks along both sides are not possible, but a continuous, paved sidewalk along the east side is critical. Intersections should have pedestrian improvements and a crossing provided at North Fork Road.



The NC 9 North corridor focus map. Sidewalks should be provided alongside both sides where possible and along the east side where there is only space for one side.



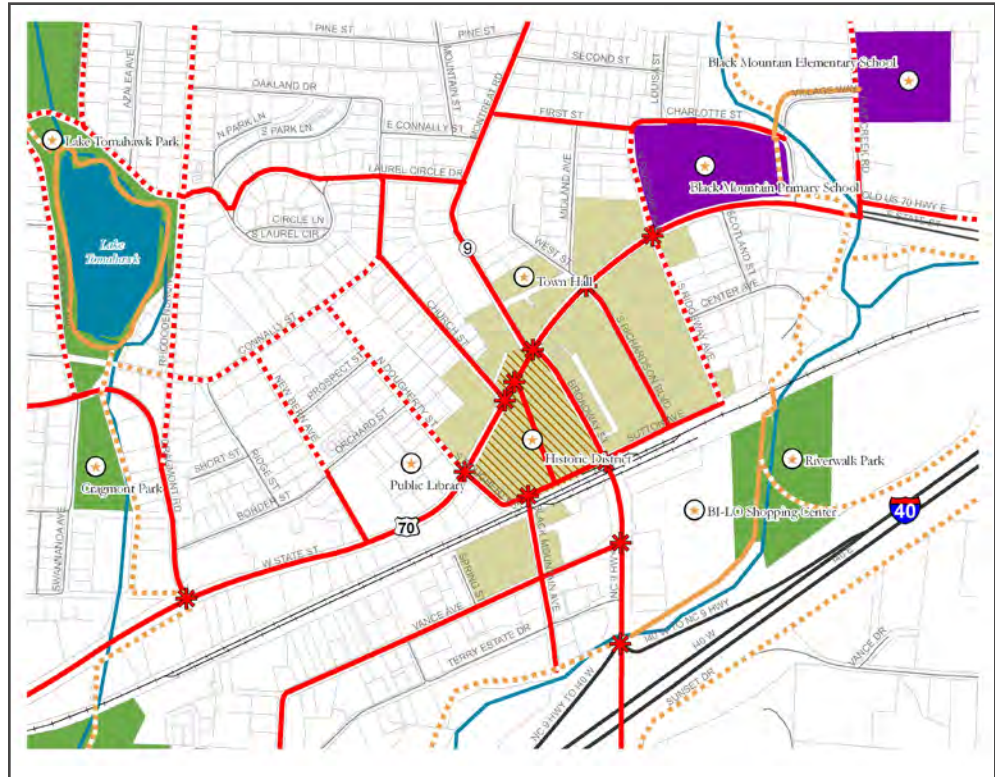
*Conceptual Photo Rendering:
Montreat Road*

Downtown

Importance: The pedestrian hub of Black Mountain; Connectivity to local businesses, schools, residences, churches, etc

Recommendation: Intersection improvements; Sidewalks at least one side along Ridgeway Avenue, New Bern Avenue, N Dougherty Street, Connally Street; and a Greenway along Swannanoa River

While the Downtown area is already quite pedestrian-friendly, there are opportunities for intersection improvements and new sidewalk along connecting streets.



Conceptual Photo Rendering:

Black Mountain Avenue and Sutton Avenue. Specific intersection improvement recommendation can be found in Table 3.1



Swannanoa River Corridor

Importance: Off-road greenway opportunity to connect Downtown to recreational facilities (Riverwalk Park, Black Mountain Recreation Park, Community Gardens) to residences

Recommendation: Greenway along river where possible. Immediate formalization of I-40 Underpass providing safe connection from Blue Ridge Road area to the Black Mountain Recreation park and the In-the-Oaks Trail



Conceptual Photo Rendering:

I-40 Underpass at In the Oaks Trail



School Area (Black Mountain Primary /Elementary Schools)

Importance: Only public schools within the Town limits. Over 300 students (almost half of Black Mountain Primary and Elementary School live within 1.5 miles of school).

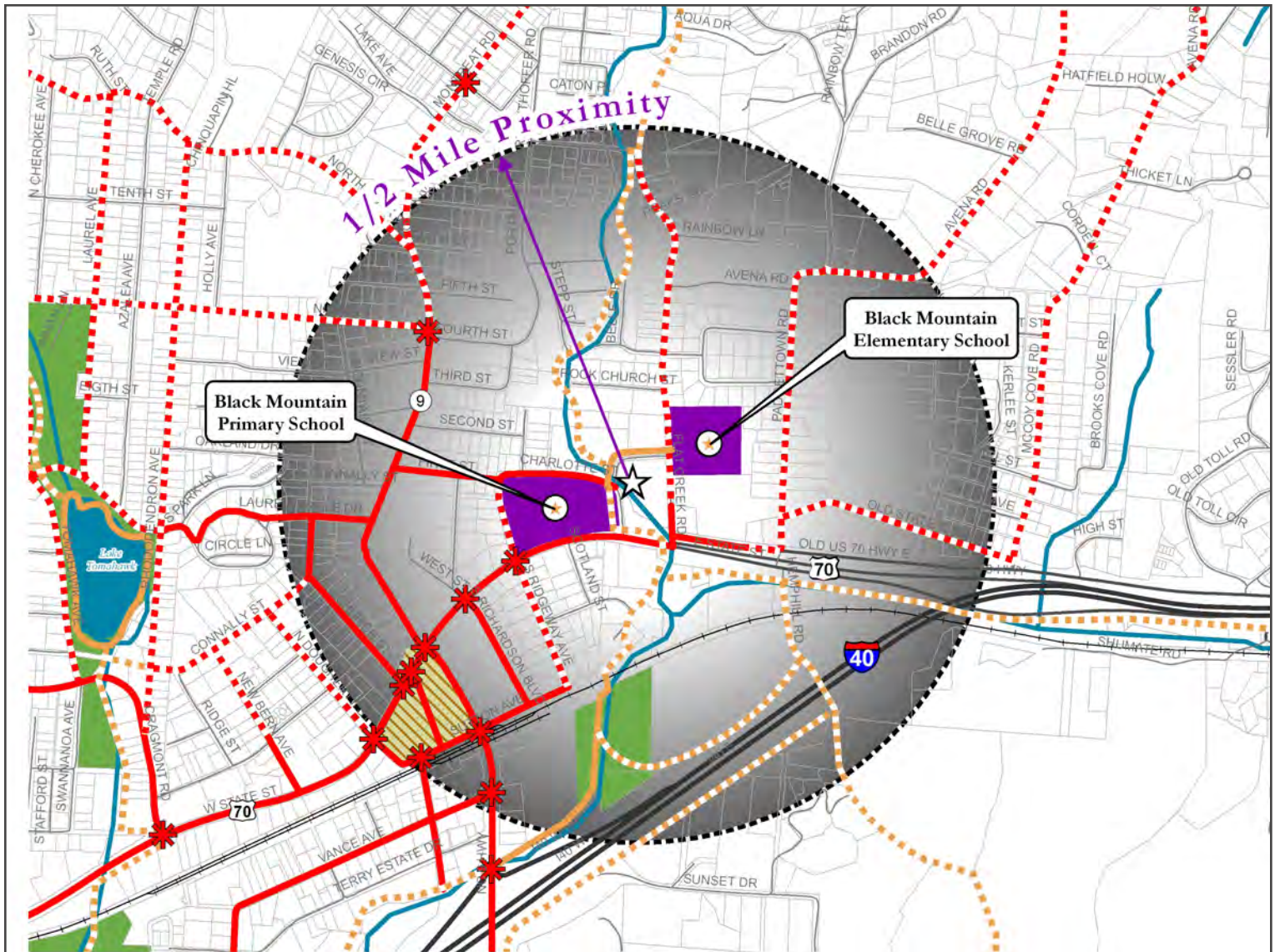
Recommendation: (Adapted and updated from Safe Routes to School National Course - Feb. 8, 2007, Black Mountain Elementary School):

- Continuous sidewalk along Flat Creek Road (both sides where possible, especially near and around Black Mountain Elementary School)
- Complete sidewalk connection in front of motel to Flat Creek Greenway
- Crossing improvement at Richardson and US 70 (See Table 3.1)
- Crossing guards at US 70
- Maintenance of sidewalks
- Advance pedestrian warning signs for crosswalks across US 70 and Flat Creek Road
- Speed humps and tables along Flat Creek Road, especially at crosswalk from Black Mountain Elementary to the Flat Creek Greenway
- Safe Routes to School walking maps for area residents
- Establish program to monitor condition of facilities to ensure proper maintenance

Conceptual Photo Rendering:

Flat Creek Road, in front of Black Mountain Elementary School. A sidewalk should be added on the west side and the crosswalk should be raised, creating a speed table to calm traffic.





The School area focus map. The circle represents a half mile buffer from Black Mountain Primary and Black Mountain Elementary School. This is a critical area for pedestrian improvements, considering dozens of students live within this half mile buffer.

E. REGIONAL CONNECTIONS

In addition to developing a comprehensive pedestrian network for the Town, Black Mountain is looking beyond the Town limits to link pedestrian facilities with neighboring municipalities. It is recommended that Black Mountain coordinate efforts with Montreat, Ridgecrest, Swannanoa, Asheville and Buncombe County to establish regional pedestrian facility connectivity. Regional pedestrian facilities offer long distance connections for alternative transportation and recreation. Surrounded by picturesque peaks and mountain streams, regional greenway trail connections will provide a draw to Black Mountain from neighboring areas. Upon evaluation of surrounding communities and natural corridors, a network of regional pedestrian corridor connections has been identified for the Black Mountain area. These corridors are illustrated on Map 3.1 and are discussed below.

Perhaps one of the most unique and valuable regional pedestrian facility opportunities exists along the Swannanoa River corridor from Black Mountain east through Swannanoa to Asheville. A multi-use greenway trail along this corridor could provide a direct link to the Asheville area, offering a long distance trail facility for all users, and enhance pedestrian and bicycle access to areas along US 70.

To the east, a regional pedestrian facility to Ridgecrest along the US 70 corridor could link Black Mountain to abundant recreation resources in Pisgah National Forest and the Mount Mitchell area. Pisgah National Forest offers an expanse of spectacular amenities, ranging from breathtaking vistas to challenging hiking trails. Black Mountain residents and visitors are drawn to these natural wonders and adequate pedestrian links from the Town to Pisgah National Forest will encourage an active and healthy lifestyle. The “Old US 70” road bed is being studied for redevelopment as a trail to Old Fort.

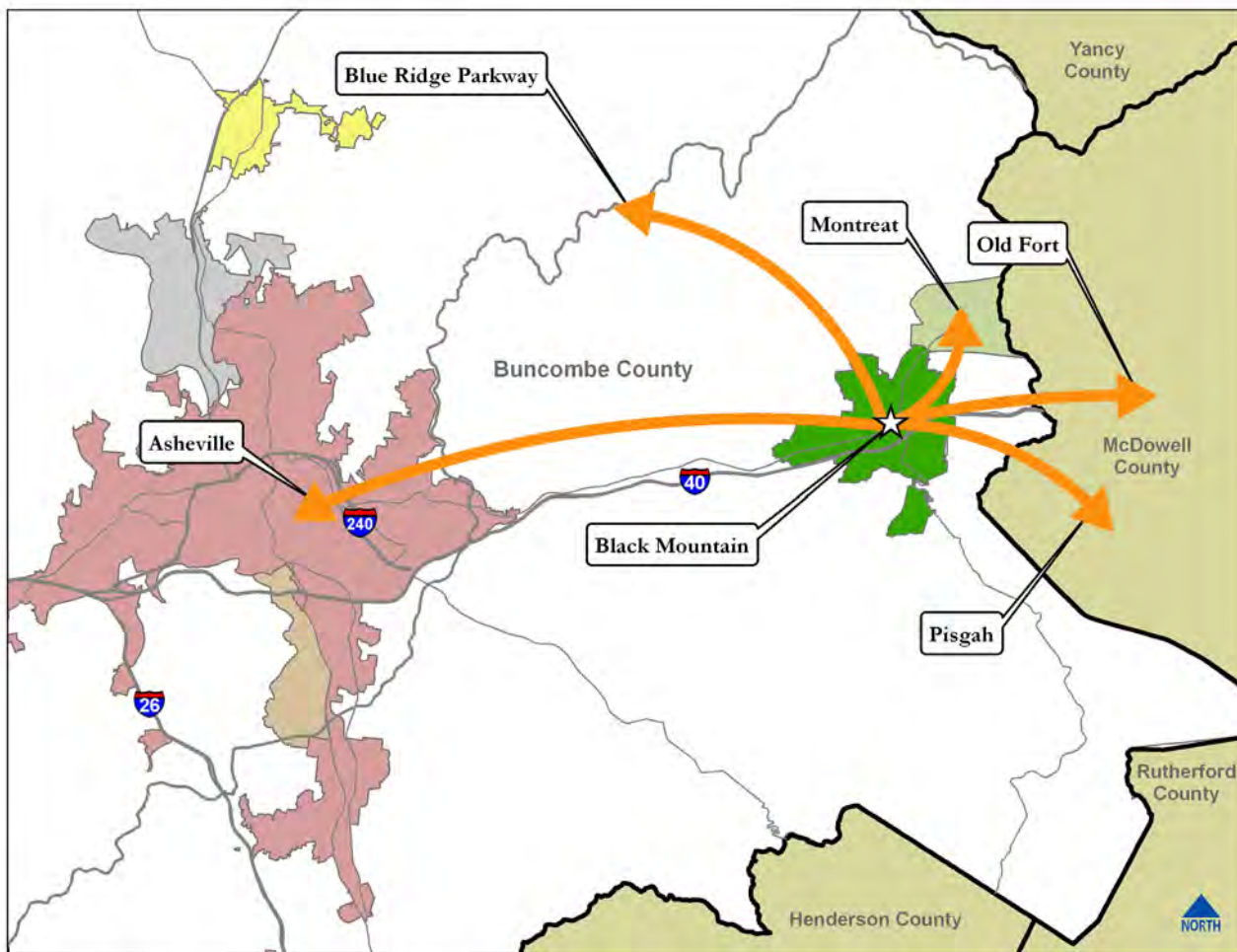
To the north, a regional pedestrian facility that includes the Flat Creek (or Primary School) Greenway could connect Montreat to Black Mountain, providing students and residents a safe link between Montreat College’s two campuses and other local destinations. The distance between Montreat and Black Mountain is not great, however the present pedestrian environment is not hospitable or safe to travel on foot. This is one of the specific recommendations of the Town’s Comprehensive Plan.

To the south, public input and recommendations from the Town Greenway Master Plan have indicated a significant desire to link pedestrian facilities to existing trails in and around the Black Mountain Watershed area. This area possesses an abundance of natural beauty and is in close proximity to Cheshire Village and The Settings. Establishing an adequate pedestrian link between the Watershed and neighboring developments will encourage individuals to access

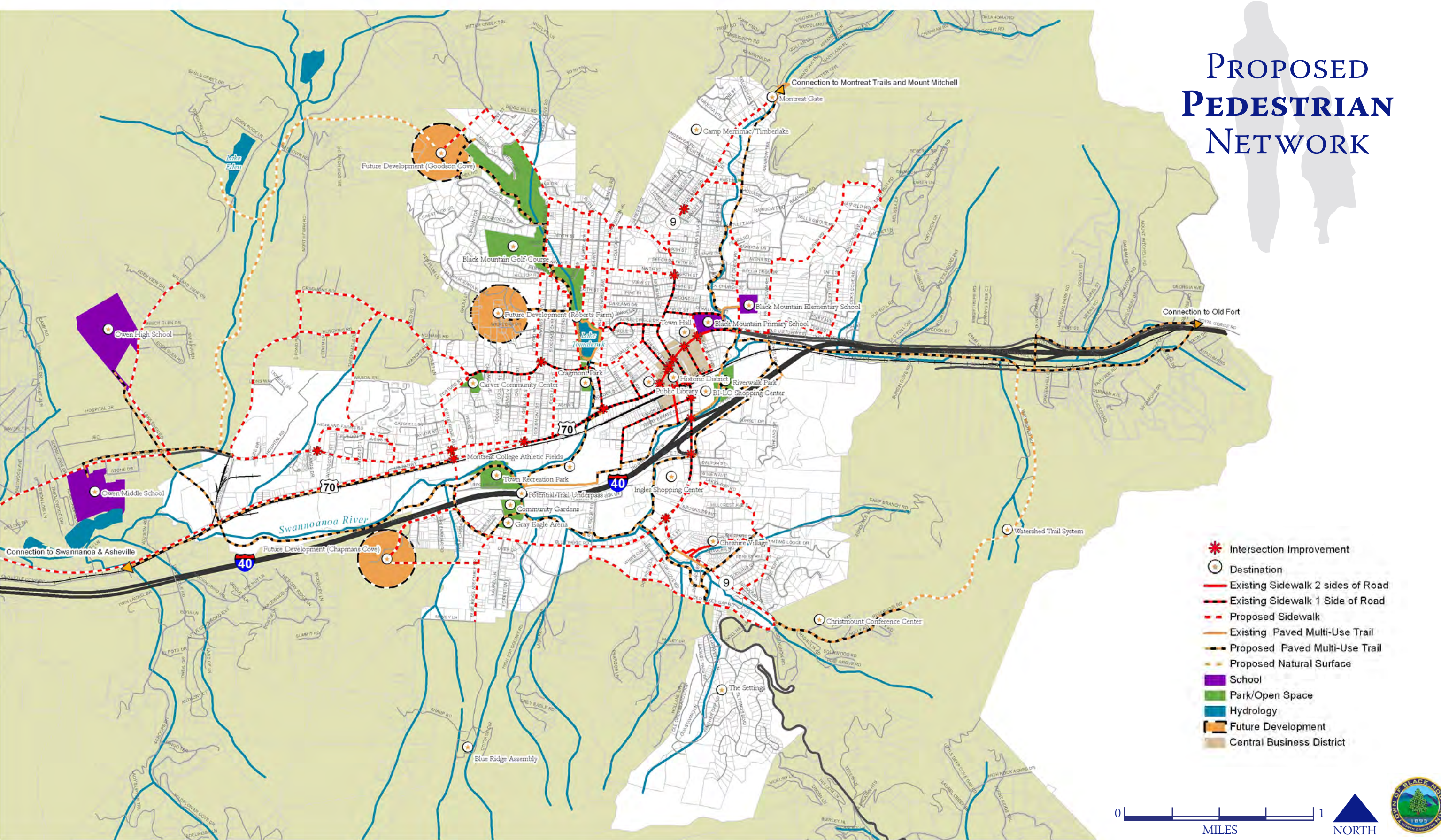
this area via foot, instead of by motor vehicle. Any public access to the Watershed area however will need to be evaluated by the Town and State for security and environmental risks.

Regional pedestrian facilities will provide numerous benefits for the Town of Black Mountain. Local residents will enjoy the connectivity to surrounding communities, utilizing regional pedestrian facilities for recreation and alternative transportation. Additionally, Black Mountain could potentially experience an economic stimulus from an influx of individuals traveling to and passing through the Town.

Should passenger rail ever become a reality, tourists could ride from Old Fort up “The Loops,” a scenic section of railroad, disembark at Black Mountain, and ride their bicycles or hike back along US 70 and Old US 70 to Old Fort. This would create a regional distinction trail that could have positive economic impacts on both Buncombe and McDowell Counties as well as the Town.



The regional connectivity map. The Town should pursue regional greenway connections. These connections can have a positive impact on recreation and tourism opportunities.



Intersection Improvement Projects	Road 1	Road 2	Reason (Major intersection, school, connectivity, etc)	Sight Distance	Signage (Y/N)	Controlled/ Uncontrolled	Curb Ramp (Y/N)	Curb Radius	Marked Crosswalk (Y/N)	Crosswalk Condition	Pedestrian Xing Signal (Y/N)	Curb Extension (Y/N)	Sidewalk	Speed Limit	Median island	Recommendations (curb extentions, marked crosswalks, countdown signals, sinage, reduction of curb radius, median islands, high visibility, advance warning signal/signage, traffic calming)
1	Blue Ridge	NC 9	Major intersection, connectivity	Not good; curves especially coming down NC 9	N	C (stop sign for Blue Ridge)	N	Wide!	N	-	N	N	N	35 mph on Blue Ridge; 35 or 45 mph on NC 9	N	Need a sidewalk first on Blue Ridge and NC 9 (sidewalk is best on the north side of Blue Ridge--avoid crossing here) Warning pedestrian crossing signs - flashing for NC 9; Traffic calming; Marked crosswalk; Roundabout an option
2	NC 9	I-40 Ramp South	Connectivity; major intersection; safety	OK	N	C (light)	Y	Wide!	N	-	N	N	Y - on west side of NC 9	35 mph	Y - not elevated at turning lane; Y - elevated to separate east-bound I-40 traffic	Extend median similar to the north side; Marked crosswalk; Advance warning signs; Add pedestrian-activated signals with light
3	NC 9	I-40 Ramp North	Connectivity; major intersection; safety	OK	N	C (light)	Y	Wide!	N	-	N	N	Y - on west side of NC 9	35 mph	Y - to separate turning traffic on to I-40	Marked crosswalk; Reduced speed limit; Advance warning signs; Enlarge median and put plantings to reduce crossing space - more aesthetically pleasing and eye-catching for motorists; Traffic light and pedestrian-activated signal
4	Black Mountain Avenue	Sutton / RR	Safety	OK but there is a curve around Sutton/Dougherty	N	C (No light; stop/ yeild)	Y (where	Too wide	N	-	N	N	Y - along side of Sutton and along south side east of intersection; both sides of Black Mountain Avenue	20 mph	N	Get rid of right yield turn off Dougherty/Sutton onto Black Mountain Avenue; Curb extension (shorten crossing distance) would calm traffic; Marked crosswalks across Sutton on both sides across Black Mountain Avenue
5	State	Broadway	Major intersection; downtown; safety	OK but buildings obstruct sight on southwest corner	Y (state law sign back and front of light on State)	C	Y (except west-bound to	Too wide	Y	Fair - needs paint	Y (no	N	Y - all sides	20 mph	N	Add countdown to pedestrian activated signals; Widen curb ramps on southeast and southwest corners; curb extensions, Tighten curb radius to calm traffic (the only issue with curb extension is truck turning); Service center parking lot leaves sidewalk, bumpy and inconsistent pavement in parking lot - need to improve this, separate this for pedestrians
6	Rhododendron	70	Major intersection	OK	N	C	Y	OK	Y - only on the north side and not across 70	OK	N	N	Y - only on north side of 70 and east side of Rhododendron	45 mph on 70; 25 mph on Rhododendron	N	Need sidewalk on south side of 70 and west side of Rhododendron; Need crosswalks over 70 and countdown signals; Reduce speed limit east-bound on 70 going into downtown; 20 starts east of intersection
8	Blue Ridge	70	Major intersection; connectivity	OK	N	C	N	Fairly wide	N	-	N	N	N	45 mph on 70; 35 mph on Blue Ridge	N	The works are needed - sidewalk first; Marked crosswalks and curb; Extended curb; Ramps needed; pedestrian activated countdown signals; Pedestrian crossing signage - caution signs; Speed limit reduction on 70
9	Blue Ridge	Old 70	Major intersection; connectivity	Good - except for the north side of Blue Ridge coming into the intersection	N	C -	N	OK	N	-	N	N	N	35 mph on both	N	The works are needed - sidewalk first; Marked crosswalks; Advance warning signs for pedestrians; Traffic calming and advance warning for Old 70
10	Sutton	Broadway at RR	Traffic, connectivity	OK	N	C	Y	OK	N	-	N	N	Y - On Broadway both sides - NW side - S Sutton - north side west of Broadway	20 mph	N	Marked cross walks; Pedestrian signals would be useful especially across Broadway; Sidewalk south of intersection on east side of 9; Crosswalk at RR is failing - stop line for RR and light at Sutton not aligned
11	Vance	NC 9		Tree issues (Pruning needed around pedestrian signal)	Y	C	Y (except at	Couple are wide	Y - on 2 sides only (north and west); needs checking	OK	Y (excpet at	N	Y - Only on west side	25 or 35 mph	N	Marked crosswalk (need all 4 checkered pattern); Get pedestrian activated signals all ways; Need sidewalk coming in on east side and facilities to accompany it; Lessen curb radius; Trim trees on corners to increase visibility some
12	State	Dougherty	Connectivity; destinations; not too major	OK	N	C	Y	OK	Y - only crossing to east side	OK	N	N	Y - All sides of 70; east side of Dougherty but not on west side of Dougherty	20 mph	N	Marked crosswalks; On one existing, should be ladder; Pedestrian activated signals - not as important here
13	Church	State	Traffic; downtown	OK but there are parked cars on the north side of 70	Y (yellow pedestrian crossing east-bound only)	C (No light; stop sign	Y	OK	Y - ladder crossing 70; east side; ladder crossing Church	OK	N	N	Y - all sides	20 mph	N	Add pedestrian crossing sign west-bound; Mostly OK but could add pedestrian-activated warning lights; Add state law warning signs in middle of road on 70
14	Cherry	State	Traffic, downtown, major intersection	OK but there are parked cars on the north side of 70	N	C (No light; stop sign on Cherry)	Y	Too wide on Cherry on both sides	Y - ladders across Cherry crossing 70 east side and west side (Church)	OK	N	N	Y - all sides	20 mph	N	Reduce curb radius; Extend curbs across Cherry - it is a long walk across; Pedestrian activated warning lights (maybe) - OK because there are many pedestrians and cars expect them; There is no left turn there coming to the intersection on Cherry; Add state law warning signs in the middle of the road on 70
15	State	West	Traffic; post office; visitor center	OK	N	C	Not all corners	OK	Y - Only on 2 sides	OK	N	N	Y - all sides	20 mph	N	Add marked crosswalks across Richardson, south side of 70 and across 70 on the west side; Add curb ramp across 70 on the northeast side

4. PROGRAM AND POLICY RECOMMENDATIONS

Chapter Outline:

A Overview

B Program

Recommendations

C Policy

Recommendations

A. OVERVIEW

The creation and implementation of a successful pedestrian system will involve more than facility improvements. The long-term success will also depend on proper development, use, and support of pedestrian facilities. The following recommended programs will aid in educating pedestrians about safe behaviors in a multimodal roadway environment, enforcing laws that make pedestrian travel safer, and encouraging people of all ages and abilities to use the pedestrian network for the promotion of health and wellness. The adoption of the proposed policy revisions later in this chapter will ensure that the Town of Black Mountain will continue to grow and evolve as a pedestrian friendly environment for all generations to enjoy.

B. PROGRAM RECOMMENDATIONS AND RESOURCES

B.1 Education

Public Education

The Town of Black Mountain should encourage the development of a local pedestrian advocacy group and a variety of safety materials for distribution. A local advocacy group (made up of members from the Community Health Initiative, Greenways Commission, and Parks and Recreation Commission) is a beneficial resource to promote safe pedestrian travel, provide feedback for opportunities and obstacles within the pedestrian system, and coordinate events and education and outreach opportunities. Educational materials can focus on safe behaviors, rules, and responsibilities. Information may include important pedestrian laws, 5 to 10 keys to safe pedestrian travel, safe motor vehicle operation around pedestrians, and general facility rules and regulations. This safety information can be distributed through brochures, newsletters, newspapers, bumper stickers, and other print media that can be inserted into routine mailings. It can also be posted on municipal websites and shown on local cable access television. Events, such as Park Rhythms, Sourwood Festival, and the Great Southeastern Hiking Festival

should be utilized to distribute information and a representative from the pedestrian advocacy group can answer any questions related to pedestrian safety. A booth could also be used to display safety information at various community events.

Internal Education

Agency staff and members of local planning and review boards should participate in annual training sessions on integrating pedestrian travel into all projects. Internal training will be essential to institutionalizing pedestrian issues into the everyday operations of the engineering, planning, and parks & recreation departments. This training should cover all aspects of the transportation and development process, including planning, design, development review, construction, and maintenance. This type of 'inreach' can be in the form of brown bag lunches, professional certification programs and special sessions or conferences. Pedestrian planning and design issues are complex, and national research and guidelines continue to evolve. Therefore, training sessions need to be updated and repeated on a regular basis.

Local law enforcement should be trained in accurate reporting of pedestrian crashes involving automobiles. In many communities, police do not always adequately understand the rights of pedestrians. Proper interpretation of individual circumstances and events is critical for proper enforcement and respect between motorists and pedestrians. Special training sessions should be instituted and occur annually for new employees within the Police Department that focus on laws relating to pedestrian travel.

Environmental and Historic Education/Interpretation

Educational programs and interpretation at signage could be developed along greenways and pedestrian routes. Greenways provide opportunities for learning outside the classroom. Specific programs that focus on water quality and animal habitat could be developed and are already planned along the Flat Creek Greenway. Events such as learning walks about specific animals or insects, tree identification, wildflower walks, environmental issues, stewardship education, and sustainability could be led by area experts. Also, simple educational signage would offer interactive learning opportunities for people who use the trail.



Educational signage offers great ways for people to learn about the history and environment of a place (Here in Raleigh, NC and Greenville, SC).

Interpretive Trails/Guided Tours

An educational component to the pedestrian network could be added by developing historical, cultural, and environmental themes for the facilities. This idea can be adapted to create walking tours throughout the Town, using signage, to identify the events, architecture, and landmarks that make the Town of Black Mountain unique. These tours should be simple to navigate and should stand alone as an amenity. However, brochures can be used to supplement signage with more detailed information and a map of the tour. Other ideas to supplement the signage could be organized “talks” or lectures by local experts. Partnerships with the Swannanoa Valley Museum and the Town’s Historic Preservation Commission should be enhanced to create programs.

Education Actions

- Black Mountain should sponsor annual training sessions for Pedestrian Design/Review
- Black Mountain should sponsor a session for new members of Law Enforcement focusing on Pedestrian Issues
- Create a Self-Guided Walking Tour of Historical/Cultural Sites in Downtown
- Establish an environmental tour of Swannanoa Creek and mountainous areas
- Establish outdoor classrooms-utilizing open space, parks, greenways, etc.
- Encourage the formation of a local pedestrian advocacy group that spawns from the existing Greenway Committee/Pedestrian Plan Steering Committee
- Produce a variety of safety materials for distribution to various age groups and at various events/locations

Education Resources

America Walks is a national coalition of local advocacy groups dedicated to promoting walkable communities. Their mission is to foster the development of community-based pedestrian advocacy groups, to educate the public about the benefits of walking, and, when appropriate, to act as a collective voice for walking advocates. They provide a support network for local pedestrian advocacy groups. <http://americawalks.org>

Safe Communities is a project of the National Highway Traffic Safety Administration (NHTSA). Nine agencies within the U.S. Department of Transportation are working together to promote and implement a safer national transportation system by combining the best injury prevention practices into the Safe Communities approach to serve as a model throughout the nation.

<http://www.nhtsa.dot.gov/safecommunities>

Safe Kids Worldwide is a global network of organizations whose mission is to prevent accidental childhood injury, a leading killer of children 14 and under. More than 450 coalitions in 15 countries bring together health and safety experts, educators, corporations, foundations, governments and volunteers to educate and protect families. Visit their website to receive information about programs, involving media events, device distribution and hands-on educational activities for kids and their families. <http://www.usa.safekids.org/>

Stepping Out-Older Adult Education on Pedestrian Safety
www.nhtsa.dot.gov/people/injury/olddrive/SteppingOut/index.html

Pedestrian Fatalities Related to School Travel is a fact sheet pertaining to school age children (NHTSA).
http://www.nhtsa.dot.gov/people/injury/pedbimot/ped/Getting_to_School/pedestrian.html

Rules of the Road for Grandchildren: Safety Tips is an information website for grandparenting. If you are a grandparent, you can play an important role in teaching your grandchildren the “rules of the road.” AARP.
<http://www.aarp.org/confacts/grandparents/rulesroad.html>

Streets in America are unsafe and unforgiving for kids
Article by the Pedestrian Safety Roadshow. U.S. Department of Transportation. Federal Highway Administration.
<http://www.tfhr.gov/safety/pedbike/articles/unsafe.htm>

Focusing on the Child Pedestrian
Pedestrian Information from the FHWA.
<http://safety.fhwa.dot.gov/roaduser/pdf/PedFacts.pdf>

Safekids is a child safety information website. Pedestrian injury remains the third leading cause of unintentional injury-related death among children ages 5 to 14.
<http://www.safekids.org/>

Eat Smart, Move More is a statewide movement that promotes increased opportunities for healthy eating and physical activity wherever people live, learn, earn, play and pray.
<http://www.eatsmartmovemorenc.com/>

NCDOT Division of Bicycle and Pedestrian Transportation provides significant information related to pedestrian programming.
<http://www.ncdot.org/transit/bicycle/>

B.2 Enforcement

Motorist Enforcement

Based on crash data analysis and observed patterns of behavior, law enforcement can use targeted enforcement to focus on key issues such as motorists speeding, not yielding to pedestrians in crosswalks, parking on sidewalks, etc. Sidewalk parking, for example, is often not enforced but should be, to maintain pedestrian accessibility, avoid maintenance issues, and comply with Town ordinances. All of these key issues should be targeted and enforced consistently. The goal is for pedestrians and motorists to recognize and respect each other's rights on the roadway.

As traffic continues to increase on North Carolina's streets and highways, concern has grown over the safety of our children as they walk to and from school. At the same time, health agencies, alarmed at the increase in obesity and inactivity among children, are encouraging parents and communities to get their children walking and biking to school. In response, the Division of Bicycle and Pedestrian Transportation funded a study on pedestrian issues, including school zone safety, and decided to establish a consistent training program for law enforcement officers responsible for school crossing guards. According to the office of the North Carolina Attorney General, school crossing guards may be considered traffic control officers when proper training is provided as specified in GS 20-114.1.

Pedestrian Enforcement

Observations made by local trail and pedestrian facility users can be utilized to identify any conflicts or issues that require attention. To maintain proper use of trail facilities, volunteers could be used to patrol the trails, particularly on the most popular trails and on days of heavy use. The volunteer patrol can report any suspicious or unlawful activity, as well as answer any questions a trail user may have. The volunteer patrol could be a responsibility of the pedestrian advocacy group. When users of the pedestrian network witness unlawful activities, they should have a simple way of reporting the issue to police. A hot line should be created, which would compliment the Trail Patrol Programs, for people to call in and talk to a live operator or to leave a voice mail message about the activity they witnessed. Accidents can also be reported to this hot line. Accident locations can then be mapped to prioritize and support necessary facility improvements.

Enforcement Actions

- Target and enforce all illegal motorist and pedestrian behavior that may jeopardize the success of the Town's Pedestrian Network
- Require all Crossing Guards to complete an NCDOT Crossing Guard Training Program
- Establish a Crossing Guard program for peak school hours

- Establish a local “Trail Patrol”
- Establish an Enforcement Hot line

Enforcement Resources

NCDOT School Crossing Guard Program

http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/crossing.html

NCDOT’s A Guide to North Carolina Bicycle and Pedestrian Laws. For an online resource guide on laws related to pedestrian and bicycle safety (provided by the National Highway Traffic Safety Administration), visit

www.nhtsa.dot.gov/people/injury/pedbimot/bike/resourceguide/index.html

B.3 Encouragement

School Programs

Many programs exist to aid communities in developing safer pedestrian facilities around schools. Programs can be adopted by parents or the schools to provide initiatives for walking or biking. Information is available to encourage group travel, prevent pedestrian related injuries, and sponsor commuter related events. A “Walking School Bus” is an encouragement program that provides an alternative way to transport children to school. A parent can be responsible for accompanying a group of children to school by utilizing the pedestrian system in Black Mountain. Safe Routes to School is a very successful national program that involves teachers, parents, and students in collaborative efforts to provide safe environments for walking to school and encouragement to do so.



Walking school buses and Safe Routes to School programs are great ways to encourage walking for younger people (Here in Durham, NC and Holly Springs, NC).

Awareness Days/Events

A specific day of the year can be devoted to a theme to raise awareness and celebrate issues relating to that theme. A greenway and its amenities can serve as a venue for events that will put the greenway on display for the community. Major holidays such as July 4th or local events such as the Sourwood Festival or Park Rhythms also serve as excellent opportunities to include pedestrian information distribution. The following are examples of other national events that the Town of Black Mountain can use to improve usage of pedestrian facilities:

Walk to Work Day/International Car Free Day

Designate one day a year for people to walk to work to help advance programs, promote active living, and raise awareness for environmental issues. Walk to Work Day can be at the end of an entire week or month of pedestrian promotional activities, including fitness expos, walking and jogging group activities, running and bicycling races and rides, etc.

“Strive Not to Drive Day”

This is an annual event to celebrate and promote the Town’s pedestrian achievements for the year throughout the region. Awards for pedestrian commuters, as well as booths, contests, and other events are organized through the MPO Bicycle and Pedestrian Task Force and Land-of-Sky Regional Council.

National Trails Day

This event is held every year in June. Other events, competitions, races, and tours can be held simultaneously to promote trail use within Black Mountain. The Parks and Recreation-Trails Division sponsors National Trails Day for the City of Greensboro every year and it has become a huge event for the City.

Earth Day

Earth Day is April 22nd every year and offers an opportunity to focus on helping the environment. Efforts can be made to encourage people to help the environment by walking to destinations and stay out of their vehicle. This provides an excellent opportunity to educate people of all ages in Black Mountain.

Use Facilities to Promote Other Causes

Network facilities could be used for events that promote other causes, such as health awareness. Not only does the event raise money/publicity for a specific cause, but it encourages and promotes healthy living and an active lifestyle, while raising awareness for pedestrian activities. Non-profit organizations such as the American Cancer Society, American Heart Association, and the Red Cross sponsor events such as Breast Cancer Walk, Diabetes Walk, etc.

Pedestrian Activities as Clubs

The Town of Black Mountain has numerous organizations that could be utilized to promote pedestrian activities. Education, enforcement, and encouragement programs can be advertised and discussed in club newsletters, seminars, and commit-

tee meetings. The following are suggested target groups or ideas to support the development of new clubs and organizations:

- Community Health Initiative
- Greenways Commission
- Black Mountain Elementary School
- Black Mountain Rotary and Kiwanis Clubs
- Swannanoa Valley Museum

Homeowner Associations

After the Town of Black Mountain updates the new development policies relating to pedestrian facility incorporation, more pedestrian facilities will emerge. HOA's could be a source for promoting neighborhood walks, clean-ups, and routine maintenance tasks.

Art in the Landscape

The inclusion of art along trail and pedestrian corridors would encourage use of facilities and provide a place for artwork and healthy expression to occur. Artwork could be displayed in a variety of ways and through an assortment of materials. Living artwork could be "painted" through the design and planting of various plant materials. Sculpture could be arranged as an outdoor museum. Art through movement and expression could be displayed during certain hours during the day or during seasonal events. An "Art Walk" could be established as an event along a trail in coordination with the Black Mountain Center for the Arts. Artwork can be provided by local schools, special interest clubs and organizations, or donated in honor or memory of someone.

Walking/Running Clubs

Neighborhoods, local groups, or businesses could promote walking or running clubs for local residents or employees to meet at a designated area and exercise before work, every Wednesday afternoon, or on a lunch break. This informal group could be advertised on local bulletin or information boards. These clubs could be specialized to attract different interest groups.

- Mother's Morning Club (Mom's with strollers)
- Walking Wednesdays (Senior group)
- Lunch Bunch (group from the municipal building runs during lunch hour)

Adopt-A-Trail

Local clubs and organizations provide great volunteer services for maintaining and patrolling trails. This idea could be extended to follow tour routes or specified streets/sidewalks. A sign to recognize the club or organization could be posted as an incentive to sustain high quality volunteer service.

Groups that help maintain trails and paths are recognized on trail signage (Here in Greensboro, NC, and Carrboro, NC).



Encouragement Actions

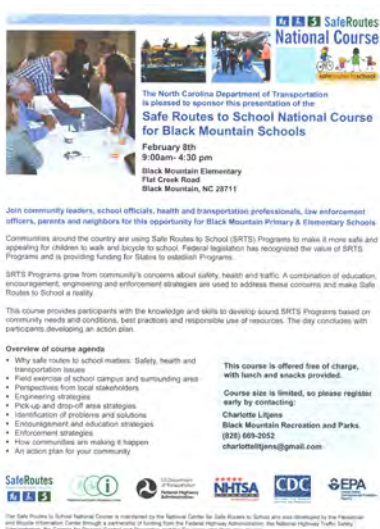
- Encourage children to walk to school, safely, through a combination of programs, listed under encouragement resources
- Establish awareness days
- Encourage the establishment of walking clubs
- Use pedestrian facilities to promote causes and hold special events for causes
- Utilize greenways for artwork and plantings

Encouragement Resources

Safe Routes to School is a national program with \$612 million dedicated from Congress from 2005 to 2009. Local Safe Routes to School programs are sustained by parents, community leaders, and citizens to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school.

Recently, the state of North Carolina has started the NC Safe Routes to School Program based off of the national program. The state has \$15 million over the next 5 years for infrastructure improvements within 2 miles of schools. This funding can also be used towards the development of school related programs to improve safety and walkability initiatives. The state requires the completion of a competitive application to apply for funding and a workshop at the school to determine what improvements are needed. <http://www.saferoutesinfo.org/>

National Walk our Children to School Day is usually held in October with the objective to encourage adults to teach children to practice safe pedestrian behavior, to identify safe routes to school, and to remind everyone of the health benefits of walking. To register walking events in Black Mountain, go to the main webpage, and follow the International Walk to School links: www.walktoschool-usa.org



Walk a Child to School in North Carolina. Forty years ago, half of all U.S. school children walked to school. Today, according to the Centers for Disease Control, only an estimated 10 percent walk to school. In many communities as much as 30 percent of morning commuter traffic is generated by parents driving their children to school. These traffic habits and children's lifestyle choices can have serious consequences. Traffic jams around our schools foul the air, waste fuel, and create safety problems for children.

In addition, the U.S. Surgeon General recently reported that thirteen percent of children aged 6 to 11 years and 14 percent of adolescents aged 12 to 19 were overweight in 1999. This statistic has nearly tripled in the past two decades for adolescents. A growing number of community groups throughout the nation, such as health professionals, Smart Growth advocates, traffic safety groups, local PTAs, and elected officials, are promoting walking to school initiatives. Some states have passed legislation instituting "Safe Routes to Schools" programs to encourage schoolchildren to walk or bike to school. The primary emphasis of these programs is to provide children with an opportunity to walk or bike to school in a safe, secure environment. In North Carolina, Walk a Child to School Programs have gained a foothold and are growing each year. To date more than 5,000 students in 12 communities in the state have participated.

The web site offers a history of Walk to School Day, child pedestrian information, resources for planning events and online registration.

<http://www.walktoschool.org>

Preventing Pedestrian Crashes: Preschool/Elementary School Children provides information to parents on pedestrian risks for preschool and elementary school children. Safe and Sober Campaign. Taken from the NHTSA website.

<http://www.nhtsa.dot.gov/people/outreach/safesobr/15qp/web/sbprevent.html>

Kidswalk-to-School is a resource guide to help communities develop and implement a year-long walk-to-school initiative. Centers for Disease Control and Prevention.

http://www.cdc.gov/nccdphp/dnpa/kidswalk/kidswalk_guide.htm

B.4 Programs to Promote Walkways and Generate Revenue

Black Mountain should be proactive in increasing revenue from programs and events that can help fund the building, management, and maintenance of future facilities. It will be necessary for staff to be assigned to focus on programming, researching further program ideas, and work with local groups, non-profits, schools, and citizens to develop programs further. Local foundations and agencies could organize and host events.

An increase in these types of events and an increase in promotion and advertising

will help increase interest and attendance. Promotion can occur through local media, newspaper, and websites. Fees should be increased in events annually or biannually to increase revenue. Specific program and event ideas that are being used across the country include:

- Races/triathlons (fees and donations)
- Concessions
- Educational walks/Nature walks/Historic walks
- Fund-raisers including dinners/galas
- Moonlight bike rides and walks
- Greenway parade
- Concerts
- Art events along greenway
- Events coincident with other local events such as fairs, festivals, historic/folk events, etc.
- Media events and ribbon-cuttings for new walkways

Strong, enforced regulations can create new developments that are pedestrian-friendly such as the Settings shown here. To the right is development along US70 that did not install sidewalks.



C. POLICY RECOMMENDATIONS

While the physical recommendations described in Chapter 3 represent an overall pedestrian network, strong pedestrian-oriented policies and regulations are also necessary to ensure these facilities are developed, especially for new growth in Black Mountain. All recommended policy statements will help the Town of Black Mountain achieve its vision of becoming one of the most walkable areas in the region.

This section outlines existing pedestrian-related policies in the Town of Black Mountain and recommends additional policy statements be adopted into the Town's regulations.

There must be a balance to achieve the multiple visions of Black Mountain which are retaining a small-town feel, making the community more walkable, and protecting the natural environment. Due to dramatic mountain topography, all residential and commercial development and site plans must be examined on a case-by-case

basis well before a design is approved. Policy statements that require pedestrian facilities with development must be somewhat flexible and practical within regulations for physical restrictions (This includes all policy recommendation statements in this section). All decisions need to be environmentally-sensitive. Sidewalk locations and widths may need to be modified on a case-by-case basis. There must be a proven environmental constraint for pedestrian modifications.

Town planning staff should become familiar with these policies and regulations to ensure the full suite of policy tools are used and enforced. Further tools to initiate pedestrian development are described in Chapter 5 and Appendix E.

Several high priority requirements for pedestrian facilities are listed below. These requirements create a safer and more convenient environment for pedestrian transportation and should be integrated into all policy documents for the Town of Black Mountain. They apply to all new roadway construction and roadway reconstruction projects in the downtown, suburban, and rural areas, as appropriate (e.g., areas where new developments are being constructed).

C.1 Top Priority Policy Recommendations

- Currently, subdivision regulations require five-foot sidewalks on at least one side of all new streets. Exceptions may be granted where topography and other natural features make this requirement impractical. It is recommended here that sidewalks be provided on both sides of major collector and subcollector where feasible and on one side where not feasible due to environmental constraint. Short cul-de-sacs, permanent dead-end streets, and roadways in areas with rural development (e.g., less than one dwelling unit per 6 acres) do not need sidewalks unless as part of a larger subdivision Master Plan or as identified in the Pedestrian Transportation Plan.
- Sidewalks should have a minimum width of five feet but should be wider where pedestrian traffic is higher, including near schools, senior centers, and commercial areas or where sidewalks connect or overlap with the Greenways Master Plan. Currently, the Town of Black Mountain has a minimum requirement of five feet.
- The buffer space between the sidewalk and the curb and gutter should be maximized within the available right-of-way. 4' is suggested as a minimum on major thoroughfares like US70, but could be decreased in areas of slower and less traffic. Larger buffers are preferred for street tree health and pedestrian comfort. This is flexible related to environmental constraint. Currently, the Town of Black Mountain has no requirement for buffer space.
- Because of topographic constraints and right-of-way issues, it may only be feasible to place sidewalks on one side of a road with minimal or no buffer. These roads in the pedestrian network are listed in Chapter 3. A cross section of a one-side, no-buffer sidewalk is provided in Chapter 6.

Safe intersections are critical to pedestrian mobility and safety (Here at State and Broadway).



- Raised medians or pedestrian refuge islands should be provided, where practical, at crosswalks on streets with more than three lanes, especially on streets with high volumes of traffic. They should be six- to ten-feet wide. Currently, the Town of Black Mountain has no guidance for raised medians.
- Pedestrians and bicyclists should be accommodated on roadway bridges, underpasses, and interchanges and on any other roadways that are impacted by a bridge, underpass, or interchange project (except on roadways where they are prohibited by law). All new bridges should be constructed with bicycle lanes and wide sidewalks.
- Developers should be required to provide alternative transportation connections within their development and between developments to provide connectivity.
- Where recommended as part of the pedestrian network in the Greenway Plan and Pedestrian Plan, developers must provide sidewalks and greenways.
- Pursue partnerships with local schools and to develop “Safe Routes to School” programming, education and infrastructure improvements.

C.2 Strategic Policy Recommendations

More recommended policy statements and paragraphs by category are provided below that facilitate specific changes. The categories include pedestrian network and connectivity, safety, aesthetics, land use and development, greenways, and subdivision regulations.

Pedestrian Network and Connectivity

Goal: Create and maintain a pedestrian route network that provides direct connections between Downtown, trip attractors, schools, and residential/commercial areas.

- To the maximum extent possible, make walkways accessible to people with physical disabilities.
- Develop a system of informational and directional signage for pedestrian facilities and greenways.
- All roads surrounding schools should have sidewalks on both sides of the road with safe crosswalks.
- Sidewalks and greenways should be developed in order of priority where possible as listed in Chapter 5 - Implementation. These segments facilitate immediate improvements and connections to major trip attractors within Black Mountain.

Safety

Goal: Strive to maintain a complete, safe sidewalk network free of broken or missing sidewalks, curb cuts, or curb ramps and that include safety features such as traffic calming, lighting, and sidewalk repairs.

- Identify pedestrian facilities that are not ADA-compliant including missing, damaged, or non-compliant curb ramps, stairs, or sidewalk segments of inadequate width and create a plan for improving them.
- Develop a traffic calming program to slow traffic through Downtown and on major corridors, making them aware that they share the corridors with pedestrians.
- Make pedestrian crossings a priority and initiate improvements recommended in Chapter 3. Consider variations in pavement texture and clear delineation of crosswalks. Also, ensure that crosswalks are properly lit at night.
- Implement pedestrian scale lighting at regular intervals in areas of high pedestrian activity to promote pedestrian safety and discourage criminal activity.
- Develop and expand the Town's maintenance program of sidewalk repairs, debris removal, and trimming of encroaching vegetation.

Aesthetics

Goal: Encourage the inclusion of art, historic, and nature elements along with street furniture, landscaping, and lighting in pedestrian improvement projects (One of the Comprehensive Plan's visions is community appearance and well-landscaped roadways).

- Develop street design guidelines to incorporate recommendations of this plan (See Chapter 6 - Design Guidelines)
- Require street trees and planting buffers between the sidewalk and the street along all new roadways and sidewalk construction. Keep all vegetation trimmed.
- Encourage and/or require private owners (of residences and businesses) to keep their area in and around the sidewalk free of debris and litter. Currently, the Town of Black Mountain has a regulation making it unlawful to throw any debris or deposit upon a sidewalk.
- Continue and expand ongoing US 70 Corridor Planning Project with specific Downtown design improvements.

Land Use and Development

Goal: Promote land uses and site designs that make walking convenient, safe, and enjoyable.

- Use building and zoning codes to encourage a mix of uses, connect entrances and exits to sidewalks, and eliminate “blank walls” to promote street level activity (as described in Central Business District description in the Zoning Code of the Land Use Ordinances).
- Applicable buildings should be required to build to the sidewalk. Also, parking lots should be prohibited in front of buildings where possible to develop pedestrian oriented areas (as described in Central Business District description in the Zoning Code of the Land Use Ordinances).
- Promote parking and development policies that encourage multiple destinations within an area to be connected by pedestrian trips. Specifically, promote the connectivity of parking lots between businesses for increased safety and avoidance of roadway traffic.
- Assure safe pedestrian access through large parking lots.
- Parked vehicles shall not block pedestrian walkways.
- Require benches, shelters, sheltered transit stops, trees, and other features to facilitate the convenience and comfort of pedestrians.

Greenways

• ‘Greenways’ should be defined as part of the Town of Black Mountain’s public infrastructure. Greenways are public infrastructure that provide important functions to not only offer transportation alternatives, but to protect public health safety and welfare. Within flood prone landscapes, greenways offer the highest and best use of floodplain land, mitigate the impacts from frequent flooding and offer public utility agencies access to floodplains for inspection, monitoring and management. Greenways filter pollutants from stormwater and provide an essential habitat for native vegetation that serves to cleanse water of sediment. Greenway trails provide viable routes of travel for cyclists and pedestrians and serve as alternative transportation corridors for urban and suburban commuters. Greenways serve the health and wellness needs of our community, providing close-to-home and close-to-work access to quality outdoor environments where residents can participate in doctor prescribed or self-initiated health and wellness programs. All of these functions make greenways a vital part of community infrastructure.

• Encourage utility corridor development practices that allow for maximum compatibility with pedestrian and bikeway corridors. Land and easements purchased for the purpose of providing utilities (such as water and sewer) can serve a greater community benefit if developed to accommodate a multi-use trail.

• Subdividers are required to provide natural buffers along both sides of all perennial streams. Public greenway trails with limited disturbance along perennial and intermittent streams are excellent uses for these spaces and should be dedicated during the subdivision process.

Subdivision Regulations

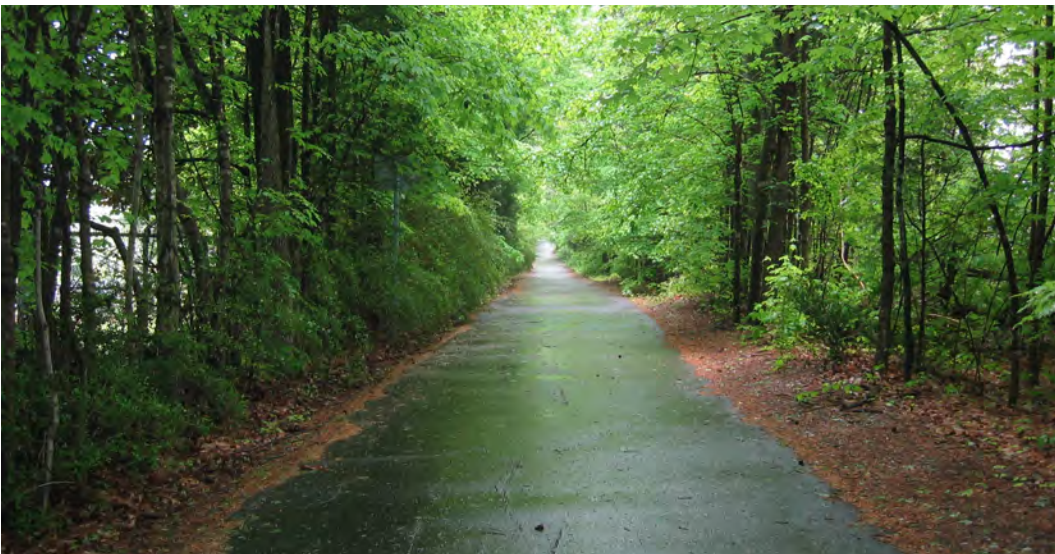
Subdivision Regulations are a key element to ensuring pedestrian-friendly communities and connectivity to the overall Black Mountain pedestrian network. Several

methods of sidewalk and greenway acquisition and development are described in Appendix E-Acquisition with a focus on specific items that are commonplace to subdivision regulations.

The Town of Black Mountain's Comprehensive Plan recommends regulations that require developers to include green space and playgrounds in every "large" development. The recommendations here take this a step further by suggesting that greenways and sidewalks also be requirements along with connectivity within and outside the development on adjacent thoroughfares or to planned greenway corridors.

Dedication and Maintenance of Open Space and Greenways

In any case in which a greenway or sidewalk is indicated on an adopted plan of the Town of Black Mountain as being located on lands proposed for development, such greenway or sidewalk should be dedicated and developed. These developed lands for open space, greenways, and sidewalks would be dedicated to the Town as park land to form a connected pedestrian network. This can come in the form of a simple mandatory dedication (development of greenway, park, or sidewalk), a fee-in-lieu of a mandatory dedication (fees are required to be paid to the Town based on size of development), or an impact fee (another form of fee required that developers can pay on a unit-by-unit basis). If dedication does not occur, fees are an excellent means for the Town of Black Mountain to pool monies for sidewalk and greenway development. These three methods are described in more detail in Appendix E.



Greenways, as part of an adopted Town Plan, can become mandatory dedications for developers (Bicentennial Greenway in Greensboro, NC).



5. IMPLEMENTATION

Chapter Outline:

A Overview

B Key Action Steps

C Top Priority Projects

D Staffing

E Performance Measures

F Pedestrian Facility Development

G Greenway Acquisition

H Maintenance

A. OVERVIEW

Successful implementation requires the dedication of Town staff and the continued support of Steering Committee members. This chapter will serve as a simple guide with key action steps, top priority projects, staffing recommendations, an evaluation and monitoring process, methods of pedestrian facility development and greenway acquisition.

B. KEY ACTION STEPS

These following steps are integral to achieving the goals and vision of this Plan. As guiding recommendations and the clearest representation of specific items to accomplish, they should be referred to often. With the exception of the first step, there is no particular order in which these should be addressed.

1. Adopt this Plan.

Through adoption, the Plan becomes a legitimate planning document of the Town. Adoption shows that the Town of Black Mountain has undergone a successful, supported planning process. The Town can then use this document to receive funding through NCDOT and other resources.

2. Begin Top Priority Projects.

The prioritization of pedestrian facility development provides a list of the most important projects to improve connectivity and safety. The prioritization matrix, found in Appendix B, lists the improvements in order of importance. Top priority projects are pulled from this matrix and described in the next section. Steering Committee input, public input, and criteria such as sidewalk gap closure and proximity to schools and other trip attractors were used to develop this list. Immediate attention to the high priorities will instantly have a large impact on pedestrian conditions in Black Mountain. These high priority projects should be supported by local funding and part of the local Capital Improvement Program (CIP).

3. Improve and Enforce Town Regulations.

To ensure future development provides pedestrian facilities and improves pedestrian friendliness, regulations should be updated and enforced. These policy recommendations are provided in more detail in Chapter 4. It should be the goal of the Planning Department to update land use and subdivision regulations as soon as possible and to enforce these. All pedestrian-related regulations should be subject to case-by-case environmental evaluation. The most important regulation updates are:

- Adapt and implement Design Guidelines (Chapter 6).
- Mandatory development of sidewalk and greenway network when on adopted Town Plan map through an area of new development.
- The creation of a mandatory dedication, impact fee, or fee-in-lieu program for new development to provide pedestrian and greenway facilities.

4. Keep Greenway Commission Going and Give Citizens More Responsibility.

The Town of Black Mountain is blessed with an active Greenways Commission. This Commission developed a Greenway Master Plan with goals of connecting places around Town through a system of trails. The Greenway Commission, along with the Planning Board and Recreation and Parks Commission, should take on the role of on-road bicycle and pedestrian planning to provide a network of off-road and on-road facilities that connects people to places. These boards should help coordinate and oversee the implementation of this Plan, develop programs, continue to listen to community needs, promote the pedestrian network, and keep positive momentum going.

Citizen Boards and Commissions can also help monitor the progress of the Town and NCDOT as they develop new facilities and programs. This group also can push for additional improvements to build upon the recommendations of this plan. Coordination with NCDOT, specifically the Division of Bicycle and Pedestrian Transportation, the Transportation Planning Branch, and the Division 13 office will prove critical if this plan is to be implemented successfully.

5. Take What You Can Get.

While it is ideal to develop pedestrian facilities in order of priority, it is wise to also create facilities when opportunity arises. Some of the most cost-effective opportunities to provide pedestrian facilities are during routine roadway construction, reconstruction, and repaving projects. A new commercial development or a roadway widening project, for instance, would provide the means to build sidewalks or trails as a component of an existing effort, saving costs.

6. Seek multiple funding sources and facility development options.

Multiple approaches should be taken to support pedestrian facility development and programming. It is important to secure the funding necessary to undertake

the short-term, top priority projects but also to develop a long term funding strategy to allow continued development of the overall system. Capital and Powell Bill funds for sidewalk, crosswalk, and greenway construction should be set aside for each year. A variety of local, state, and federal options and sources exist and should be pursued. Important local funding means include bonds and special allocations. Funding options are described in Appendix D. Other methods of pedestrian facility development and greenway acquisition that are efficient and cost-effective are described later in this chapter.

7. Develop pedestrian programming.

Programming such as Safe Routes to School and others described in Chapter 4 can help educate and encourage users. Public events and media involvement should be considered when announcing new walkways and upcoming projects.

8. Ensure planning efforts are integrated regionally.

Regional efforts such as those described in Chapter 3 are opportunities for the Town of Black Mountain. Combining resources and efforts with surrounding municipalities and stakeholders is mutually beneficial. Regional, long-distance trails often spark the most excitement, use, and tourism. It is also important to stay aware and communicative with other municipality, county, state, and NC-DOT efforts to ensure the Town takes advantage of funding opportunities and support.

The Pedestrian Plan Steering Committee, formed of local citizens and members of the existing Greenways Committee, contribute to the Plan during a project meeting. This group of people can help the Town of Black Mountain more successfully implement this Plan.



C. TOP PRIORITY PROJECTS

As generated and listed in the Appendix B Prioritization Matrix, the top pedestrian projects in Black Mountain are ones that create significant and immediate improvements to connectivity and safety. These are projects that should occur in the short-term to have an immediate, positive impact. These projects should be incorporated into the Town's Capital Improvement Program (CIP) and/or State Transportation Improvement Program (TIP). In order to make the State TIP list or the Priority Needs List, the Town of Black Mountain will have to work directly to submit needs through the French Broad River Metropolitan Planning Organization.

As described in Chapter 3, there are three pedestrian facility types recommended: sidewalks, greenways, and intersection improvements. Intersection improvement recommendations are provided in Table 3.1, all of which are high priority. Sidewalks are prioritized in matrix format in Appendix B. Greenways are prioritized based on connections they provide and public input.

The following tables list the top priority sidewalk and greenway projects and estimated costs.

Top Priority Pedestrian Network Segments			From	To	Segment Length (linear foot)	Existing Sidewalk Single Side (linear foot)	Existing Sidewalk Double Side (linear foot)	Sidewalk Recommendation*	Sidewalk Needed (linear foot)	Unit Cost (per sq. foot)	Width (5')	Total Estimated Cost
Top Priority Project	1	Flat Creek Road	US 70	Cotton Avenue	2975	307	0	Single Side	2668	\$11	5	\$146,740.00
Top Priority Project	2	NC 9	Blue Ridge Road	Sutton Avenue	4004	2785	0	Double Side	5223	\$11	5	\$287,265.00
Top Priority Project	3	US 70	Padgett Road	NC 9/Broadway Street	3140	1280	1368	Single/Double	492	\$11	5	\$27,060.00
Top Priority Project	4	NC 9/Broadway Street/Montreat Road	Sutton Avenue	First Street	2271	2271	0	Double Side	2271	\$11	5	\$124,905.00
Top Priority Project	5	Ridgeway Avenue	First Street	Sutton Avenue	1650	0	0	Single Side	1650	\$11	5	\$90,750.00
Top Priority Project	6	US 70	NC 9/Broadway Street	Cragmont Road	2550	1900	650	Double Side	1900	\$11	5	\$104,500.00
Top Priority Project	7	Church Street	Laurel Circle Drive	US 70/State Street	1527	1527	0	Built*	0	\$11	5	\$0.00
Top Priority Project	8	Dougherty Street	Connally Street	Black Mountain Avenue	1649	420	0	Single/Double	1649	\$11	5	\$90,695.00
Top Priority Project	9	NC 9/Montreat Road	First Street	Sixth Street	1687	1087	0	Single Side	600	\$11	5	\$33,000.00
Top Priority Project	10	Richardson Boulevard	US 70/State Street	Sutton Avenue	909	909	0	Built*	0	\$11	5	\$0.00
Top Priority Project	11	Black Mountain Avenue	Sutton Avenue	Swannanoa River	984	0	984	Built*	0	\$11	5	\$0.00
Top Priority Project	12	First Street/Charlotte Street	NC 9/Montreat Road	Flat Creek Road	1651	1651	0	Single Side	0	\$11	5	\$0.00
Top Priority Project	13	NC 9	Old Lakey Gap Road	Cheshire Drive	3520	0	0	Single Side	3520	\$11	5	\$193,600.00
Top Priority Project	14	NC 9	Cheshire Drive	Blue Ridge Road	1360	0	0	Single Side	1360	\$11	5	\$74,800.00
Top Priority Project	15	Cherry Street	Dougherty Street	US 70/State Street	604	0	604	Built*	0	\$11	5	\$0.00
Top Priority Project	16	Old US 70	West College Street	Blue Ridge Road	2100	0	0	Single Side	2100	\$11	5	\$115,500.00
Top Priority Project	17	Old US 70	Grovestone Road	Owen Middle School	4213	0	0	Double Side	8426	\$11	5	\$463,430.00
Top Priority Project	18	Sutton Avenue	Dougherty Street	Ridgeway Avenue	1207	1207	0	Single/Double	473	\$11	5	\$26,015.00
Top Priority Project	19	Laurel Circle Drive	Rhododendron Avenue	NC 9/Montreat Road	1747	1747	0	Built*	0	\$11	5	\$0.00
Top Priority Project	20	Rhododendron Avenue	Cragmont Road	Laurel Circle Drive	1580	0	0	Single Side	1580	\$11	5	\$86,900.00
												\$1,865,160.00

Top Priority Greenway Trail Network Segments			From	To	Segment Length (linear foot)	Trail Type (Recommendation)	Unit Cost (per linear foot)	Width	Total Estimated Cost
Top Priority Project	1	Community Garden Trail	Community Gardens	Oaks Trail	1000	Paved Multi-use	\$50	10	\$50,000.00
Top Priority Project	2	Primary School Trail	Primary School	Cotton Avenue	2700	Paved Multi-use	\$50	10	\$135,000.00
Top Priority Project	3	Grey Eagle Trail	NC 9	Oaks Trail/Gray Eagle	3500	Paved Multi-use	\$50	10	\$175,000.00
									\$360,000.00

Tables of estimated sidewalk and greenway costs. These costs may rise due to special design needs such as underpasses and resolving topographic issues. Design and construction documents will be necessary for greenway implementation as well.

D. STAFFING

The proper staffing for implementation, operation, and maintenance tasks de-

scribed above should be coordinated and shared by several departments.

Planning and Development Department

First and foremost is the need for the Town to create a Pedestrian Coordinator position or deliver these tasks to a current Town planner with the capacity to task of implementing this Plan. The Coordinator would lead the effort to apply for funding, oversee planning, design, and construction of pedestrian facilities. The Coordinator would lead and assign tasks such as coordinating programming, leading public outreach, staff training on pedestrian issues, monitoring the use of and demand for pedestrian facilities, reporting to the planning department, and proposing future alternative routes. The coordinator would also ensure coordination with surrounding municipalities and with regional trail connections.

The planning and development department would have other important roles. These include being responsible for site plan review to ensure pedestrian-friendliness, particularly in large residential and commercial development. Also, pedestrian-related GIS and mapping should be maintained, consolidated, and updated by GIS staff as new greenways and sidewalks are constructed. It is recommended that coordination occur between departments to construct a single, maintained pedestrian GIS layer (sidewalk and greenways) for the Town with informative attributes that include sidewalk width, length, material, etc.

Public Works Department

The Public Works Director should participate in the construction and maintenance of all trail and pedestrian facilities. The Public Works section devoted to Streets should also be devoted to future recommendations for the pedestrian networks, discussed earlier in this plan. Public Works should handle facility development and construction (including posting pedestrian signs) among other responsibilities.

North Carolina Department of Transportation

NCDOT Division Thirteen maintains some pedestrian facilities within the roadway rights-of-way that are owned by the State. This includes crosswalks, signage, and pedestrian signals. The Town of Black Mountain is responsible for the maintenance of ALL sidewalks through Town.

The Town can utilize annual Powell Bill allocations toward repair and construction of sidewalks (See Appendix D).

Recreation and Parks Department

Duties for the Recreation and Parks Department should include carrying out the greenway recommendations from this Plan, applying for funding, and overseeing all park and greenway facilities. This includes updating and publishing new maps, creating and updating GIS layers of all greenway facilities, proposing future alternative routes, and working with adjacent communities/counties to coordi-

nate linkages to other greenways. The Parks and Recreation Director and/or staff should also play a role in education and encouragement programs.

Police Department

The Black Mountain Police Department plays a vital role in pedestrian safety and works very hard to assist the schools during peak school traffic hours and in policing Town streets, parks and greenways. All local police officers should be educated about North Carolina's pedestrian laws to promote positive interactions between pedestrians and motorists. The Guide to North Carolina Bicycle and Pedestrian Laws, written by the NCDOT Division of Bicycle and Pedestrian Transportation, should be distributed to local law enforcement. Programs such as the Safe Routes to School grants, offer the opportunity for the Police Department to partner with other Town Departments to improve pedestrian safety.

Volunteers

Services from volunteers, student labor, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers. Other efforts and projects can be coordinated as needed with senior class projects, scout projects, interested organizations, clubs or a neighborhood's community service to provide for the basic needs of the proposed networks. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to the Town's greenway and pedestrian networks.

E. PERFORMANCE MEASURES (EVALUATION AND MONITORING)

The Town of Black Mountain and assigned Commissions or Committees should establish performance measures to benchmark progress towards achieving the goals of this Plan. These performance measures should be stated in an official report within one to three years after the Plan is adopted. Baseline data should be collected as soon as the performance measures are established. The performance measures should address the following aspects of pedestrian transportation and recreation in Black Mountain:

- Safety. Measures of pedestrian crashes or injuries.
- Usage. Measures of how many people walking on on-road and off-road facilities.
- Facilities. Measures of how many pedestrian facilities are available and the quality of these facilities.
- Education/Enforcement. Measures of the number of people educated or number of people ticketed as a part of a pedestrian safety campaign.
- Institutionalization. Measures of the total budget spent on pedestrian and greenway projects and programs or the number of municipal employees receiving

pedestrian facility design training.

When establishing performance measures, the Town should consider utilizing data that can be collected cost-effectively and be reported at regular intervals, such as in a performance measures report that is published every two to three years. As the process of collecting and reporting pedestrian and greenway data is repeated over time, it will become more efficient. The data will be useful for identifying trends in non-motorized transportation usage and conditions.

Land use, transportation, development, and the overall landscape will continue to change as Black Mountain grows resulting in a dynamic area. Also new opportunities or input from an on-going monitoring and evaluation process may emerge, leading to the need to adapt and update the recommendations of this Plan.

F. PEDESTRIAN FACILITY DEVELOPMENT

This section describes different construction methods for the proposed pedestrian facilities outlined in Chapter 3 of this Plan.

Note that many types of transportation facility construction and maintenance projects can be used to create new pedestrian facilities. It is much more cost-effective to provide pedestrian facilities during roadway and transit construction and re-construction projects than to initiate the improvements later as “retrofit” projects.

To take advantage of upcoming opportunities and to incorporate pedestrian facilities into routine transportation and utility projects, the assigned “Pedestrian Coordinator” should keep track of the Town’s projects and any other local and NCDOT transportation improvements. While doing this, he/she should be aware of the different procedures for state and local roads and interstates. More detail on facility design and treatment can be found in Chapter 6.

NCDOT Transportation Improvement Program (TIP) Process

The Transportation Improvement Program (TIP) is an ongoing program at NCDOT which includes a process asking localities to present their transportation needs to state government. Pedestrian facility and safety needs are an important part of this process. Every other year, a series of TIP meetings are scheduled around the state. Following the conclusion of these meetings, all requests are evaluated. Pedestrian improvement requests, which meet project selection criteria, are then scheduled into a four-year program as part of the state’s long-term transportation program.

There are two types of projects in the TIP: incidental and independent. Incidental projects are those that can be incorporated into a scheduled roadway improvement project. Independent are those that can stand alone such as a greenway, not related to a particular roadway.

The Town of Black Mountain, guided by the Pedestrian Coordinator, should strongly consider important pedestrian projects along State roads to present to the French Broad River Metropolitan Planning Organization and State. Local requests for small pedestrian projects, such as sidewalk links, can be directed to the MPO or relevant NCDOT Highway Division office. Further information, including the criteria evaluated can be found at: http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html

Local Roadway Construction and Reconstruction

Pedestrians should be accommodated any time a new road is constructed or an existing road is reconstructed. All new roads with moderate to heavy motor vehicle traffic should have sidewalks and safe intersections. The Town of Black Mountain should take advantage of any upcoming construction projects, including roadway projects outlined in local comprehensive and transportation plans. Also, case law surrounding the ADA has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not exist.

Residential and Commercial Development

As detailed in Chapter 4, the construction of sidewalks and safe crosswalks should be required during development. Construction begins on a blank slate and the development of pedestrian facilities that corresponds with site construction is more cost-effective than retro-fitting. In commercial development, emphasis should also be focused on safe pedestrian access into, within, and through large parking lots. This ensures the future growth of the pedestrian network and the development of safe communities

Retrofit Roadways with New Pedestrian Facilities

There may be critical locations in the proposed Pedestrian Network that have pedestrian safety issues or are essential links to destinations. In these locations, it may be justified to add new pedestrian facilities before a roadway is scheduled to be reconstructed or utility/sewer work is scheduled.

In some places, it may be relatively easy to add sidewalk segments to fill gaps, but other segments may require removing trees, relocating landscaping or fences, re-grading ditches or cut and fill sections.

Bridge Construction or Replacement

Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the Pedestrian Network. All new or replacement bridges should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge replacements do not occur regularly, it is important to consider these in longer-term pedestrian planning. NCDOT bridge policy states that sidewalks shall be included on new

NCDOT road bridges with curb and gutter approach roadways. A determination of providing sidewalks on one or both sides is made during the planning process. Sidewalks across a new bridge shall be a minimum of five to six feet wide with a minimum handrail height of 42”.

Signage and Wayfinding Projects

Signage along specific routes or throughout an entire community can be updated to make it easier for people to find destinations. Pedestrian route and greenway signs are one example of these wayfinding signs, and they can be installed along routes independently of other signage projects or as a part of a more comprehensive wayfinding improvement project. The French Broad River MPO is working with the Tourism Development Authority to create a Regional Wayfinding Program to include Black Mountain.

Existing Town Easements

The Town of Black Mountain may have existing utility easements throughout Town offering an opportunity for greenway facilities. Sewer easements are very commonly used for this purpose. This avoids the difficulties of acquiring land. For example, sewer easements exist along the Swannanoa Creek in several locations.

G. GREENWAY ACQUISITION

Land acquisition is an important component of greenway development. It will be necessary to work with some landowners and potentially deal with future development. Land acquisition and resource protection methods should be strategic, efficient, and respectful. Non-profit land protection agencies, land trusts, or environmental organizations can assist when attempting to acquire or manage property. These entities often have a great deal of experience selling the greenway benefits of conservation. Because these types of organizations do not have the power to condemn land or the power to tax, they often have excellent personal and professional relations with local landowners. Many options are available to obtain different degrees of control and different ownership relationships to regulate resource use. Providing educational material to local landowners and developers about the benefits of greenways and land/easement donations is an excellent means to stimulate greenway acquisition. The following is a list of potential conservation tools, developing partnerships, development regulations, land management techniques, and acquisition/donation. A more detailed look at each of these tools is provided in Appendix E - Acquisition.

5.6.1 Land Acquisition / Conservation Tools

Partnerships

Partnerships with land trusts, local developers, and private land managers can assist the Town of Black Mountain in developing greenway facilities.

- Land Trusts
- Private Land Managers

Regulatory Methods

This type of resource protection is used to shape the use and development of the land without transferring or selling the land. The rules for this type of tool are established and enforced by a governing body.

- Exactions (Development/Impact Fee, Mandatory Dedications, Fee in Lieu)
- Growth Management Measures (Adequate Public Facilities Ordinances/Concurrency)
- Performance Zoning
- Incentive Zoning (Dedication or Density Transfers)
- Conservation Zoning (Buffer or Transition Zones)
- Overlay Zoning
- Negotiated Dedications
- Reservation of Land
- Planned Unit Development
- Cluster Development

Land Management

This type of resource protection refers to developing agreements and/or management plans for public use and greenway easements through private property. This method helps conserve the resources of an open space or greenway parcel or easement.

- Management Plans
- Conservation Easement
- Preservation Easement
- Public Use Easement

Acquisition

Land acquisition is a method used to acquire property rights to protect resources or to allow access and free movement of users on a property. This type of method is permanent. Acquisition methods can be divided into two categories: 1) land-owners retain ownership of the land and preserve a resource through an easement or other mutual agreement, or 2) land ownership and management is transferred or donated from a landowner to a conservation agency (local government, land trust, or other preservation organization.)

- Donation (Tax Incentives)
- Fee Simple Purchase
- Easement Purchase
- Lease Back Purchase
- Bargain Sale
- Installment Sale
- Right of First Refusal
- Purchase of Development Rights

- Land Banking
- Condemnation
- Eminent Domain

The greenway at Riverwalk Park could be extended to the East as an easement through future development. Several means may be used by the Town of Black Mountain to acquire a greenway easement including mandatory dedication and a number of options for the developer.



H. MAINTENANCE

Maintenance is a means of protecting the investment of building a pedestrian facility. It is important to maintain the safety of sidewalks, crosswalks, and greenways for pedestrians. Maintenance may include pavement replacement, vegetation removal, and re-striping. As sidewalks are built, the Town must adequately set aside money for maintenance. NCDOT roads must have encroachment and maintenance agreements before a project is improved. This includes ancillary facilities such as lighting and benches.

Routine Maintenance

Routine maintenance refers to the day-to-day regimen of litter pick-up, trail sweeping, shrub trimming, and regularly scheduled activities. It also includes minor repairs and replacements such as fixing cracks.

Remedial Maintenance

Remedial maintenance refers to correcting significant defects in the network, as well as repairing, replacing, or restoring major components that have been destroyed or damaged. These tasks are conducted on an “as-needed” basis and may include repaving a trail surface or replacing a trail footbridge. Remedial maintenance should be part of a long-term capital improvement plan.

Some typical maintenance tasks and their required frequencies are provided below:

Regular inspection: 2 times per year of all sidewalks and markings.

Snow and ice removal: Property owners should be responsible for sidewalks.

Pedestrian signals: Replaced as needed when burned out or signal head is broken.

Signs and markings: Replace as needed when crosswalk markings and pedestrian signs are identified in the inspection.

The typical longevity of facilities types and materials can be seen in the table below.

Longevity of Facilities	
Mulch	2-3 years
Granular stone	7-10 years
Asphalt	7-15 years
Concrete	20+ years
Boardwalk	20+ years
Bridge/Underpass/Tunnel	50+ years

Typical costs for maintenance of a paved, multi-use pathway are provided in the table below.

Description/Activity	Frequency	Costs
Drainage Maintenance	4x/year	\$750
Sweeping/Blowing Trails	20x/year	\$1500
Pick up & Trash Removal	-	\$1500
Weed control	10x/year	\$1250
Mowing - 3 foot safe zone	20x/year	\$1800
Minor repairs	Annual	\$750
Maintenance and supplies	Annual	\$500
Equipment fuel and repairs	Annual	\$1000
Total Maintenance - One Mile		\$9050



6. DESIGN GUIDELINES

Chapter Outline:

A Overview

B Pedestrian Walkways

C Pedestrian Facility

Elements

A. OVERVIEW

These recommended guidelines originate from and adhere to national design standards as defined by the American Association of State Highway Transportation Officials (AASHTO), the Americans with Disabilities Act (ADA), the Federal Highway Administration (FHWA) Pedestrian Facilities Users Guide, the Manual on Uniform Traffic Control Devices (MUTCD), and the NCDOT. Should the national standards be revised in the future and result in discrepancies with this chapter, the national standards should prevail for all design decisions. Likewise, all cost information provided is relevant only at or around the date of this report (September 2006). A qualified engineer or landscape architect should be consulted for the most up to date and accurate cost estimates.

The sections below serve as an inventory of pedestrian design elements/treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent minimum standards for creating a pedestrian-friendly, safe, accessible community, and have been tailored to meet the specific facility development needs of Black Mountain's pedestrian system. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements. Some improvements may also require cooperation with the NCDOT for specific design solutions.

B. PEDESTRIAN WALKWAYS

Sidewalks and Walkways

Sidewalks and walkways are extremely important public right-of-way components often times adjacent to, but separate from automobile traffic. In many ways, they act as the seam between private residences, stores, businesses, and the street. They are spaces where children play, neighbors meet and talk, shoppers meander casually, parents push strollers, and commuters walk to transit stops or directly to work. Because of the social importance of these spaces, great attention should be paid to retrofit and renovate areas with disconnected, dangerous, or otherwise malfunctioning walkways.

There are a number of options for different settings, both urban and rural. From a European style promenade to, in the case of a more rural environment, a simple asphalt or crushed stone path next to a secondary road, walkway form and topography can vary greatly. In general, sidewalks are constructed of concrete although there are some successful examples where other materials such as asphalt, crushed stone, or other slip resistant material have been used. The width of the walkways should correspond to the conditions present in any given location (i.e. level of pedestrian traffic, building setbacks, or other important natural or cultural features). FHWA (Federal Highway Administration) and the Institute of Transportation Engineers both suggest five feet as the minimum width for a sidewalk. This is considered ample room for two people to walk abreast or for two pedestrians to pass each other. Often downtown areas, near schools, transit stops, or other areas of high pedestrian activity call for much wider sidewalks.

Sidewalks are typically built in curb and gutter sections but can also be planned in coordination with ditches or planted swales. They need to be kept completely free of obstructions such as utility poles. A four to eight foot buffer zone parallel to the sidewalk or walkway is recommended to separate pedestrian traffic from automobile traffic and to keep the sidewalk free of light pole obstructions. Much like the sidewalk and walkway itself, the form and topography of this buffer will vary greatly. Native street tree plantings have historically proven to work successfully within these buffer zones. They regulate micro-climate, create a desirable sense of enclosure, promote a local ecological identity and connection to place, and can act as a pleasant integration of nature into an urban environment. In the event that vegetation is not possible, a row of parked cars, bike lane, or street furniture can be used to create this buffer.



Figure 6(a):
Well designed residential
sidewalk¹.



Figure 6(b):
Sidewalk with a vegetated
buffer zone. Notice the
sense of enclosure created
by the large canopy street
trees¹.

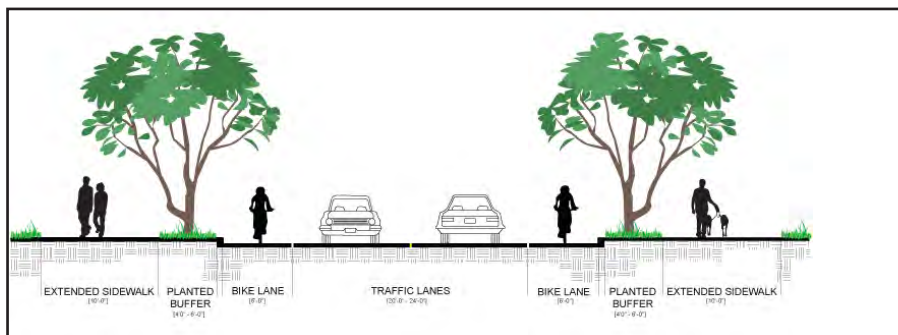


Figure 6(c):
Typical street with bike
lanes and adjacent
sidewalk.

Guidelines^{3,9}:

- Concrete is preferred surface, providing the longest service life and requiring the least maintenance. Permeable pavement such as porous concrete may be considered to improve water quality.
- Sidewalks should be built as flat as possible to accommodate all pedestrians; they should have a running grade of five percent or less; with a two percent maximum cross-slope.
- Concrete sidewalks should be built to minimum depth of four inches; six inches at driveways.

- Sidewalks should be a minimum of five feet wide; eight to ten feet wide within Downtown; ten feet can also be considered in other areas of heavy pedestrian traffic. When sidewalk abuts storefronts, an additional two feet of space from walls is recommended.
- Buffer zone of two to four feet in local or collector streets; five to six feet in arterial or major streets and up to eight feet in busy streets and Downtown to provide space for light poles and other street furniture. See the Vegetation section later in this chapter for shade and buffer opportunities of trees and shrubs.
- Motor vehicle access points should be kept to minimum.
- In Black Mountain, a sidewalk with buffer on both sides is not feasible due to topography and right-of-way constraints. Still, a sidewalk on one side is better than no facility. Each site should be examined in detail to determine placement options.

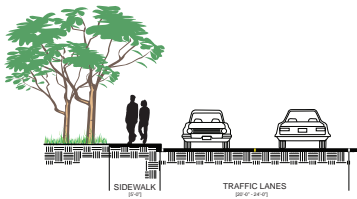


Figure 6(d):
Where space and topography are limiting, this cross section may be applied.

Greenway Trail

A greenway is defined as a linear corridor of land that can be either natural, such as rivers and streams, or manmade, such as abandoned railroad beds and utility corridors. Most greenways contain trails. Greenway trails can be paved or unpaved, and can be designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, skaters, horseback riders, and those confined to wheelchairs.

Single-tread, multi-use trails are the most common trail type in the nation. These trails vary in width and can accommodate a wide variety of users. The minimum width for two-directional trails is 10', however 12'-14' widths are preferred where heavy traffic is expected. Centerline stripes should be considered for paths that generate substantial amounts of pedestrian traffic. Possible conflicts between user groups must be considered during the design phase, as cyclists often travel at a faster speed than other users. Radii minimums should also be considered depending on the different user groups.

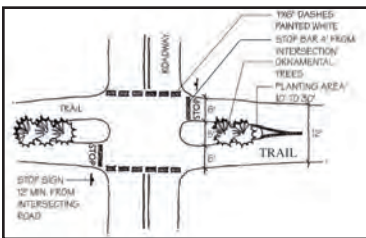


Figure 6(e):
Typical greenway trail approach to a roadway

While the vegetative clearing needed for these trails varies with the width of the trail. The minimum width for clearing and grubbing a 14' wide trail is 16'. Selective thinning increases sight lines and distances and enhances the safety of the trail user. This practice includes removal of underbrush and limbs to create open pockets within a forest canopy, but does not include the removal of the forest canopy itself.

Typical pavement design for a paved, off-road, multi-use trail should be based upon the specific loading and soil conditions for each project. These asphalt or concrete trails should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles.

Concrete: In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of withstanding the most powerful environmental forces. They hold up well against the erosive action of water, root intrusion and subgrade deficiencies such

as soft soils. Most often, concrete is used for intensive urban applications. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is properly installed.

Asphalt: Asphalt is a flexible pavement and can be installed on virtually any slope. One important concern for asphalt trails is the deterioration of trail edges. Installation of a geotextile fabric beneath a layer of aggregate base course (ABC) can help to maintain the edge of a trail. It is important to provide a 2' wide graded shoulder to prevent trail edges from crumbling.

Trail and Roadway Intersections: The images to the left present detailed specifications for the layout of intersections between trail corridors and roadways. Signage rules for these sorts of intersections are available in the MUTCD as 11.

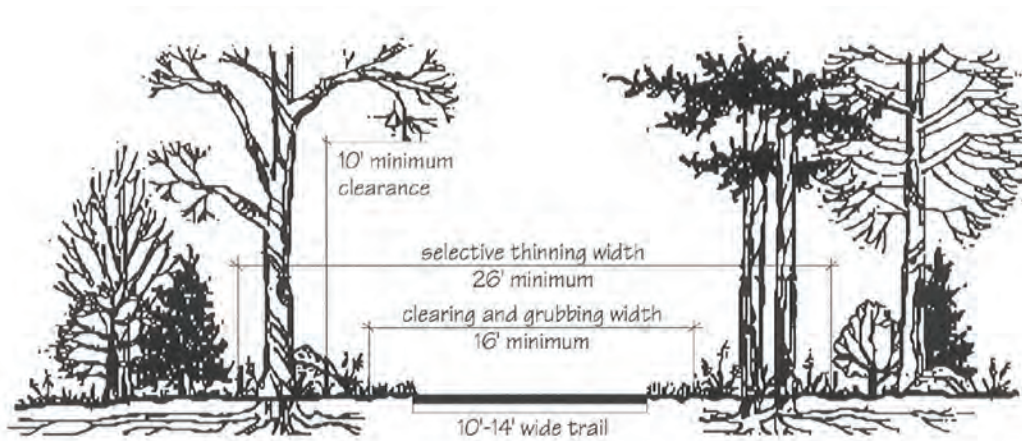


Figure 6(f):
Vegetation clearing
guidelines



(Left) Figure 6(g):
Typical asphalt path
section



(Right) Figure 6(h):
Typical natural surface
trail section

Figure 6(i):
Asphalt pavement
construction detail

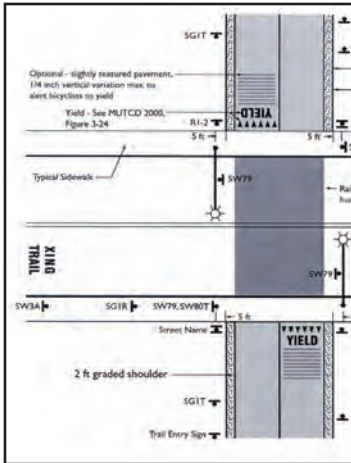
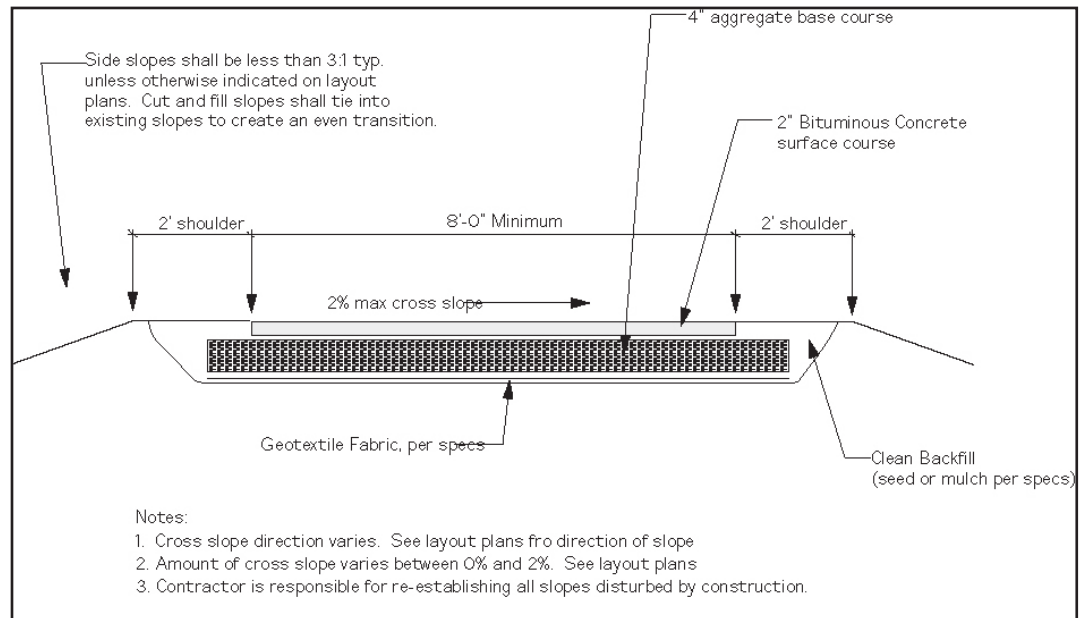


Figure 6(j):
Typical greenway trail
crossing a roadway

C. PEDESTRIAN FACILITY ELEMENTS

Marked Crosswalks

A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings) and in this Plan are prescribed for the Downtown, school areas, and key residential and commercial areas where pedestrian activity is greatest. Although marked crosswalks provide strong visual clues to motorists that pedestrians are present, it is important to consider the use of these elements in conjunction with other traffic calming devices to fully recognize low traffic speeds and enhance pedestrian safety. In general, “marked crosswalks should not be installed in an uncontrolled environment where speeds exceed 40 mph”³. Every attempt should be made to install crossings in places where pedestrians are most likely to cross. A well-designed traffic calming location is not effective if pedestrians are using other unmodified and potentially dangerous locations to cross the street.

Marked pedestrian crosswalks may be used under the following conditions: 1) At locations with stop signs or traffic signals, 2) At non-signalized street crossing locations in designated school zones, and 3) At non-signalized locations where engineering judgment dictates that the use of specifically designated crosswalks are desirable⁹.

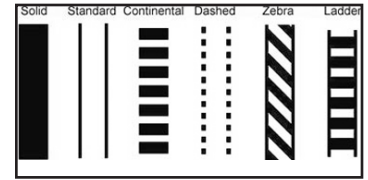
There is a variety of form, pattern, and materials to choose from when creating a marked crosswalk. It is important however to provide crosswalks that are not slippery, are free of tripping hazards, or are otherwise difficult to maneuver by any person including those with physical mobility or vision impairments. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the crosswalk can become slippery. Also,



Figure 6(k):
Notice the wide, well
marked crosswalk with
a crossing island in the
middle. The crosswalk
size and street furniture
decoration make this a
safe and visible pedestrian
crossing¹.

as it degrades from use or if it is improperly installed, it may become a hazard for the mobility or vision impaired.

A variety of color or texture may be used to designate crossings. These materials should be smooth, skid-resistant, and visible³. Reflective paint is inexpensive but is considered more slippery than other devices such as inlay tape or thermoplastic. A variety of patterns may be employed as detailed in Figure 6(l). In areas with a high volume of pedestrian traffic, particularly at mid-block crossings, a crosswalk can be raised to create both a physical impediment for automobiles and a reinforced visual clue to the motorist. These can be provided on top of a speed table as recommended along Flat Creek Road near Black Mountain Elementary School.



*Figure 6(l):
Illustration of all the
variety of patterns
possible in designating a
crosswalk¹.*

An engineering study may need to be performed to determine the appropriate width of a crosswalk at a given location, however marked crosswalks should not be less than six feet in width. In downtown areas or other locations of high pedestrian traffic, a width of ten feet or greater should be considered.

Guidelines^{3,9}:

- Should not be installed in an uncontrolled environment where speeds exceed 40 mph.
- Crosswalks alone may not be enough and should be used in conjunction with other measures to improve pedestrian crossing safety, particularly on roads with average daily traffic (ADT) above 10,000.
- Width of marked crosswalk should be at least six feet wide; ideally ten feet or wider in Downtown areas.
- Curb ramps and other sloped areas should be fully contained within the markings.
- Crosswalk markings should extend the full length of the crossings.
- Crosswalk markings should be white per MUTCD.
- Either the 'continental' or 'ladder' patterns are recommended for intersection improvements in Black Mountain for aesthetic and visibility purposes. Lines should be one to two feet wide and spaced one to five feet apart.

Advance Stop Bars

Moving the vehicle stop bar 15–30 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings increases vehicle and pedestrian visibility. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the pedestrian and motorist can interpret each other's intentions. Studies have shown that this distance translates directly into increased safety for both motorist and pedestrian. One study in particular claims that by simply adding a "Stop Here for Pedestrians" sign reduced pedestrian motorist conflict by 67%. When this was used in conjunction with advance stop lines, it increased to 90%¹.



*Figure 6(m):
Curb ramps shown have
two separate ramps at the
intersection¹.*

Curb Ramps

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcarts, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. In accordance with the 1973 Federal Rehabilitation Act and to comply with the 1990 Federal ADA requirements, curb ramps must be installed at all intersections and mid-block locations where pedestrian crossings exist¹. In addition, these federal regulations require that all new constructed or altered roadways include curb ramps. Although the federally prescribed maximum slope for a curb ramp is 1:12 or 8.33% and the side flares of the curb ramp must not exceed a maximum slope of 1:10 or 10.0%, it is recommended that much less steep slopes be used whenever possible.

It is also recommended that two separate curb ramps be provided at each intersection (Figure 6(n)). With only one large curb ramp serving the entire corner, there is not safe connectivity for the pedestrian. Dangerous conditions exist when the single, large curb ramp inadvertently directs a pedestrian into the center of the intersection, or in front of an unsuspecting, turning vehicle.

For additional information on curb ramps see *Accessible Rights-of-Way: A Design Guide*, by the U.S. Access Board and the Federal Highway Administration, and *Designing Sidewalks and Trails for Access*, Parts I and II, by the Federal Highway Administration. Visit: www.access-board.gov for the Access board's right-of-way report¹.

Guidelines⁹:

- Two separate curb ramps, one for each crosswalk, should be provided at corner of an intersection.
- Curb ramp should have a slope no greater than 1:12 (8.33%). Side flares should not exceed 1:10 (10%).

Raised or Lowered Medians

Medians are barriers in the center portion of a street or roadway¹. When used in conjunction with mid-block or intersection crossings, they can be used as a crossing island to provide a place of refuge for pedestrians. They also provide opportunities for landscaping that in turn can help to slow traffic. A center turn lane can be converted into a raised or lowered median thus increasing motorist safety.

A continuous median can present several problems when used inappropriately. If all left-turn opportunities are removed, there runs a possibility for increased traffic speeds and unsafe U-turns at intersections. Additionally, the space occupied may be taking up room that could be used for bike lanes or other

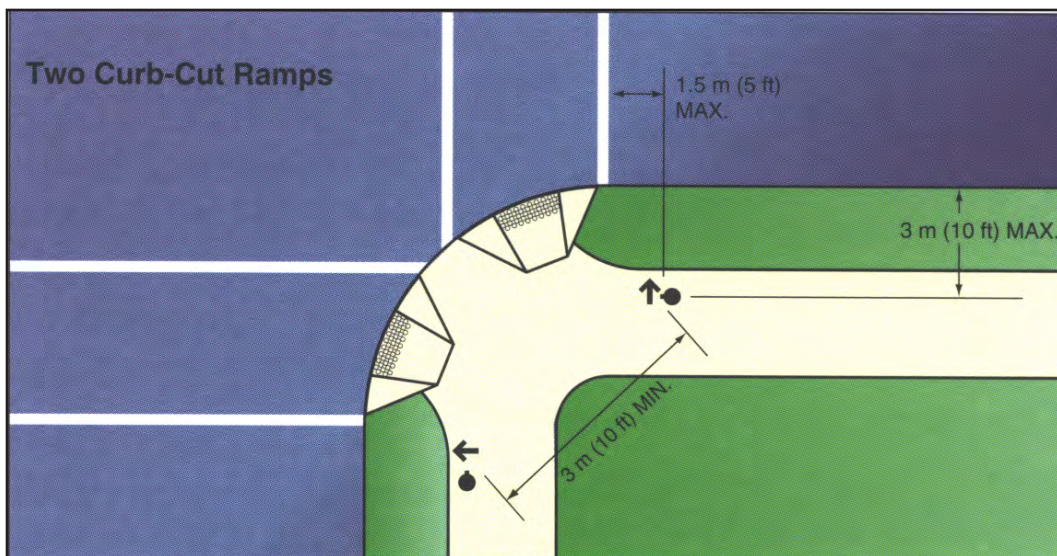


Figure 6(n):
Location of pedestrian
push-button³.

treatments discussed in this chapter. An alternative to the continuous median is to create a segmented median with left turn opportunities.

Raised or lowered medians are best suited for high-volume, high-speed roads, and they should provide ample cues for people with visual impairments to identify the boundary between the crossing island and the roadway.

Guidelines^{3,9}:

- Median pedestrian refuge islands should be provided as a place of refuge for pedestrians crossing busy or wide roadways at either mid-block locations or intersections. They should be utilized on high speed and high volume roadways.
- Medians should incorporate trees and plantings to change the character of the street and reduce motor vehicle speed.
- Landscaping should not obstruct the visibility between motorists and pedestrians.
- Median crossings should provide ramps or cut-throughs for ease of accessibility for all pedestrians

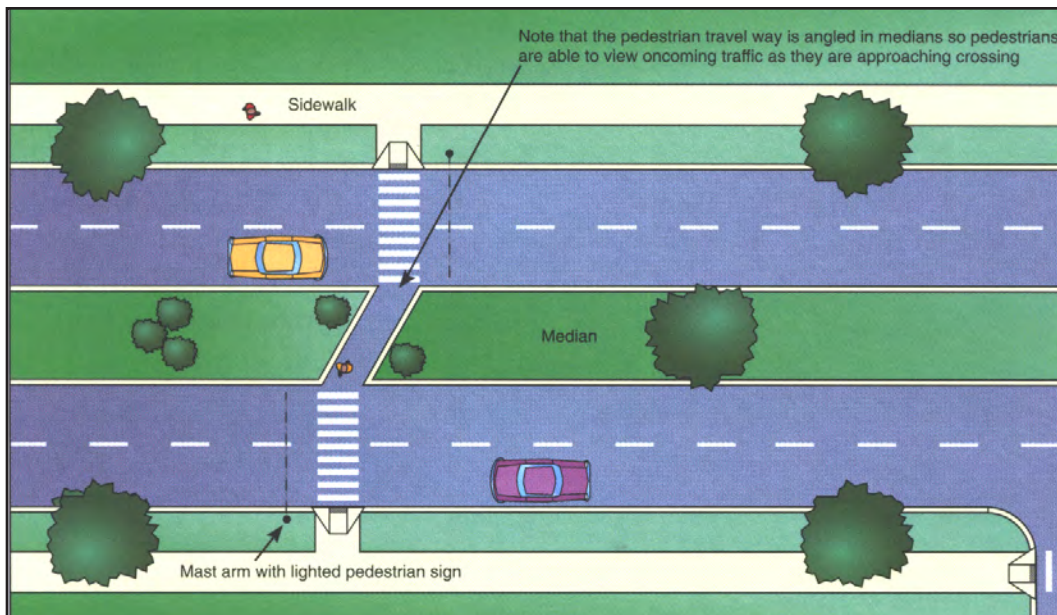


Figure 6(o):
A lowered median can
be used to filter storm
water and provide refuge
for pedestrians crossing a
roadway³.



Figure 6(p):
An attractive lowered
median landscaped to
appear raised³.

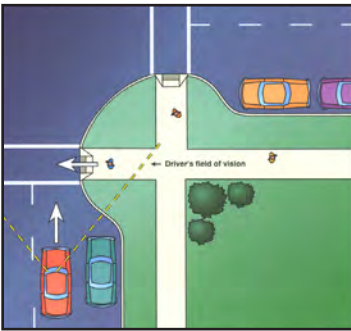


Figure 6(q):
By reducing a pedestrian's
crossing distance, less time
is spent in the roadway,
and pedestrian vehicle
conflicts are reduced³.



Figure 6(r):
Attempting to separate
pedestrians from the street
is often problematic. As
shown here, given the
opportunity, many choose
to cross at street level¹.

- Median crossings should be at least 6 feet wide in order to accommodate more than one pedestrian, while a width of 8 feet (where feasible) should be provided for bicycles, wheelchairs, and groups of pedestrians
- Median crossings should possess a minimum of a 4 foot square level landing to provide a rest point for wheelchair users.
- Pedestrian pushbuttons should be located in the median of all signalized mid-block crossings, where the roadway width is in excess of 60 feet.

Bulb-outs

A bulb-out, or curb extension, is a place where the sidewalk extends into the parking lane of a street. Because these curb extensions physically narrow the roadway, a pedestrian's crossing distance and consequently the time spent in the street is reduced. They can be placed either at mid-block crossings or at intersections.

Sightlines and pedestrian visibility are reduced when motor vehicle parking encroaches too close to corners creating a dangerous situation for pedestrians. When placed at an intersection, bulb-outs preclude vehicle parking too close to a crosswalk. Also, bulb-outs at intersections can greatly reduce turning speed, especially if curb radii are set as tight as possible¹. Finally, bulb-outs also reduce travel speeds when used in mid-block crossings because of the reduced street width.

Bulb-outs should only be used where there is an existing on-street parking lane and should never encroach into travel lanes, bike lanes, or shoulders¹.

Guidelines¹⁰:

- Bulb-outs should be used on crosswalks in heavy pedestrian areas where parking may limit the driver's view of the pedestrian.
- Where used, sidewalk bulb-outs should extend into the street for the width of a parking lane (a minimum five feet) in order to provide for a shorter crossing width, increased pedestrian visibility, more space for pedestrian queuing, and a place for sidewalk amenities and planting.
- Curb extensions should be used on mid-block crossing where feasible.
- Curb extensions may be inappropriate for use on corners where frequent right turns are made by trucks or buses.

Pedestrian Overpass/Underpass

Pedestrian overpasses and underpasses efficiently allow for pedestrian movement across busy thoroughfares¹. These types of facilities are problematic in many regards and should only be considered under suitable circumstances or where no other solution is possible. Perhaps the best argument for using them sparingly is that research proves pedestrians will avoid using such a facility if they perceive the ability to cross at grade as taking about the same amount of time¹.

The other areas of contention arise with the high cost of construction. There are also ADA requirements for stairs, ramps, and elevators that in many cases once

complied with result in an enormous structure that is visually disruptive and difficult to access.

Overpasses work best when existing topography allows for smooth transitions. Underpasses as well work best with favorable topography when they are open and accessible, and exhibit a sense of safety¹. Each should only be considered with rail lines, high volume traffic areas such as freeways, and other high volume arteries¹.

Guidelines¹⁰:

- Over and underpasses should be considered only for crossing arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over.
- Minimum widths for over and underpasses should follow the guidelines for sidewalk width.
- Underpasses should have a daytime illuminance minimum of 10 fc achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a night time level of 4 foot-candle.
- In underpasses, where vertical clearance allows, the pedestrian walkway should be separated from the roadway by more than a standard curb height.
- Consider acoustics measures within underpasses to reduce noise impacts to pedestrians and bicyclists.

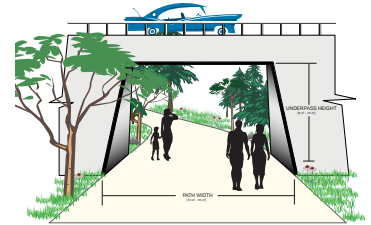


Figure 6(s):
Typical underpass
dimensions.

Roundabouts

A roundabout is a circular intersection that maneuvers traffic around in a counterclockwise direction so that cars make a right-hand turn onto a desired street¹. Vehicles from approaching streets are generally not required to stop although approaching vehicles are required to yield to motorists in the roundabout. It is believed that this system eliminates certain types of crashes at traditional intersections.

Roundabout design can become quite problematic in dealing with pedestrian and bicycle use. Every effort must be made to prompt motorists to yield to pedestrians crossing the roundabout. A low design speed is required to improve pedestrian safety. Splitter islands and single lane approaches both lend to pedestrian safety as well as other urban design elements discussed in this chapter.

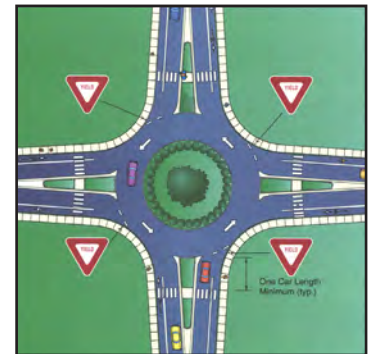


Figure 6(t):
Typical roundabout³.

Problems also arise with the vision-impaired because there are not proper audible cues associated with when to cross. Studies are underway to develop and test solutions. Auditory accessible pedestrian signals placed on sidewalks and splitter islands are one solution, but again there is no research to prove their efficacy¹.

In areas where traffic is low, a roundabout presents little in the way of a barrier for bicyclists. However, in multi-lane roundabouts where speeds are higher, and the traffic is heavy, bicyclists are at a distinct and dangerous disadvantage. Adding a bike lane within such a roundabout has not proven to be effective. A possible solution involves creating a bike lane that completely skirts the roundabout

allowing the cyclist to use or share the pedestrian route.

Guidelines¹¹ :

- The recommended maximum entry design speed for roundabouts ranges from 15 mph for 'mini-roundabouts' in neighborhood settings, to 20 mph for single-lane roundabouts in urban settings, to 25 mph for single-lane roundabouts in rural settings.
- Refer to roundabout diagram for typical crosswalk placement.
- Please refer to FHWA's report, Roundabouts, an Information Guide, available online through: www.tfhrc.gov The report provides information on general design principles, geometric elements, and provides detailed specifications for the various types of roundabouts.

Signalization

Traffic Signals

Traffic signals assign the right of way to motorists and pedestrians and produce openings in traffic flow, allowing pedestrians time to cross the street¹⁴. When used in conjunction with pedestrian friendly design, proper signalization should allow for an adequate amount of time for an individual to cross the street. The suggested amount of pedestrian travel speed recommended in the Manual on Uniform Traffic Control Devices (MUTCD) is 4ft/sec however this does not address the walking speed of the elderly or children. Therefore it is suggested that a lower speed of 3.5ft/sec be used whenever there are adequate numbers of elderly and children using an area.



Figure 6(u):
International symbols used
in a crosswalk to designate
WALK and DON'T WALK¹.

Engineering, as well as urban design judgment, must be used when determining the location of traffic signals and the accompanying timing intervals. Although warrants for pedestrian signal timing have been produced by the MUTCD, each site must be analyzed for factors including new facility and amenity construction (i.e. a popular new park or museum) to allow for potential future pedestrian traffic volume. In addition, creating better access to existing places may in fact generate a higher pedestrian volume¹.

Fixed timed sequencing is often used in high traffic volume commercial or downtown areas to allow for a greater efficiency of traffic flow. In such instances, the pedestrian speed must be carefully checked to ensure safety.

Pedestrian Signals

There are a host of possible traffic signal enhancement opportunities that can greatly improve the safety and flow of pedestrian traffic. Some include: international symbols for WALK and DON'T WALK, providing large traffic signals, the positioning of traffic signals so that those waiting at a red-light cannot see the opposing traffic signal and anticipate their own green-light, installing countdown signals to provide pedestrians information on how long they have remaining in the crossing interval, automatic pedestrian sensors, and selecting the proper signal timing intervals¹.

According to the MUTCD, international pedestrian signal indication should be used at traffic signals whenever warranted¹. As opposed to early signalization that featured “WALK” and “DON’T WALK”, international pedestrian symbols should be used on all new traffic signal installations as illustrated in Figure 6(t). Existing “WALK” and “DON’T WALK” signals should be replaced with international symbols when they reach the end of their useful life.

Symbols should be of adequate size, clearly visible, and, in some circumstances, accompanied by an audible pulse or other messages to make crossing safe for all pedestrians. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals¹. For additional information on accessible pedestrian signals, please visit: www.walkinginfo.org/aps.

Audible cues can also be used to pulse along with a countdown signal. Countdown signals are pedestrian signals that show how many seconds the pedestrian has remaining to cross the street. The countdown can begin at the beginning of the WALK phase, perhaps flashing white or yellow, or at the beginning of the clearance, or DON’T WALK phase, flashing yellow as it counts down.

The timing of these or other pedestrian signals needs to be adapted to a given situation. There are three types of signal timing generally used: *concurrent*, *exclusive*, and *leading pedestrian interval* (LPI). The strengths and weaknesses of each will be discussed with an emphasis on when they are best employed.

Concurrent signal timing refers to a situation where motorists running parallel to the crosswalk are allowed to turn into and through the crosswalk, left or right, after yielding to pedestrians. This condition is not considered as safe as some of the latter options, however this type of signal crossings generally allows for more pedestrian crossing opportunities and less wait time. In addition, traffic is allowed to flow a bit more freely. *Concurrent* signal timing is best used where lower volume turning movements exist¹.

Where there are high-volume turning situations that conflict with pedestrian movements, the *exclusive* pedestrian interval is the preferred solution. The *exclusive* pedestrian intervals stop traffic in all directions. In order to keep traffic flowing regularly, there is often a greater pedestrian wait time associated with this system. Although it has been shown that pedestrian crashes have been reduced by 50% in some commercial or downtown areas by using these intervals, the long wait times can encourage some to attempt a cross when there is a perceived lull in traffic¹. These types of crossings are dangerous and may negate the use of the system. A problem is also created for those with visual impairments when the audible cues of the passing parallel traffic is eliminated. Often an audible signal will have to accompany a WALK signal¹.



Figure 6(v):
Audible cues can be used
along with a countdown
signal for pedestrians.

A proven enhancement that prevents many of the conflicts addressed under either of the former methods is LPI. An LPI works in conjunction with a *concurrent* signal timing system and simply gives the pedestrian a few seconds head start on the parallel traffic. An advance walk signal is received prior to a green light for motorists. This creates a situation where the pedestrian can better see traffic, and more importantly, the motorists can see and properly yield to pedestrians¹. Long-term research has shown that this system has worked well in places like New York City (where it has been used for 20 years) at reducing motorist and pedestrian conflict¹. As with the *exclusive* pedestrian interval, an audible cue will need to accompany the WALK signal for the visually impaired.

The use of infrared or microwave pedestrian detectors has increased in many cities worldwide. These devices replace the traditional push-button system. Although still experimental, they appear to be improving pedestrian signal compliance as well as reducing the number of pedestrian and vehicle conflicts¹. Perhaps the best use of these devices is when they are employed to extend crossing time for slower moving pedestrians. Whether these devices are used or the traditional push-button system is employed, it is best to provide instant feedback to pedestrians regarding the length of their wait. This is thought to increase and improve pedestrian signal compliance.

Guidelines^{3,9}:

- Pedestrian signals should be placed in locations that are clearly visible to all pedestrians.
- Larger pedestrian signals should be utilized on wider roadways, to ensure readability.
- Pedestrian signal pushbuttons should be well-signed and visible.
- Pedestrian signal pushbuttons should clearly indicate which crossing direction they control.
- Pedestrian signal pushbuttons should be reachable from a flat surface, at a maximum height of 3.5 feet and be located on a level landing to ensure ease of operation by pedestrians in wheelchairs.
- Walk intervals should be provided during every cycle, especially in high pedestrian traffic areas.



Figure 6(w):
A low cost sign that
restricts right-hand turns
at a red light¹.

Right Turn on Red Restrictions

Introduced in the 1970's as a fuel saving technique, the *Right Turn on Red* (RTOR) law is thought to have had a detrimental effect on pedestrians¹. The issue is not the law itself but rather the relaxed enforcement of certain caveats within the law such as coming to a complete stop and yielding to pedestrians. Often motorists will either nudge into a crosswalk to check for oncoming traffic without looking for pedestrians or slow, but not stop, for the red-light while making the turn.

There is legitimate concern that eliminating an RTOR will only increase the number of right-turn-on-green conflicts where all of the drivers who would normally have turned on red, now are anxious to turn on green. As discussed in

the prior section, LPI or exclusive pedestrian intervals my help to alleviate this problem. Eliminating RTOR should be considered on a case-by-case basis and only where there are high pedestrian volumes. This can be done by simple sign postings as illustrated in Figure 6(w).

Landscaping

The introduction of vegetation in an urban environment can provide a welcomed intervention of nature into a place that is otherwise hardened from buildings, concrete, and asphalt. It can be used to provide a separation buffer between pedestrians and motorists, reduce the width of a roadway, calm traffic by creating a visual narrowing of the roadway, enhance the street environment, and help to generate a desired aesthetic.

Street trees and other plantings provide comfort, a sense of place, and a more natural and inviting setting for pedestrians. Landscaping and the aforementioned street furniture make people feel welcome

There are also some instances where islands of vegetation are created to collect and filter stormwater from nearby streets and buildings. These islands are referred to as constructed wetlands, rain gardens, and/or bioswales. When these devices are employed, the benefits listed above are coupled with economic and ecologic benefits of treating stormwater at its source. There are many examples of this in Oregon and Washington, particularly Seattle's Green Streets Program. Using thoughtful design to treat stormwater as an amenity rather than waste to be disposed of in an environmentally harmful manner is gaining popularity nationwide.

An issue with this or any landscaping treatment is that of ongoing maintenance. The responsibility often falls on local municipalities although there are instances where local community groups have provided funding and volunteers for maintenance. The best way to address the maintenance issue is to design using native plant material that is already adapted to the local soil and climate. Growth pattern and space for maturation, particularly with larger tree plantings, are important to avoid cracking sidewalks and other pedestrian obstructions.

Guidelines³:

- Buffer zone plantings should be maintained at no higher than three feet to allow sight distance for motorists and pedestrians.
- Trees with large canopies planted between the sidewalk and street should generally be trimmed to keep branches at least seven feet above the sidewalk.
- Plants and trees should be chosen to match character of area.

Roadway Lighting Improvements

Proper lighting in terms of quality, placement, and sufficiency can greatly enhance a nighttime urban experience as well as create a safe environment for motorists and pedestrians. Two-thirds of all pedestrian fatalities occur during low-light conditions³. Attention should be paid to crossings so that there is sufficient



*Figure 6(x):
Landscaping used on the
Sea Street in Seattle,
Washington shows how
stormwater treatment can
be tied to aesthetically
pleasing plantings⁷.*



*Figure 6(y):
Street trees buffer and
soften often harsh urban
environments in a number
of psychological, physical,
and ecological ways¹⁰.*

ambience for motorists to see pedestrians. To be most effective, lighting should be consistent, adequately spaced, and distinguished, providing adequate light.

In most cases, roadway street lighting can be designed to illuminate the sidewalk area as well. The visibility needs of both pedestrian and motorist should be considered. In commercial or downtown areas and other areas of high pedestrian volumes, the addition of lower level, pedestrian-scale lighting to streetlights with emphasis on crossings and intersections may be employed to generate a desired ambience. A variety of lighting choices include mercury vapor, incandescent, or less expensive high-pressure sodium lighting for pedestrian level lighting¹. Roadway streetlights can range from 20-40 feet in height while pedestrian-scale lighting is typically 10-15 feet.

It is important to note that every effort should be made to address and prevent light pollution. Also known as photo pollution, light pollution is “excess or obtrusive light created by humans”⁴. Whenever urban improvements are made where lighting is addressed, a qualified lighting expert should be consulted early in the process. This individual should not only create a safe and attractive ambience, but will do so with the minimum of fixtures, an awareness of the importance of minimizing photo pollution, and with a focus on minimizing future energy use. A thoughtful plan of how and where to light will reap benefits not only in potential reduced infrastructure cost, but future energy costs as well.

Guidelines⁹:

- Ensure pedestrian walkways and crossways are sufficiently lit.
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, Downtown, and at key intersections.
- Install lighting on both sides of streets in commercial districts.
- Use uniform lighting levels.

Street Furniture and Walking Environment

As part of a comprehensive sidewalk and walkway design, all street furniture should be placed in a manner that allows for a safe, pleasurable, and accessible walking environment. Good-quality street furniture will show that the community values its public spaces and is more cost-effective in the long run. Street furniture includes benches, trash bins, signposts, newspaper racks, water fountains, bike racks, restaurant seating, light posts, and other ornaments that are found within an urban street environment. Street furniture should mostly be considered in the Downtown area and other important pedestrian-active areas.



*Figure 6(z):
The street furniture
shown here is placed in
such a manner so as to
create a safe, pleasurable,
and accessible walking
environment¹.*

In addition to keeping areas free of obstruction from furniture, a walking environment should be clean and well maintained. Attention should be given to removing debris, trimming vegetation, allowing for proper stormwater drainage, providing proper lighting and sight angles, and repairing or replacing broken or damaged paving material can make an enormous difference in pedestrian perception of safety and aesthetics. Special attention should be paid to the needs

of the visually impaired so that tripping hazards and low hanging obstructions are removed.

Guidelines³:

- Ensure proper placement of furniture; do not block pedestrian walkway or curb ramps or create sightline problems.
- Wall mounted Objects = not to protrude more than 4" from a wall between 27" and 7' from the ground
- Single post mounted Objects = not to protrude more than 4" from each side of the post between 27" and 7' from the ground
- Multiple Post Mounted Objects = lowest edge should be no higher than 27" and no lower than 7'
- Place street furniture at the end of on-street parking spaces rather than in middle to avoid vehicle-exiting conflict.

Transit Stop Treatments

Currently the Town of Black Mountain is not served by any public transportation. In the event that such an opportunity is made available to the Town, it is appropriate to consider some of the basic elements of a well designed, accessible, and functional transit stop.

Bus or other transit stops should be located in places that are most suitable for the passengers. For example, stops should be provided near higher density residential areas, commercial or business areas, and schools, and connected to these areas by sidewalk. Some of the most important elements to consider are the most basic: sidewalk connectivity to the stops, proper lighting, legible and adequate transit stop signage, shelter, seating, trash bins, bicycle and even car parking. Transit stops create an area of activity and may generate additional business and pedestrian traffic. Therefore an opportunity is created to provide adequate sidewalks and other pedestrian oriented design elements. At a minimum, marked crosswalks (especially at mid-block stops), curb ramps, and proper sidewalk widths should be considered.

As with any human scale design element discussed, safety is an important factor to consider when locating bus stops. In the case of a bus stop, special attention should be paid to the number of lanes and direction of traffic when deciding to locate a stop on the near or far side of an intersection. Also special consideration must be paid to the wheelchair lifts in terms of how and where the mobility impaired will exit and enter the bus.

Pedestrian Signs and Wayfinding

Signage provides important safety and wayfinding information to motorist and pedestrian residents and tourists. From a safety standpoint, motorists should be given advance warning of upcoming pedestrian crossings or of traffic calming areas. Signage of any type should be used and regulated judiciously. An inordinate amount of signs creates visual clutter. Under such a condition, important safety or wayfinding information may be ignored resulting in confusion and possible



*Figure 6(aa):
This typical transit
stop has all of the key
features of shelter, ample
seating, bicycle parking,
landscaping, and trash
bins¹.*



Figure 6(bb):
Wayfinding signs promote aesthetics as well as provide important information⁶. Below are typical traffic signs found around pedestrian friendly places¹.

pedestrian vehicle conflict. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic.

Regulatory signage are used to inform motorists or pedestrians of a legal requirement and should only be used when a legal requirement is not otherwise apparent³.

Warning signage are used to inform motorists and pedestrians of unexpected or unusual conditions. When used, they should be placed to provide adequate response times. These include school warning signs and pedestrian crossing signs³.



Sign	MUTCD Code	MUTCD Section	Conventional Road	Regulatory
Yield here to Peds	R1-5	2B.11	450x450 (18x18)	
Yield here to Peds	R1-5a	2B.11	450x600 (18x24)	
In-Street Ped Crossing	R1-6, R1-6a	2B.12	300x900 (12x36)	
Peds and Bikes Prohibited	R5-10b	2B.36	750x450 (30x18)	
Peds Prohibited	R5-10c	2B.36	600x300 (24x12)	
Walk on Left Facing Traffic	R9-1	2B.43	450x600 (18x24)	
Cross only at Crosswalks	R9-2	2B.44	300x450 (12x18)	
No Ped Crossing	R9-3a	2B.44	450x450 (18x18)	
No Hitch Hiking	R9-4	2B.43	450x600 (18x24)	
No Hitch Hiking (symbol)	R9-4a	2B.43	450x450 (18x18)	
Bikes Yield to Peds	R9-6	9B.10	300x450 (12x18)	
Ped Traffic Symbol	R10-4b	2B.45	225x300 (9x12)	
School Advance Warning	S1-1	7B.08	900x900 (36x36)	School, Warning, Informational
School Bus Stop Ahead	S3-1	7B.10	750x750 (30x30)	
Pedestrian Traffic	W11-2	2C.41	750x750 (30x30)	
Playground	W15-1	2C.42	750x750 (30x30)	
Hiking Trail	I-4	--	600x600 (24x24)	
1. Larger signs may be used when appropriate.				
2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.				
3. First dimension in millimeters; dimensions in parentheses are in inches.				
4. All information in table taken directly from MUTCD.				

Informational and wayfinding signage can provide information providing guidance to a location along a trail or other pedestrian facility. Wayfinding signage should orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity⁵.

Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians.

Bridges

Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the Pedestrian Network. All new or replacement bridges, other than those for controlled access roadways, should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge replacements do not occur regularly, it is important to consider these in longer-term pedestrian planning.

It is NCDOT bridge policy that within Urban Area boundaries, sidewalks shall be included on new bridges with curb and gutter approach roadways with no controlled access. Sidewalks should not be included on controlled access facilities. A determination on whether to provide sidewalks on one or both sides of new bridges will be made during the planning process according to the NCDOT Pedestrian Policy Guidelines. When a sidewalk is justified, it should be a minimum of five to six feet wide with a minimum handrail height of 42".

It is also NCDOT bridge policy that bridges within the Federal-aid urban boundaries with rural-type roadway sections (shoulder approaches) may warrant special consideration. To allow for future placement of ADA acceptable sidewalks, sufficient bridge deck width should be considered on new bridges in order to accommodate the placement of sidewalks.

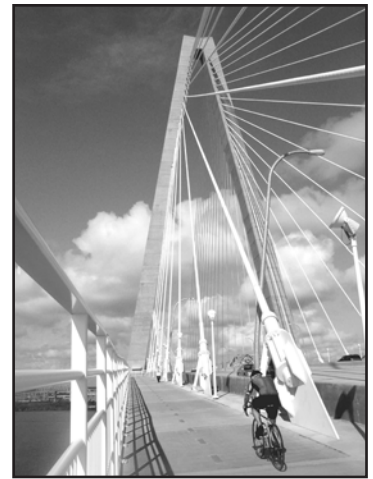
Additional Information:

<http://www.ncdot.org/doh/construction/altern/value/manuals/RDM2001/part1/chapter6/pt1ch6.pdf>

<http://www.ncdot.org/doh/construction/altern/value/manuals/bpe2000.doc>

Guidelines:

- Sidewalks should be included on roadway bridges with no controlled access with curb and gutter approach in Urban Areas.
- Sufficient bridge deck width should be considered on new bridges with rural-type shoulder approaches for future placement of sidewalks.
- Sidewalk should be 5' to 6' wide.
- Minimum handrail height should be 42"



*Figure 6(cc):
Sidewalks or multi-use
trails should be included
as part of vehicular bridge
designs.*

Footnotes

- 1 Walkinginfo.org. [Internet]. Chapel Hill, NC: Pedestrian and Bicycle Information Center . (cited 2005 May 2). Available from <http://www.walkinginfo.org/>
- 2 Georgia Department of Transportation. (2003). Pedestrian Streetscape and Guide
- 3 Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.
- 4 The Free Dictionary. [Internet]. Huntingdon Valley, PA: Farlex, Inc. (cited 2005 May 1). Available from <http://encyclopedia.thefreedictionary.com/light%20pollution>
- 5 City of Portland, Office of Transportation. [Internet]. Portland OR: The City of Portland. (cited 2005 May 3). Available from <http://www.portlandonline.com/transportation/?c=eafaa>
- 6 Sefton Council. [Internet]. Sefton, UK: Sefton Council. (cited 2006 May 4) . Available from <http://www.sefton.gov.uk/images/new%20sign%20proposals.jpg>
- 7 Seattle.gov. [Internet]. Seattle, WA: Seattle Public Utilities. (cited 2006 May 4). Available from http://www.ci.seattle.wa.us/util/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/Street_Edge_Alternatives/COS_004467.asp
- 8 American Planning Association . 2006. Planning and urban design standards. Hooken, NJ: John Wiley & Sons, Inc. 719 p.9 Metro [Internet]. Portland, Oregon: Transportation Information Center . (cited 2005 May 2). Guidebook available from <http://www.metro-region.org/article.cfm?ArticleID=262>
- 10 Photo courtesy of www.image03.webshots.com



A. PUBLIC INPUT SUMMARY

Chapter Outline:

A.1 Overview

A.2 Public Workshops

A.3 Comment Form Results

A.1 OVERVIEW

In order to gain local knowledge and input, a public outreach component was included as an integral part of planning efforts for the Black Mountain Pedestrian Transportation Plan. Public input was gathered through several different means including the following: Steering Committee meetings, a booth at Park Rhythms, a public meeting at Town Hall, and public comment forms. This offered the representatives and citizens of Black Mountain opportunity to contribute to the Plan's development.

Steering Committee meetings were held throughout the planning process with representatives from the Town and community. These took place to establish visions and goals for this effort. Committee members also identified key opportunities and strategies for the pedestrian system.

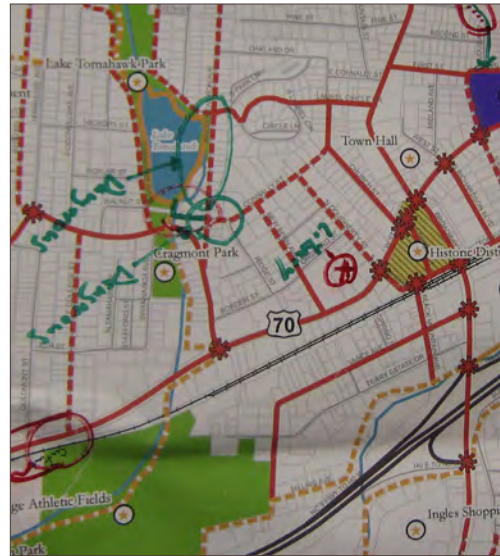
A.2 PUBLIC INPUT

Two public input workshops were conducted during the planning process. The first opportunity was a consultant and Town staffed booth at Lake Tomahawk Park in conjunction with Park Rhythms. This initial public input session sought to gather preliminary input from citizens to assist in the development of draft recommendations for the plan. The second public workshop presented draft recommendations and solicited public comment during an evening workshop session at Town Hall. Preliminary recommendations were presented in map form at this meeting. Citizens responded to these draft recommendations by providing feedback and discussion of proposed pedestrian facilities.

At both workshop sessions, public input was taken in the form of map markups, written comments and through discussions between citizens, consultant staff from Greenways Incorporated and Town of Black Mountain staff. In addition, a hardcopy public comment form was developed and distributed for hand written responses during each meeting.

Overall goals that were voiced most consistently were:

- Integrate the pedestrian network with the Town trail network
- Provide a gap-free pedestrian network
- Connect locally to schools, parks, and places of work
- Provide a safe system
- Improve pedestrian crossings and intersections



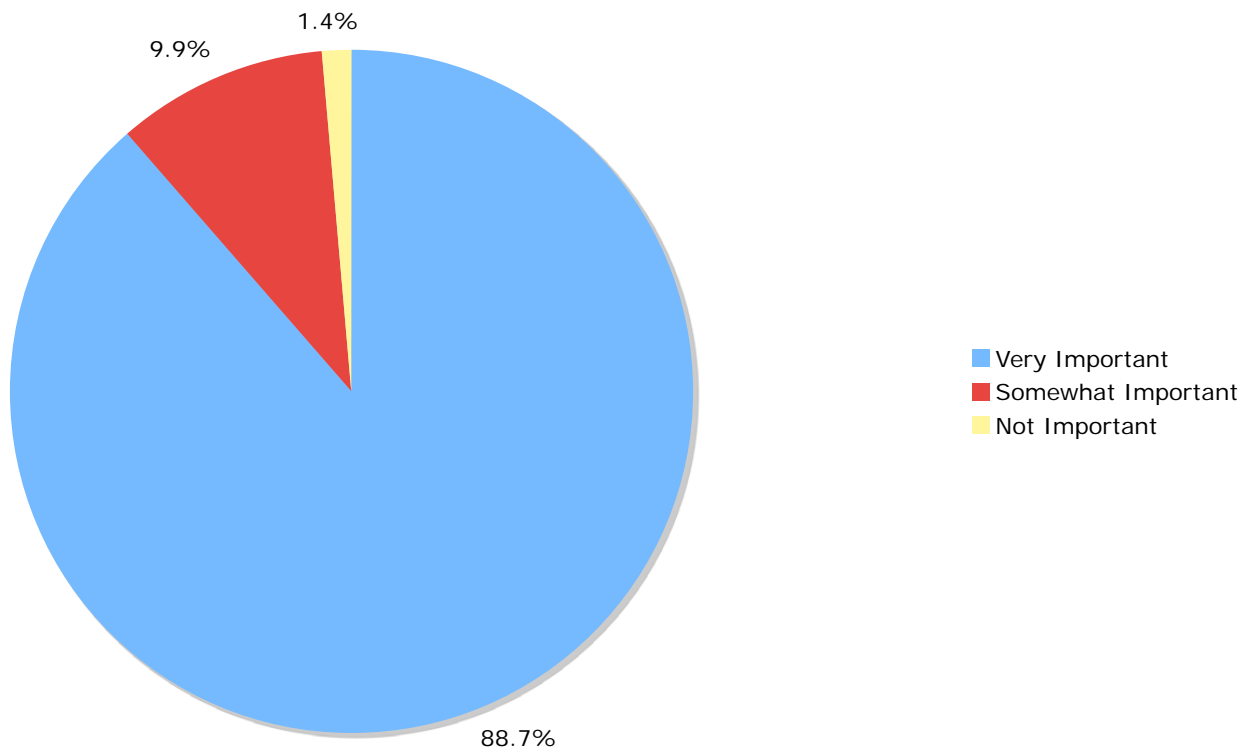
Public input collection at Park Rhythms, June 2007

C.3 COMMENT FORM

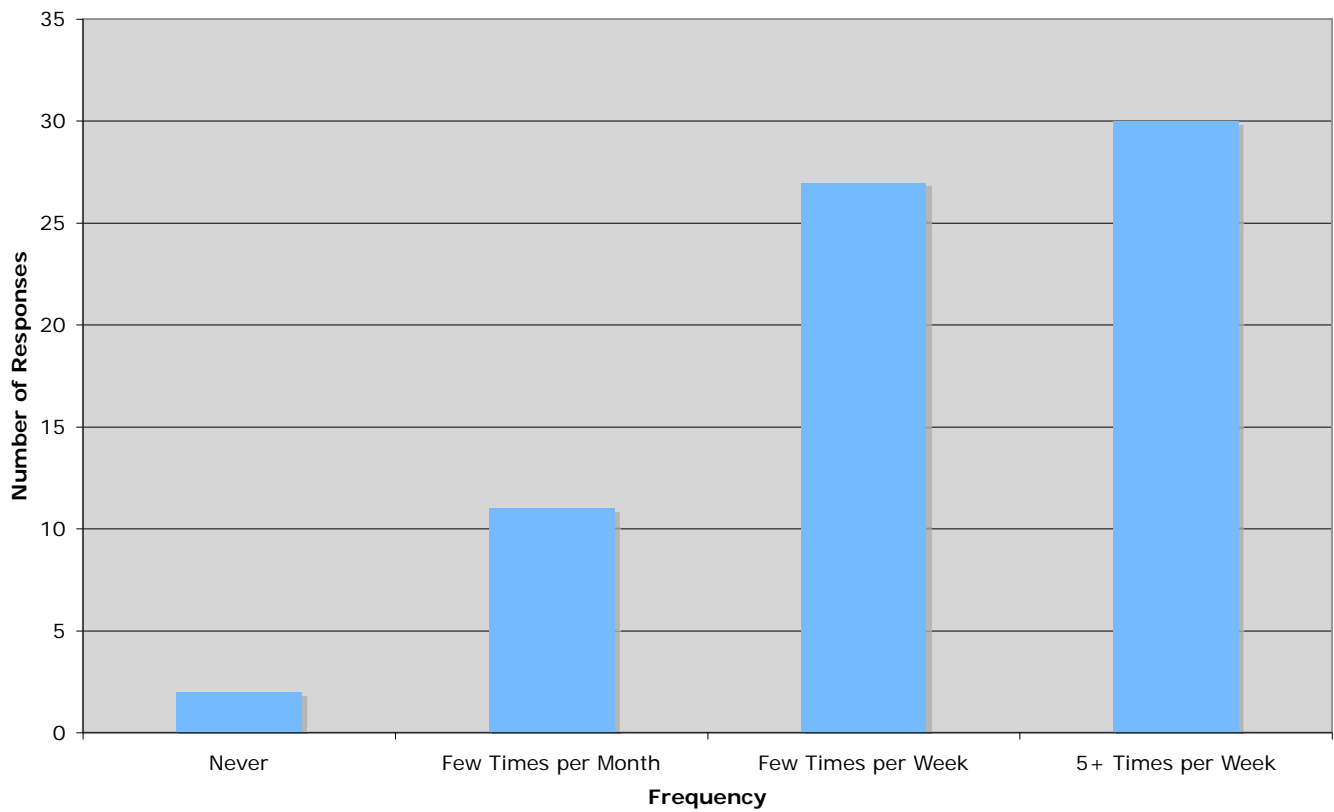
A comment form was developed for the Town of Black Mountain during this process and made available in both hardcopy and online form. The comment form was available online for over three months. To maximize the responses to the online form, the web address was distributed at the public meeting, to local interest groups, in newsletters, and on flyers throughout the Town. Approximately 75 persons completed the comment form.

The comment form results shown on the following pages have been tabulated by Greenways Incorporated to provide insight into local residents' opinions and values.

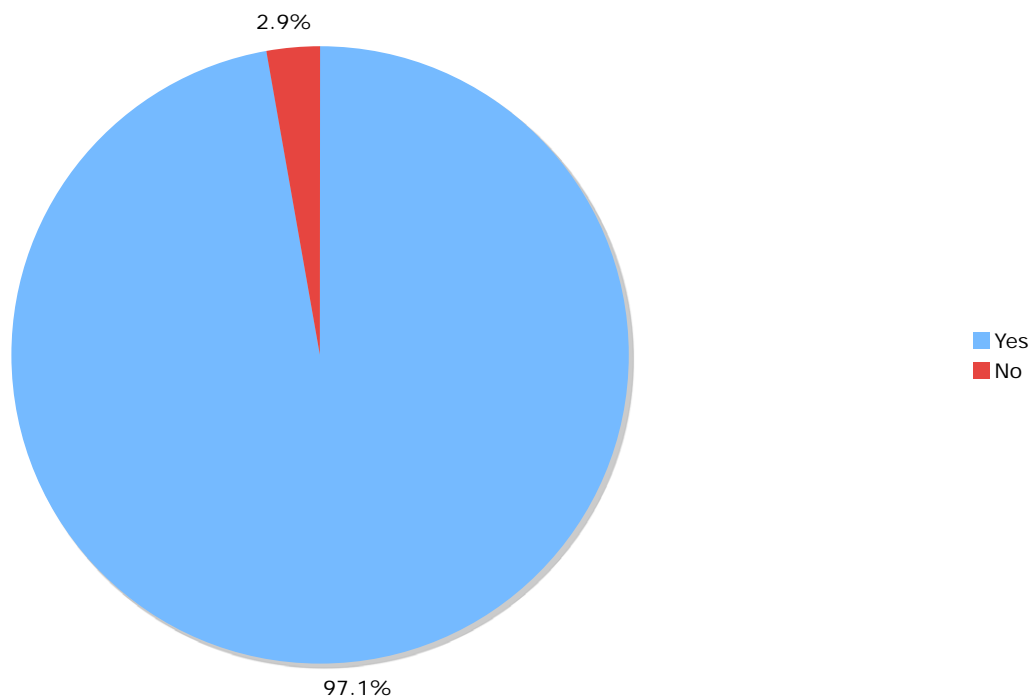
How important to you is the goal of creating a walkable community?



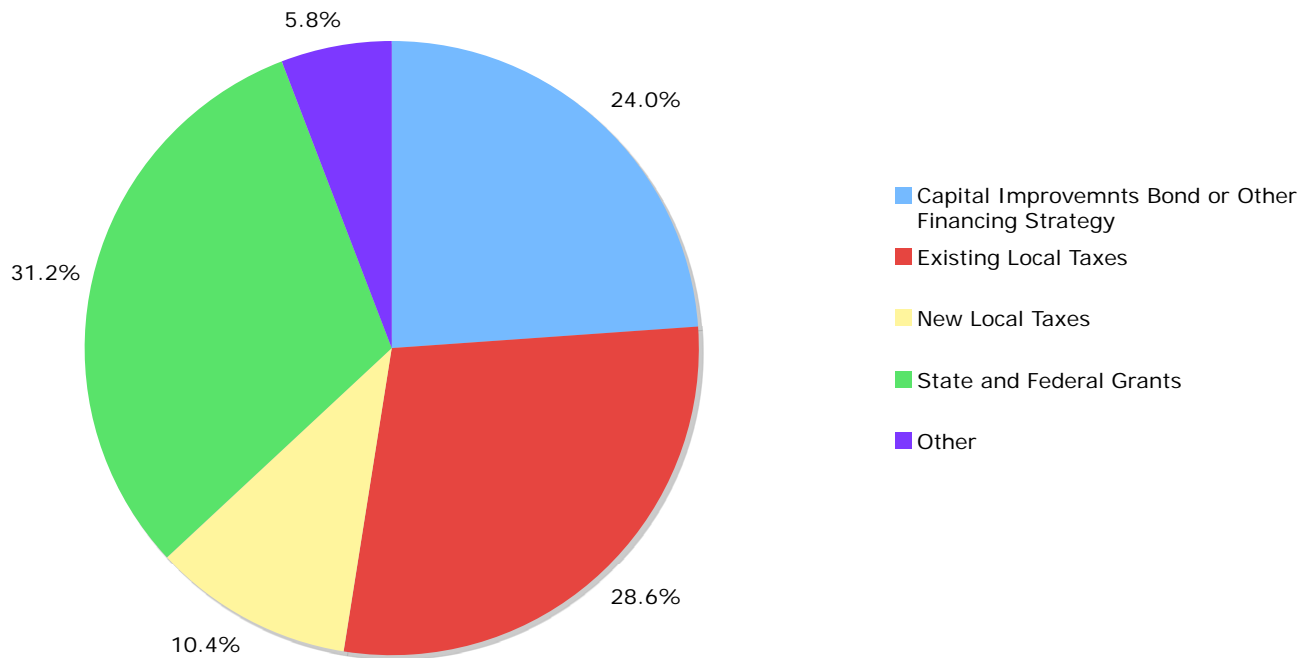
How often do you walk now?



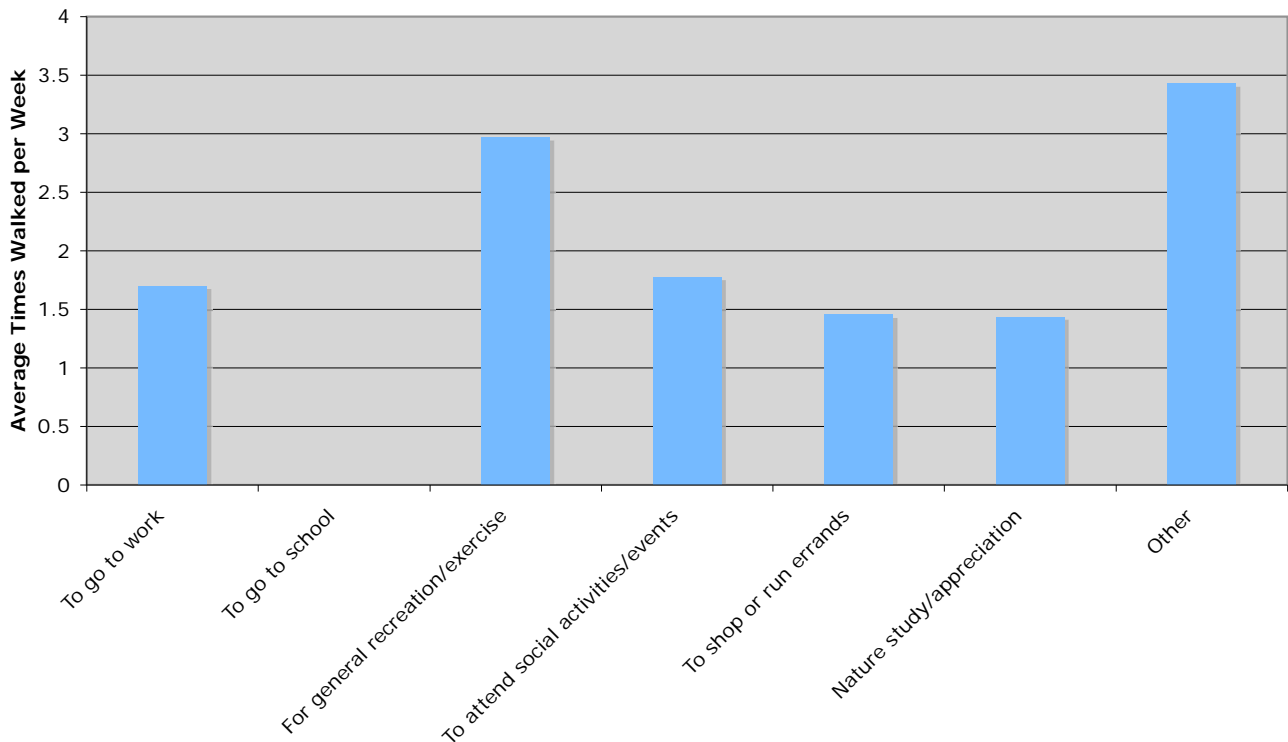
Should public funds be used to improve pedestrian options and facilities?

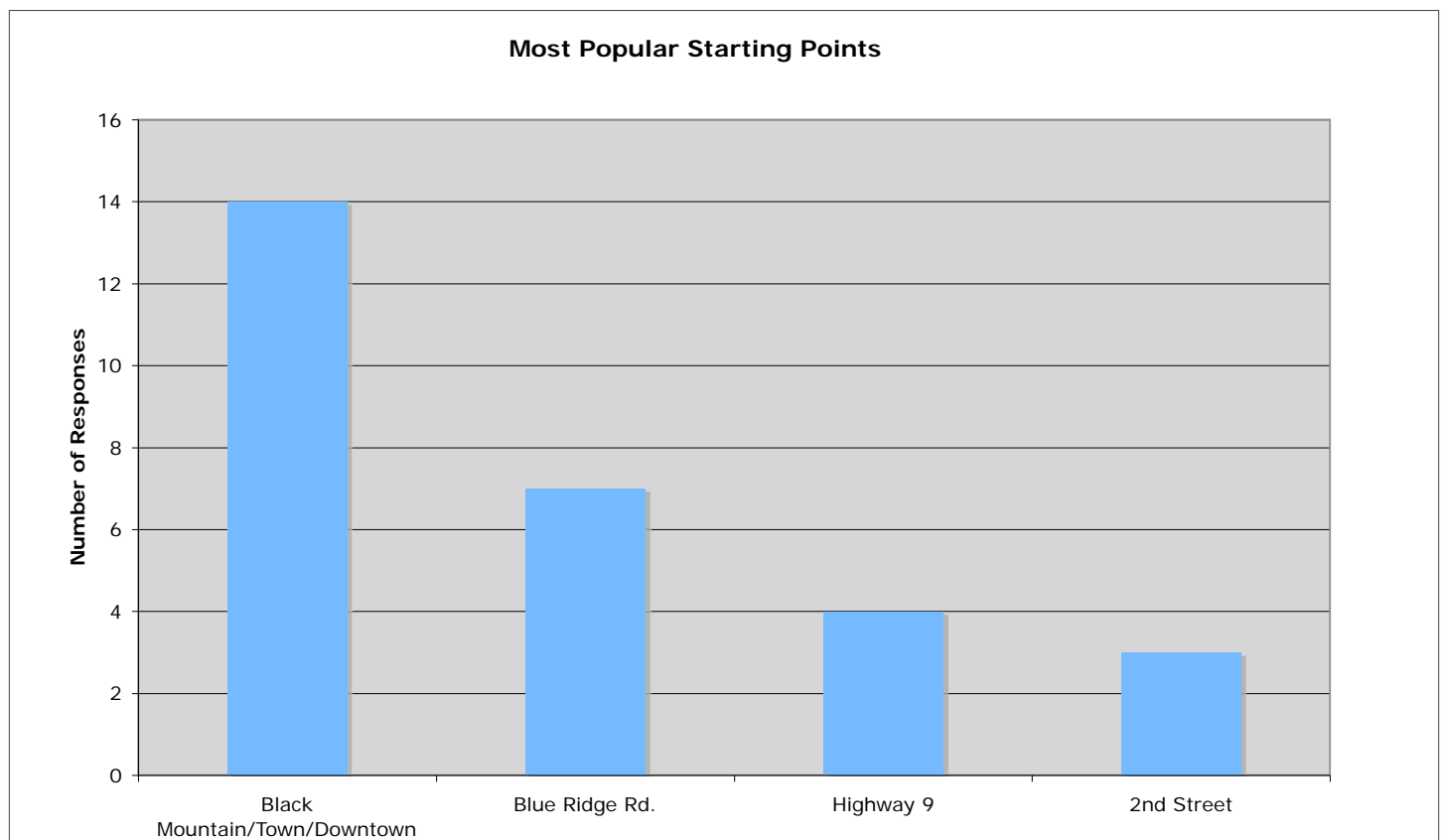
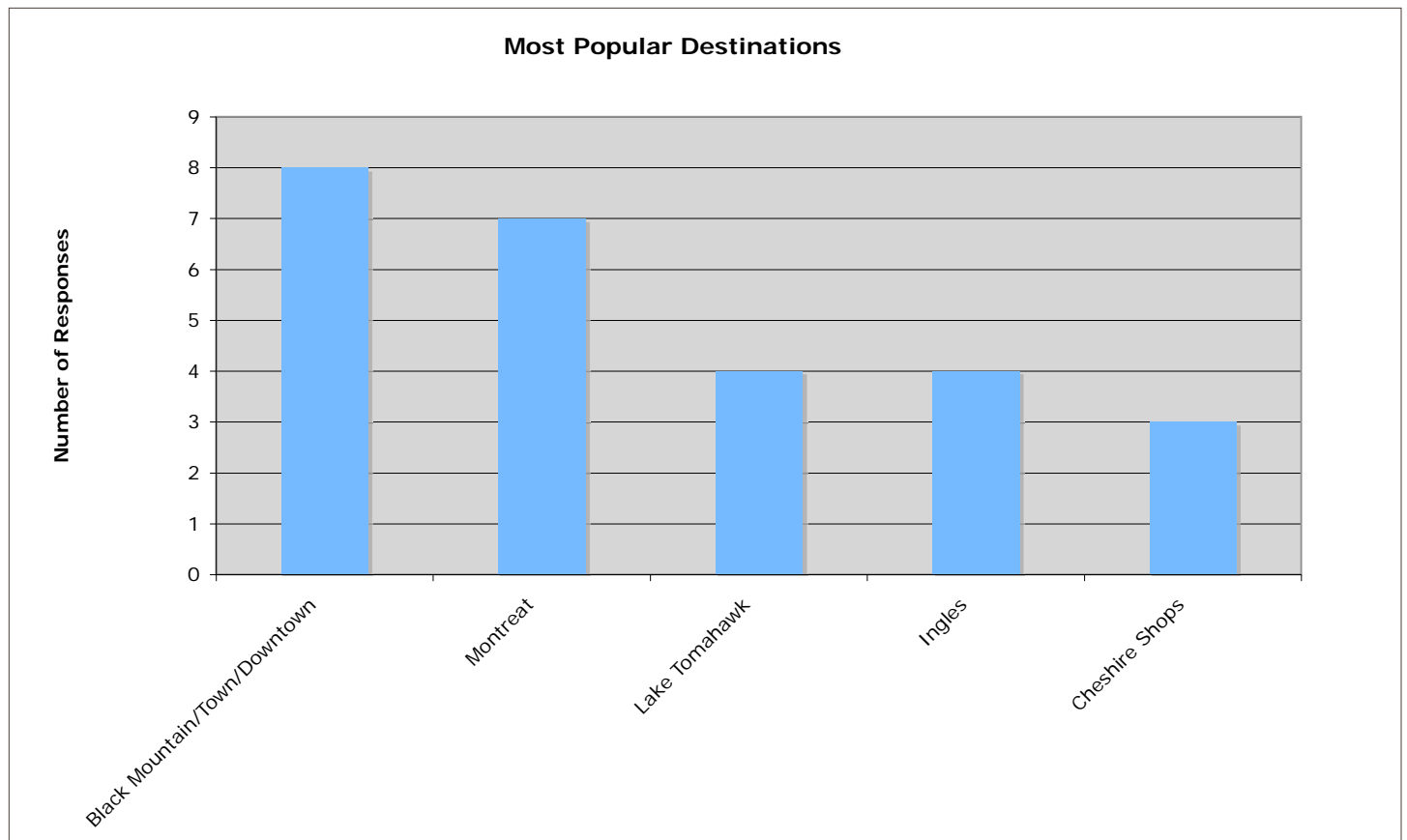


What types of funds should be used?

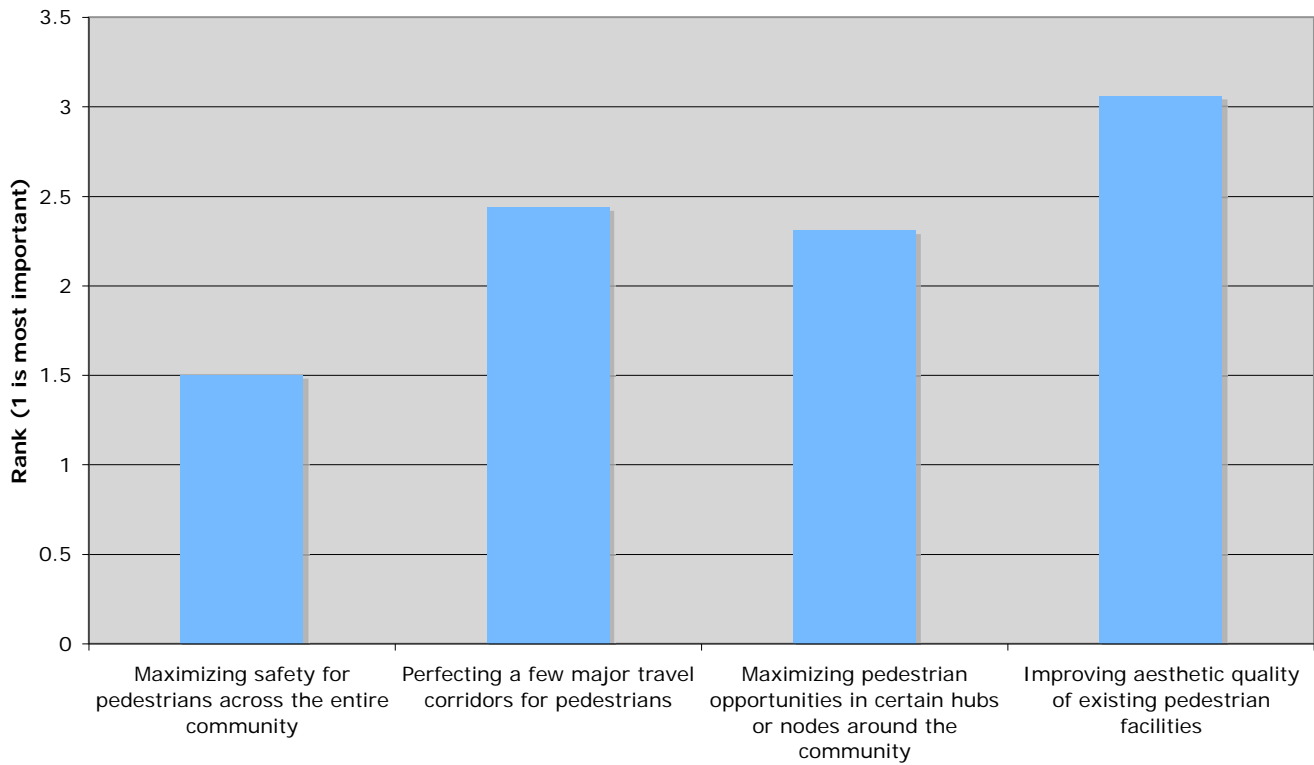


How many times per week do you walk for the following purposes?

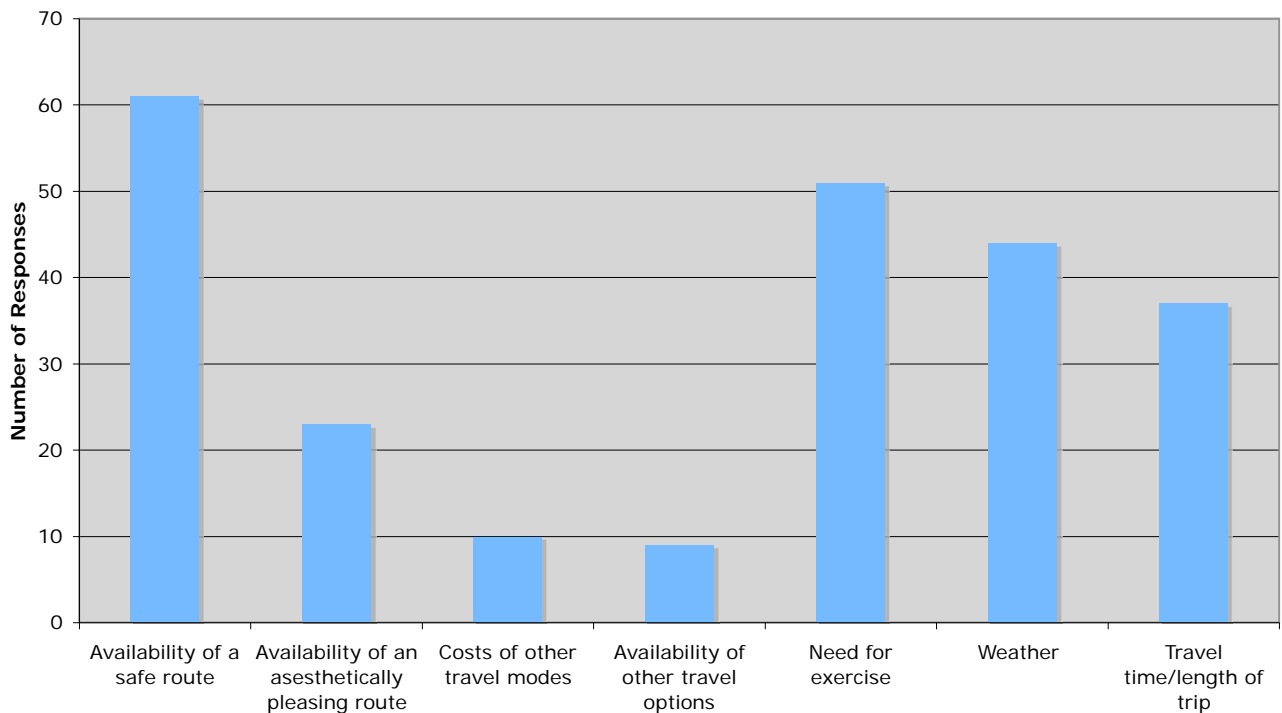




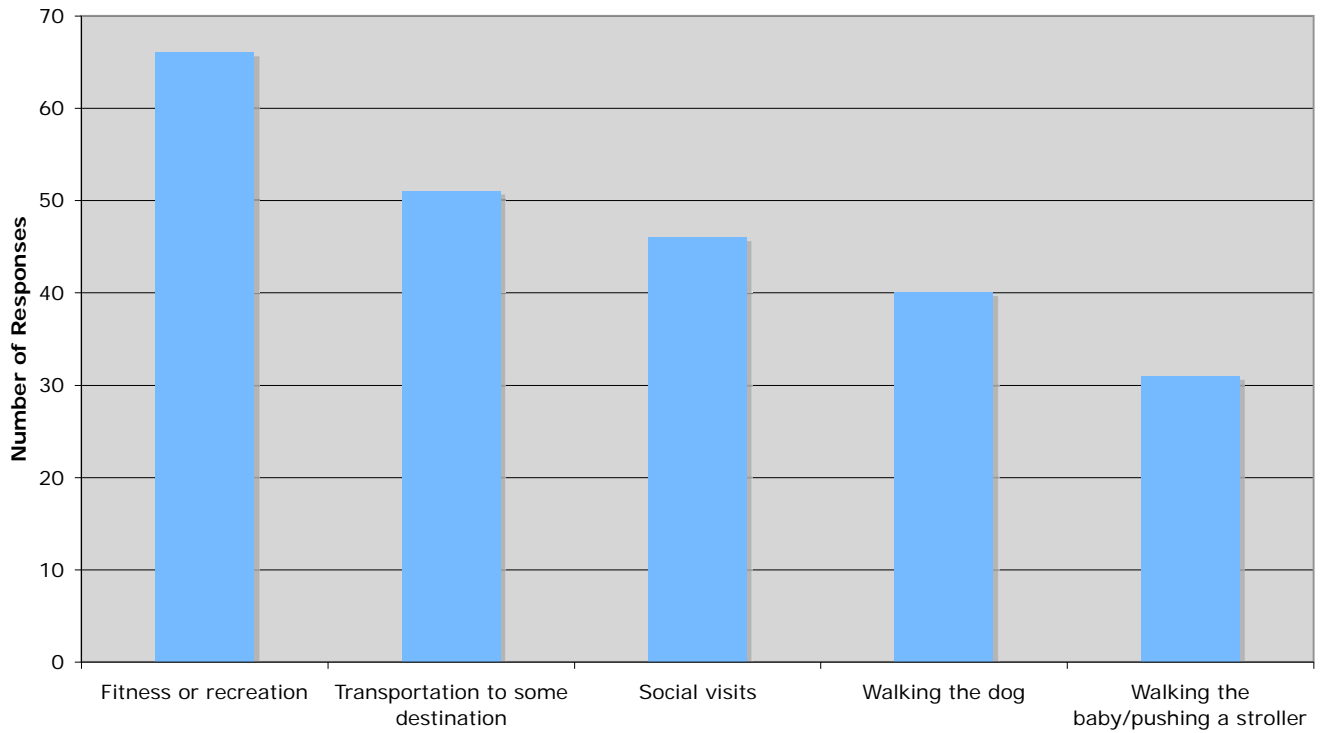
Please order this list according to the importance you placed on each item.



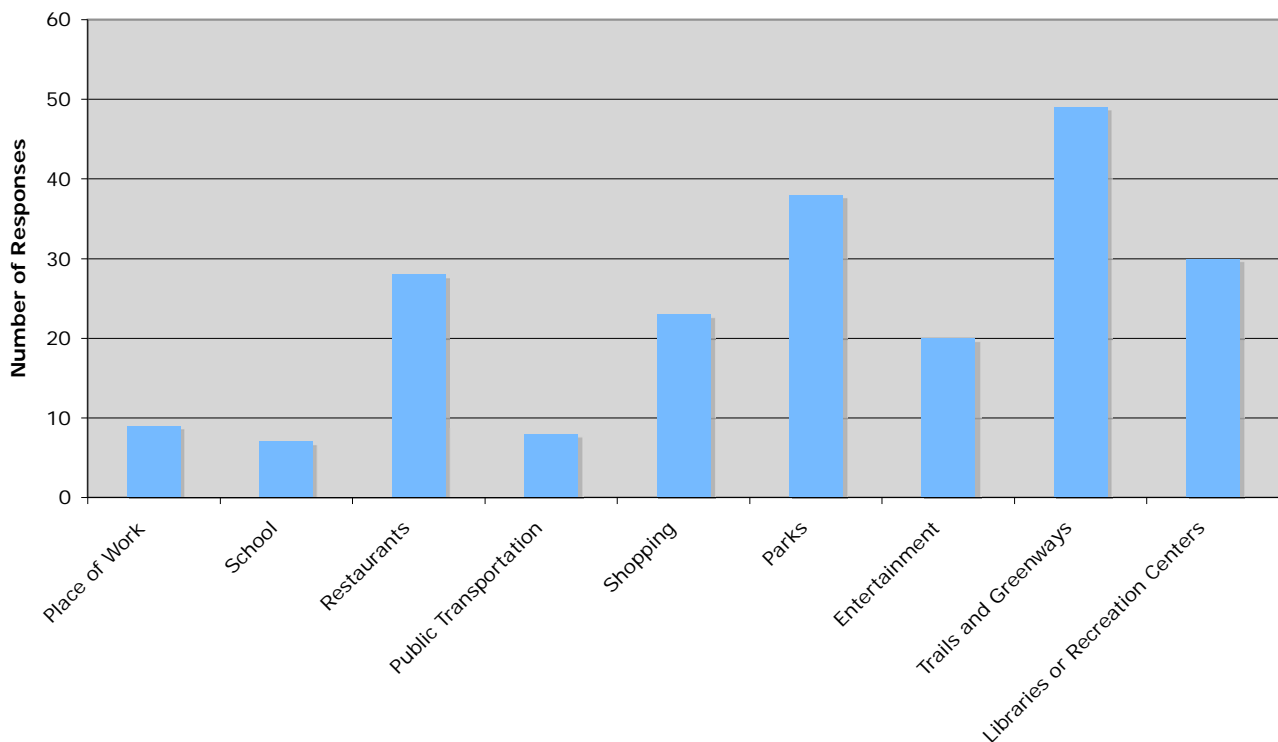
Which of the following factors play a role in whether or not you walk to a destination?



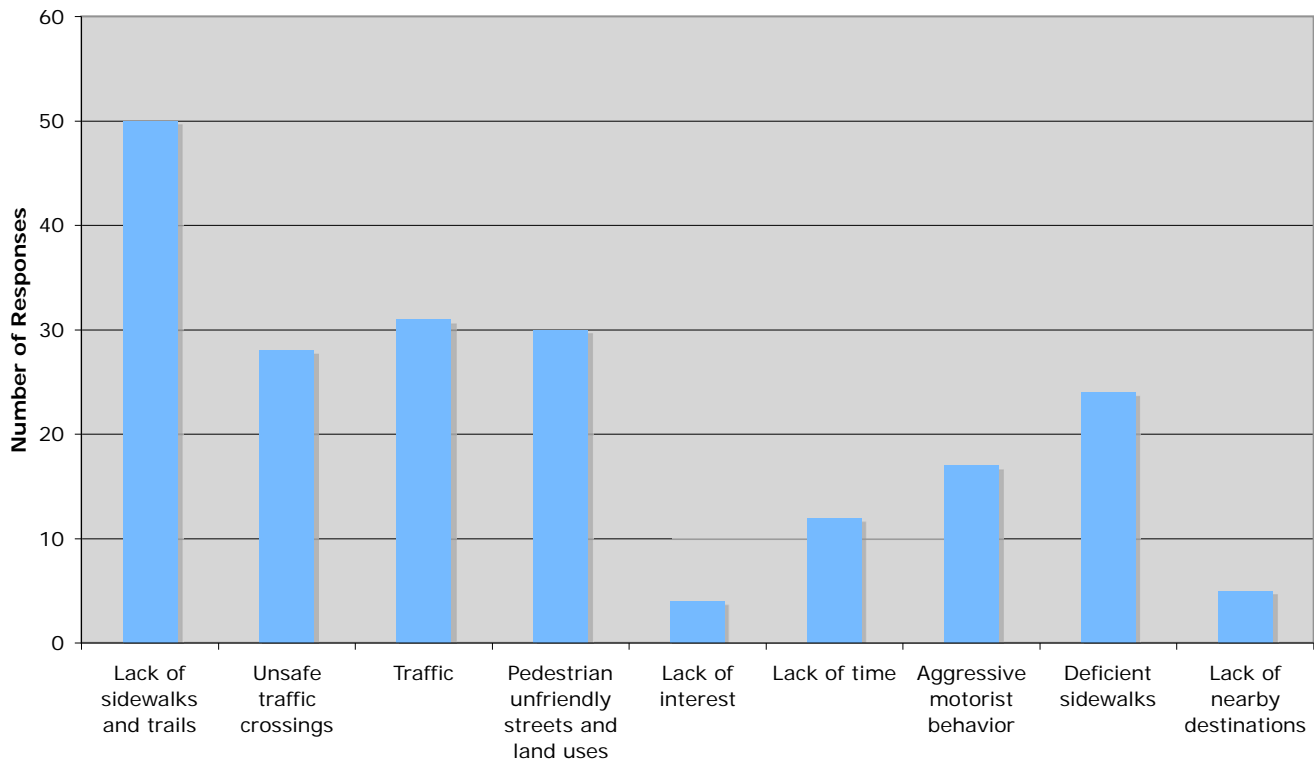
For what purposes do you walk most now and/or would you want to walk in the future?



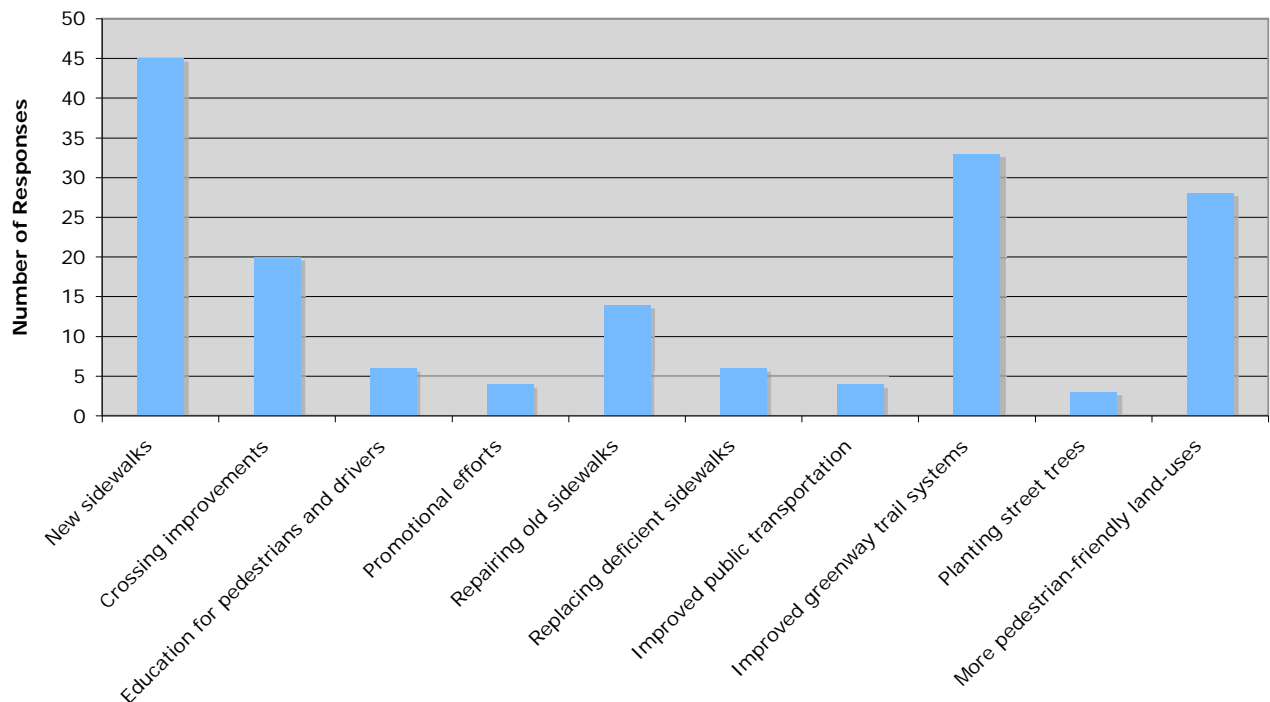
What walking destinations would you most like to get to?



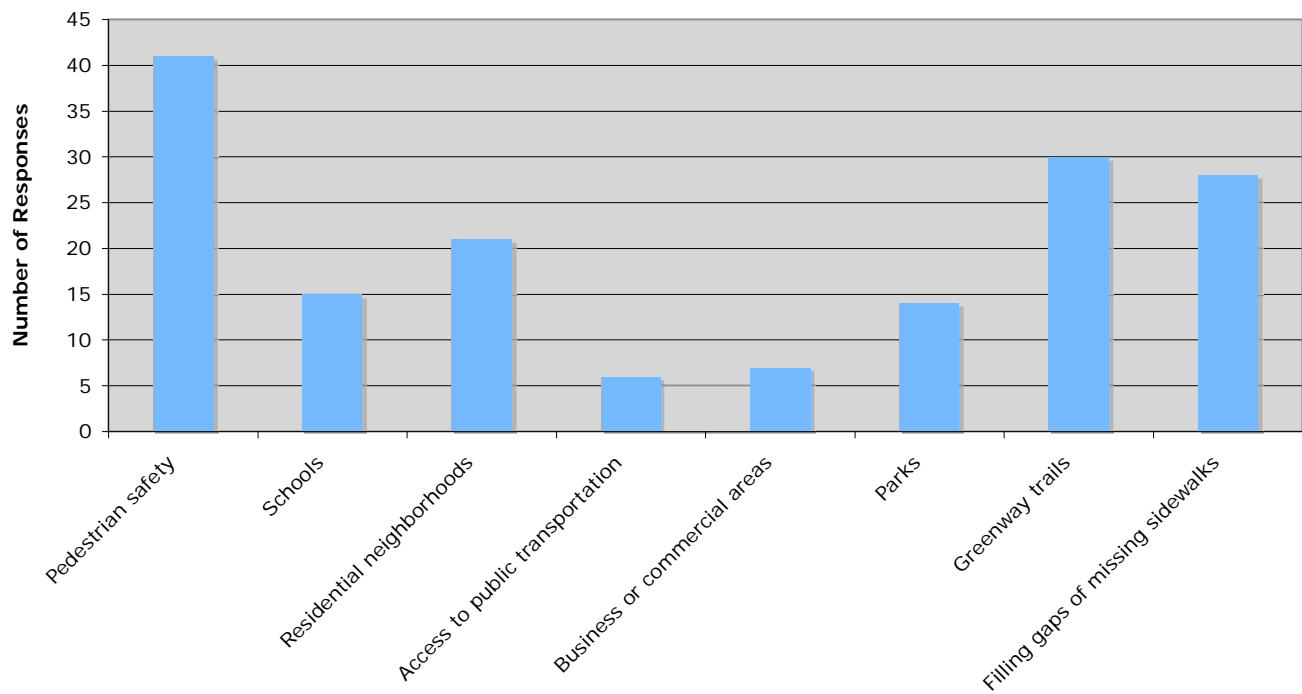
What do you think are the biggest factors that discourage walking?



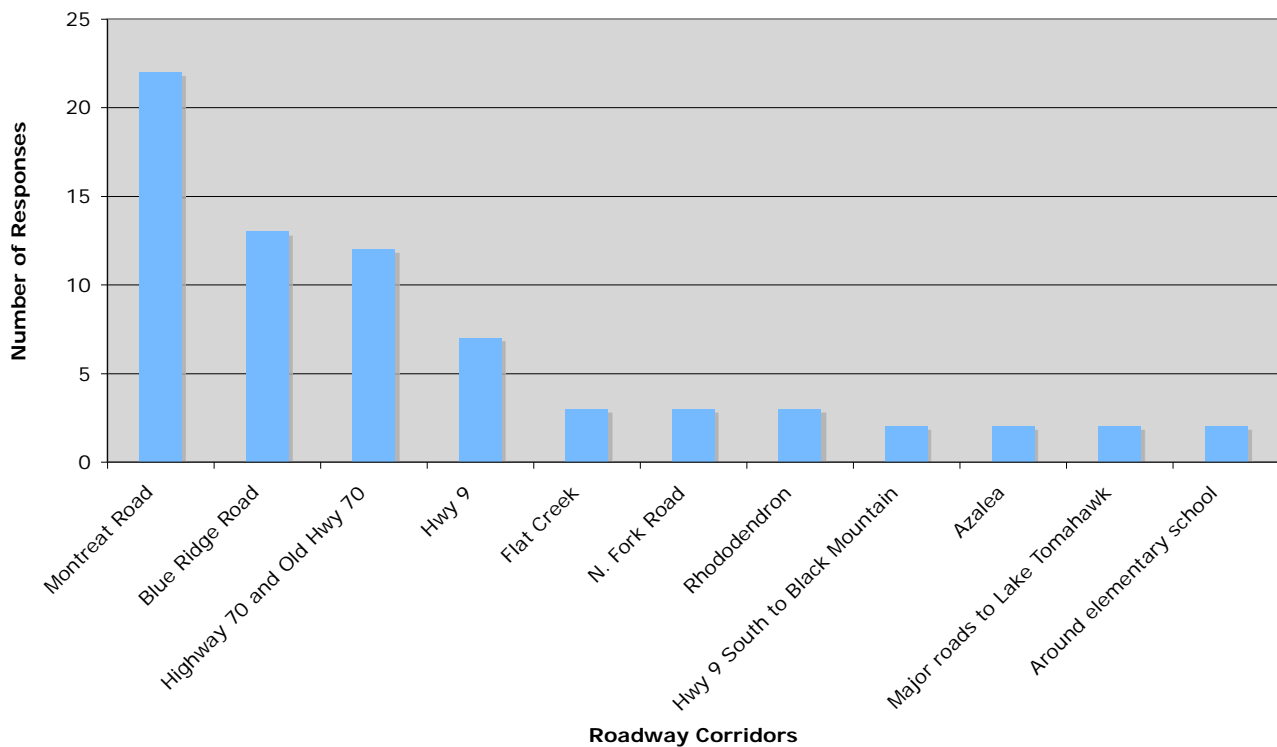
What actions do you think are most needed to increase walking in the community?

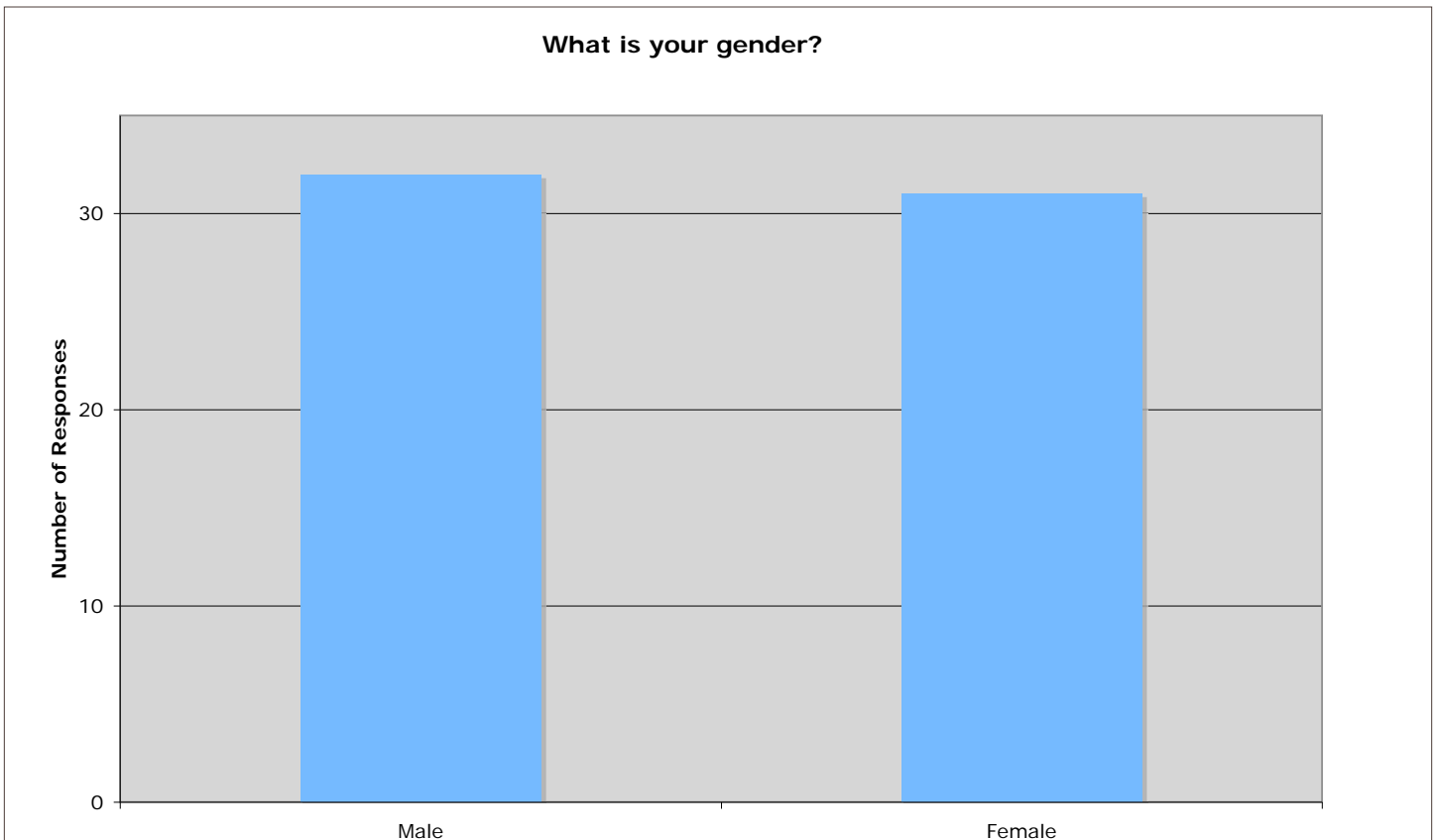
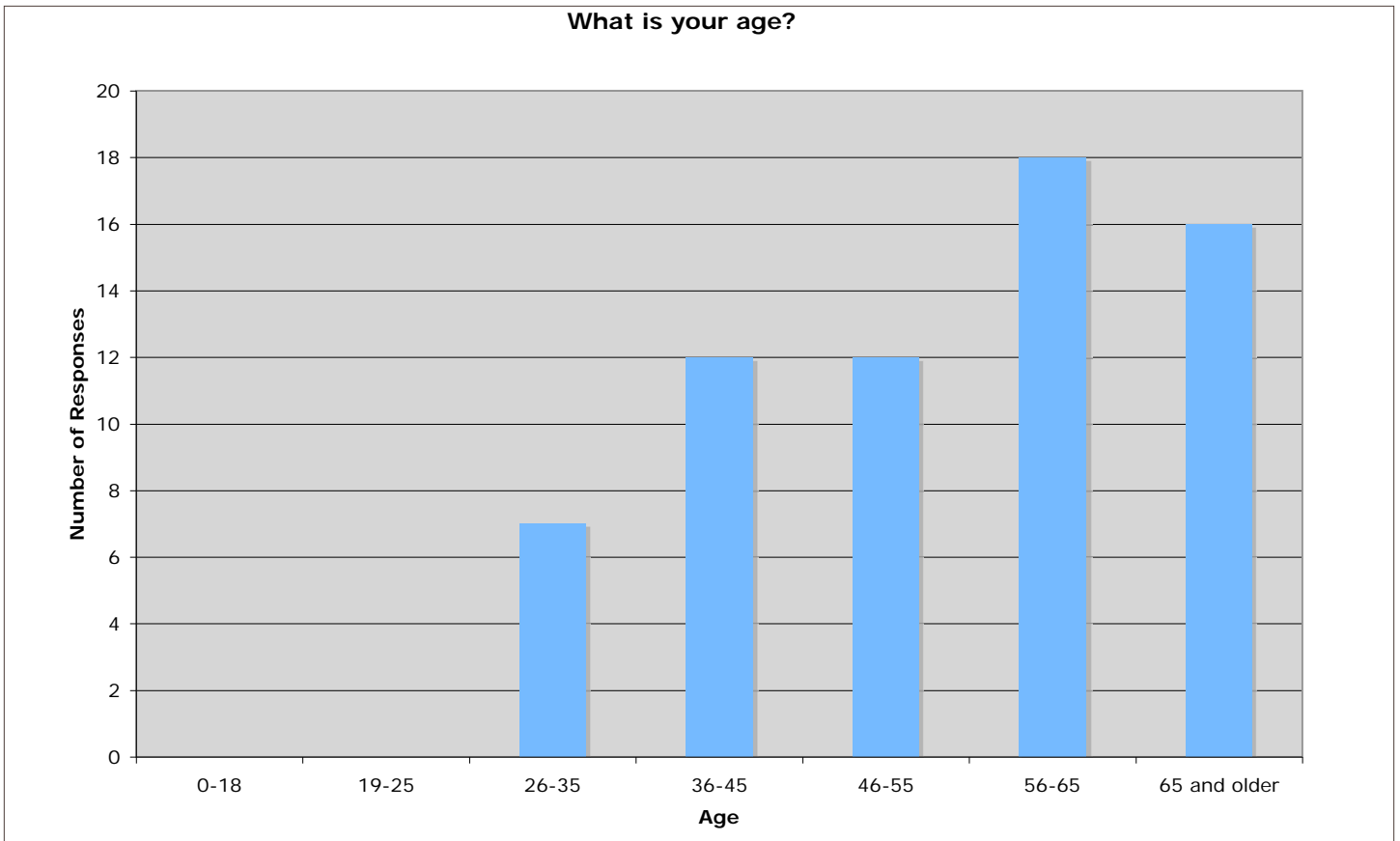


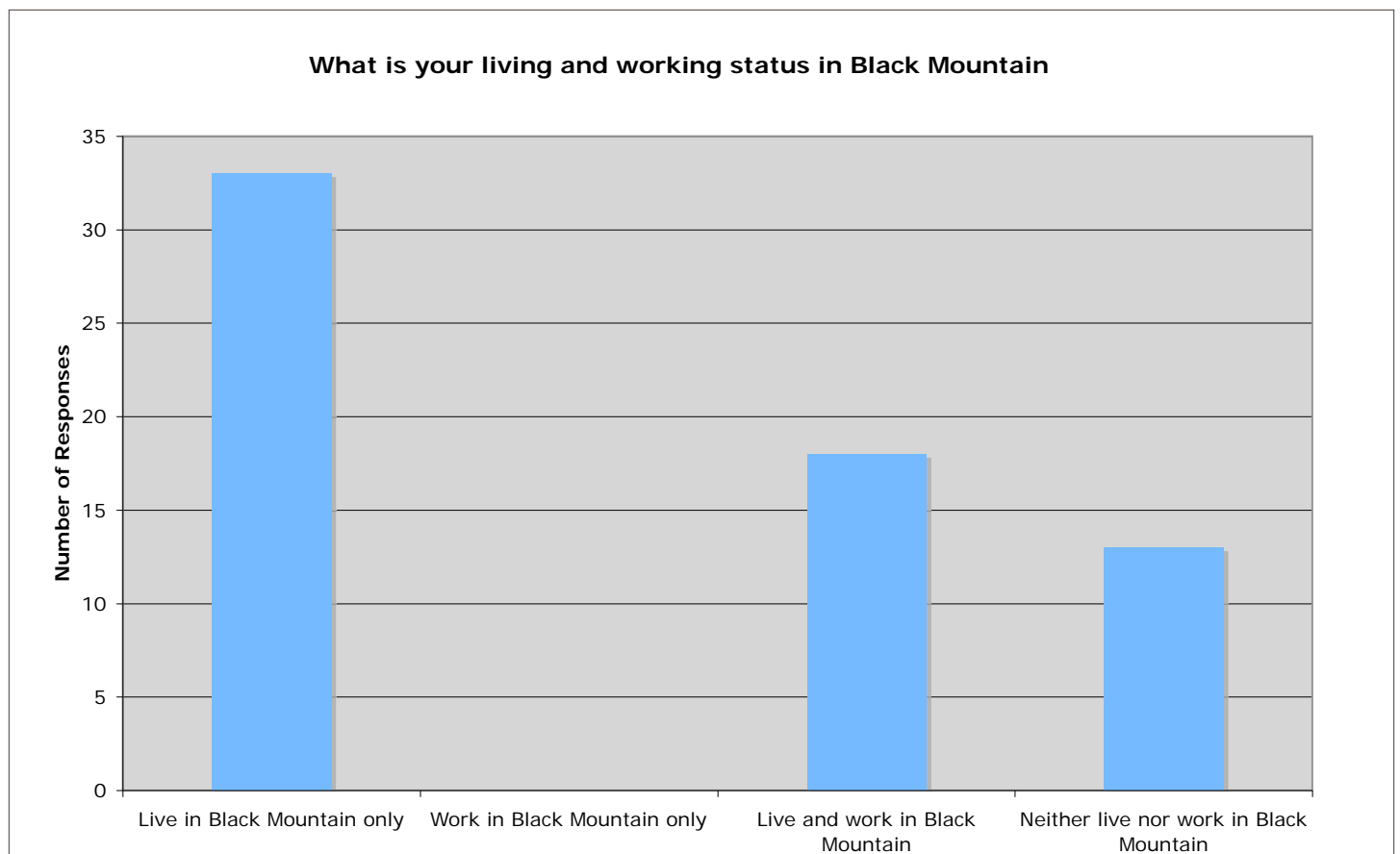
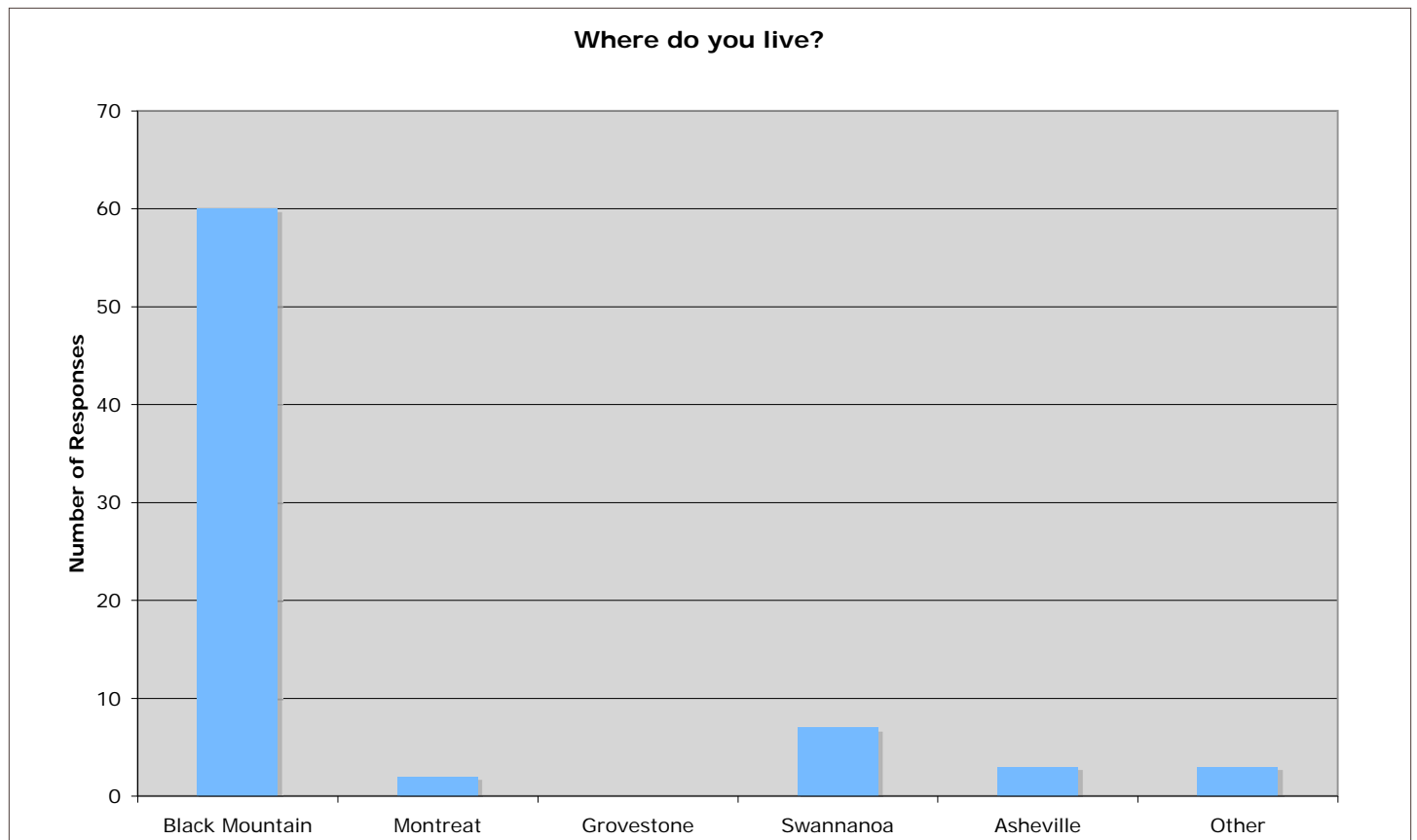
In thinking about future sidewalk construction, which of the following areas should be the most important consideration in determining areas to develop first?

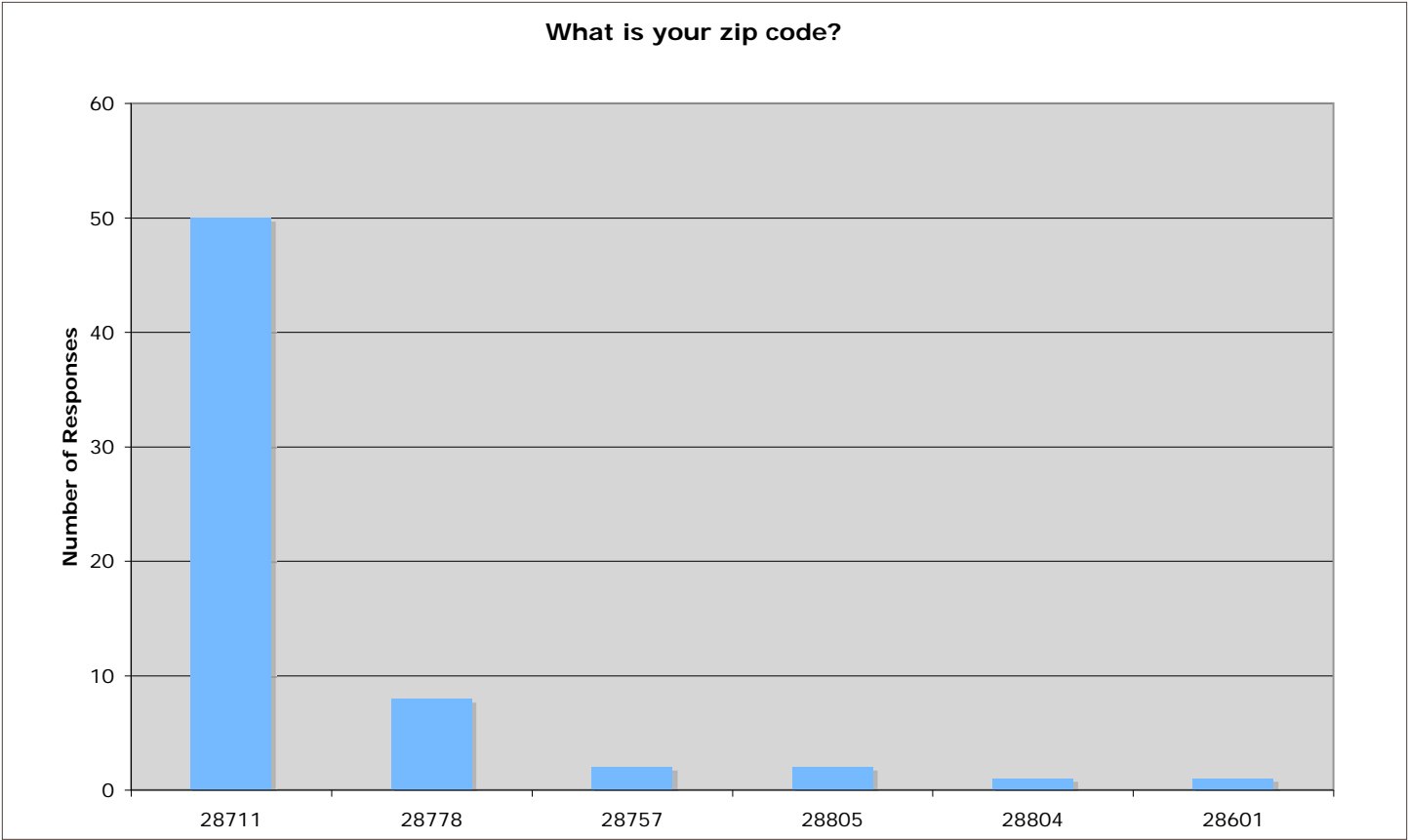


What do you think are the top roadway corridors most needing sidewalk or trail improvements?











B. NETWORK PRIORITIZATION

Chapter Outline:

B.1 Overview

B.2 Top Priority Projects

B.3 Prioritization Chart

B.1 OVERVIEW

The proposed pedestrian network for the Town of Black Mountain will likely be developed incrementally due to budget constraints and steady growth. Projects were prioritized by the criteria listed below to generate a list of top priority projects. Variations of this prioritization method are used in award-winning pedestrian plans across the United States. Road Segments were broken into logical geographic segments when a specific road segment extended across a significant distance, such as NC Highway 9 and US Highway 70. The 'Pedestrian Potential' criteria list below was customized and weighted according to input from the Black Mountain Pedestrian Steering Committee, public workshops, public comment forms, and the online opinion form (See Chart B.1 for a list of how each recommended route segment scored):

- Direct Access to a School
- Elementary School Proximity: Based on a 1/2 mile radius
- Middle School Proximity: Based on a 1/2 mile radius
- High School Proximity: Based on a 1/2 mile radius
- Parks, Recreation Centers, and Playgrounds: Based on a 1/2 mile radius
- Direct Access to/from an Existing Greenway
- Direct Access to/from a Proposed Greenway
- Direct Access to/from Higher Density Residential Areas:
- Direct Access to/from Future Development
- Connections to the Downtown District or Central Business Zoning
- Direct Access to Commercially Zoned Areas
- Regional & Citywide Connections
- Connectivity to Existing Sidewalks
- Top Suggestions from Public Input Process

Three phases for facility implementation are proposed as follows: the short term, top-priority phase is 0-5 years; medium term phase is 5-10 years; long term phase is 10-20 years. The top-priority projects are specific improvements that will facilitate an immediate increase in connectivity, access, safety, and promotion of

the network. The ranking of pedestrian facilities simply shows the ideal order based on a measure of many factors and if an opportunity arises for implementation of a lower ranking facility through development or roadway improvement, that facility should be implemented regardless of its ranking in the priority matrix.

Top priority projects should become part of the Town's Capital Improvement Program and/or submitted to the French Broad River Metropolitan Planning Organization and State for the State Transportation Improvement Program.

B.2 TOP PRIORITY PROJECTS

The top priority projects are those that ranked highest in the prioritization matrix (Chart B.1) and/or presented unique opportunities to have an immediate impact. These are listed below:

Sidewalks

- Flat Creek Road from US 70 to Bartlett Avenue
- NC 9 from Blue Ridge Road to Sutton Avenue
- US 70 from Padgettown Road to NC 9/Broadway Street
- NC 9/Broadway Street/Montreat Road from Sutton Avenue to First Street
- Ridgeway Avenue from First Street to Sutton Avenue
- US 70 from NC 9/Broadway Street to Cragmont Road
- Church Street from Laurel Circle Drive to US 70/State Street
- Dougherty Street from Connally Street to Black Mountain Avenue
- NC 9/Montreat Road from First Street to Sixth Street
- Richardson Boulevard from US 70/State Street to Sutton Avenue
- Black Mountain Avenue from Sutton Avenue to Swannanoa River
- First Street/Charlotte Street from NC 9/Montreat Road to Flat Creek Road
- NC 9 from Old Lakey Gap Road to Cheshire Drive
- NC 9 from Cheshire Drive to Blue Ridge Road
- Cherry Street from Dougherty Street to US 70/State Street
- Old US 70 from West College Street to Blue Ridge Road
- Old US 70 from Grovestone Road to Owen Middle School
- Sutton Avenue from Dougherty Street to Ridgeway Avenue
- Laurel Circle Drive from Rhododendron Avenue to NC 9/Montreat Road
- Rhododendron Avenue from Cragmont Road to Laurel Circle Drive

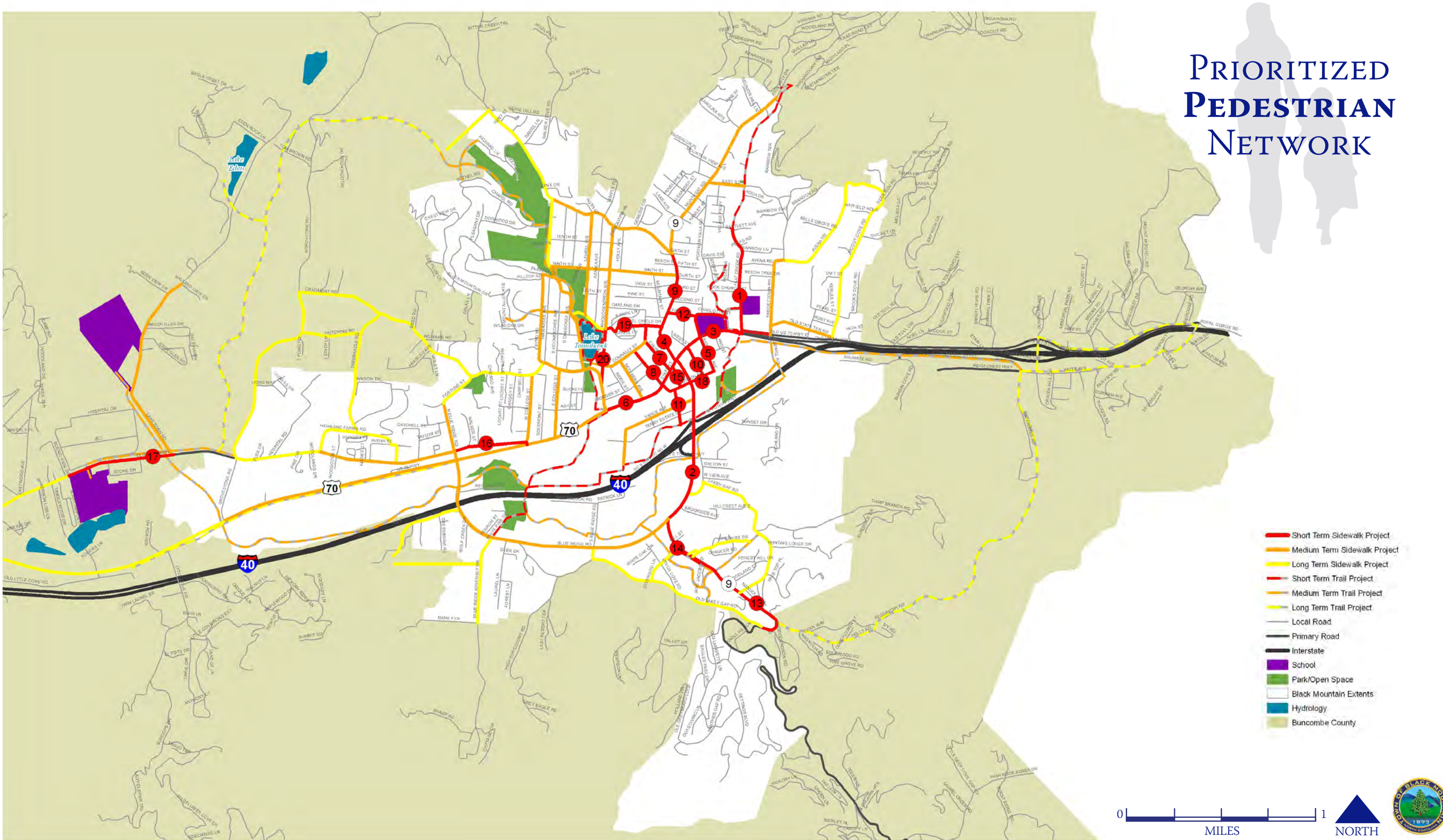
Greenways

- Lake Tomahawk Spur Trail from Lake Tomahawk Park to In the Oaks Trail
- In the Oaks/Polk Connector from In the Oaks Trail to Riverwalk Trail
- Flat Creek/Riverwalk Connector from Riverwalk Trail to Flat Creek Greenway

Chart B.1 outlines the sidewalk network prioritization criteria.
Map B.1 illustrates prioritized sidewalk and greenway projects.

B.3 PRIORITIZATION CHART

					<div><div></div><div>Direct Access to a School</div><div>Elem. School Proximity (1/2 mile radius)</div><div>Middle School Proximity (1/2 mile radius)</div><div>High School Proximity (1/2 mile radius)</div><div>Parks/Rec/Playgrounds (1/2 mile radius)</div><div>Direct Access to/from an Existing Greenway</div><div>Direct Access to/from an Existing Density Residential Area</div><div>Direct Access to/from Higher Development</div><div>Connections to/from Future District or Central Business Zoned Areas*</div><div>Direct Access to/from Comm. Regional & Citywide Connections</div><div>Connectivity to Existing Sidewalks Greenway</div><div>Top Suggestions to/from a Proposed Process</div><div>Priority Score Total</div></div>														
					5	4	3	3	3	3	2	2	4	2	2	2	1	4	40
		Primary Pedestrian Segments			From		To												
Top Priority Project	1	Flat Creek Road	US 70	Bartlett Avenue	5	4	0	0	3	3	2	0	0	2	0	2	1	4	26
Top Priority Project	2	NC 9	Blue Ridge Road	Sutton Avenue	0	4	0	0	3	3	0	0	4	2	2	2	1	4	25
Top Priority Project	3	US 70	Padgettown Road	NC 9/Broadway Street	5	4	0	0	3	0	2	0	4	2	2	2	1	0	25
Top Priority Project	4	NC 9/Broadway Street/Montreat Road	Sutton Avenue	First Street	0	4	0	0	3	0	2	0	4	2	2	2	0	4	23
Top Priority Project	5	Ridgeway Avenue	First Street	Sutton Avenue	5	4	0	0	3	0	2	0	4	2	0	2	0	0	22
Top Priority Project	6	US 70	NC 9/Broadway Street	Cragmont Road	0	4	0	0	3	0	2	0	4	2	2	2	1	0	20
Top Priority Project	7	Church Street	Laurel Circle Drive	US 70/State Street	0	4	0	0	3	0	2	0	4	2	0	2	0	0	17
Top Priority Project	8	Dougherty Street	Connally Street	Black Mountain Avenue	0	4	0	0	3	0	2	0	4	2	0	2	0	0	17
Top Priority Project	9	NC 9/Montreat Road	First Street	Sixth Street	0	4	0	0	3	0	2	0	0	0	2	2	0	4	17
Top Priority Project	10	Richardson Boulevard	US 70/State Street	Sutton Avenue	0	4	0	0	3	0	2	0	4	2	0	2	0	0	17
Top Priority Project	11	Black Mountain Avenue	Sutton Avenue	Swannanoa River	0	4	0	0	3	0	0	0	4	2	0	2	1	0	16
Top Priority Project	12	First Street/Charlotte Street	NC 9/Montreat Road	Flat Creek Road	5	4	0	0	3	0	2	0	0	0	0	2	0	0	16
Top Priority Project	13	NC 9	Old Lakey Gap Road	Cheshire Drive	0	0	0	0	0	3	2	0	0	2	2	2	1	4	16
Top Priority Project	14	NC 9	Cheshire Drive	Blue Ridge Road	0	0	0	0	0	3	2	0	0	2	2	2	1	4	16
Top Priority Project	15	Cherry Street	Dougherty Street	US 70/State Street	0	4	0	0	3	0	0	0	4	2	0	2	0	0	15
Top Priority Project	16	Old US 70	West College Street	Blue Ridge Road	0	0	0	0	3	0	2	0	0	2	2	2	0	4	15
Top Priority Project	17	Old US 70	Grovestone Road	Owen Middle School	5	0	3	0	0	0	0	0	0	0	2	0	1	4	15
Top Priority Project	18	Sutton Avenue	Dougherty Street	Ridgeway Avenue	0	4	0	0	3	0	0	0	4	2	0	2	0	0	15
Top Priority Project	19	Laurel Circle Drive	Rhododendron Avenue	NC 9/Montreat Road	0	4	0	0	3	3	2	0	0	0	0	2	0	0	14
Top Priority Project	20	Rhododendron Avenue	Cragmont Road	Laurel Circle Drive	0	0	0	0	3	3	2	0	0	0	0	2	0	4	14
Phase 2 Project		Rhododendron Avenue	Laurel Circle Drive	North Fork Road	0	0	0	0	3	3	2	0	0	0	0	2	0	4	14
Phase 2 Project		Vance Avenue	Dilling Avenue	NC 9	0	4	0	0	3	0	2	0	0	2	0	2	1	0	14
Phase 2 Project		Blue Ridge Road	US 70	Blue Ridge Assembly Drive	0	0	0	0	3	0	2	0	0	2	2	0	0	4	13
Phase 2 Project		New Bern Avenue	Connally Street	US 70/State Street	0	4	0	0	3	0	2	0	0	2	0	2	0	0	13
Phase 2 Project		Old US 70	Blue Ridge Road	Highland Farms Road	0	0	0	0	3	0	2	0	0	2	2	0	0	4	13
Phase 2 Project		Padgettown Road	US 70/State Street	Avena Road	0	4	0	0	3	0	2	0	0	2	0	2	0	0	13
Phase 2 Project		Lake Eden Road	Old US 70	Lake Eden Circle	5	0	3	3	0	0	0	0	0	0	0	0	1	0	12
Phase 2 Project		NC 9/Montreat Road	Sixth Street	East Street	0	4	0	0	0	0	2	0	0	0	2	0	0	4	12
Phase 2 Project		NC 9/Montreat Road	East Street	Town Limits	0	0	0	0	0	3	2	0	0	0	2	0	1	4	12
Phase 2 Project		Ninth Street	NC 9/Montreat Road	Tomahawk Avenue	0	4	0	0	3	0	2	0	0	0	0	2	1	0	12
Phase 2 Project		US 70	Cragmont Road	West College Street	0	0	0	0	3	0	2	0	0	2	2	2	1	0	12
Phase 2 Project		Blue Ridge Road	Fortune Street	US 70	0	0	0	0	3	0	2	0	0	2	0	0	0	4	11
Phase 2 Project		Connally Street	Rhododendron Avenue	Church Street	0	4	0	0	3	0	2	0	0	0	0	2	0	0	11
Phase 2 Project		North Fork Road	NC 9/Montreat Road	Hiawassee Avenue	0	4	0	0	3	0	2	0	0	0	2	0	0	0	11
Phase 2 Project		Tomahawk Avenue	Cragmont Road	Ninth Street	0	0	0	0	3	3	2	0	0	0	0	2	1	0	11
Phase 2 Project		Byrd Road	Cragmont Road	Fairway Drive	0	0	0	0	3	0	2	2	0	0	0	2	1	0	10
Phase 2 Project		Cragmont Road	US 70	Byrd Road	0	0	0	0	3	0	2	0	0	2	0	2	1	0	10
Phase 2 Project		Blue Ridge Road	Blue Ridge Assembly Drive	South Blue Ridge Road	0	0	0	0	3	0	0	0	0	0	2	0	0	4	9
Phase 2 Project		Blue Ridge Road	South Blue Ridge Road	NC 9	0	0	0	0	3	0	0	0	0	0	2	0	0	4	9
Phase 2 Project		East College Street	US 70	Cragmont Road	0	0	0	0	3	0	2	0	0	2	0	2	0	0	9
Phase 2 Project		Laurel Avenue	North Fork Road	Laurel Circle Drive	0	0	0	0	3	3	2	0	0	0	0	0	1	0	9
Phase 2 Project		Old State Ten Road	Padgettown Road	McCoy Cove Road	0	4	0	0	3	0	2	0	0	0	0	0	0	0	9
Phase 2 Project		US 70	West College Street	Grovestone Road	0	0	0	0	3	0	0	0	0	2	2	2	0	0	9
Phase 2 Project		West College	US 70	Cragmont Road	0	0	0	0	3	0	2	0	0	2	0	2	0	0	9
Phase 3 Project		Laurel Circle Drive	Rhododendron Avenue	Tomahawk Avenue	0	0	0	0	3	2	0	0	0	0	0	2	1	0	8
Phase 3 Project		Old US 70	Highland Farms Road	Grovestone Road	0	0	0	0	0	0	2	0	0	0	2	0	0	4	8
Phase 3 Project		Cragmont Road	Byrd Road	Frances Avenue	0	0	0	0	3	0	2	0	0	0	0	2	0	0	7
Phase 3 Project		Fortune Street	Blue Ridge Road	Cragmont Road	0	0	0	0	3	0	2	0	0	0	0	2	0	0	7
Phase 3 Project		North Fork Road	Hiawassee Avenue	Town Limits	0	0	0	0	3	0	2	0	0	0	2	0	0	0	7
Phase 3 Project		Dogwood Lane	NC 9	Old Lakey Gap Road	0	0	0	0	0	3	2	0	0	0	0	0	1	0	6
Phase 3 Project		Hiawassee Avenue	Ninth Street	North Fork Road	0	0	0	0	3	0	2	0	0	0	0	0	1	0	6
Phase 3 Project		McCoy Cove Road	Old State Ten Road	Avena Road	0	4	0	0	0	0	2	0	0	0	0	0	0	0	6
Phase 3 Project		Avena Road	Padgettown Road	McCoy Cove Road	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
Phase 3 Project		Highland Farms Road	Old US 70	Tabernacle Road	0	0	0	0	0	0	2	0	0	2	0	0	0	0	4
Phase 3 Project		Old Lakey Gap Road	South Blue Ridge Road	Dogwood Lane	0	0	0	0	3	0	0	0	0	0	0	0	1	0	4
Phase 3 Project		Tabernacle Road	Old US 70	Highland Farms Road	0	0	0	0	0	0	2	0	0	2	0	0	0	0	4
Phase 3 Project		Blue Ridge Assembly Drive	Blue Ridge Road	Maney Lane	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Phase 3 Project		East Street	NC 9/Montreat Road	Flat Creek Road	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3
Phase 3 Project		Lakey Gap Road	Sunset Drive	NC 9	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3
Phase 3 Project		Old Lakey Gap Road	Dogwood Lane	NC 9	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3
Phase 3 Project		Sunset Drive	NC 9	Lakey Gap Road	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Regional Project		US 70	Grovestone Road	Tanglewood Park Drive	0	0	3	0	0	0	0	0	0	2	2	0	1	0	8
Regional Project		Cragmont Road	Frances Avenue	North Fork Road	0	0	0	0	3	0	2	0	0	0	0	0	0	0	5
Regional Project		North Fork Road	Old US 70	Cragmont Road	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Regional Project		Tabernacle Road	Highland Farms Road	Cragmont Road	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2





C. COST ESTIMATES



Chapter Outline:

C.1 Cost Considerations

C.2 Cost Estimates

C.1 COST CONSIDERATIONS¹

The actual cost of providing sidewalks is different for each region of the country and varies with the season. Actual bid prices are also influenced by how busy contractors are at the time of construction. The cost of constructing concrete sidewalks alone is approximately \$11 per square foot, while adding concrete curb and gutter to a project can add as much as \$15 per linear foot.²

Factors to consider when calculating the cost of sidewalks

1. Presence of curb and gutter

The costs of providing curb and gutter, which presumes the need to also provide a street drainage system, run much higher than the cost of sidewalk alone.

2. Number of driveways

To comply with ADA, many existing driveways must be replaced with ones that provide a level passage at least 0.9 (3 ft) wide. It can also be advantageous to inventory all existing driveways to see if any can be closed, resulting in a cost-savings.

3. Number of intersections

While intersections represent a reduction in the sidewalk, curb ramps are required where sidewalks cross intersections and the cost of providing additional traffic control at each intersection should be considered.

4. Obstacles to be removed

The cost for moving or removing obstacles such as utility poles, signposts, and fire hydrants vary too much to be itemized here; however, they are required to be moved if they obstruct access. These costs must be calculated individually for each project.

5. Structures

While minor sidewalk projects rarely involve new structures such as a bridge, many projects with significant cuts and fills may require retaining walls and/or culvert extensions. The costs of retaining walls must be calculated individually for each project.

6. Right-of-way

Most sidewalk projects can be built within existing rights-of-way (especially infill projects); some projects may require limited acquisition of additional right-of-way easement. An alternative to acquiring right-of-way is to narrow the roadway, which should consider the needs of bicyclists (e.g., through bike lanes or shoulders, at a minimum of 1.5 m (5 ft).

7. Miscellaneous factors

Planters, irrigation, benches, decorative lampposts, and other aesthetic improvements cost money, but they are usually well worth it if the impetus for the project is to create a more pleasant and inviting walking environment.

When project costs appear to be escalating due to one or more of the above-listed items, especially retaining walls or acquiring right-of-way, consideration may be given to narrowing the sidewalk in constrained areas as a last resort. The full sidewalk width should be resumed in non-constrained areas—this is preferable to providing a narrow sidewalk throughout, or dropping the project because of one difficult section.

Tips to Reduce Total Costs

1. Stand-alone vs. integrated within another project

Sidewalks should always be included in road construction projects. Stand-alone sidewalk projects cost more than the same work performed as part of a larger project. Sidewalks can be piggybacked to projects such as surface preservation, water or sewer lines, or placing utilities underground. Besides the monetary savings, the political fallout is reduced, since the public doesn't perceive an agency as being inefficient (it is very noticeable if an agency works on a road, then comes back to do more work later). The reduced impacts on traffic are a bonus to integration.

2. Combining Projects

A cost-savings can be achieved by combining several small sidewalk projects into one big one. This can occur even if the sidewalks are under different jurisdictions, or even in different localities, if they are close to each other. The basic principle is that bid prices drop as quantities increase.

C.2 COST ESTIMATES

Table C.1 uses the amount of \$11/square foot to provide an estimate for each segment of Phase 1 of the Proposed Pedestrian Network. \$11/square foot was chosen to be conservative and is towards the high end of typical costs per square foot. Some pedestrian network segments in Black Mountain already have sections of existing sidewalk. Existing sections of sidewalk were subtracted from the overall construction length of each respective network segment. This was all taken into consideration when developing the following cost estimates.

Charts C.1 and C.2 lists sidewalk and trail projects that should be incorporated into the local Capital Improvements Program (CIP).

Top Priority Pedestrian Network Segments			From	To	Segment Length (linear foot)	Existing Sidewalk Single Side (linear foot)	Existing Sidewalk Double Side (linear foot)	Sidewalk Recommendation*	Sidewalk Needed (linear foot)	Unit Cost (per sq. foot)	Width (5')	Total Estimated Cost
Top Priority Project	1	Flat Creek Road	US 70	Cotton Avenue	2975	307	0	Single Side	2668	\$11	5	\$146,740.00
Top Priority Project	2	NC 9	Blue Ridge Road	Sutton Avenue	4004	2785	0	Double Side	5223	\$11	5	\$287,265.00
Top Priority Project	3	US 70	Padgett Road	NC 9/Broadway Street	3140	1280	1368	Single/Double	492	\$11	5	\$27,060.00
Top Priority Project	4	NC 9/Broadway Street/Montreat Road	Sutton Avenue	First Street	2271	2271	0	Double Side	2271	\$11	5	\$124,905.00
Top Priority Project	5	Ridgeway Avenue	First Street	Sutton Avenue	1650	0	0	Single Side	1650	\$11	5	\$90,750.00
Top Priority Project	6	US 70	NC 9/Broadway Street	Cragmont Road	2550	1900	650	Double Side	1900	\$11	5	\$104,500.00
Top Priority Project	7	Church Street	Laurel Circle Drive	US 70/State Street	1527	1527	0	Built*	0	\$11	5	\$0.00
Top Priority Project	8	Dougherty Street	Connally Street	Black Mountain Avenue	1649	420	0	Single/Double	1649	\$11	5	\$90,695.00
Top Priority Project	9	NC 9/Montreat Road	First Street	Sixth Street	1687	1087	0	Single Side	600	\$11	5	\$33,000.00
Top Priority Project	10	Richardson Boulevard	US 70/State Street	Sutton Avenue	909	909	0	Built*	0	\$11	5	\$0.00
Top Priority Project	11	Black Mountain Avenue	Sutton Avenue	Swannanoa River	984	0	984	Built*	0	\$11	5	\$0.00
Top Priority Project	12	First Street/Charlotte Street	NC 9/Montreat Road	Flat Creek Road	1651	1651	0	Single Side	0	\$11	5	\$0.00
Top Priority Project	13	NC 9	Old Lakey Gap Road	Cheshire Drive	3520	0	0	Single Side	3520	\$11	5	\$193,600.00
Top Priority Project	14	NC 9	Cheshire Drive	Blue Ridge Road	1360	0	0	Single Side	1360	\$11	5	\$74,800.00
Top Priority Project	15	Cherry Street	Dougherty Street	US 70/State Street	604	0	604	Built*	0	\$11	5	\$0.00
Top Priority Project	16	Old US 70	West College Street	Blue Ridge Road	2100	0	0	Single Side	2100	\$11	5	\$115,500.00
Top Priority Project	17	Old US 70	Grovestone Road	Owen Middle School	4213	0	0	Double Side	8426	\$11	5	\$463,430.00
Top Priority Project	18	Sutton Avenue	Dougherty Street	Ridgeway Avenue	1207	1207	0	Single/Double	473	\$11	5	\$26,015.00
Top Priority Project	19	Laurel Circle Drive	Rhododendron Avenue	NC 9/Montreat Road	1747	1747	0	Built*	0	\$11	5	\$0.00
Top Priority Project	20	Rhododendron Avenue	Cragmont Road	Laurel Circle Drive	1580	0	0	Single Side	1580	\$11	5	\$86,900.00
												\$1,865,160.00

*Chart C.1 - * Indicates a Top Priority Project segment that already contains existing sidewalk facilities, however crossing elements, surface condition, and gaps should be evaluated and addressed.*

Top Priority Greenway Trail Network Segments			From	To	Segment Length (linear foot)	Trail Type (Recommendation)	Unit Cost (per linear foot)	Width	Total Estimated Cost
Top Priority Project	1	Community Garden Trail	Community Gardens	Oaks Trail	1000	Paved Multi-use	\$50	10	\$50,000.00
Top Priority Project	2	Primary School Trail	Primary School	Cotton Avenue	2700	Paved Multi-use	\$50	10	\$135,000.00
Top Priority Project	3	Grey Eagle Trail	NC 9	Oaks Trail/Gray Eagle	3500	Paved Multi-use	\$50	10	\$175,000.00
									\$360,000.00

*Chart C.2 - ** Estimated unit cost per linear foot includes site preparation (clearing, grubbing, erosion control) and construction of a 10' paved multi-use trail with 2' wide gravel shoulder. Unit cost does not include design costs or additional amenities such as bridges, boardwalk, or culverts.*

Footnotes:

1 *“Recommended Guidelines/Priorities for Sidewalks and Walkways.”* http://www.walkinginfo.org/pedsafe/moreinfo_sidewalks.cfm#cost. US Department of Transportation, Federal Highway Administration.

2 *“Sidewalks and Walkways”* <http://www.walkinginfo.org/engineering/roadway-sidewalks.cfm>. Pedestrian and Bicycle Information Center.

The material in section C.1, along with the sidewalk cost estimates per square foot, were taken directly from “Recommended Guidelines/Priorities for Sidewalks and Walkways,” from PEDSAFE online resource, a project sponsored by the USDOT Federal Highway Administration.



D. FUNDING SOURCES

Chapter Outline:

D.1 Overview

D.2 Federal Funding

D.3 State Funding

D.4 Local Funding

D.1 OVERVIEW

The primary purpose of this appendix is to define and describe possible funding sources that could be used to support the planning, design and development of pedestrian and greenway improvements.

Implementing the recommendations of this plan will require a strong level of local support and commitment through a variety of local funding mechanisms. Perhaps most important is the addition of sidewalk and greenway recommendations from this Plan (as described in Chapters 3 and 5) into the Town's Capital Improvement Program (CIP). Pedestrian improvements should become a high priority and be supported through the CIP and local bonds.

The Town should also seek a combination of funding sources that include local, state, federal, and private money. Fortunately, the benefits of protected greenways are many and varied. This allows programs in Black Mountain to access money earmarked for a variety of purposes including water quality, hazard mitigation, recreation, air quality, alternate transportation, wildlife protection, community health, and economic development. Competition is almost always stiff for state and federal funds, so it becomes imperative that local governments work together to create multi-jurisdictional partnerships and to develop their own local sources of funding. These sources can then be used to leverage outside assistance. The long term success of this plan will almost certainly depend on the dedication of a local revenue stream for greenways and sidewalks.

For the past two decades, a variety of funding has been used throughout North Carolina to support the planning, design and construction of urban and rural pedestrian and greenway projects. The largest single source of funding for these projects has come from the Surface Transportation Act, first the Intermodal Surface Transportation Efficiency Act (ISTEA) in the early to mid 1990's; then its successor, Transportation Equity Act for the Twenty-First Century (TEA-21) through the early part of 2002; and now the Safe, Accountable, Flexible and Effi-

cient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The North Carolina Department of Transportation manages and distributes the majority of federal funds that are derived from the Act to support the development of bicycle/pedestrian/trail development.

The majority of federal funding is distributed to states in the form of block grants and is then distributed throughout a given state for specific projects. A description of applicable federal funding programs is provided in this report along with a description of the current funding levels for Fiscal Year 2007. State funding programs in North Carolina also support the creation of greenways. North Carolina has developed a broad array of funding sources that address land acquisition, green infrastructure development, and trail facility development.

Additionally, there are many things that the Town of Black Mountain can do to establish their own funding for greenway initiatives. For the most part, it takes money to get money. For Black Mountain, it will be necessary to create a local funding program through one of the methods that is defined within this report. Financing will be needed to administer the continued planning and implementation process, acquire parcels or easements, and manage and maintain facilities.

This appendix is organized by first addressing the federal sources of funding, then addresses state and local government funding sources. It is by no means an exhaustive list as there are hundreds of additional funding sources available that should be researched and pursued as well.

Greenways Incorporated advises the Town of Black Mountain to pursue a variety of funding options and establish pedestrian recommendations from this Plan as a priority in its Capital Improvement Program (CIP). This appendix identifies a list of some of the pedestrian and greenway funding opportunities that have typically been pursued by other communities. Creative planning and consistent monitoring of funding options will likely turn up new opportunities not listed here.

D.2 HIGH PRIORITY FUNDING OPTIONS

While there are a number of funding sources provided in the following pages, these sources should be the highest priority in order to achieve successful implementation. It is critical for local government to step up given the competitiveness and changing, finite availabilities of most funding sources. Details about the following sources are found later in this appendix.

- Local Capital Improvements Program (CIP)
- Local Bond
- Local Fees
- State Transportation Improvement Program (TIP)
- State Powell Bill Funds
- State Safe Routes to School Program
- State Parks and Recreation Trust Fund (PARTF)

- State Health and Wellness Trust Fund (HWTF)
- Private Sources

D.3 NATIONAL AND FEDERAL FUNDING SOURCES

Most federal programs provide block grants directly to states through funding formulas. For example, if a North Carolina community wants funding to support a transportation initiative, they would contact the North Carolina Department of Transportation and not the US Department of Transportation to obtain a grant. Despite the fact that it is rare for a local community to obtain a funding grant directly from a federal agency, it is relevant to list the current status of federal programs and the amount of funding that is available to North Carolina through these programs.

Surface Transportation Act (SAFETEA LU)

For the past 15 years, the Surface Transportation Act has been the largest single source of funding for the development of greenways. Prior to 1990, the nation, as a whole, spent approximately \$25 million on building community-based bicycle and pedestrian projects, with the vast majority of this money spent in one state. Since the passage of ISTEA, funding has been increased dramatically for pedestrian, bicycle, and greenway projects, with total spending north of \$5 billion. SAFETEA-LU will more than double the total amount of funding for bicycle/pedestrian/trail projects as compared to its predecessor TEA-21, with approximately \$800 million available each year.

There are many programs within SAFETEA-LU that deserve mention. The authorizing legislation is complicated and robust. The following provides a summary of how this federal funding can be used to support the Town of Black Mountain in its pedestrian initiatives. All of the funding within these programs would be accessed through the Department's of Transportation in North Carolina, in concurrence with the French Broad Metropolitan Planning Organization and/or the NCDENR.

1) Surface Transportation Program (STP)

This is the largest single program within the legislation from a funding point of view, with \$32.5 billion committed over the next five years. Of particular interest to greenway enthusiasts, 10 percent of the funding within this program is set aside for Transportation Enhancements (TE) activities. Historically, a little more than half of the TE funds have been used nationally to support bicycle/pedestrian/trail projects. So nationally, it is projected that \$1.625 billion will be spent on these projects under SAFETEA-LU.

2) Congestion Mitigation and Air Quality (CMAQ)

Under SAFETEA-LU, approximately \$8.6 billion has been set aside to reduce emissions. Historically, about five percent of these funds have been used to support bicycle/pedestrian/trail projects. This would equal about \$430 million under SAFETEA-LU. The Birmingham, AL, metro region, for example, used all of its

CMAQ allocation one year to fund a regional bicycle, pedestrian and trails study, which subsequently identified projects that were funded for development.

3) Highway Safety Improvement Program (HSIP)

SAFETEA-LU funds this program at \$5 billion over four years. Historically, pedestrian and bicycle projects have accounted for one percent of this program, or about \$50 million under SAFETEA-LU. Some of the eligible uses of these funds would include traffic calming, pedestrian safety improvements, and installation of crossing signs. This is not a huge source of funding, but one that could be used to fund elements of a project.

4) Recreational Trails Program (RTP)

The Recreational Trails Program is specifically set up to fund both motorized and non-motorized trail development. Under SAFETEA-LU funding is established at \$370 million for the five-year term of the legislation. At least 30% of these funds must be spent on non-motorized trails, or \$110 million. NCDENR operates grants programs in order to gain access to this funding.

5) Scenic Byways

The National Scenic Byway program has not traditionally been a good source of funding for bicycle/pedestrian/trail projects. North Carolina has one of the better scenic byway programs in the nation, but only two roadways are designated as national scenic byways. The total amount of funding available nationally is \$175 million under SAFETA-LU. Historically, only 2 percent of these funds have been used to support pedestrian and bicycle improvements. NC9 is a State Designated Scenic Byway and may be eligible.

6) Safe Routes to School Program (SR2S)

A new program under SAFETEA-LU is the Safe Routes to School (SR2S) program, with \$612 million in funding during the term of the legislation. This is an excellent new program that within North Carolina will be paired with a variety of health and wellness programs, to increase funding for access to the outdoors for children. Each state will receive no less than \$1 million in funding, with 10% to 30% of the funds allocated to non-infrastructure activities. The SR2S Program was established in August 2005 as part of the most recent federal transportation re-authorization legislation--SAFETEA-LU. This law provides multi-year funding for the surface transportation programs that guide spending of federal gas tax revenue. Section 1404 of this legislation provides funding (for the first time) for State Departments of Transportation to create and administer SR2S programs which allow communities to compete for funding for local SR2S projects.

The administration of section 1404 has been assigned to FHWA's Office of Safety, which is working in collaboration with FHWA's Offices of Planning and Environment (Bicycle and Pedestrian Program) and the National Highway Traffic Safety Administration (NHTSA) to establish and guide the program.

The local school area priority for Black Mountain is Black Mountain Elementary and Black Mountain Primary Schools at Flat Creek Road and US 70. Recommendations are described in Chapter 3.

7) High Priority Projects

Under SAFETEA-LU more than 5,000 transportation projects were earmarked by Congress for development, with a total value in excess of \$3 billion.

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund is the largest source of federal money for park, wildlife, and open space land acquisition. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of \$900 million each year. However, Congress generally appropriates only a fraction of this amount. The program provides up to 50 percent of the cost of a project, with the balance of the funds paid by states or municipalities. These funds can be used for outdoor recreation projects, including acquisition, renovation, and development. Projects require a 50 percent match.

In 2006, Congress appropriated \$30 million for state assistance, which is about 1/3 of the financial support in 2005. This program is administered by the North Carolina Department of Environment and Natural Resources.

Environmental Protection Agency (EPA)

The EPA funds a program that enables communities to clean up polluted properties. Funding for these programs is available directly from the EPA and is administered in the form of grants to localities.

Targeted Brownfields Assessments: Brownfields Revitalization Assessment and Cleanup

Grant Funding

- Needy communities fare better in competition
- High unemployment rates, high poverty rates, loss of jobs/population, minority or other sensitive populations. Include demographic statistics.
- Mention any unusually high health concerns in the area. Can any of these be tied to the site(s)?
- Present the environmental, economic, social and health impacts of brownfields on the community
- Environmental Justice concerns
- Focus on the environmental and health impacts of your project.

Environmental Education Grants Program (EPA/Office of Environmental Education):

The purpose of these grants is to provide financial support for projects that design, demonstrate, or disseminate environmental education practices, methods, or techniques. Projects must focus on one of the following: (1) improving envi-

ronmental education teaching skills; (2) educating teachers, students, or the public about human health problems; (3) building state, local, or tribal government capacity to develop environmental education programs; (4) educating communities through community-based organization; or (5) educating the public through print, broadcast, or other media. Contacts: EPA Office of Environmental Education, 202-260-8619

Community Block Development Grant Program (HUD-CBDG)

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate-income areas. Several communities have used HUD funds to develop greenways, including the Boulding Branch Greenway in High Point, North Carolina. Grants from this program range from \$50,000 to \$200,000 and are either made to municipalities or non-profits. There is no formal application process.

Wetlands Reserve Program

This federal funding source is a voluntary program offering technical and financial assistance to landowners who want to restore and protect wetland areas for water quality and wildlife habitat. The US Department of Agriculture's Natural Resource Conservation Service (USDA-NRCS) administers the program and provides direct payments to private landowners who agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors. For more information on all SAF-ETEA-LU programs, visit <http://www.fhwa.dot.gov/safetealu/>.

Rivers Trails and Conservation Assistance Program (RTCA)

This is a National Park Service program. Although the program does not provide funding for projects, it does provide valuable on-the-ground technical assistance, from strategic consultation and partnership development to serving as liaison with other government agencies. Communities must apply for assistance. The Town of Black Mountain applied for and is participating in this program to develop regional linkages with McDowell and Buncombe Counties.

The National Endowment of the Arts

Many organizations seek ways to incorporate more of their community into their pedestrian, and greenway planning. One way to do this is to celebrate the cultural and historic uniqueness of communities. There are some funding opportunities for these types of projects. The National Endowment of the Arts funds arts-related programs through the Design Arts Program Assistance, and provides many links to other federal departments and agencies that offer funding opportunities for arts and cultural programs.

D.4 STATE FUNDING SOURCES

The most direct source of public-sector funding for the Town of Black Mountain will come from state agencies in North Carolina. Generally, these funds are made

available to local governments based on grant-in-aid formulas. The single most important key to obtaining state grant funding is for local governments to have adopted plans for greenway, open space, bicycle, pedestrian or trail systems in place prior to making an application for funding. Unfortunately, there is no direct correlation between any of the programs listed and a constant stream of funding for greenway or trail projects and all projects are funded on the basis of grant applications. There is no specific set aside amount that is allocated for greenway and trail development within a given program. Funding is based solely on need and the need has to be expressed and submitted in the form of a grant application. Finally, all of these programs are geared to address needs across the entire state, so all of the programs are competitive and must allocate funding with the needs of the entire state in mind.

The Powell Bill Program is an annual state allocation to municipalities for use in street system maintenance and construction activities. There is considerable local control over Powell Bill Funds (It is not a grant application process). In the past, the State allocated a considerable portion of these revenues for construction purposes. However, budgetary constraints since 2001 have led to a shift of new Powell Bill funds to cover maintenance and operations activities.

Both the Powell Bill reserves and the 2000 Transportation Bond funds are limited funding sources that will eventually be depleted. Further, federal highway funds can be expected to provide only a portion of the future resource needs of the sidewalk construction program. For this reason, the development of future state transportation bond initiatives will be critical for continuing implementation of the sidewalk construction program in the future.

In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT) has been the single largest source of funding for bicycle, pedestrian and greenway projects, including non-construction projects such as brochures, maps, and public safety information for more than a decade. DBPT offers several programs in support of bicycle and pedestrian facility development. The following information is from NCDOT's interactive web site (www.ncdot.org). Contact the NCDOT, Division of Bicycle and Pedestrian Transportation at (919) 807-2804 for more information.

North Carolina programs are listed below. A good starting website with links to many of the following programs is http://www.enr.state.nc.us/html/tax_credits.html.

North Carolina Department of Transportation – SAFETEA-LU

The North Carolina DOT manages the implementation of all transportation programs and improvements throughout the state. NCDOT produces a State-wide Transportation Improvement Program (STIP). The STIP contains funding information and schedules for transportation divisions including: Highways, Enhancements, Public Transportation, Rail, Bicycle and Pedestrians, and the

Governor's Highway Safety Program. A separate summary of funding of major highway projects is available as a companion document to the STIP. The transportation program in the STIP is organized by highway divisions. At the beginning of each of the 14 divisions, a map is provided with a color-coded key to the major highway funded projects in that division. Projects are listed by county within each division. This results in some duplication since highway projects frequently extend across county and division lines. The following funding has been defined within SAFETEA-LU for the NCDOT. The description of each program is provided under the Federal Sources SAFETEA description.

- STP - \$867 million
- CMAQ - \$90 million
- HSIP - \$201 million

Local Transportation Improvement Program (TIP)

Transportation projects in North Carolina progress through a standard process of planning, design and construction. Improvements for bicycling and walking may be included in the TIP as part of the construction of a highway project or, where no highway project is programmed, as an independent project. Pedestrian and bicycle projects follow essentially the same TIP process as do highway projects. The Division of Bicycle and Pedestrian Transportation (DBPT) works with localities to create a statewide four-year schedule for funding projects using the locality's priority listing of needs along with the adopted project selection criteria. The DBPT compiles candidate bicycle and pedestrian projects to be considered for inclusion in the TIP from the following sources:

- The prioritized Metropolitan Transportation Improvement Program (MTIP) lists produced by the 17 Metropolitan Planning Organizations (MPOs), which have been derived from separate lists produced by communities comprising the MPO. Black Mountain is a member of the French Broad MPO and should submit needs to the MPO.
- Project requests that are made at the biennial TIP meetings or through written requests within 30 days of the meetings from the state's small urban areas, counties, public and private entities, and citizens.
- Internal DBPT assessment of statewide pedestrian and bicycle project needs. All project requests are documented and distinguished as independent or incidental (part of a highway project). Independent project requests are evaluated by DBPT using project selection criteria. A prioritized list of these projects is presented to the North Carolina Bicycle and Pedestrian Committee. The Committee reviews the list, makes revisions and recommendations, and adopts a four-year schedule of projects. The adopted schedule is sent to the North Carolina Board of Transportation for approval and inclusion in the state's TIP. In Black Mountain, Project Number EB-4988 is a TIP connector trail from

Black Mountain to Montreat.

Inclusion of a pedestrian or bicycle project in the TIP does not guarantee that it will be implemented; rather, it means that it will receive further study and will be implemented if feasible. Incidental projects are considered in conjunction with the planning study for the given highway or bridge project and implemented, if feasible.

For independent construction projects, DBPT conducts a detailed feasibility study, including cost estimates. If the project is determined to be feasible, DBPT prepares a more detailed planning study, which is reviewed and approved by the Bicycle and Pedestrian Task Force before being submitted to the Board of Transportation for funding authorization. Once the funding is authorized, project design and development begins.

For more information, visit http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html

Scenic Byways

Scenic Byway funding comes from the STIP program. However, there is no direct set aside within the program for any specific project or region of the state. The NCDOT administers an extensive state supported scenic byway program. The North Carolina Department of Transportation (NCDOT) has designated 45 Scenic Byways that showcase North Carolina's history, geography and culture while raising awareness for the protection and preservation of these resources (NC 9 is one of these roadways). Routes are carefully selected to embody the diverse beauty and culture of the state and provide travelers with a safe and interesting alternate route. (http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/scenic)

SR2S Program

Recently, the state of North Carolina started the NC Safe Routes to School Program based off of the national program. The state has \$15 million over the next 5 years for infrastructure improvements within 2 miles of schools. This funding can also be used towards the development of school related programs to improve safety and walkability initiatives. The state requires the completion of a competitive application to apply for funding, similar to the bicycle/pedestrian planning grants, and a workshop at the school to determine what improvements are needed. After a school has the workshop, it will have a good shot of getting that funding. There is no specific funding allocation for any particular project nor specific region within the state. Black Mountain conducted a SR2S workshop in February 2007 and should apply for construction funding. The North Carolina contact person for the SR2S program is:

Theresa (Terry) A. Canales, PE
Safe Routes to School Coordinator
Office of the Secretary

NC Dept of Transportation
Transportation Building
1501 Mail Service Center
Raleigh, NC 27699-1501
Phone: 919-733-2520 Fax: 919-733-9150
E-mail: tcanales@dot.state.nc.us

North Carolina DOT – Bicycle and Pedestrian Program

The Division of Bicycle and Pedestrian Transportation (DBPT) is a comprehensive operation, touching all aspects of bicycling and walking; whether designing facilities, creating safety programs, mapping cross-state bicycle routes, training teachers, sponsoring workshops and conferences, fostering multi-modal planning or integrating bicycling and walking into the ongoing activities of the Department of Transportation. Created in 1974 as a result of North Carolina bicycle program legislation and expanded to encompass pedestrian activities in 1992 as a result of federal legislation, the DBPT is the oldest comprehensive state program of its kind in the United States. Several categories of federal aid construction funds -- National Highway System (NHS), Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ) funds provide for the construction of pedestrian and bicycle transportation facilities. The primary source of funding for pedestrian and bicycle projects is STP Enhancement Funding. Bicycle, pedestrian, greenway and trail facility projects are divided into two categories, which determine the types of funds that may be available. Independent projects are those that are not related to a scheduled highway project. Incidental projects are those related to a scheduled highway project. Local requests for small pedestrian projects, such as sidewalk links, should be directed to the relevant NCDOT Highway Division office. For the Black Mountain area, requests would be made through Division 13.

North Carolina DOT Recreational Trails Program

The Recreational Trails Program is a grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan. Grant applicants must be able contribute 20% of the project cost with cash or in-kind contributions. Applications for funding may be obtained by contacting your regional trails specialist or the State Trails Program at (919) 715-8699. North Carolina will allocate about \$1.3 million annually through SAFETEA-LU to fund this program for Fiscal Years 2004 to 2009.

North Carolina's Clean Water Management Trust Fund (CWMTF)

The Clean Water Management Trust Fund (CWMTF) was established by the General Assembly in 1996. At the end of each fiscal year, 6.5% of the unreserved credit balance in North Carolina's General Fund (or a minimum of \$30 million) will go into the CWMTF. Revenues from the CWMTF are then allocated in the form of grants to local governments, state agencies and conservation non-prof-

its to help finance projects that specifically address water pollution problems. A 21-member, independent, CWMTF Board of Trustees has full responsibility over the allocation of moneys from the Fund. CWMTF funds projects that (1) enhance or restore degraded waters, (2) protect unpolluted waters, and/or (3) contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits.

This is a highly competitive grant program. The program is attempting to make most future grant awards based on larger, more regional scale efforts that protect water quality and promote natural resource conservation.

The contact person for the CWMTF is: Bill Holman, Executive Director, CWMTF, 530 N. Wilmington St. Raleigh, NC 27604. (919) 733-6375. E-mail: bill.holman@ncmail.net.

North Carolina Parks and Recreation Trust Fund (PARTF)

This fund was established in 1993. It is funded by 75% of state deed excise stamp tax revenues: state parks receive 65%; local parks, 30%; beaches & waterfronts, 5%; and administration, 3%. About \$23 M is available each year. It is managed by a Board of Trustees of the Parks & Recreation Authority and the Division of Parks & Recreation (DPR) in DENR. Since 1995, local governments have submitted 599 applications requesting over \$84 million for capital improvements and land acquisition. The Parks & Recreation Authority has approved 317 projects for a total of \$48.4 million. Over 1950 acres have been added to local parks. Fifty-seven local governments requested \$10.1 M in the current cycle. A 1:1 match is required. The Parks & Recreation Authority selects local grant recipients in early May and July of each year with applications due in January. Contact Robin Munger at DPR at 919-715-2661 Web site: <http://ils.unc.edu/parkproject/partfund>.

Land and Water Conservation Fund – North Carolina (LWCF)

The Division of Parks & Recreation also administers the federal Land & Water Conservation Fund's state grants program. Applications from state agencies and local governments are due each March. The State's LWCF Review Committee reviews the applications and makes recommendations to the State LWCF Liaison Officer (SLO) in May. The Director of the Division of Parks & Recreation is the SLO. The SLO recommends projects to the National Park Service for final review and approval in June. US Congress appropriated \$2.1 M to NC in federal fiscal year 2003. 60% of the funds are allocated to state park projects; 40%, to local park projects. A 1:1 match is required. Contact John Poole at DPR at 919-715-2662.

North Carolina Farmland Preservation Trust Fund

Established in 1986, the Farmland Preservation Trust Fund was funded by appropriations from the General Assembly. Managed by the N.C. Department of Agriculture and Consumer Services and contracted to the Conservation Trust for N.C (CTNC). The General Assembly has appropriated \$2.65 M since 1998.

The 2002 General Assembly appropriated \$200K; 2003 General Assembly, \$0. NCDACS has awarded grants to help local land trusts and counties with farmland protection programs work with farm families to arrange permanent conservation easements on over 4270 acres and large parts of 30 farms. These grants have leveraged over \$20 M from other private and public funding sources and donations of development rights from farm owners. Contact CTNC at 919-828-4199. E-mail: info@ctnc.org or Web site: <http://www.ctnc.org>

Any county that has established by ordinance a farmland preservation program or a qualified, private, non-profit land conservation organization, is eligible to apply for a grant. Grants may be submitted for reimbursement of up to 70% of real costs for transactional expenses in acquiring agricultural conservation easements through donation or purchase, including--but not limited to--documented costs for environmental audits, legal fees, appraisals, surveys, purchase options, personnel expenses for project preparation, and long-term easement monitoring and enforcement costs. Grant requests cannot exceed a maximum of \$25,000 per project.

Contact: Conservation Trust for North Carolina, 1028 Washington St, Raleigh, NC 27605. 919-828-4199. Web site: www.ctnc.org. E-mail: info@ctncc.org.

North Carolina Natural Heritage Trust Fund

Established in 1987, the North Carolina Natural Heritage Trust fund provides supplemental funding to select state agencies for the acquisition and protection of important natural areas, to preserve the state's ecological diversity and cultural heritage, and to inventory the natural heritage resources of the state. The trust fund is supported by 25% of the state's tax on real estate deed transfers and by a portion of the fees for personalized license plates. Since its creation, the trust fund has contributed more than \$136 million through 345 grants to support the conservation of more than 217,000 acres. Conserving North Carolina's natural and cultural heritage now is critical. The Natural Heritage Trust Fund invests in North Carolina's most significant natural areas, strengthening communities and the economy.

Grants are awarded for:

- The purchase of lands that represent the state's ecological diversity to ensure their preservation and conservation for recreational, scientific, educational, cultural and aesthetic purposes;
- The purchase of additions to state parks, state trails, aesthetic forests, wild and scenic rivers, fish and wildlife management areas;
- The development of a balanced state program of historic properties; and
- The inventory and conservation planning of natural areas by the Natural Heritage Program.

The Board currently meets twice a year, once in the Spring (March/April) and once in the Fall (September) to review applications and make awards. Contact:

Lisa Riegel, Executive Director. 521 N. Salisbury St., Raleigh, NC 27604. (919) 715-8014. Web site: www.ncnhtf.org. E-mail: nc.nhtf@ncmail.net

North Carolina Adopt-a-Trail Grants

Operated by the Trails Section of the NC Division of State Parks, annual grants are available to local governments for trail and facility construction. Grants are generally capped at about \$5,000 per project and do not require a match. The Adopt-A-Trail grant program awards \$135,000 annually to local governments, nonprofit organizations and private trail groups for trails projects. The funds can be used for trail building, trail signage and facilities, trail maintenance, trail brochures and maps, and other related uses. Applications for funding may be obtained by contacting a regional trails specialist or the State Trails Program at (919) 715-8699. Applications are due for the each year's funding cycle at the end of February.

Contact: Darrell McBane, State Trails Coordinator, 12700 Bayleaf Church Road, Raleigh, NC 27614 (919) 846-9991. Web site: <http://ils.unc.edu/parkproject/trails/home.html>. E-mail: darrell.mcbane@ncmail.net.

North Carolina Division of Water Quality - 319 Program Grants

By amendment to the Clean Water Act Section in 1987, the Section 319 Grant program was established to provide funding for efforts to curb non-point source (NPS) pollution, including that which occurs through stormwater runoff. The U.S. Environmental Protection Agency provides funds to state and tribal agencies, which are then allocated via a competitive grant process to organizations to address current or potential NPS concerns. Funds may be used to demonstrate best management practices (BMPs), establish Total Maximum Daily Load (TMDL) for a watershed, or to restore impaired streams or other water resources. In North Carolina, the 319 Grant Program is administered by the Division of Water Quality of the Department of Environment and Natural Resources. Each fiscal year North Carolina is awarded nearly \$5 million dollars to address non-point source pollution through its 319 Grant program. Thirty percent of the funding supports ongoing state non-point source programs. The remaining seventy percent is made available through a competitive grants process. At the beginning of each year (normally by mid-February), the NC 319 Program issues a request for proposals with an open response period of three months. Approximately \$880,000 will be available statewide for distribution to grant recipients.

Grants are divided into two categories: Base and Incremental. Base Projects concern research-oriented, demonstrative, or educational purposes for identifying and preventing potential NPS areas in the state, where waters may be at risk of becoming impaired. Incremental projects seek to restore streams or other portions of watersheds that are already impaired and not presently satisfying their intended uses. State and local governments, interstate and intrastate agencies, public and private nonprofit organizations, and educational institu-

tions are eligible to apply for Section 319 monies. An interagency workgroup reviews the proposals and selects those of merit to be funded.

Contact: North Carolina DWQ, 512 N. Salisbury St. Raleigh, NC 27604. (919) 733-7015 Web site: www.h2o.enr.state.nc.us/nps/Section_319_Grant_Program.htm. E-mail: kimberly.nimmer@ncmail.net.

Small Cities Community Development Block Grants

Although do not meet the population density requirements necessary to access Federal level CDBG funds, state level funds are allocated through the NC Department of Commerce, Division of Community Assistance. These funds can be used to promote economic development and to serve low-income and moderate-income neighborhoods. Greenways that are part of a community's economic development plans may qualify for assistance under this program. Recreational areas that serve to improve the quality of life in lower income areas may also qualify. Approximately \$50 million is available statewide to fund a variety of projects.

Contact: Division of Community Assistance, Community Development Block Grant Program 1307 Glenwood Avenue, Suite 250, Raleigh, NC 27605 (919) 733-2850. Web site: www.ncdca.org/cdbg. E-mail: dino@nccommerce.com.

North Carolina Ecosystem Enhancement Program

This brand new program was developed as a mechanism to facilitate improved mitigation projects for North Carolina highways, this program will have money available for both restoration projects and protection projects that serve to enhance water quality and wildlife habitat in NC. This is not a grants program. Additional information is available by contacting the Natural Heritage Program in the NC Department of Environment and Natural Resources (NCDENR).

Contact: NCEEP, 1652 Mail Service Center, Raleigh, NC 27699-1652. (919) 715-0476. Web site: www.nceep.net. E-mail: carrie.windbush@ncmail.net.

North Carolina Wetlands Restoration Program (NCWRP)

This is a non-regulatory program established by the NC General Assembly in 1996. The goals of the NCWRP are to:

- Protect and improve water quality by restoring wetland, stream and riparian area functions and values lost through historic, current and future impacts.
- Achieve a net increase in wetland acreage, functions and values in all of North Carolina's major river basins.
- Promote a comprehensive approach for the protection of natural resources.
- Provide a consistent approach to address compensatory mitigation requirements associated with wetland, stream, and buffer regulations, and to increase the ecological effectiveness of compensatory mitigation projects.

Additional information about the program and potential funding assistance

with the restoration or creation of wetlands can be found at www.h2o.enr.state.nc.us/wrp

Contact: Tad Boggs, Ecosystem Enhancement Program Coordinator, NC Wetlands Restoration Program, 1619 Mail Service Center, Raleigh, NC 27699-1619. (919) 715-2227. E-mail: tad.boggs@ncmail.net.

Urban and Community Forestry Assistance Program

The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. It offers small grants that can be used to plant urban trees, establish a community arborum, or other programs that promote tree canopy in urban areas. To qualify for this program, a community must pledge to develop a street-tree inventory, a municipal tree ordinance, a tree commission, and an urban forestry-management plan. All of these can be funded through the program. For more information, contact the NC Division of Forest Resources.

Greenways are a specific category within the program “Naturalization Projects or Greenway Development.” These types of projects can be combined with tree planting, where native species are used and environmental benefits to the community are emphasized. Planning and development, assessments and studies, maps and drawings, promotional and educational materials may be eligible for funding when matched with a solid volunteer and in-kind staffing match. Forest buffers, connecting corridors between fragmented wooded areas, riparian buffers/protection, or reduction of mowing maintenance in municipal parks through edge naturalization, are some naturalization projects that will be considered for grants. Approximately \$200,000 is available each year for grant recipients.

Contact: Nancy Stairs, Urban Forestry Program Coordinator, NC Division of Forest Resources, 1616 Mail Service Center, Raleigh, NC 27699-1616. Web site: www.dfr.state.nc.us/urban/urban_grantprogram.htm. E-mail: Nancy.Stairs@ncmail.net

Water Resources Development Grant Program

The NC Division of Water Resources offers cost-sharing grants to local governments on projects related to water resources. Stream restoration, land acquisition, facility development for water-based recreation projects are two of the categories of projects that are generally funded. Funding for this program varies tremendously from year-to-year.

Contact: NC Division of Water Resources, DENR - 1611 Mail Service Center - Raleigh, NC 27699-1611. (919)733-4064. Web site: www.ncwater.org/Financial_Assistance/.

North Carolina Health and Wellness Trust Fund (HWTF)

The NC Health and Wellness Trust Fund was created by the General Assembly

as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period.

Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) announces the establishment of Fit Community, a designation and grant program that recognizes and rewards North Carolina communities' efforts to support physical activity and healthy eating initiatives, as well as tobacco-free school environments. Fit Community is one component of the jointly sponsored Fit Together initiative, a statewide prevention campaign designed to raise awareness about obesity and to equip individuals, families and communities with the tools they need to address this important issue.

All North Carolina municipalities and counties are eligible to apply for a Fit Community designation, which will be awarded to those that have excelled in supporting the following:

- physical activity in the community, schools, and workplaces
- healthy eating in the community, schools, and workplaces
- tobacco use prevention efforts in schools

Designations will be valid for two years, and designated communities may have the opportunity to reapply for subsequent two-year extensions. The benefits of being a Fit Community include:

- heightened statewide attention that can help bolster local community development and/or
- economic investment initiatives (highway signage and a plaque for the Mayor's or County Commission Chair's office will be provided)
- reinvigoration of a community's sense of civic pride (each Fit Community will serve as a model for other communities that are trying to achieve similar goals)
- use of the Fit Community designation logo for promotional and communication purposes.

The application for Fit Community designation is available on the Fit Together Web site:

www.FitTogetherNC.org/FitCommunity.aspx.

Fit Community grants are designed to support innovative strategies that help a community meet its goal to becoming a Fit Community. Eight to nine, two-year grants of up to \$30,000 annually will be awarded to applicants that have a demonstrated need, proven capacity, and opportunity for positive change in addressing physical activity and/or healthy eating.

Blue Cross Blue Shield Grant

The Blue Cross and Blue Shield of North Carolina Foundation has a grants program called "Fit Together." The purpose of the program is to provide sup-

port to rural North Carolina communities to improve community health by implementing innovative and integrated strategies to increase physical activity. Approximately \$40,000 each is available for up to five grantees. Eligible applicants include nonprofit organizations in North Carolina with 501 c(3) status. Applicants must utilize the “5Ps approach” in their strategy to increase physical activity: preparation, promotions, programs, policies, and physical projects. The deadline is typically December. Web site: www.bcbsnc.com/foundation/fitogether_grants.html.

North Carolina Conservation Income Tax Credit Program

The North Carolina Conservation Tax Credit Program was created in 1983, the nation’s first tax credit to encourage private donation of land for conservation purposes (codified in North Carolina General Statutes §105-130.34, 105-151.12). An individual corporation that donates property or development rights to a qualified recipient receives a tax credit of 25 percent of the value of that property. There is a maximum tax credit of \$250,000 for individuals and \$500,000 for corporations that can be used to reduce or eliminate state income tax and can be carried over for up to five years.

In 1999, more than half of the donations that were received were to non-profit organizations and approximately two-thirds of the donors were individuals. The average number of yearly donations has risen as the maximum credit has risen. Between 1983 and 1988, when the maximum credit was \$5,000, there were 6.2 donations per year. In 1999, with the most recent increase in allowable credit, there were over 60 donors, with a net gain of approximately 16,000 acres. From its creation in 1996 through 1999, 68,500 acres worth \$121.2 million had been protected by this program, costing the state \$16.7 million. A total of 296 donors have participated. As of 8/15/02 (end of 2001 tax year) about 500 individual and corporate property owners had donated 99,000 acres of land or conservation easements worth an estimated \$250 M at a cost to the State of \$44 M.

The donor’s tax filing must be accompanied by a Certificate of Conservation Benefit from the Department of Environment & Natural Resources (DENR). Contact Bill Flournoy at 919-715-4191 or <http://www.enr.state.nc.us/conservationtaxcredit/>

D.5 LOCAL FUNDING SOURCES

The Town of Black Mountain will need to create independent, local funding sources to be used to match federal and state grants for pedestrian facility and greenway development. Local support and funding is the most integral component of successful pedestrian facility implementation. The following provides a list of funding options that each of the local governments should consider for future greenway development, sidewalk development, and open space protection.

Bonds/Loans

Bonds have been a very popular way for communities across the country to

finance their open space and greenway projects. A number of bond options are listed below. If local government decides to pursue a bond issue, consideration should be given to combining the needs of Black Mountain into a single bond proposal. Contracting with a private consultant to assist with this program may be advisable. Since bonds rely on the support of the voting population, an education and awareness program should be implemented prior to any vote.

Revenue Bonds

Revenue bonds are bonds that are secured by a pledge of the revenues from a certain local government activity. The entity issuing bonds, pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

General Obligation Bonds

Local governments generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs of open space acquisition and make funds available for immediate purchases. Voter approval is required.

Special Assessment Bonds

Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

State Revolving Fund (SRF) Loans

Initially funded with federal and state money, and continued by funds generated by repayment of earlier loans, State Revolving Funds (SRFs) provide low-interest loans for local governments to fund water pollution control and water supply related projects including many watershed management activities. These loans typically require a revenue pledge, like a revenue bond, but carry a below market interest rate and limited term for debt repayment (20 years).

Taxes

A number of taxes provide direct or indirect funding for the operations of local governments. Some of them are:

Sales Tax

In North Carolina, the state has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of projects and activities. Any increase in the sales tax, even if applying to a single county, must gain approval of the state legislature. In 1998, Mecklenburg County was granted authority to institute a one-half cent sales tax increase for mass transit.

Property Tax

Property taxes generally support a significant portion of local government activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance open space system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund open space could limit the county's or a municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

Excise Taxes

Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for promotion of tourism, and the gas tax that generates revenues for transportation related activities.

Fees and Service Charges

Several fee options that have been used by other local governments are listed here:

Impact Fees

Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth ("growth pays its own way"). Park and greenway impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional open space needs of a growing community. These charges are set in a fee schedule applied uniformly to all new development.

Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an appropriate impact fee amount can include: lot size, number of occupants, and types of subdivision improvements.

Pursuing park and greenway impact fees will require enabling legislation to authorize the collection of the fees.

In-Lieu-Of Fees

As an alternative to requiring developers to dedicate on-site open space that would serve their development, some communities provide a choice of paying a front-end charge for off-site open space protection. Payment is generally a condition of development approval and recovers the cost of the off-site greenway or open space land acquisition or the development's proportionate share of the cost of a regional parcel serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls a bit short of qualitative interests.

Exactions

Exactions are similar to impact fees in that they both provide facilities to growing communities. The difference is that through exactions it can be established that it is the responsibility of the developer to build the greenway or pedestrian facility that crosses through the property, or adjacent to the property being developed.

Installment Purchase Financing

As an alternative to debt financing of capital improvements, communities can execute installment/ lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up-front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.

Partnerships

Another, often overlooked, method of funding pedestrian systems and greenways is to partner with public agencies and private companies and organizations. Partnerships engender a spirit of cooperation, civic pride and community participation. The key to the involvement of private partners is to make a compelling argument for their participation.

Major employers and developers should be identified and provided with a “Benefits of Walking”-type handout for themselves and their employees. Very specific routes which make those critical connections to place of business would be targeted for private partners’ monetary support, but only after a successful master planning effort. People rarely fund issues before they understand them and their immediate and direct impact. Potential partners include major employers which are located along or accessible to pedestrian facilities such as multi-use paths or greenways. Name recognition for corporate partnerships would be accomplished through signage trail heads or interpretive signage along greenway systems.

Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. It is important to have a lawyer review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

Other Local Options

Local Capital Improvements Program

As discussed in Chapter 5 and the beginning of this appendix, a strong local Capital Improvements Program (CIP) commitment, dedicated to sidewalk and greenway development, is critical for long-term implementation. A prioritized table of sidewalk/greenway projects can be found in Chapter 5 to be added to the Town’s CIP. Currently, \$15,000 is allocated for greenway development each year in Black Mountain. In Raleigh, for example, the greenways system has been developed over many years through a dedicated source of annual funding that has ranged from \$100,000 to \$500,000, administered through the Parks and Recreation Department. In Graham, \$100,000 is allocated towards sidewalk development each year.

Local Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Volunteer Work

It is expected that many citizens will be excited about the development of a greenway corridor or a new park or canoe access point. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also

be used for fund-raising, maintenance, and programming needs.

Private Foundations and Corporations

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

Black Mountain Community Endowment Fund

The Black Mountain Community Endowment Fund is an affiliate of The Community Foundation of Western North Carolina (CFWNC). The goal is to build permanent funds and support local programs that improve the quality of life. It has provided grant money for the Village Way Greenway and for the RiverWalk Park. More information is available at www.cfwnc.org/affiliates/blackmountain.html.

Pigeon River Fund

The Pigeon River Fund exists to improve the streams and rivers of Haywood, Buncombe, and Madison Counties. The fund supports activities that improve surface water quality, enhance fish and wildlife management habitats, expand public access, and increase resident's awareness in protecting these resources. The Town of Black Mountain has already received grant money to complete plans for stream restoration and greenway trail development along Flat Creek. This fund has supported a significant number of greenway planning, greenway easement acquisition, and greenway development projects across the region. More information is available at: www.pigeonriverfund.org

Foundation for the Carolinas

Established in 1958, the Foundation for the Carolinas is the one of the largest community foundations in the South. Building A Better Future, the foundation's major grantmaking program, awards grants only to organizations located in or serving the greater Charlotte area. The foundation's specialized grants programs include the African American Community Endowment Fund (Charlotte-Mecklenburg and surrounding communities), HIV/AIDS Consortium Grants (13 Charlotte-area counties), and the Medical Research Grants program (North and South Carolina). The foundation's Web site features information for potential donors; program information, guidelines, and deadlines; listings of senior management and board members; an electronic form for requesting copies of the foundation's publications; and contact information. Web site: <http://www.ffc.org/>

Land for Tomorrow Campaign

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the public and General Assembly for protecting land, water and historic places. The campaign is asking the North Carolina General Assembly to support issuance of a bond for \$200 million a year for five years to preserve and protect its special land and water resources. Land for

Tomorrow will enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. Website: <http://www.landfortomorrow.org/>

The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To assure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

For more specific information about what types of projects are funded and how to apply, visit <http://www.rwjf.org/applications/>.

North Carolina Community Foundation

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for nonprofit organizations and institutions throughout the state. Based in Raleigh, North Carolina, the foundation also manages a number of community affiliates throughout North Carolina, that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. The foundation also manages various scholarship programs statewide. Web site: <http://nccommunityfoundation.org/>

Z. Smith Reynolds Foundation

This Winston-Salem-based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. They have two grant cycles per year and generally do not fund land acquisition. However, they may be able to support Black Mountain in other areas of open space and greenways development. More information is available at www.zsr.org.

Bank of America Charitable Foundation, Inc.

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks

to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development. Visit the web site for more information: www.bankofamerica.com/foundation.

Duke Energy Foundation

Funded by Duke Energy shareholders, this non-profit organization makes charitable grants to selected non-profits or governmental subdivisions. Each annual grant must have:

- An internal Duke Energy business “sponsor”
- A clear business reason for making the contribution

The grant program has three focus areas: Environment and Energy Efficiency, Economic Development, and Community Vitality. Related to this project, the Foundation would support programs that support conservation, training and research around environmental and energy efficiency initiatives. Web site: <http://www.duke-energy.com/community/foundation.asp>.

American Greenways Eastman Kodak Awards

The Conservation Fund’s American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants (\$250 to \$2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities. For more information visit The Conservation Fund’s website at: www.conservationfund.org.

National Trails Fund

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a \$200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America’s cherished public trails. To date, American Hiking has granted more than \$240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from \$500 to \$10,000 per project.

Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.

- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

Web site: www.americanhiking.org/alliance/fund.html.

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. One hundred percent of its member companies' dues go directly to diverse, local community groups across the nation - groups like Southern Utah Wilderness Alliance, Alliance for the Wild Rockies, The Greater Yellowstone Coalition, the South Yuba River Citizens' League, RESTORE: The North Woods and the Sinkyone Wilderness Council (a Native American-owned/operated wilderness park). For these groups, who seek to protect the last great wild lands and waterways from resource extraction and commercial development, the Alliance's grants are substantial in size (about \$35,000 each), and have often made the difference between success and defeat. Since its inception in 1989, The Conservation Alliance has

contributed \$4,775,059 to grassroots environmental groups across the nation, and its member companies are proud of the results: To date the groups funded have saved over 34 million acres of wild lands and 14 dams have been either prevented or removed-all through grassroots community efforts.

The Conservation Alliance is a unique funding source for grassroots environmental groups. It is the only environmental grantmaker whose funds come from a potent yet largely untapped constituency for protection of ecosystems - the non-motorized outdoor recreation industry and its customers. This industry has great incentive to protect the places in which people use the clothing, hiking boots, tents and backpacks it sells. The industry is also uniquely positioned to educate outdoor enthusiasts about threats to wild places, and engage them to take action. Finally, when it comes to decision-makers - especially those in the Forest Service, National Park Service, and Bureau of Land Management, this industry has clout - an important tool that small advocacy groups can wield.

The Conservation Alliance Funding Criteria: The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation. We're not looking for mainstream education or scientific research projects, but rather for active campaigns. All projects should be quantifiable, with specific goals, objectives and action plans and should include a measure for evaluating success. The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years). Funding emphasis may not be on general operating expenses or staff payroll.

Web site: www.conservationalliance.com/index.m. E-mail: john@conservation-alliance.com.

National Fish and Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation awards matching grants under its Keystone Initiatives to achieve measurable outcomes in the conservation of fish, wildlife, plants and the habitats on which they depend. Awards are made on a competitive basis to eligible grant recipients, including federal, tribal, state, and local governments, educational institutions, and non-profit conservation organizations. Project proposals are received on a year-round, revolving basis with two decision cycles per year. Grants generally range from \$50,000-\$300,000 and typically require a minimum 2:1 non-federal match.

Funding priorities include bird, fish, marine/coastal, and wildlife and habitat conservation. Other projects that are considered include controlling invasive species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals. Website: <http://www.nfwf.org/AM/Template.cfm?Section=Grants> where additional grant programs are described.



E. GREENWAY ACQUISITION STRATEGIES



Chapter Outline:

E.1 Overview

E.2 Partnerships

E.3 Greenway Acquisition

E.1 OVERVIEW

There are many different ways for the Town of Black Mountain to secure trail right-of-way for its greenway system. It will be necessary to work with some landowners to secure trail right-of-way when it does not exist. The following text provides a list of options that should be considered in securing right-of-way. Funding sources for acquiring right-of-way and trail development are described and provided in Appendix D of this Plan.

The following sections detail a list of specific strategies including the formation of partnerships and a toolbox of acquisition options.

E.2 PARTNERSHIPS

The Town of Black Mountain should pursue partnerships with land trusts and land managers to make more effective use of their land acquisition funds and strategies. The following offers recommendations on how these partnerships could be strengthened

Land Trusts

Land trust organizations, such as the Southern Appalachian Highlands Conservancy, are valuable partners when it comes to acquiring land and rights-of-way for greenways. These groups can work directly with landowners and conduct their business in private so that sensitive land transactions are handled in an appropriate manner. Once the transaction has occurred, the land trust will usually convey the acquired land or easement to a public agency, such as a town or county for permanent stewardship and ownership.

Private Land Managers

Another possible partnership that could be strengthened would be with the utility companies that manage land throughout the Asheville-Black Mountain region. Trails and greenways can be built on rights-of-ways that are either owned or leased by electric and natural gas companies. Electric utility companies have

long recognized the value of partnering with local communities, non-profit trail organizations, and private land owners to permit their rights-of-ways to be used for trail development. This has occurred all over the United States and throughout North Carolina.

The Town of Black Mountain should actively update and maintain relationships with private utility and land managers to ensure that community wide bicycle, pedestrian and greenway system can be accommodated within these rights-of-way. The respective municipalities will need to demonstrate to these companies that maintenance will be addressed, liability will be reduced and minimized and access to utility needs will be provided.

C. GREENWAY ACQUISITION TOOLS

The following menu of tools describe various methods of acquisition that can be used by landowners, land conservation organizations, the Town of Black Mountain, Buncombe County, and other surrounding municipalities to acquire greenway lands.

Government Regulation

Regulation is defined as the government's ability to control the use and development of land through legislative powers. Regulatory methods help shape the use of land without transferring or selling the land. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development as well as conserve and protect greenway resources.

Exactions: An exaction is a condition of development approval that requires development to provide or contribute to the financing of public facilities at their own expense. For example, a developer may be required to build a greenway on-site as a condition of developing a certain number of units because the development will create the need for new parks or will harm existing parks due to overuse. This mechanism can be used to protect or preserve greenway lands, which are then donated to the Town of Black Mountain. Consideration should be given to include greenway development in future exaction programs. Most commonly, exactions are in the form of mandatory dedications of lands for parks and infrastructure, fees in lieu of mandatory dedication, or impact fees.

Mandatory Dedication

This is a type of exaction where subdivision regulations require a developer to dedicate or donate improved land to the public interest. A dedication may involve the fee simple title to the land, an easement, or some other property interest. Sometimes, the construction of an improvement itself is required such as a park or greenway.

Fee-in-Lieu

An exaction can take the form of a fee-in-lieu of mandatory dedication. It can

also complement negotiated dedications (described below). Based on the density of development, this program allows a developer the alternative of paying money for the development/protection of open space and greenways in lieu of dedicating greenway and park lands. Payments are made representing the value of the site or improvement that would have been dedicated or provided. This allows local governments to pool fees from various subdivisions to finance facilities like parks and greenways. This money can be used to implement greenway management programs or acquire additional open space.

Impact Fee

A final type of exaction, an impact fee can fund a broader range of facilities that serve the public interest. They are commonly imposed on a per unit rather than a build out basis, making them more flexible and keeping developers from having to pay large up front costs. These do not have to be directly tied to any requirements for improvements or dedications of land. They can be more easily applied to off-site improvements.

Growth Management Measures (Concurrency): Concurrency-based development approaches to growth management simply limit development to areas with adequate public infrastructure. This helps regulate urban sprawl, provides for quality of life in new development, and can help protect open space. In the famous case with the Town of Ramapo (1972), the Town initiated a zoning ordinance making the issue of a development permit contingent on the presence of public facilities such as utilities and parks. This was upheld in Court and initiated a wave of slow-growth management programs nationwide. This type of growth management can take the form of an adequate public facilities ordinance.

Performance Zoning: Performance zoning is zoning based on standards that establish minimum requirements or maximum limits on the effects or characteristics of a use. This is often used for the mixing of different uses to minimize incompatibility and improve the quality of development. For example, how a commercial use is designed and functions determines whether it could be allowed next to a residential area or connected to a greenway.

Incentive Zoning (Dedication/Density Transfers): Also known as incentive zoning, this mechanism allows greenways to be dedicated for density transfers on development of a property. The potential for improving or subdividing part or all of a parcel can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted as transfer deeds.

Conservation Zoning: This mechanism recognizes the problem of reconcil-

ing different, potentially incompatible land uses by preserving natural areas, open spaces, waterways, and/or greenways that function as buffers or transition zones. It can also be called buffer or transition zoning. This type of zoning, for example, can protect waterways by creating buffer zones where no development can take place. Care must be taken to ensure that the use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zoning: An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place. These are commonly used to protect natural or cultural features such as historic areas, unique terrain features, scenic vistas, agricultural areas, wetlands, stream corridors, and wildlife areas.

Negotiated Dedications: This type of mechanism allows municipalities to negotiate with landowners for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. This type of mechanism can also be exercised through dedication of greenway lands when a parcel is subdivided. Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication-as defined by the US Supreme Court in *Dolan v Tigard*.

Reservation of Land: This type of mechanism does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already been reached to transfer certain property rights, the reservation expires.

Planned Unit Development: A planned unit development allows a mixture of uses. It also allows for flexibility in density and dimensional requirements, making clustered housing and common open space along with addressing environmental conditions a possibility. It emphasizes more planning and can allow for open space and greenway development and connectivity.

Cluster Development: Cluster development refers to a type of development with generally smaller lots and homes close to one another. Clustering can allow for more units on smaller acreages of land, allowing for larger percentages of the property to be used for open space and greenways.

Land Management

Management is a method of conserving the resources of a specific greenway parcel by an established set of policies called management plans for publicly owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is re-

sponsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in certain cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.

Management Plans: The purpose of a management plan is to establish legally binding contracts which define the specific use, treatment, and protection for publicly owned greenway lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security, and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of greenway lands.

Conservation Easement: This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donation may reduce the donor's taxable income.

Preservation Easement: This type of easement is intended to protect the historical integrity of a structure or important elements in the landscape by sound management practices. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

Public Access Easements: This type of easement grants public access to a specific parcel of property when a conservation or preservation easement is not necessary. The conditions of use are defined in the terms of the public access easement.

Acquisition

Acquisition requires land to be donated or purchased by a government body, public agency, greenway manager, or qualified conservation organization.

Donation or Tax Incentives: In this type of acquisition, a government body, public agency, or qualified conservation organization agrees to receive the full title or a conservation easement to a parcel of land at no cost or at a "bargain sale" rate. The donor is then eligible to receive a federal tax deduction of up to 30 to 50 percent of their adjusted gross income. Additionally, North Carolina offers a tax credit of up to 25 percent of the property's fair market value (up to \$5000).

Any portion of the fair market value not used for tax credits may be deducted as a charitable contribution. Also, property owners may be able to avoid any inheritance taxes, capital gains taxes, and recurring property taxes.

Fee Simple Purchase: This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership conveys full title to the land and the entire “bundle” of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.

Easement Purchase: This type of acquisition is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less than the full title value.

Purchase / Lease Back: A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. This lease may contain restrictions regarding the development and use of the property.

Bargain Sale: A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from the donation of the property as an income tax deduction.

Installment Sale: An installment sale is a sale of property at a gain where at least one payment is to be received after the tax year in which the sale occurs. These are valuable tools to help sellers defer capital gains tax. This provides a potentially attractive option when purchasing land for open space from a possible seller.

Option / First Right of Refusal: A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement to protect the land in the short-term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

Purchase of Development Rights: A voluntary purchase of development rights involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.

Land Banking: Land banking involves land acquisition in advance of expanding urbanization. The price of an open space parcel prior to development pressures is more affordable to a jurisdiction seeking to preserve open space. A Town or County might use this technique to develop a greenbelt or preserve key open space or agricultural tracts. The jurisdiction should have a definite public purpose for a land banking project.

Condemnation: The practice of condemning private land for use as a greenway is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the greenway program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation has been exercised when there has been an absentee property ownership, when the title of the property is not clear, or when it becomes apparent that obtaining the consent for purchase would be difficult because there are numerous heirs located in other parts of the United States or different countries.

Eminent Domain: The right of exercising eminent domain should be done so with caution by the community and only if the following conditions exist: 1) the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of land, and as such has been defined by the community as irreplaceable property; 2) written scientific justification for the community's claim about the property's value has been prepared and offered to the property owner; 3) all efforts to negotiate with the property owner for the management, regulation, and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers of compensation and has rejected all offers; and 4) due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise eminent domain.



F. GLOSSARY

Chapter Outline:

F.1 Overview

F.2 Definitions

F.1 OVERVIEW

The material in this glossary is largely taken from the International Pedestrian Lexicon available online at: <http://user.itl.net/~wordcraf/lexicon.html#a>. Other definitions came from a variety of other sources.

F.2 DEFINITIONS

AASHTO – American Association of State Highway and Transportation Officials: a nonprofit, nonpartisan association representing highway and transportation departments of all transportation modes in the 50 states, the District of Columbia and Puerto Rico.

ADA – American Disabilities Act of 1991: The Act gives civil rights protections to individuals with disabilities including equal opportunities in public accommodations, employment, transportation, state and local government services, and telecommunications.

Advance Stop lines - applies to a stop line placed prior to a crosswalk, to either prevent motor vehicle encroachment, or to improve visibility. It plays an important safety role especially in multi-lane roads.

Alternative Transportation Network – a connected system for travel using transportation other than private cars, such as walking, bicycling, rollerblading, carpooling and transit

Arterial Connections – interconnected corridors designed to accommodate a large volume of through traffic

Bargain Sale – the sale of a property at less than the fair market value. The difference between a bargain sale price and fair market value often qualifies as a tax-deductible charitable contribution. Commonly used to acquire land or easements for greenways or multi-use paths.

Bicycle Facilities – a general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling. Examples include, but are not limited to bicycle parking/storage facilities, shared roadways not specifically designated for bicycle use, bicycle lanes, paved shoulders, and sidepaths.

Blank Walls – relatively large walls of empty surface that provide opportunity for vandalism with graffiti. Set backs, special lighting, and aesthetic architectural interruptions are possible blank wall treatments.

Blighted Building – a structure whose condition within the town, neighborhood or city is detrimental to the physical, social, and/or economic well-being of that community

Bridge Culvert – a sewer or drain crossing used for the transference of surface water from a bridge

Buffer Zone - an area of land specifically designed to separate one zoning use from another

Bulb-out - extended pavement to narrow roadway, or pinch through fare, or provide space for bus stop, bench, etc. Commonly used as a traffic calming measure.

Collector Streets – a public road designed to flow traffic from small neighborhood streets and connect to larger thoroughfares

Concurrent Signal Timing - motorists running parallel to a crosswalk are allowed to turn into and through the crosswalk (left or right) after yielding to pedestrians

Condemnation - the taking of private property for public use, with adequate compensation to the owner, under the right of eminent domain

Connectivity - the logical and physical interconnection of functionally related points so that people can move among them

Conservation Easement - a legally binding agreement not to develop part of a property, but to leave it “natural” permanently or for some designated very long period of time regardless of ownership transfer

Corridor - a spatial link between two or more destinations

Crosswalk - a designated point on a road at which some means are employed to assist pedestrians who wish to cross a roadway or intersection. They are designed to keep pedestrians together where they can be seen by motorists, and where they can cross most safely with the flow of vehicular traffic.

Curb Cut – interruption in the curb, as for a driveway

Curb Extension - a section of sidewalk at an intersection or mid-block crossing that reduces the crossing width for bicyclists and pedestrians and is intended to slow the speed of traffic and increase driver awareness

Curb Ramp - a ramp leading smoothly down from a sidewalk, greenway or multiuse path to an intersecting street, rather than abruptly ending with a curb

Driveway Apron – the section of a driveway between a sidewalk or greenway and the curb

Eminent Domain – the acquisition of property by the government which is deemed to be necessary for the completion of a public project from an owner that is unwilling to negotiate a price for its sale.

EPA – Environmental Protection Agency

Fee Simple Purchase – an outright purchase of the land by municipality

FHWA – Federal Highway Administration

First Right of Refusal - the right specified in an agreement to have the first opportunity to purchase or lease a given property before it is offered to others

Fitness Trail - a pathway upon which users jog or walk from station to station to perform various exercise tasks

GIS – (Geographic Information System) a system for collecting, analyzing and displaying spatial information

Greenway - a linear open space; a corridor composed of natural vegetation. Greenways can be used to create connected networks of open space that include traditional parks and natural areas.

High Volume Artery – an important transportation corridor that is used by large traffic levels

Hydrologic Resources – stream and sewer corridors and buffer zones that can be used to facilitate the building of greenways

Incentive Zoning - a system by which zoning incentives are provided to developers on the condition that specific physical, social, or cultural benefits are provided to the community

Intersection - an area where two or more pathways or roadways join together.

Islands of Vegetation - a landscaping feature that is planted with flora chosen for its ability to remove pollution and toxins. These spaces manage stormwater runoff from impervious surfaces; the water is slowed down, preventing erosion and allowing water to be absorbed into the ground.

Leaseback - the process of selling a property and also entering into a lease to continue using that property

Linear Stream Corridor - generally consists of the stream channel, floodplain, and transitional upland fringe aligned linearly

LPI – Leading pedestrian interval. Pedestrians are given the signal to begin crossing before parallel traffic.

LRTP – Long Range Transportation Plan

Median - a barrier, constructed of concrete, asphalt, or landscaping and separates two directions of traffic.

Median Refuge Island - island in the median, that offers a stopping or halfway point for a pedestrian

Mixed Use Area – a term used to describe a specific area that possesses a combination of different land use types, such as residential, commercial, and recreation

Mode Share - a term used to describe percentage splits in transportation options

MPO – Metropolitan Planning Organization

MUTCD – Manual of Uniform Traffic Control Devices: National standards guidebook on signage and pavement marking for roadways

Municipal Boundary – the limit of municipal jurisdiction

Nature Trail - a marked trail designed to lead people through a natural environment, which highlights and protects resources

NCDOT – North Carolina Department of Transportation

Negotiated Dedications - a local government may ask a landowner to enter into negotiations for certain parcels of land that are deemed beneficial to the protection and preservation of specific parcel of land

On-Road Pedestrian Facility – any sidewalk, curb, median refuge or crosswalk

designed for pedestrian use.

Off-Road Trail – paths or trails in areas not served by the street system, such as parks and greenbelt corridors. Off-street paths are intended to serve both recreational uses and other trips, and may accommodate other non-motorized travel modes, such as bicycles in addition to walking.

Open Space - empty or vacant land which is set aside for public or private use and will not be developed. The space may be used for passive or active recreation, or may be reserved to protect or buffer natural areas.

Overlay Zone - a zone or district created by the local legislature for the purpose of conserving natural resources or promoting certain types of development. Overlay zones are imposed over existing zoning districts and contain provisions that are applicable in addition to those contained in the zoning law.

Pedestrian - a person on foot or a person on roller skates, roller blades, child's tricycle, non-motorized wheelchair, skateboard, or other non-powered vehicles (excluding bicycles)

Pedestrian Corridor – long distance corridor comprised of on-road sidewalks, crosswalks and related pedestrian facilities.

Planned Unit Development (PUD) - a project or subdivision that includes common property that is owned and maintained by a homeowners' association for the benefit and use of the individual PUD unit owners

Pocket Park - a small area accessible to the general public that is often of primarily environmental, rather than recreational, importance; they can be urban, suburban or rural and often feature as part of urban regeneration plans in inner-city areas to provide areas where wild life can establish a foothold.

Preservation Easement – a voluntary legal agreement that protects historic, archaeological, or cultural resources on a property. The easement provides assurance to the property owner that intrinsic values will be preserved through subsequent ownership. In addition, the owner may obtain substantial tax benefits.

Public Access Easement – a voluntary legal agreement which grants a municipality a perpetual right-of-way and easement for public access and public benefit

Quality of Life - a measure of the standard of living which considers non-financial factors such as health, functional status and social opportunities that are influenced by disease, injury, treatment or social and political policy

Retrofit - the redesign and reconstruction of an existing facility or subsystem to

incorporate new technology, to meet new requirements, or to otherwise provide performance not foreseen in the original design.

Right Turn Cut-Off - the channel created in larger intersection by a very long turning radius and the construction of a pedestrian island, to which the pedestrian must cross before being in the formal intersection that is controlled by lights. The right-turn cut-off allows continuous right turns at fairly high speeds without stopping but the drivers who are meant to but at times do not yield to pedestrians.

Roundabout - traffic calming device at which traffic streams circularly around a central island after first yielding to the circulating traffic

ROW (right of way) - an easement held by the local jurisdiction over land owned by the adjacent property owners that allows the jurisdiction to exercise control over the surface and above and below the ground of the right-of-way; usually designated for passage

RTOR – Right turn on red

Safe Routes to School (SRTS) – a federal program that provides funding to encourage and facilitate the planning and implementation of bicycle and pedestrian projects near schools.

SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

Shoulder - The portion of the roadway contiguous with the traveled way for the accommodation of stopped vehicles, for emergency use, and for lateral support of sub-base, base, and surface courses. Paved shoulders can be used for pedestrian and bicycle travel as well.

Shared Use Path (Multi Use Path/Sidepath) - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and located either within the highway right-of-way (often termed “parallel shared use path”) or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. In some cases shared use paths also accommodate equestrians.

Sidewalk - an improved facility intended to provide for pedestrian movement; usually, but not always, located in the public right-of-way adjacent to a roadway. Typically constructed of concrete, but can be made with asphalt, bricks, stone, wood, and other materials.

Speed Table - Speed tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields give speed tables higher design speeds than Speed Humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction. Speed tables are good for locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles.

Thoroughfare - a public road from one place to another, designed for high traffic volumes and essential connections

TND (traditional neighborhood development) - an area of land developed in a planned fashion for a compatible mixture of residential units for various income levels and nonresidential commercial and workplace uses, with a high priority placed on access to open spaces

Traffic Calming - a range of measures that reduce the impact of vehicular traffic on residents, pedestrians and cyclists - most commonly on residential streets, but also now on commercial streets

Trip Attractor - a location which, because of what it contains, generates itself as a destination for people

Village Center - an area in a community where people naturally congregate.



G. TRAIL CUT SHEETS

Chapter Outline:

G.1 Overview

G.2 Trail Cut Sheets

G.1 OVERVIEW

Multi-use greenway trails serve as an extension of the on-street pedestrian network, providing an excellent source for alternative transportation and recreation. Generally greenway trails are constructed along linear corridors, such as streams and utility easements. A comprehensive network of multi-use greenway trails and on-street pedestrian facilities can provide a healthy and walkable community.

G.2 TRAIL CUT SHEETS

The following pages contain cut sheet maps for each of the major trail segments in Black Mountain's proposed trail network. These maps are meant for reference only. For specific information about greenway and trail development in Black Mountain, see the 2007 Town of Black Mountain Greenway Master Plan.

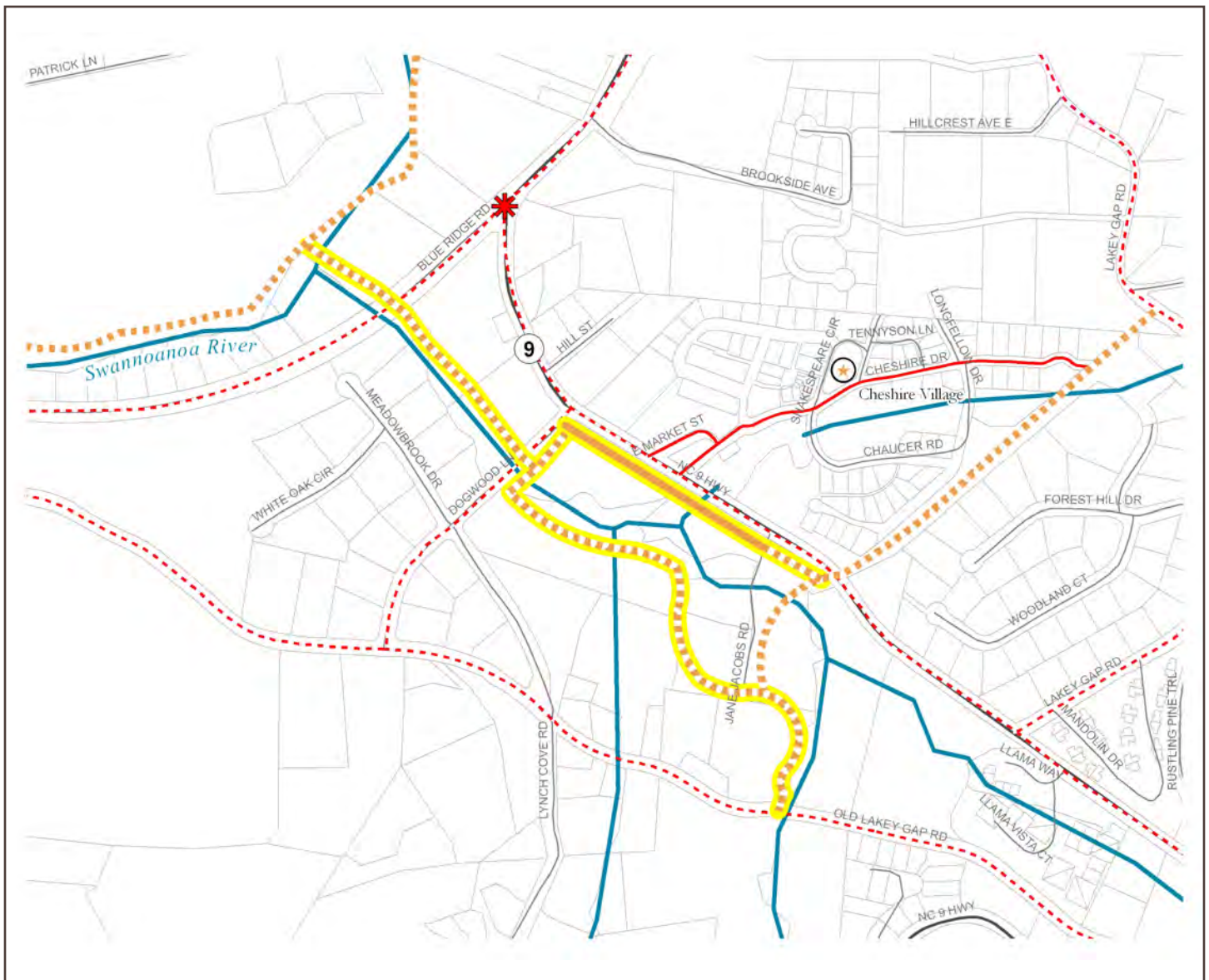


BRITAIN CREEK TRAIL

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Cheshire Village is a key destination along the Britain Creek Corridor

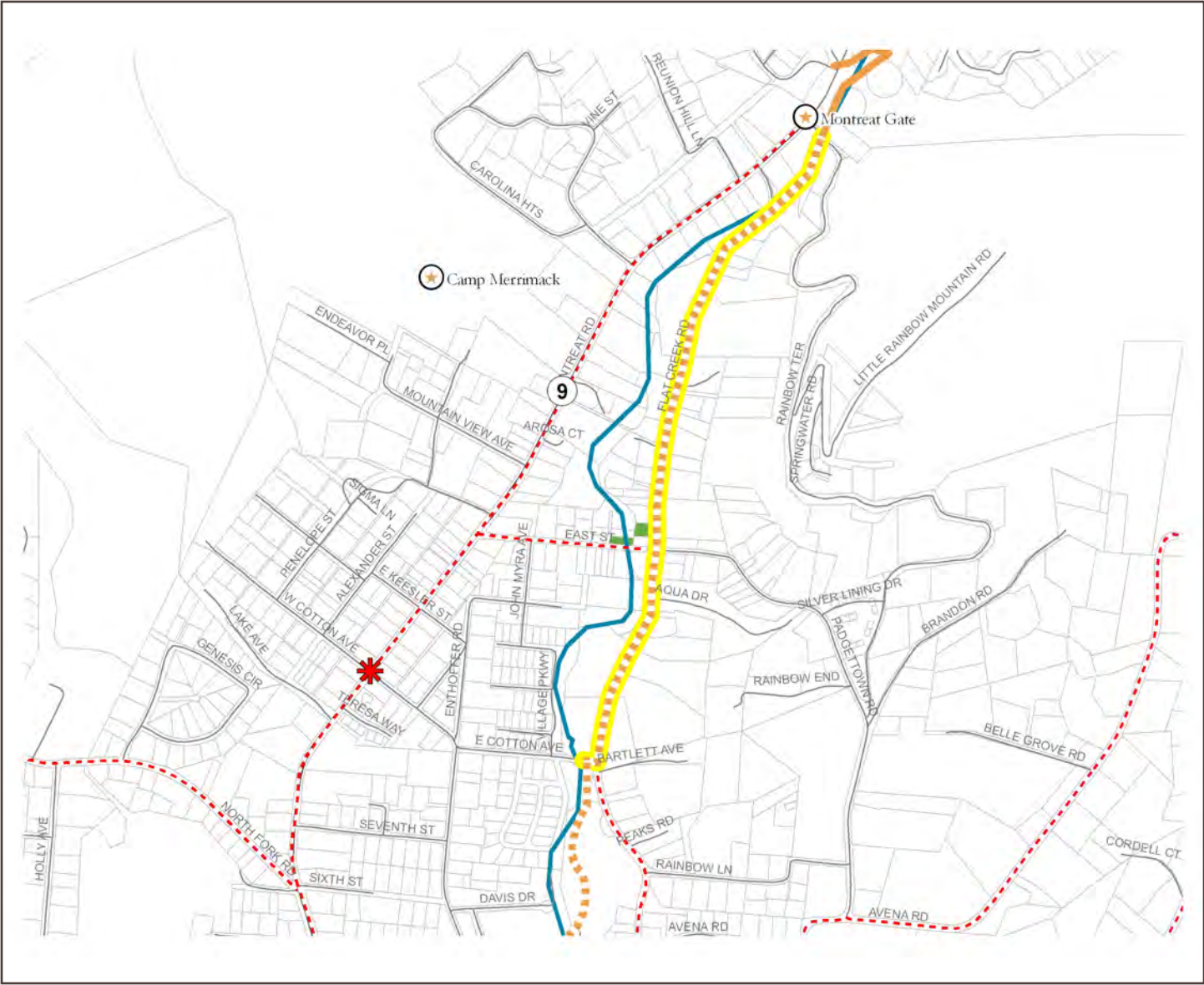


FLAT CREEK TRAIL

- ✱ Intersection Improvement
- ⊙ Destination
- ▬ Featured Trail
- ▬ Greenway Trail - Proposed
- ▬ Greenway Trail - Existing
- - - Sidewalk - Proposed
- ▬ Sidewalk - Existing
- School
- Park/Open Space
- Hydrology
- ▨ Historic District
- Central Business District



Existing sewer corridor along Flat Creek

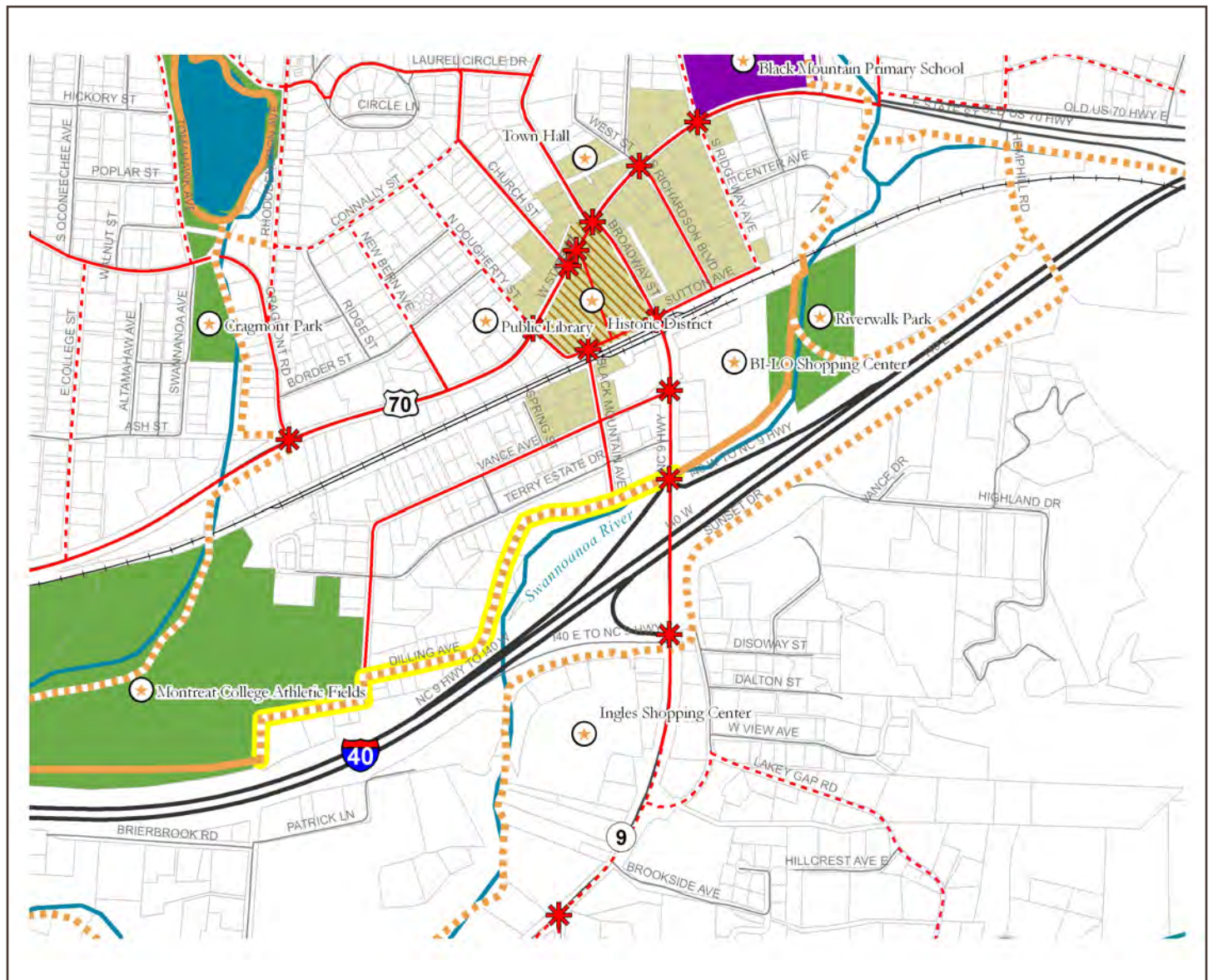


GREY EAGLE TRAIL

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Existing sewer corridor along the Swannanoa River

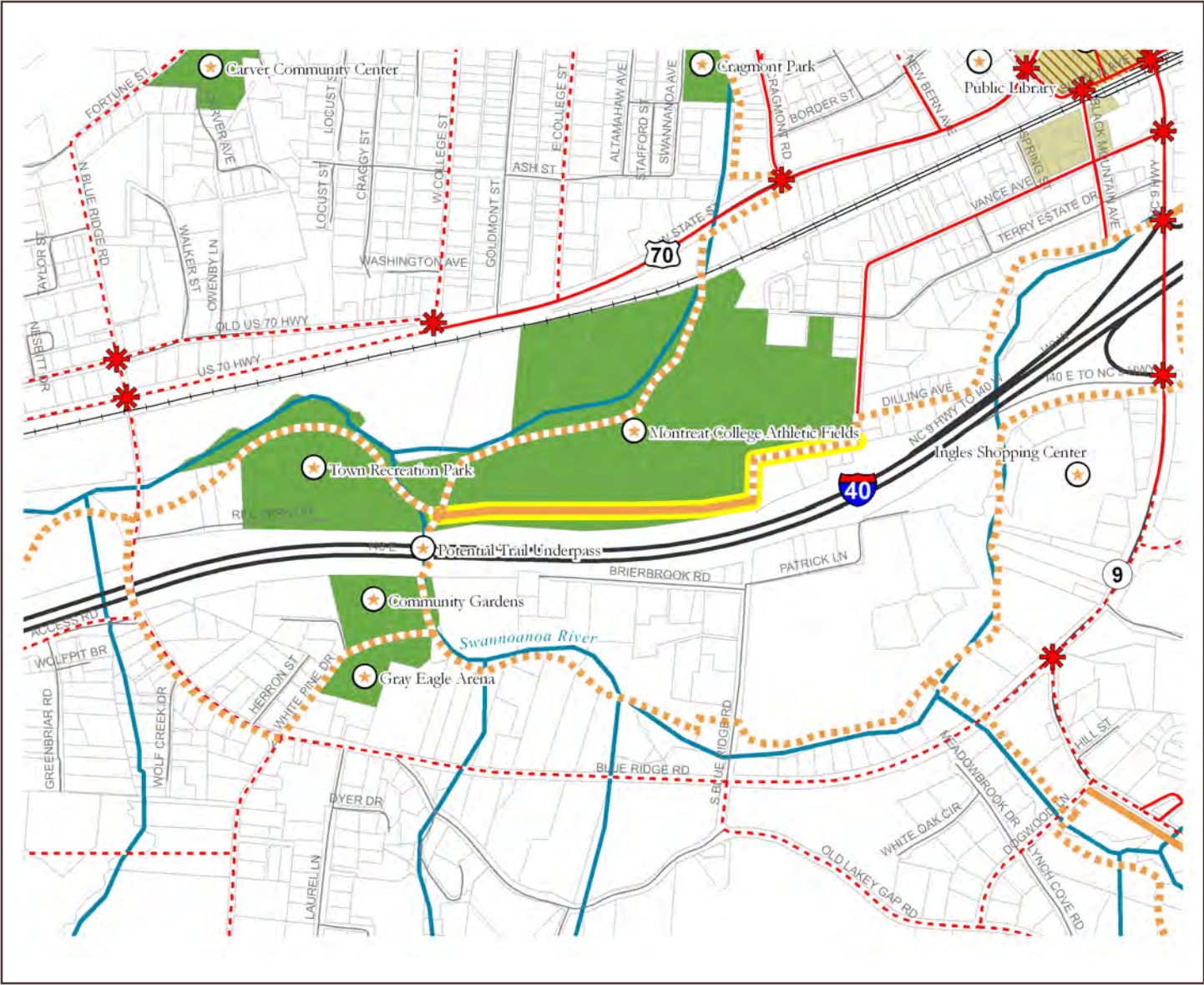


OAKS TRAIL

- ✱ Intersection Improvement
- ⊙ Destination
- ▬ Featured Trail
- ▬ Greenway Trail - Proposed
- ▬ Greenway Trail - Existing
- ▬ Sidewalk - Proposed
- ▬ Sidewalk - Existing
- School
- Park/Open Space
- Hydrology
- Historic District
- Central Business District

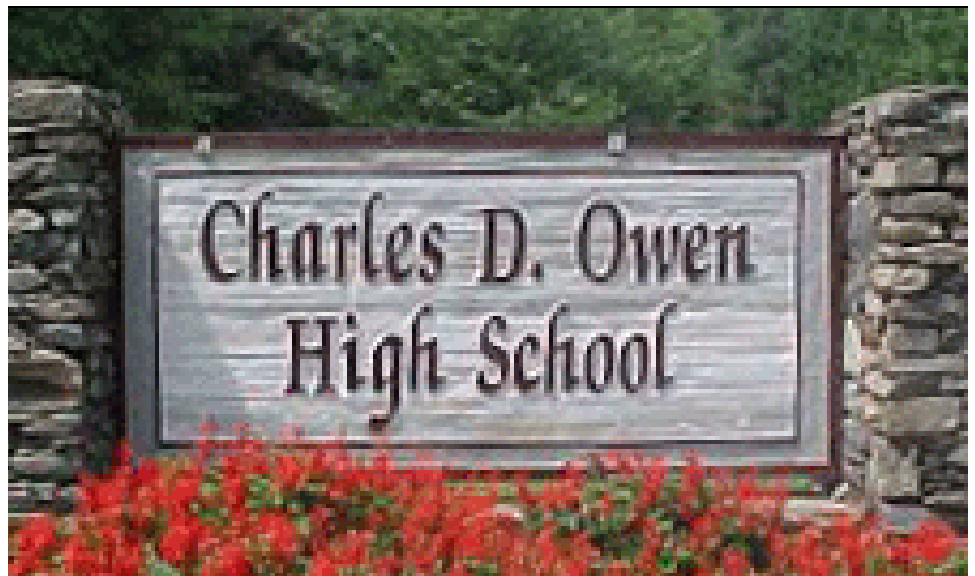


Existing portions of the “In the Oaks” Trail are popular destinations

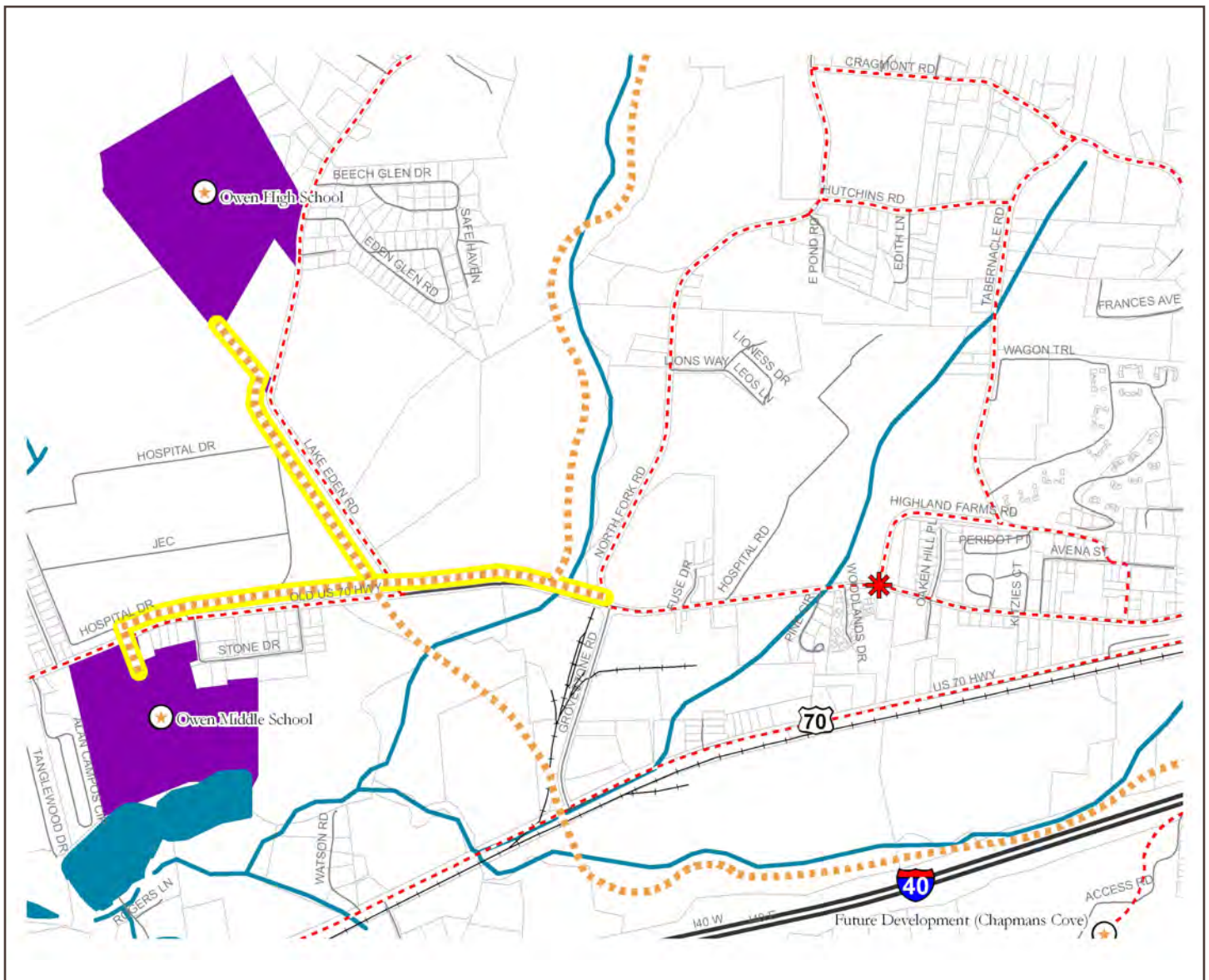


OWEN SPUR

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



The Owen Spur Trail would connect both schools to the overall trail network

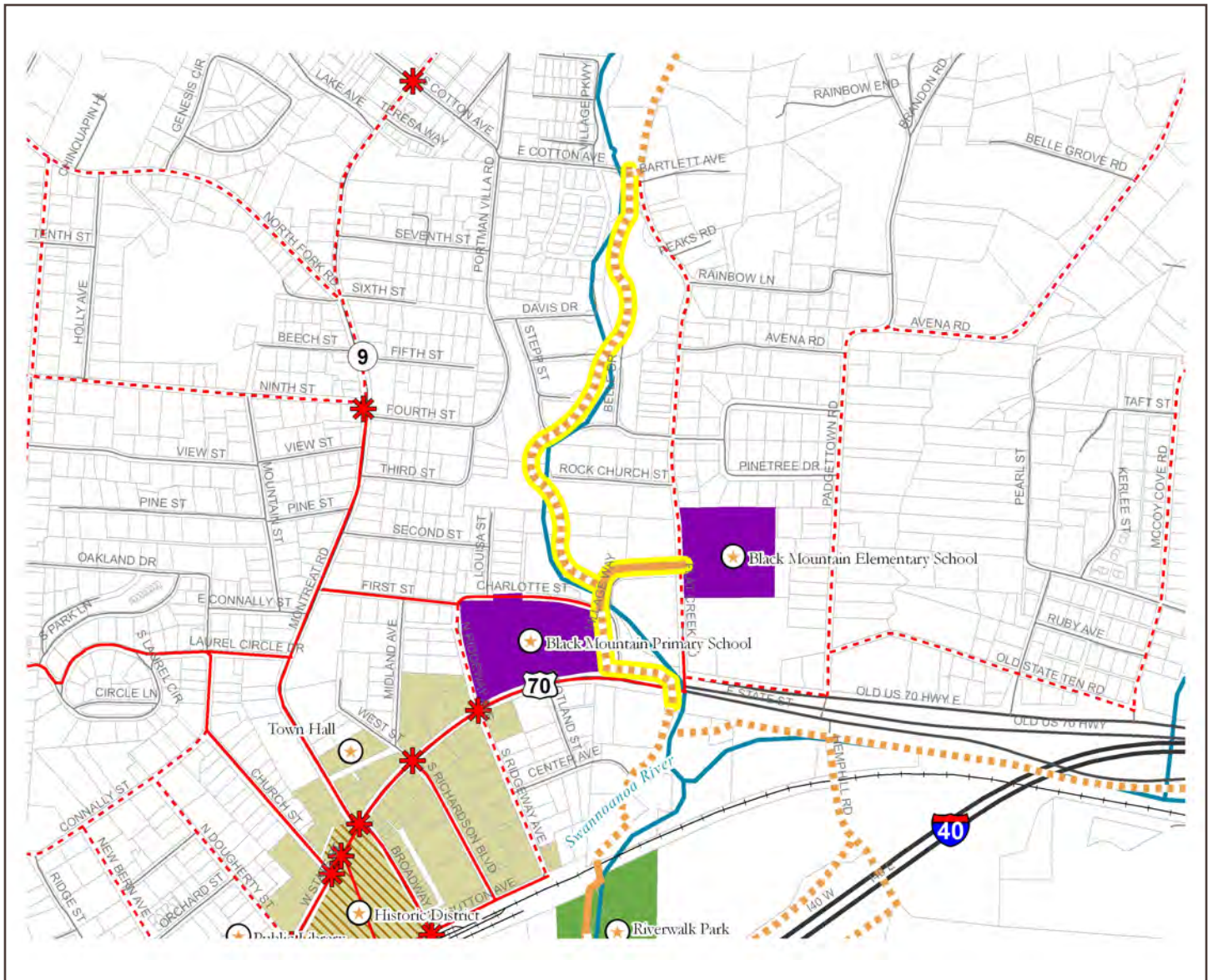


PRIMARY SCHOOL TRAIL/ VILLAGE WAY SPUR

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Potential trail underpass at US 70 and Flat Creek Road

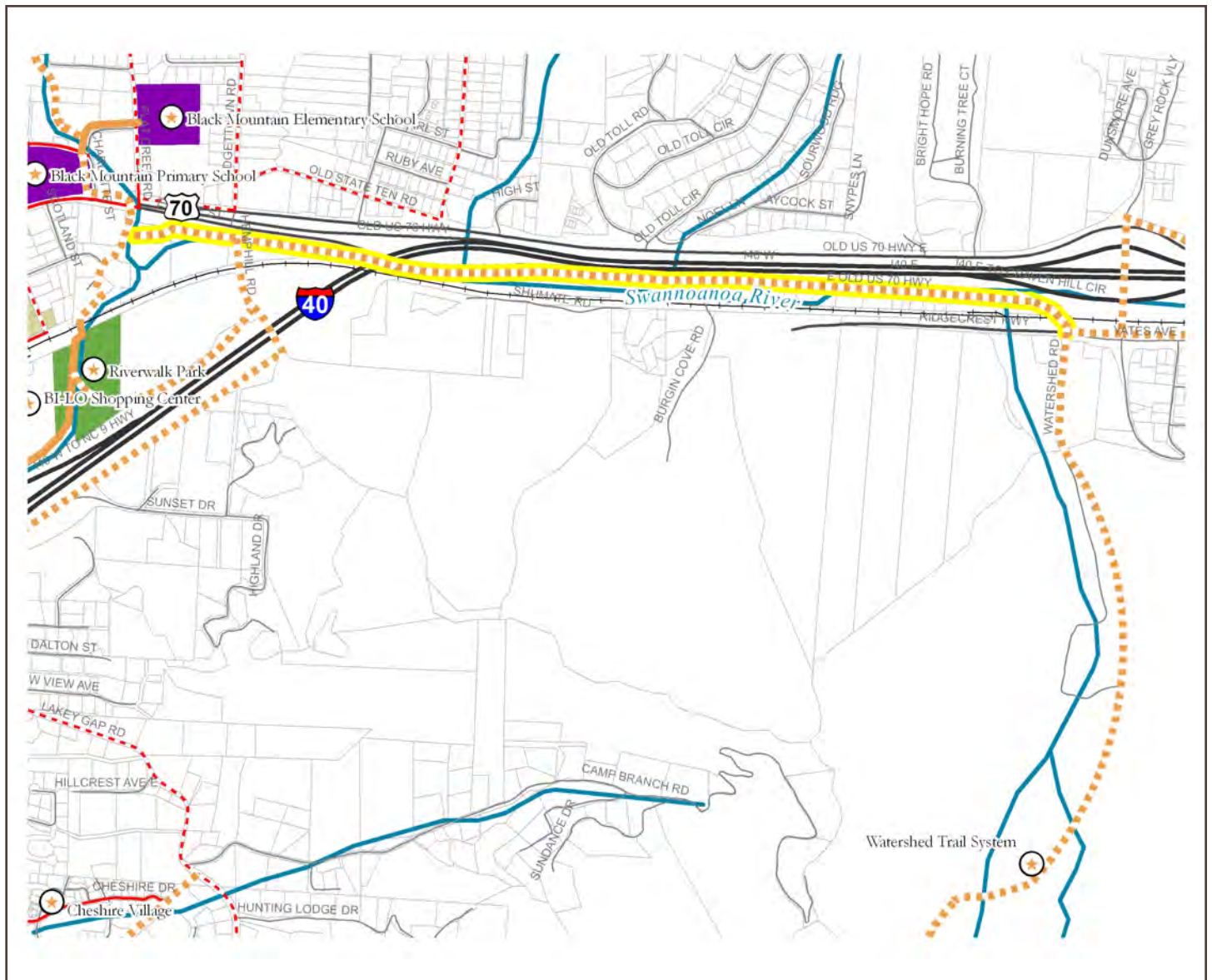


RIDGECREST TRAIL

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Conceptual photo rendering of a trail to Ridgecrest from Black Mountain

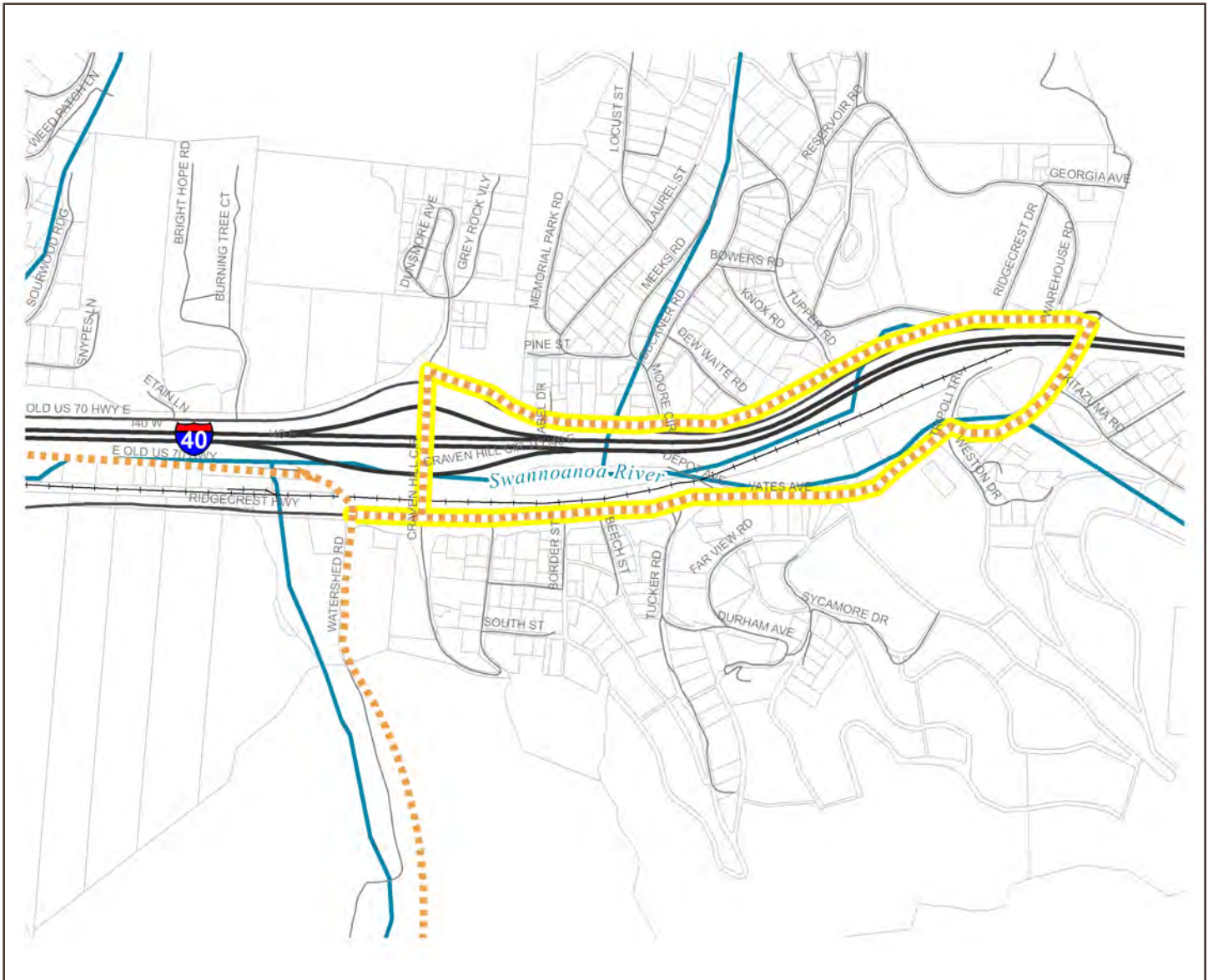


RIDGECREST LOOP

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Ridgecrest and Black Mountain from Kitsuma Peak

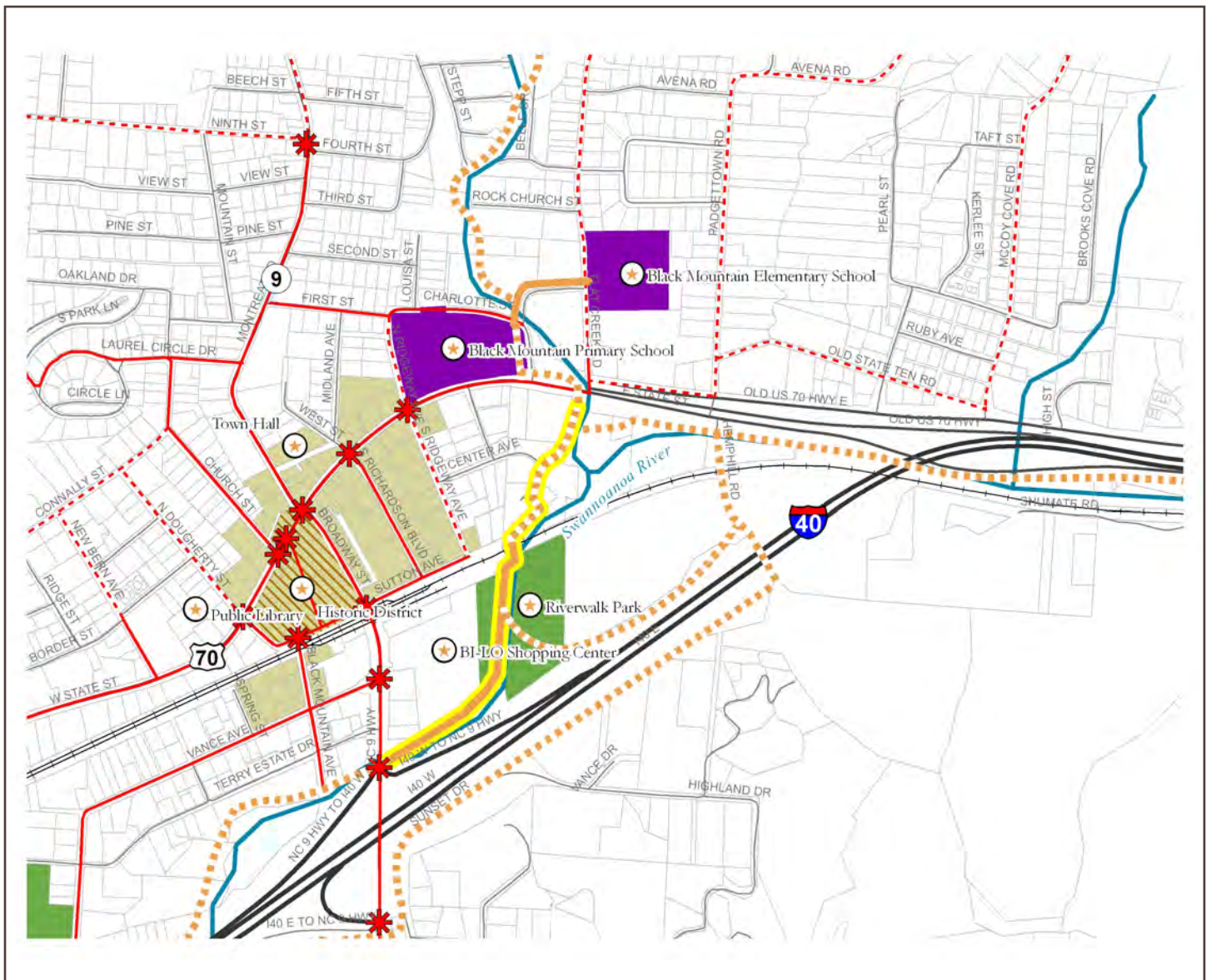


RIVERWALK TRAIL

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Linking RiverWalk Park to Flat Creek Greenway will be an essential connection

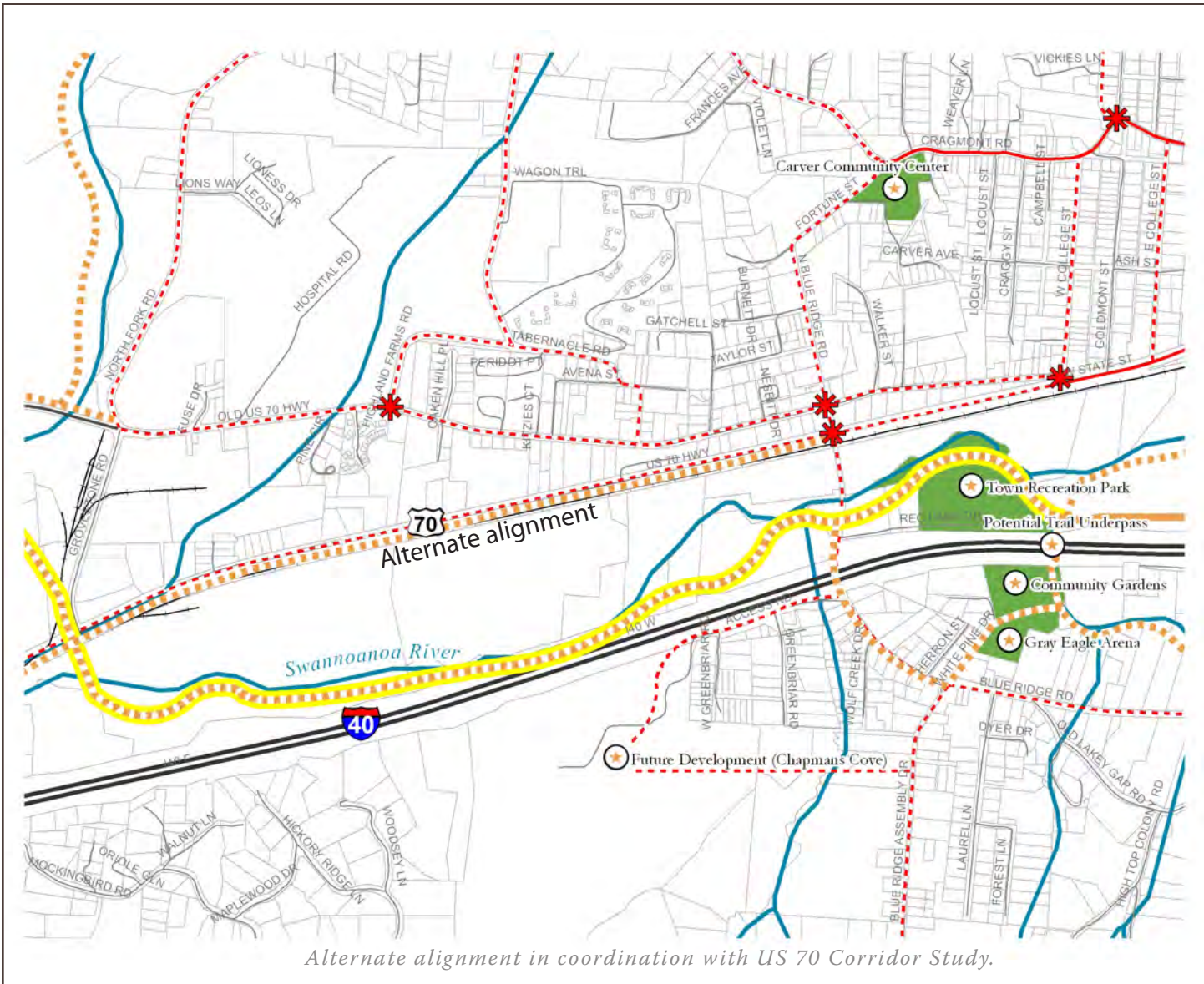


SWANNANOA RIVER TRAIL

- ✱ Intersection Improvement
- ⊙ Destination
- ▬ Featured Trail
- ▬ Greenway Trail - Proposed
- ▬ Greenway Trail - Existing
- ▬ Sidewalk - Proposed
- ▬ Sidewalk - Existing
- School
- Park/Open Space
- Hydrology
- ▨ Historic District
- Central Business District



The Swannanoa Connector will connect Black Mountain to regional destinations



Alternate alignment in coordination with US 70 Corridor Study.

TOMAHAWK SPUR

-  Intersection Improvement
-  Destination
-  Featured Trail
-  Greenway Trail - Proposed
-  Greenway Trail - Existing
-  Sidewalk - Proposed
-  Sidewalk - Existing
-  School
-  Park/Open Space
-  Hydrology
-  Historic District
-  Central Business District



Lake Tomahawk Park is one of the most popular destinations in Black Mountain

