



2013 BLUE RIDGE BIKE PLAN

FOR BUNCOMBE, HAYWOOD, HENDERSON, JACKSON, MADISON,
SWAIN, TRANSYLVANIA COUNTIES - NORTH CAROLINA





ACKNOWLEDGMENTS

SPECIAL THANKS

Thank you to the more than 600 residents, bicycle shops and clubs, business owners and government employees who participated in meetings, surveys, and regional workgroups. We appreciate all your time and dedication to the development of this plan.

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INTRODUCTION

INTRODUCTION

WHY PLAN FOR BICYCLING?

Bicycling in the mountains of Western North Carolina poses unique challenges and opportunities. Bicycling as an economic engine is gaining momentum as popular group rides expand, new events like Cycle-to-Farm are created, and the region draws national attention for recreational mountain biking. The steep terrain and narrow mountain roads provide the challenge many avid cyclists are looking for. However, according to the survey conducted for this plan, safety is the number one concern and foremost reason why people don't bicycle in our region. Providing safer options for all bicyclists (commuters, children, and older adults) was the top priority for over 600 survey respondents and stakeholders.

This planning effort was developed to address safety and other top concerns to:

- better identify where limited resources can be used to benefit the most potential commuters;
- connect destinations such as schools, residential areas, business centers, downtowns;
- address 'hot spots' or dangerous roads and intersections; and to
- develop recommendations communities can use to improve conditions as they see fit.

The **BLUE RIDGE BIKE PLAN** has been developed for Buncombe, Haywood, Henderson, Jackson, Madison, Swain and Transylvania Counties in North Carolina.

AREA CONTEXT

The purpose of the Blue Ridge Bike Plan is to identify and define improvements to both create and enhance a regional bicycle route system in Western North Carolina. While the seven counties covered in this plan are all considered mountain communities, they are still very diverse in terms of the types of cycling that occurs within and between them and the type of improvement potential there is to accommodate bicyclists along area routes.

Bicyclists in Buncombe County, for example, take to roads that also serve a population based on more than 240,000 residents, whereas Swain County residents bicycle along roads and streets that serve 14,000 people. The types of bicycle facilities that serve the bicyclists in the two distinct communities should be as unique as the context in which they are intended.

In urban areas within and near the City of Asheville, motorists are likely more accustomed to sharing space along the road with bicyclists as they commute or make recreational trips. This is less likely to occur in areas with a smaller population base simply because there aren't as many bicyclists on the road.

Therefore, conducting a regional bicycle plan for Western North Carolina is not as easy as simply identifying solutions for mountain communities; it's about identifying and articulating the best fit solutions to improve safety and increase the potential for people to bicycle around the region. The manner in which bicyclists are accommodated on routes throughout the area also impacts the region's attraction as a place for tourists who may want to bike as part or all of their vacation.

The Blue Ridge Bike Plan is intended to identify how facilities can be tailored to each community's needs. In this Plan are recommendations for several route improvements and upgrades as well as smaller projects aimed at increasing visibility for bicyclists.

COMPLETING THE STREETS

The North Carolina Department of Transportation's Complete Streets policy states the agency is committed to a multi-modal transportation network where bicyclists "of all ages and abilities are safely accommodated."

This policy statement reflects the agency's acknowledgment that a "one size fits all" solution to creating a network of bicycle facilities is not suitable, not just for the geography of the area but also to appropriately serve the interests of many types of bicyclists.

An important component to supplement NCDOT's policy is that Complete Streets should not only ensure that users of all ages and abilities are accommodated, but that they are safely accommodated "*at all times.*" Applying this element of the Complete Streets policy to Western North Carolina is particularly relevant given the manner in which bicycle trips occur.

For example, side streets that have ample vehicular traffic during commute periods can trip a loop detector at a traffic signal. These streets may not sustain the same traffic volumes during popular bicycle riding times. Therefore, the simple act of marking a loop detector or building a new loop detector sensitive enough to recognize that a bicycle is waiting for the light to change is critical.

Likewise, signal timing at a rural intersection may be configured to allow one motorist time to clear the intersection from a side street. This timing may be inadequate to allow a bicyclist to safely clear the intersection or accommodate more than one bicyclist during a phase, particularly if it is a popular recreational route.

URBAN - SUBURBAN - SMALL TOWN - RURAL - NATURAL

The regional bicycling network in Western North Carolina transitions to and from many different settings. There are many urban neighborhoods and downtown areas throughout the area. The major urban centers of Asheville, Hendersonville and Waynesville, each has areas where more recent suburban development has occurred. The small towns throughout the Plan study area have quaint downtowns and small neighborhoods that have urban features. The rural areas of the region are vast and contain a network of two lane country roads that bisect farmland and forested areas and serve as challenging climbs for recreational cyclists. Beyond these points are the natural areas contained within state and national parks and the National Forests.

Any person riding a bicycle on a trip longer than 3 to 5 miles is likely to ride through at least two different settings. Many long-distance cyclists seek rural and natural areas or ride to small towns to experience these areas at a slower pace.

It is important to match the appropriate bicycle facility to the setting. This creates a safer, more enjoyable trip for all users. Bicycle facilities that match the context of these areas should also transition based on several features. Some of these facilities or features may include:

- **URBAN AREAS:** Bicycle lanes, shared lane markings, greenways, separated bicycle facilities, protected bicycle lanes and bicycle boulevards, and innovative treatments such as contra-flow bicycle lanes, and green lane markings. Wayfinding signage and other streetside signs or pavement markings can accompany these facilities.
- **SUBURBAN AREAS:** Bicycle lanes, shared lane markings, greenways and wide outside lanes on higher volume facilities typify treatments in suburban areas. Newly created town center complexes may mimic the feel of urban areas and thus be subject to more urban-like treatments.
- **SMALL TOWNS:** The facilities in small towns are similar to urban and suburban areas; however, many small towns may not have the resources to build or maintain a widespread network of facilities or implement some innovative treatments.
- **RURAL AREAS:** All streets in rural areas are managed by NCDOT and are typified by either wide outside travel lanes or shoulders along rural routes. Many routes have no shoulders. Special signage may be placed on some routes. Short sections of greenways may be placed along rivers and streams or link nearby trails.
- **NATURAL AREAS:** Two lane roads with a shoulder is the typical bicycle facility in these areas. On some roads, the ability to add these shoulders may be limited to the terrain or other environmental factors.



Sylva is a Small Town in Jackson County NC near Western Carolina University



VISION STATEMENT

The Vision for the BRBP was developed by over 500 stakeholders throughout the Blue Ridge Mountains. It is clear the benefits of improving bicycling infrastructure and policy are widely embraced by the residents, business owners, and local governments participating in the process.

The **VISION FOR THE BLUE RIDGE BIKE PLAN** is to help create a community in Western North Carolina where bicycling can serve to improve the physical and mental health of the community; and where people have transportation choices, stronger economic development, safer bicycling opportunities for live-work-play connections, a complete street transportation system, and less dependence on foreign oil.



The Blue Ridge Bike Plan Kick-Off Meeting held in November 2011

BRBP PLANNING PROCESS

The purpose of the BRBP is to prioritize bicycle corridors and/or bicycle projects for implementation in our region in the near term (10 years). Below are the draft factors to be considered in prioritization, based on data which are available in our region. Please note that the primary focus of this plan is for on-road facilities, although greenways and multi-use paths in parallel to major road corridors are considered part of the “corridor.”

- Public and stakeholder input (number of votes per corridor/project; limit to top 5 per county with the exception of top 10 for Buncombe due to higher population)
- Level-of-Service score below “C” currently—to be considered where dates are available
- Number of known bicycle crashes along the corridor during 2006-2011 timeframe (based on TEAAS crash data report from NCDOT)

- Right-of-Way (ROW) availability
- Expected cost of improvement per mile
- Average Annual Daily Trips (AADT)/volume of traffic on the corridor, where known: below 4,000; 4,000-10,000; over 10,000 (higher traffic corridors would have a higher priority as they are assumed to be more dangerous)
- Number of destinations (schools, libraries, parks, grocery stores, major retail, multi-family residential complexes, major employers with over 50 employees) within ½ mile buffer corridor
- Projects that would connect to existing on-road (bike lane) or off-road (greenway) facilities

The current cost assumptions are as follows (k = thousands):

- \$300k/mile to add/widen bikeable shoulder during roadway construction
- Bike shoulder as a stand-alone construction project: \$1250k/mile based on SPOT office estimate of cost to widen 18-ft roadway section to 24-ft roadway section with shoulders
- \$750k/mile for greenway or multi-use path if not accounting for ROW purchase or significant bridge projects
- \$50k/mile for bike lane (on existing pavement, with removal of existing striping); \$300k/mile to add bike lane during road widening project
- \$10k/mile for sharrow to be installed on existing pavement during repaving
- \$2k/mile for bicycle route signage

BLUE RIDGE BIKE PLAN THEMES

The Vision is centered on five over-arching principles, or themes. Each theme has one or more related goals and objectives to help guide the plan implementation. Similar goals are grouped together, followed by the objectives envisioned to meet those goals. Since some objectives overlap with more than one goal, an effort was made to identify the best fit for each connection.

While these themes are derived from the public survey, community workshops, and steering committee meetings, they also correlate with the WalkBikeNC Pillars. This relationship with the state plan does two things: 1) it reinforces the direction taken by the local and regional efforts; and 2) provides a statewide framework for shaping the future of bicycling infrastructure development.



MOBILITY

Improve mobility where people have **transportation choices** and bicycling is part of a **complete streets** transportation system so **live-work-play connections** are feasible by bicycle.

GOAL: Provide **affordable transportation choices** to work, school and play facilities

OBJECTIVE: Create and disseminate a map of safe bicycling routes in the region

OBJECTIVE: Pursue funding to add bike route signage along the safe bicycling routes

OBJECTIVE: Support implementation of new bicycling facilities, both on-road and off-road

GOAL: Create a network of private and public agencies, businesses, and community groups in the study area supportive of bicycling

OBJECTIVE: Identify user groups and corresponding needs to improve access to bicycling

OBJECTIVE: Create a resource list, including contact information, of partners and partner agencies

OBJECTIVE: Create a way for people to provide feedback/ input on maintenance needs for facilities



ECONOMIC DEVELOPMENT

Stronger economic development is built through attracting a talented workforce, bicycle tourism, and group ride events to our region.

GOAL: **Strengthen local businesses** through increased bicycle and eco-tourism opportunities

OBJECTIVE: Support the development of a regional, bicycling economic impact analysis.

OBJECTIVE: Foster community education and dialogue about the importance of bicycling to our region

GOAL: Support local communities as they achieve Bicycle-Friendly status.



ENVIRONMENT

The region is **less dependent on foreign oil** and can experience the environmental benefits of improved air quality and less congestion.

GOAL: Increase opportunities for **bicycle commuting via road or greenway**



HEALTH

Bicycling can serve to **improve the physical and mental health** of the community.

GOAL: Foster **healthier communities** through access to bicycling



SAFETY

Promote **safe opportunities** for commuting and recreational bicycle riding.

GOAL: Improve safety of existing on-road routes

GOAL: Integrate **safe bicycle access** to schools, parks, office, commercial and recreational facilities that allow **more choices** and **increased personal freedom**, with particular attention to populations who can't drive or prefer not to drive.

OBJECTIVE: Support programs that support safe bicycling among youth and senior populations, such as Safe Routes to Schools, accessible greenways, or off-road bicycling.

GOAL: Assemble a multi-media outreach campaign to educate both bicyclists and drivers about where bicycle facilities exist and how to safely navigate routes

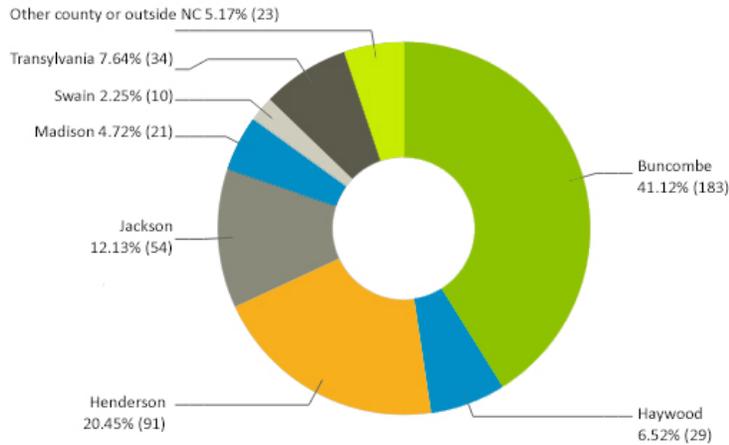
OBJECTIVE: Recommend educational strategies for both bicyclists and motorists to foster safer interactions on roadways



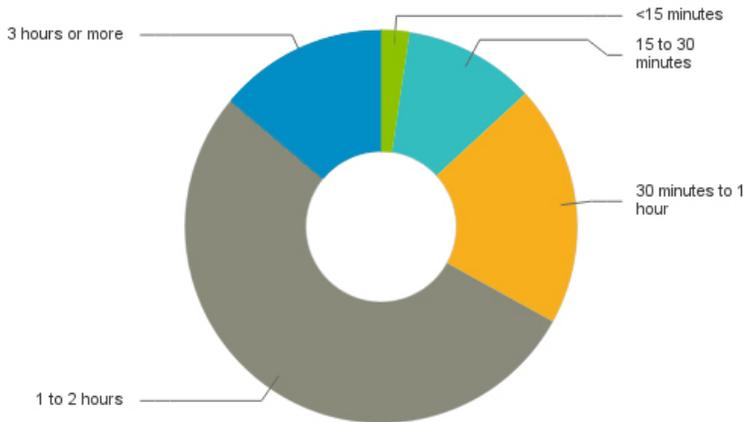
BLUE RIDGE BIKE PLAN SURVEY RESULTS

In November 2011, staff conducted a survey for the Blue Ridge Bike Plan. Nearly 500 people responded to questions concerning their biking habits and what they would like improved in our region. Below are some of the results.

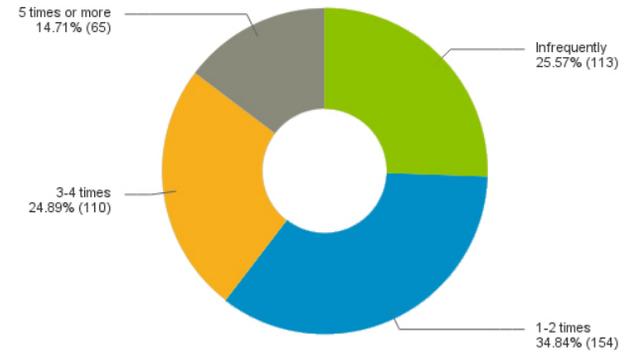
Please tell us what county you live in:



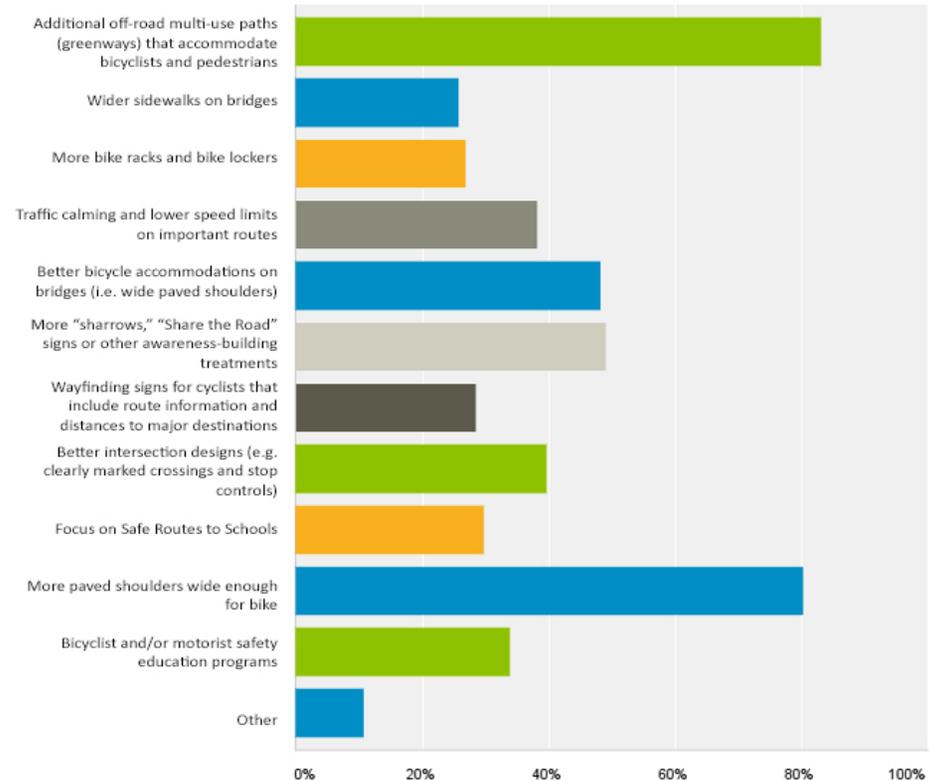
How long is your usual ride?



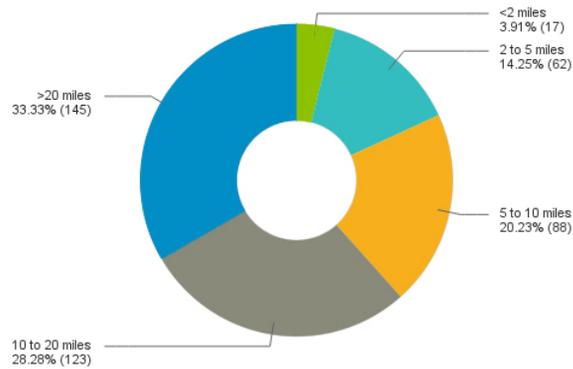
How often during a typical week do you ride?



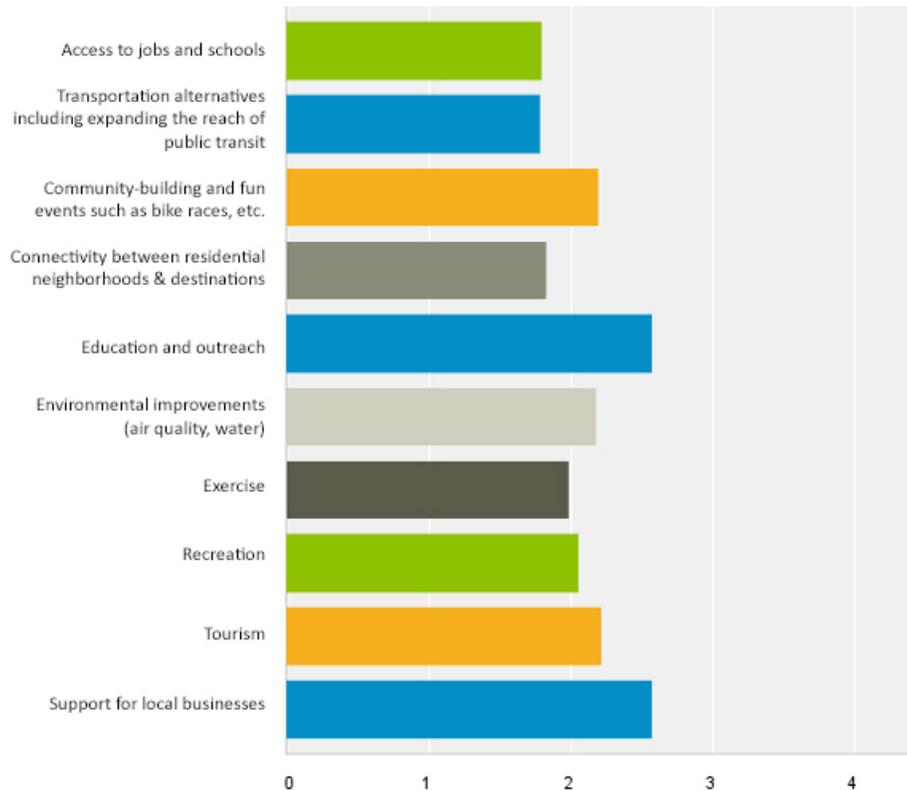
What type of bicycle improvements would you like to see in the region? (check all that apply)



When you ride, what distance do you usually travel?



What are the most important benefits and uses of a regional bike system?



BRBP MEETING OVERVIEW

STEERING / EXECUTIVE COMMITTEE MEETINGS

November 30, 2011	Kick-off Meeting
February 28, 2012	Executive Committee
June 22, 2012	Executive/Steering Committee
October 1, 2012	Executive/Steering Committee
February 7, 2013	Executive/Steering Committee
April 19, 2013	Executive/Steering Committee

STAKEHOLDER MEETINGS

July 25, 2012	Land of Sky Regional Council
July 26, 2012	Sycamore Cycles, Hendersonville
September 14-16, 2012	Green Living Expo, Asheville
March 4, 2013	Transylvania County Small Group Meeting (SGM)
April 12, 2013	Land of Sky RPO SGM
April 22, 2013	Madison County SGM
April 25, 2013	City of Brevard SGM
April 29, 2013	City of Hendersonville SGM
May 13, 2013	Henderson County SGM

PUBLIC MEETINGS - ROUND 1

May 31, 2012	Haywood County
June 4, 2012	Buncombe County
June 5, 2012	Transylvania County
June 6, 2012	Henderson County
June 11, 2012	Madison County
June 12, 2012	Swain County
June 13, 2012	Jackson County

PUBLIC MEETINGS - ROUND 2

November 7, 2012	Transylvania County
November 14, 2012	Buncombe County (UNCA)
November 19, 2012	Jackson County
November 26, 2012	Henderson County
November 28, 2012	Haywood County
December 4, 2012	Swain County
December 5, 2012	Madison County
December 6, 2012	Buncombe County (Asheville)
January 15, 2013	Buncombe County (Black Mountain)

TIMELINE

Key steps in the development of the plan are outlined below.



**2011
AUG - DEC**

- Project Kick-off
- Identify and meet with Steering Committee
- Hold public event to identify current conditions
- Launch web-based survey, social media and PR materials

**2012
JAN - JUNE**

- Conduct Outreach & Engage stakeholders and organizations
- Survey participants at bicycling events
- Draft Current Policies Report and Economic Benefits of Bicycling
- Round 1: Hold 7 Community Meetings
- Collect & analyze bike counts, data, and surveys

**2012
AUG- DEC**

- Survey stakeholders to identify priority commuter and recreational corridors
- Round 2: Hold 9 Community Meetings and 3 Stakeholder meetings

**2013
JAN - JUNE**

- Develop policy and facility recommendations
- Finalize priority corridors with Steering Committee and stakeholders
- Develop the Draft Plan

**2013
JULY - DEC**

- Collect comments from committee and stakeholders
- Final Plan meetings and presentations
- Plan Approval & Adoption

Community input played an important role in the development of the Blue Ridge Bike Plan. Community meetings are pictured clockwise from top right: Waynesville Recreation Center in Haywood County; Transylvania County Library in Brevard; network review meeting in Henderson County; and Dr. Wesley Grant Sr. Southside Center in Buncombe County





EXISTING PLANS & POLICIES



EXISTING PLANS & POLICIES

The towns that are included here are those that provided information about their bicycle specific policies. An analysis of current policies for the local governments in the region was completed for the plan.

NORTH CAROLINA

Under North Carolina law bicycles are considered vehicles, are expected to follow the rules of the road, and are allowed to ride two abreast except where prohibited under local regulations. Bicyclists are not prohibited from riding on the sidewalks under NC laws, although riding a bicycle on the sidewalk is not considered safe under the guidelines of the League of American Bicyclists (although in some places, riding on a sidewalk is the safest alternative). Bicyclists under the age of 16 are required to wear a helmet. A front white light and a rear red light or reflector are required for bicyclists riding in dark conditions.

All police officers in North Carolina attend a 40-day training program, where they receive education on the rights and responsibilities of all road users, including bicyclists and drivers of motor vehicles.

Many roads in rural areas of Western North Carolina today remain at 18 to 20 feet wide. Few roads have shoulders wide enough to fit bicyclists.

BUNCOMBE COUNTY

Buncombe County is the largest county in the 7-county region and an important center for employment, education and medical care in the region. Buncombe County's population in 2010 was 238,318 (U.S. Census).

Existing Facilities. Existing bike lanes in Buncombe County are located inside the City of Asheville (see Asheville section below). The municipalities of Asheville, Black Mountain, Woodfin and Weaverville have varying lengths and networks of greenways as additional bicycle facilities.

Residents of Buncombe County enjoy a number of group rides, including bicycle rides organized by the Blue Ridge Bicycle Club and Asheville on Bikes. Many cyclists take advantage of the Blue Ridge Parkway, although the Parkway is not a designated bike route and is not designed with bicycle facilities.

Buncombe County has a variety of mountain bike trails, with Bent Creek Recreation Area being the most popular destination for mountain biking.

Plans and Policies. Buncombe County staff work on a wide variety of bicycle issues, such as Safe Routes to School, teaching bicycle safety to youth, and the annual Strive Not to Drive event. Buncombe County does not have a stand-alone bicycle plan or a dedicated bicycle and pedestrian coordinator position. Buncombe County recently adopted (September 4, 2012) a county-wide Greenways Master Plan. Staff and advisory committee members hosted community public meetings and undertook an ambitious outreach campaign to gather input and communicate the benefits of greenways. Bicyclists are among the user groups who benefit from greenways and multi-use paths.

Greenway feasibility studies have been completed for the following corridors:

- NC 251 Greenway Corridor (Asheville to Marshall)
- US 70/Swannanoa River Road Greenway Corridor (Asheville to Black Mountain)

Local greenways groups and representatives of other advocacy groups are in the process of forming the Friends of Connect Buncombe to support the greenway master plan, develop public awareness and education.

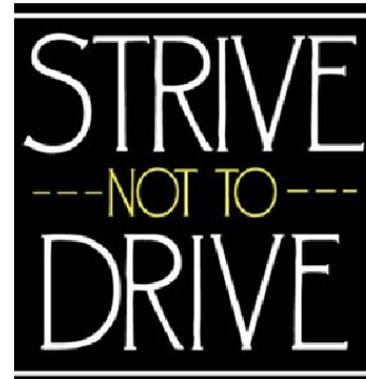
Healthy Buncombe, a working group under the umbrella of Buncombe County Health Department, is an active partner in local bicycle planning initiatives.

Education, Enforcement, and Encouragement. Healthy Buncombe is one of the groups, along with Blue Ridge Bicycle Club and Asheville Bicycle and Pedestrian Task Force, co-sponsoring bicycle safety classes taught by one of the 12 League of American Bicyclists-certified instructors in the area. In 2011, two bicycle safety classes were taught in Buncombe County. Monthly bicycle safety classes are planned beginning in 2013 on the 2nd Saturday between March and October.

The degree to which communities across **WESTERN NORTH CAROLINA** have adopted policies or implemented projects to bicycling varies based on the size of the community and historically the degree of interest in bicycling.

A variety of bicycle rodeos for school-aged children take place in Asheville and Buncombe County throughout the year, in large part thanks to leadership from the Blue Ridge Bicycle Club.

The Strive Not to Drive event, which typically takes place the third week of May (the same as Bike to Work Week) is one of the largest encouragement events in Asheville and Buncombe County. Strive Not to Drive began twenty-one years ago as Bike to Work Day with the goal of encouraging bicycle commuting in Buncombe County. Over the years, as concerns about air quality, physical inactivity and related health concerns and traffic congestion have grown, the event has broadened to encourage any form of transportation other than driving alone in a car.



Strive Not to Drive began in 1990 as Bike to Work Day with the goal of encouraging bicycle commuting. Over the years as concerns about air quality, physical inactivity and related health concerns, and traffic congestion have grown. The event has broadened to encourage any form of transportation other than driving alone in your car.

In 2012, 333 individuals with 31 companies pledged to participate, and an additional 138 senior citizens were involved through the Senior Activity Centers. This was an increase of 116% from 218 participants in 2011. Related activities include a bike corral at the Downtown After Five event; Mayor's Leadership (Bus) Ride and Community Bike Ride; Strive Not to Drive Fashion Show; Golden and Leadership Awards; and commuter stations. Strive Not to Drive is led by representatives from a variety of local stakeholders and organizations, as well as interested individuals.

CITY OF ASHEVILLE

Asheville is the largest city in Western North Carolina, and the county seat for Buncombe County (with a population of 83,393 - U.S. Census 2010). Downtown Asheville functions as a walkable, bikeable core. Haywood Road and Clingman Avenue provide bike-friendly corridors from West Asheville to downtown Asheville. North Asheville and UNC-Asheville are relatively accessible to downtown Asheville by bicycle, although Merrimon Avenue is not bike-friendly, with four narrow lanes and a lot of turning movements. Many other parts of town, especially south and east Asheville are less accessible by bicycle. Major multi-lane arterials such as US 19/23/Patton Avenue, Hendersonville Road, Merrimon Avenue and US70/Tunnel Road present challenges and are considered to pose safety hazards due to traffic volumes, speed of traffic and turning movements. Even those roads with wide outside lanes are not comfortable for the average cyclist. In addition, major interchange locations such as I-240 and US 74A interchange, I-240 and US 70 interchange, and Jeff Bowen Bridge carrying I-240/I-26 traffic, are major barriers to bicycle travel across those important nodes.

The City of Asheville was designated a Bicycle-Friendly Community (bronze level) by the League of American Bicyclists in June 2012. There is a budding bicycling culture, with Blue Ridge Bicycle Club, Asheville on Bikes and other smaller local groups organizing group

rides and bike corrals at events around town.

Existing Facilities. The City of Asheville has approximately 59 miles of on-road bicycle facilities (including signed bike routes, bicycle lanes, combinations of climbing bike lanes and sharrows, or just sharrows). Of those 59 miles, approximately 10 miles are bicycle lanes. An additional 15 miles of multi-use paths and greenways exist in the city.

Since September 2010, Asheville has invested \$300,000 to construct five miles of new on-street bicycle facilities in 11 different locations. With assistance from American Recovery and Reinvestment Act (ARRA) stimulus funds, the City of Asheville has been able to invest over \$1,000,000 to connect a seven-mile bicycle route from downtown to West Asheville that connects to the city's primary bicycling destinations: the French Broad Greenway, Carrier Park and the Velodrome cycling racetrack.

Some existing bicycle facilities go beyond a simple bicycle lane – e.g., there is a buffered bicycle lane installed on Haywood Road bridge. In addition, the City of Asheville has received an approval from FHWA to experiment with green bicycle lane treatments. The image below illustrates a green bike lane installed on South Lexington Avenue. Green paint enhances the visibility of a bicycle lane.



Green Bicycle Lane on South Lexington Avenue, Installed Spring 2012

A bicycle “Fix-it” station was installed in 2012 at the Clingman Avenue roundabout, on one of the busiest cycling corridors connecting downtown to West Asheville. This station allows cyclists to stop and pump up their tires or to use other tools provided for basic repairs. Another fix-it station is located at the greenway and velodrome at Carrier Park.

Recognizing the importance of intersection crossings for bicycles, the City of Asheville adjusted video detection at Craven Street and Riverside Drive to sense bicyclists as well as cars. Loop detector markings have been installed at four other signal locations to indicate where bicyclists should stand to trigger a signal change.

Other facilities: A planned expansion of Richmond Hill Park includes a single track mountain bike trail. At Carrier Park, an old motor speedway was converted to a cycling racetrack (velodrome), with connection to the French Broad River Greenway.

Some of the transit stops in Asheville have a bicycle parking rack, including the downtown transit station and a bus stop at Patton Avenue and Louisiana Avenue.

Plans and Policies. The City of Asheville has a bicycle plan and a bicycle and pedestrian coordinator position. The Asheville Bicycle and Pedestrian Task Force functions as an advisory committee to discuss issues and provide recommendations to staff and City Council. The Task Force meets on a monthly basis.

The City has adopted a strong bicycle parking policy: bicycle racks are required for all new commercial and multi-family developments above a duplex size. The City has also installed a number of on-street bicycle parking racks, including at civic locations such as libraries and parks. Bicycle lockers have been installed in all city-owned parking decks; the lockers can be rented out a month at a time. Currently there are 20 bike lockers throughout Asheville.

Bicycles and transit complement each other. Bicycles can be placed on racks on the front of Asheville Transit buses (up to 3 bikes on the newer buses), and bicycle parking racks are available at the downtown Asheville Transit station and at several other transit stops.

Blue Ridge Bike Plan



ASHEVILLE BICYCLE AND PEDESTRIAN TASK FORCE

- Bicycle advocacy and user groups – Blue Ridge Bicycle Club (BRBC), Asheville on Bikes, Southern Off-Road Bicycle Association (SORBA)
- Law enforcement
- Public health (Healthy Buncombe)
- City Planning department
- City Transportation department
- City and County Parks & Recreation departments
- ADA advocates and experts
- French Broad River Metropolitan Planning Organization (MPO)
- Neighborhood associations
- Asheville-area bike shops
- UNC-Asheville
- City of Asheville Multi-Modal Commission
- Fire & Rescue staff



The City of Asheville has a policy to sweep bicycle lanes twice as often as regular streets get swept. There is no policy for snow clearance, since snow in Asheville is infrequent and rarely stays on the ground more than 24 hours.

Education, Enforcement and Encouragement. The City of Asheville has four bicycle-mounted police officers assigned to downtown Asheville. The Asheville Bicycle and Pedestrian Task Force has been working with the Asheville Police Department to implement outreach to cyclists, which includes stopping bicyclists riding unsafely to recommend modifications (e.g. helmets, lights) and pass out lights. The lights for the most recent program have been donated by the Western North Carolina Bicycle Dealers Association.

TOWN OF BLACK MOUNTAIN

Located east of Asheville, the Town of Black Mountain has a walkable downtown and is an attractive destination for retirees and for recreation and dining. Warren Wilson College and the unincorporated area of Swannanoa are located between the City of Asheville and Black Mountain; the Town of Montreat and Montreat College are located to the north of town center.

Existing facilities. Black Mountain currently has no bike lanes, however there are 2.5 miles of greenways installed in town, with Garden Trail being one of the latest additions. Work is underway to extend the Flat Creek Greenway towards Montreat.

*Banner for Black Mountain's Cycle to Farm Ride
[Http://cycletofarm.org/](http://cycletofarm.org/)*

Mountain Mobility and Asheville Transit buses that serve Black Mountain have bicycle racks. There are no bicycle parking racks installed at bus stops.

Plans and Policies. Black Mountain does not have a dedicated bicycle and pedestrian planner. The Town Health Programs allocates some staff time to bicycle and greenway work (about 5-10% of a FTE). Black Mountain Greenways Commission meets on a regular basis, and local advocates are involved in bicycle issues and discussions through the Black Mountain Greenways Commission.

The Town of Black Mountain adopted a Recreation Master Plan and a Greenways Master Plan (2008).

The Town has not adopted a complete streets policy or similar policies. Black Mountain does not have any development ordinances requiring installation of bicycle parking racks in new development.

Education, Enforcement and Encouragement. The Town of Black Mountain was able to qualify for a Safe Routes to School grant and held two bicycle rodeos for school children. On average, one bicycle rodeo event is held per year with 50-100 participants. Black Mountain also participates in Strive Not to Drive week promotion and activities, and offers a lower entry fee to bicyclists at the town pool.

In the summer of 2012, the first "Cycle to Farm" fully-supported bicycle ride took place, a 63-mile ride connecting Black Mountain



to surrounding farms. “Cycle to Farm” has become an annual event and has expanded to several rides and locations. Planned for 300 riders, this ride was at capacity in 2012.

HAYWOOD COUNTY

With a population of 59,036 residents Haywood is the third most populous county in the region. Haywood County boasts the most mountain peaks in the region and challenging bicycling terrain. The Haywood County Bicycle Plan (2011) notes: “Narrow mountain passages and streets wedged between creeks and hillsides create narrow corridors that may not have high traffic volumes but present barriers and opportunities for bicyclists.” The region’s topography results in “extreme terrain, limited sight distance, and a lack of suitable clearance space to allow vehicles and bicyclists to share the road side by side.”

Existing facilities. No bike lanes or sharrows currently exist in Haywood County. Multi-use paths (greenways) are present in Waynesville and Canton: approximately 5 miles of greenways in Waynesville, and about a mile of greenway in Canton.

Plans and Policies. Haywood is one of the only counties in Western North Carolina to complete a comprehensive bicycle plan. The Haywood County Bicycle Plan was adopted in 2011, and was funded with assistance from the FBRMPO and from the local bicycle club, Bicycle Haywood NC, which is now a chapter of the Blue Ridge Bicycle Club. Bicycle Haywood NC was instrumental in generating support and local match funding to get the bicycle plan started.

Education, Enforcement and Encouragement. Haywood County contains many popular recreational riding destinations. The Blue Ridge Breakaway brings hundreds of attendees to ride in Haywood County on an annual basis. The Blue Ridge Breakaway takes place annually in mid-August and offers a variety of routes designed for all skill levels. Proceeds benefit the Haywood County Chamber of Commerce. In 2013, about 460 cyclists took part in the Blue Ridge Breakaway.

Bicycle Haywood NC, Blue Ridge Bicycle Club and other groups in the county sponsor regular group rides which take advantage of some of the quieter roads.

In May 2011, Bicycle Haywood NC organized the county’s first Bike to Work event, where citizens were encouraged to ride to commemorate the National Bike to Work Day. Over a dozen riders commuted from west Waynesville to downtown Waynesville (Haywood Bicycle Plan, 2011). The event has been repeated annually.

Several bicycle rodeos are organized in Haywood County every year. The rodeos give children the opportunity to practice and test their riding skills.

Further emphasis on Safe Routes to School, Bike to Work Day, and bicycle parking, such as bike parking corrals at festivals, remain opportunities to provide even more encouragement and education for people potentially interested in bicycling in Haywood County.

In 2013, the Blue Ridge Breakaway in Haywood County had nearly 500 participants.

<http://www.blueridgebreakaway.com/reg>



*Richland Creek
Greenway in
Waynesville*



TOWN OF WAYNESVILLE

Waynesville is the county seat and the largest town in Haywood County, with a population of 9,869 (2010 U.S. Census). Waynesville has a vibrant downtown center along Main Street, as well as many arterial roads such as US 276 (Russ Avenue) with large-scale commercial development.

Existing facilities. No bike lanes or sharrows currently exist in the Town of Waynesville. Richland Creek Greenway follows Richland Creek for approximately 5.3 miles and offers an opportunity for walking and bicycling. Richland Creek Greenway connects Vance Street Park, Waynesville Recreation Park, Junaluska Elementary School and Haywood Community College's High-Tech Center. There is an opportunity for a multi-use path connection to the Lake Junaluska Trail. Currently bicyclists have to use surface roads to complete the link to Lake Junaluska. The Richland Creek Greenway was created through a partnership between Waynesville, Haywood County, and NCDOT. Additional assistance has been provided by Lake Junaluska.

The Town of Waynesville is also planning a BMX park as part of the Recreation Center Master Plan.

Plans and Policies. The Town of Waynesville has initiated several studies to retrofit corridors with more complete streets features: US 276/Russ Avenue Corridor Study and South Main Street Study both include provisions for bicyclists.

Education, Enforcement and Encouragement. Bicycle Haywood NC, a local advocacy group, organizes regular rides in the area during the spring, summer and fall months. Beginner bicycle rides start from Rolls Rite bicycle store in Waynesville on Thursday nights.

HENDERSON COUNTY

Henderson County is the second most populous county in the region, with a population of 106,740 (2010 U.S. Census). Henderson County lies south of Buncombe County and is characterized by a pastoral landscape. Rolling hills and scenic farms make it a popular destination for recreational bicycling.

Existing Facilities. Oklawaha Greenway is one of the few bicycle facilities installed in Henderson County. Bicycle lanes have been completed on Old Fanning Bridge Road just south of the Asheville Airport, and are planned for Howard Gap Road in 2014.

Bicycle racks are installed on Apple Country Transit buses, and in downtown Hendersonville.

Plans and Policies. The Henderson County 2020 Comprehensive Plan references the proposed Apple Country Greenways Plan, which was not officially adopted. The FBRMPO CTP identified bicycle corridors in need or improvement in Henderson County, and NCDOT has identified several designated bicycle routes through the county, not all of them officially signed. A Bike map was created in 2004 by NCDOT to feature a 184-mile system of routes.

There are no currently adopted complete streets policies or other policies requiring the addition of bicycle racks and bike lanes as part of new development.

Apple Country Greenways Commission, created in 1999, was very active in the process of adopting a Henderson County Greenways Master Plan which included a plan for over 100 miles of possible trails in the county. In the mid-2000s support for greenways at the county level waned and the Greenway Commission became inactive.

Education, Enforcement and Encouragement. A variety of group bicycle rides take place in Henderson County. The Fletcher Flyer, organized by the Blue Ridge Bicycle Club, is an annual ride with over 600 participants.

Members of ECO – the Environmental and Conservation Organization of Henderson County – are advocates for bicycle issues in Henderson County. ECO has helped host Strive Not to Drive Days for Hendersonville and Henderson County in past years.

The Friends of Ecusta Trail is a two-county advocacy group focusing on promoting a future trail between Hendersonville and Brevard. Membership of the Friends group comes from residents and businesses in Henderson and Transylvania Counties.

CITY OF HENDERSONVILLE

Hendersonville is the county seat for Henderson County, and has a population of 13,137 (2010 Census). Like many other towns in Western North Carolina, Hendersonville has a historic downtown with a compact street network; however many major arterial roads in and around town are difficult for bicyclists to safely navigate. For example, US 64/Four Seasons Boulevard is a main east-west connector and a transit corridor with a variety of retail and employment destinations; US 64 through Hendersonville is

intimidating for even experienced bicyclists.

Existing Facilities. The City of Hendersonville has been building greenways and sidewalks with the help of the sidewalk bond that was passed in 2004; however no bicycle lanes exist in the City of Hendersonville at this time. The Oklawaha Greenway is two miles long, running from Patton Park in the north to Jackson Park near downtown. The City plans to expand this greenway, with the next 1-mile segment to Berkley Park planned for construction in 2015.

Plans and Policies. Hendersonville recently helped fund, and the City Council has adopted the Ecusta Rail-Trail Study, which examined a 20-mile underutilized railway corridor connecting to Brevard, and the feasibility of constructing a multi-use path (greenway) along the corridor. The Ecusta Rail Trail Study (2012) has estimated a cost of approximately \$17 million to purchase Right of Way (ROW) and complete the trail. Ecusta Rail-Trail Study can be accessed via the City of Hendersonville website at www.cityofhendersonville.org

Education, Enforcement and Encouragement. As previously mentioned under Henderson County, ECO is a local advocacy group which is actively involved in bicycle and pedestrian issues and events, such as Strive Not to Drive events.



Participants in the Fletcher Flyer ride through rural areas of Henderson County. Image Courtesy of YaYa Hula





In 2011, NCDOT installed bicycle lanes along NC 107 in Jackson County, near Cullowhee, as part of a resurfacing project.

*Tour de Cashiers Riders
<http://www.tourdecashiers.com/tour-de-cashiers-home/>*

JACKSON COUNTY

Jackson County has a population of 40,271 (2010 U.S. Census) and is home to Western Carolina University (WCU).

Existing Facilities. A total of 6 miles of bike lanes have been installed in Jackson County. Most recently, bike lanes have been added to NC 107 on the 3 mile section from the town line of Sylva to the entrance to WCU's campus. NCDOT has committed to the addition of bike lanes on Old Cullowhee Road (connecting NC 107 to the WCU campus) as part of the next repaving of the road. The planned widening of NC 107 from south of the WCU campus to the intersection of NC 281 will also include a bike lane.

The county is acquiring Right of Way for a 4.5 mile stretch of greenway from NC 107 to campus, which will connect to a trail

network under development at the University. The greenway is part of the 2008 Jackson County Comprehensive Greenway Plan.

Plans and Policies. Jackson County adopted a Comprehensive Greenway Plan in 2008 and has an active greenways committee that advocates for the development of bikeways.

There are no complete streets policies or development ordinances requiring installation of bike lanes or bicycle parking.

With no designated bike lanes within the town limits, Sylva allows bikes on sidewalks outside of the downtown business district.

Education, Enforcement and Encouragement. The Town of Sylva Police Department holds an annual bike safety event for children.

Tour de Cashiers is an annual ride through Jackson County that attracts approximately 200 participants. Initially the ride was started in 1992 as an 11-mile ride. It has since expanded to include quarter century, metric century and century (100 miles) ride options.

MADISON COUNTY

Madison County is between Buncombe County and Tennessee and has a population of 20,746 (U.S. Census 2010). The county seat is Marshall, population 972 (U.S. Census 2010), which is a major bicycling destination. The Blue Ridge Bicycle Club members and many other smaller bicycle groups take advantage of beautiful views in Madison County; the ride from Asheville to Marshall along NC 251 is very popular.

Existing Facilities. Madison County has several mountain bike trails outside of Hot Springs, established on forest roads, regular roads and as singletrack trails, with a combined length of approximately 20 miles. Bluff Mountain Outfitters in Hot Springs posts information on the trails on their website: www.bluffmountain.com/-biking

The term "**SINGLETRACK**" indicates narrow trails wide enough for a bicycle, as opposed to wider forest roads and trails open to four-wheeled off-road vehicles; typically unpaved.



*Hot Doggett in
Madison County*

Madison County currently does not have any designated paved greenways or on-road bicycle lanes, except for a short greenway segment in Marshall. The Blannahasset Island Park in Marshall features a half-mile multi-use path.

Plans and Policies. Madison County does not have a stand-alone bicycle plan. However, there was a 2007 Recreational Map created for Madison County with assistance from Land of Sky Regional Council, which incorporates recreational bicycle routes and hiking trails. Most of the recreational routes indicated on the map are not currently signed.

The Madison County Comprehensive Transportation Plan (2009) identified roadways in need of on-road bicycle improvements. The county does not have a complete streets policy including the identification of existing bicycle routes.

Education, Enforcement and Encouragement. Hot Doggett is a popular century and metric century ride organized by the Rotary Club of Madison County. The ride features a number of challenging climbs and hosts approximately 200 cyclists. A bicycle rodeo for children is usually held as part of the Hot Doggett ride.

Mars Hill College is a private liberal arts college located in the Town of Mars Hill. The college started a cycling team in 2007 and members enjoy access to a state-of-the-art cycling performance center set up by Spin-Tech Training, including a variety of

diagnostic testing tools. The team sends riders to national championship events and competes in all cycling disciplines: road, mountain, cyclocross, track, and BMX. The team was the #1 ranked Division 2 team in the nation in both 2010-2011 and 2011-2012. USA Cycling recognized Mars Hill cycling team quick rise, naming it the “Collegiate Club of the Year” for 2010.

SWAIN COUNTY

Existing Facilities. Swain County is a gateway to the Great Smoky Mountains National Park. With a population of 13,981 (2010 U.S. Census) it is the least populated county in the planning region and 80% of the county is public land. The county also includes much of the Eastern Band of Cherokee Indians Qualla Boundary.

Swain County is home to the Tsali Recreation area, which is one of the top destinations for mountain biking in North Carolina. It contains 42 miles of multi-use trails. The two Alarka loop rides offer 28 miles of lightly traveled roads. It is also a popular destination for road bicyclists.

The county is a popular recreation destination known for scenic rivers (Nantahala, Tuckasee, Oconaluftee, and Little Tennessee), Fontana Lake, and numerous mountain biking trails.

Plans and Policies. There are no local policies in place that address bicycling.

QUALLA BOUNDARY - EASTERN BAND OF THE CHEROKEE INDIANS

Existing Facilities. The Qualla Boundary has a growing network of bike lanes and greenways, indicating a clear emphasis in multi-modal transportation options for residents and tourists. Transit busses are equipped with bike racks.

Plans and Policies. The transportation planner is partially responsible for bicycle and pedestrian planning. There is ongoing planning and construction of greenways to link the town’s center to other facilities. No complete streets policies have been adopted.

Education, Enforcement and Encouragement. EBCI Parks and Recreation Department offers bicycling programs.



TRANSYLVANIA COUNTY

Transylvania County has a population of 33,090 (2010 US Census), and is the home of Brevard College. The City of Brevard has a population of 7,609 and the Town of Rosman has 576 residents. Nearly 65% of the land area within Transylvania County is comprised of National Forest, State Forest or other protected land.

Existing Facilities. There are mountain bike trails throughout the Pisgah National Forest and DuPont State Forest. There are almost 500 miles of hiking and mountain biking trails within Transylvania County. There are also six miles of greenway facilities are located in the City of Brevard.

Plans and Policies. The Transylvania County Planning and Economic Development Director is the current contact for bicycle planning in the county. The county website has a page devoted to bicycling tourism: www.transylvaniacounty.org/bike. A Bike map was created in 1998 by NCDOT to feature a 125-mile system of routes.

Education, Enforcement and Encouragement. No activities at the current time.

CITY OF BREVARD

Existing Facilities. There are approximately 6 miles of greenways in Brevard, including the Brevard Bike Path which connects the city (in Pisgah National Forest) to the Davidson River Campground. Another multi-use trail lies along Gallimore Road which will eventually be connected to the Brevard Bike Path. Brevard has



Brevard Bike Path



Bracken Mountain Trail Ground Breaking Ceremony in December 2012 (top) and Existing Facilities (bottom)



also recently opened the Bracken Mountain recreation area, a 395 area tract that includes 7 miles of unpaved mountain biking and hiking trails. A map of the Bracken Mountain trails is available at www.brevardnc.com/wp-content/uploads/2012/07/New-Bracken-Mountain-Trail.pdf

Plans and Policies. The Brevard Comprehensive Transportation Plan (CTP), adopted in 2004, includes a map of greenways in the vicinity of Brevard. The Planning Director is the primary contact for bicycle issues in Brevard. Brevard's Unified Development Ordinance requires that all new developments larger than a single family home or duplex install bicycle parking facilities.

Education, Enforcement and Encouragement. Brevard has just concluded three years of Safe Routes to School funded bicycle/ pedestrian training at Blue Ridge Community College. The city also organizes bicycle rodeos in each school within its jurisdiction each year. Bicycle events are held during the White Squirrel and 4th of July festivals. Brevard also hosted its first annual bike fair in 2012.

The Assault on the Carolinas is an annual bicycle ride organized by Pisgah Forest Rotary Club, which starts and finishes in Brevard. The ride takes place in April and features 100k, 60k and 40k ride options. The event has recently been capped at 1,000 participants due to increased demand.

TOWN OF ROSMAN

Existing Facilities. Rosman has approximately 1000 feet of greenway.

Plans and Policies. No local plans or policies are currently in place that address bicycles or complete streets.

Education, Enforcement and Encouragement. None at the current time.

BLUE RIDGE PARKWAY

The Blue Ridge Parkway traverses or is in close proximity to the seven counties included in the Blue Ridge Bike Plan. Because

the Blue Ridge Parkway is a National Park, separate rules and regulations apply to road improvements and bicycling on the Parkway. While a desirable destination for bicyclists, the Parkway is not a designated bicycling route and presents many challenges due to topography, tunnels, lack of shoulders, steep elevation changes, blind curves and other characteristics that present a hazard to cycling. The speed limit is usually posted at 45 mph, with 35 mph in some areas including from US 25 (Hendersonville Road) to US 70 near Asheville.

Bicyclists are not allowed to ride two abreast on the Blue Ridge Parkway. Bicyclists are typically allowed to ride two abreast on the roadways of North Carolina except where otherwise prohibited.

Bicyclists need to use lights when traveling on the Blue Ridge Parkway, due to many tunnels. The Blue Ridge Parkway recommends that bicyclists exercise caution when bicycling on the Parkway.



Blue Ridge Parkway



POLICY OR PROGRAM (• = IN PLACE)

Buncombe Co
Asheville
Biltmore Forest
Black Mountain

ENGINEERING

Does this community have any bike lanes or other on-road bicycle facilities (counties: inside or outside municipal boundaries)?	•	•		
Does this community have any greenways or multi-use paths/off-road bicycle facilities (counties: inside or outside municipal boundaries)?	•	•		•
Are land dedications for bike lanes required for new commercial and multi-family residential developments, when called for in a local bicycle plan?		•		
Is bicycle parking available at major government buildings, schools, libraries, transit stations, multi-family residential and commercial buildings?		•		
Is bicycle parking required for new commercial and multi-family residential developments?		•		
Is there a Complete Streets policy or ordinance that mandates the accommodation of cyclists on all road projects?		•		

EDUCATION

Is there a community-wide Safe Routes to School program that includes bicycle education such as bicycle rodeos for children?	•	•		•
Are bicycling education classes available for adults in the community?	•	•		•
Is there a process in place to educate both motorists and cyclists on their rights and responsibilities as road users (e.g. through Drivers' Ed including info on bicycling)?				

ENCOURAGEMENT

Does this community have an up-to-date bicycle map, either in electronic or paper format? Two stars if both paper and electronic?	•	•		
Does this community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach?	•	•		•
Does this community host any major community cycling events or rides?	•	•		•
Is there an active bicycle advocacy group in the community?	•	•		
Is there at least one bicycle shop in the community?	•	•		

ENFORCEMENT

Do law enforcement officers receive training on the rights and responsibilities of all road users?	•	•	•	•
Does this community have law enforcement or other public safety officers on bikes?		•		
Bicyclists allowed to ride two abreast	•	•		•

EVALUATION

Is there a plan or program to reduce cyclist/motor vehicle crashes?				
Does this community have a comprehensive bicycle plan?		•		
Does this community have a greenways plan?	•	•		•
Is there a Bicycle and Pedestrian Advisory Committee, Greenways Commission or similar group that meets regularly and provides input into local policies related to bicycling?	•	•		•





TRENDS, CHALLENGES, AND BENEFITS

TRENDS, CHALLENGES & BENEFITS



INTRODUCTION

Nestled in the mountains, our region is characterized by many small communities that rely on the tourism dollars brought in by the natural beauty of this area. This seven-county region is large and diverse with 24 municipalities and a total population of 415,670 (see details in the table below). The Blue Ridge Bike Plan includes the French Broad River MPO, Land of Sky RPO and a portion of Southwestern RPO that are divided between two NCDOT Divisions.

While each community has unique challenges, the region shares significant natural and cultural resources. The Blue Ridge Parkway, Great Smoky Mountains, national and state forests, and local destinations contribute to our growing tourism sector. Local food, craft brewing, and traditional arts are being linked to bicycle tourism in new ways. Emerging industries are also attracted to Western North Carolina by our outdoor recreation environment which helps them recruit a talented workforce.

The region's cities and activity centers, especially colleges and universities, are natural sites for active transportation like bicycling. Colleges and universities are one of our assets and continue to attract and train a dynamic workforce.

Improving bicycle facilities within the region is likely to enhance tourism and provide additional options for access to education and

The following is a list of **COLLEGES** and **UNIVERSITIES** in the area:

- Asheville-Buncombe Technical Community College
- Blue Ridge Community College
- Brevard College
- Haywood Community College
- Mars Hill College
- Montreat College
- South College-Asheville
- Trinity Baptist Bible College
- South College - Asheville
- Southwestern Community College
- University of North Carolina at Asheville
- Warren Wilson College
- Western Carolina University

jobs in our region, strengthening the economic development and workforce development initiatives currently underway in the region.

Public health and the graying of America are also influencing transportation planning decisions. Health Impact Assessments (HIA) allow communities to determine the impact of planned infrastructure improvements on public health. Provision of safe bicycle networks could encourage higher levels of physical activity in our region and improve health indicators such as blood pressure and obesity. Completion of a regional HIA is a recommendation of this plan.

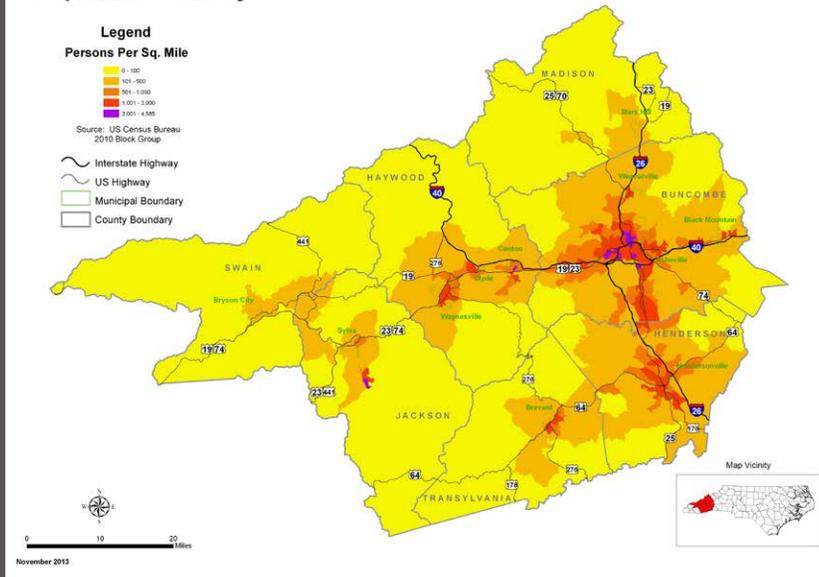
Our senior population parallels statewide and national trends, while some counties in the region exceed the statewide average of population 65 and older (12.9%). Between 2000 and 2010, the 65+ population grew by 27.35%. Today's seniors are seeking alternative transportation options and opportunities to stay engaged in the community. Safe bicycle infrastructure could mean more mobility and social interaction options for all.

Blue Ridge Bike Plan is not the first bicycle planning study in the region. Most recently, Buncombe County Greenways Master Plan, Haywood County Bicycle Plan and Ecusta Rail-Trail study have been completed in the Blue Ridge Bike Plan study area. However, this is the first plan of its kind, focusing on on-road bicycle facilities across such a large area. The following section identifies specific trends, challenges and benefits that exist across the region.

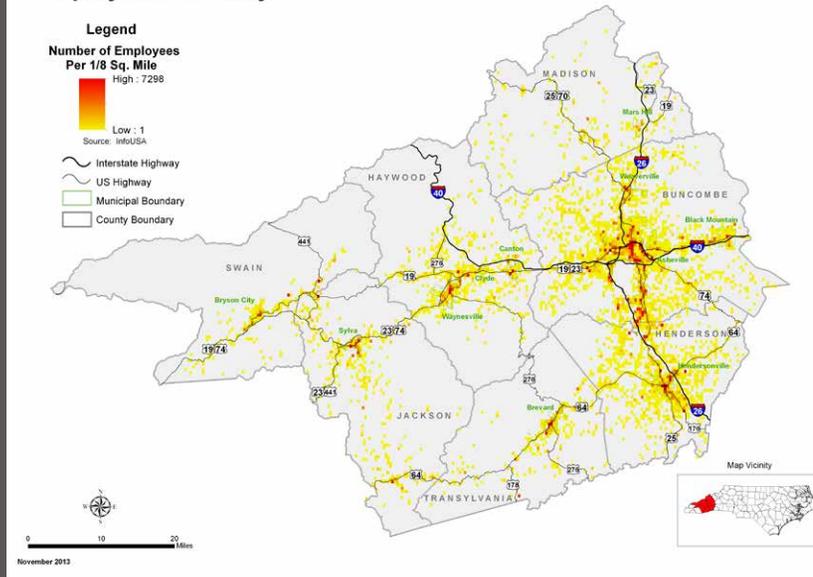
COUNTY OR CITY	POPULATION	POPULATION 65+	% 65+
Buncombe County	154,925	24,463	16.0%
Haywood County	59,036	12,416	21.0%
Henderson County	93,603	19,902	22.40%
Jackson County	40,271	6,084	13.62%
Madison County	20,764	3,666	17.7%
Transylvania County	33,090	8,539	25.8%
Swain County	13,981	2321	16.60%
City of Asheville	83,393	13,633	16.30%
City of Hendersonville	13,137	3,963	30.20%
SEVEN-COUNTY TOTAL/AVERAGE	415,670	77,391	19.01%

DENSITY MAPS

Population Density



Employment Density



POPULATION & EMPLOYMENT

Western North Carolina patterns of development tend to follow the river valleys due to the challenging topography. Historically, the railroads and the roads have always followed the river valleys as well. Population and employment density maps of the region illustrate the concentration of residential and employment locations along the major transportation corridors. The north-south corridor between Hendersonville and Weaverville (I-26), and east-west corridor from Sylva to Black Mountain (I-40 and US 19/23 Smoky Park Expressway) comprise the majority of the development. Additional spurs have developed to include Bryson City and Brevard.

Large portions of the region have very low residential and employment density, resulting in lower potential for bicycle commute trips. In areas with high potential for bicycle commute trips based on population and employment density (i.e. from Asheville to Fletcher), the challenging conditions of bicycling on high-speed, high volume multi-lane arterials without bicycle facilities become a barrier. The street network lacks redundancy and connectivity in many portions of the region due to the topography. As a result, bicycling is currently most viable as an alternate transportation mode inside the more

dense urban pockets with a better-connected street network. These include Asheville neighborhoods inside the I-240/I-40 ring, downtown Hendersonville, Waynesville, Sylva, Brevard and other urban nodes. However, longer bicycling trips for transportation would be more desirable and attainable if safe facilities were provided along the major arterials such as US 25 Hendersonville Road, US 64, NC 280, etc.

BICYCLE COMMUTERS

Under the U.S. Census American Community Survey program, data on commute to work by bicycle are available in five-year data sets. A recent report indicates that in 2012, approximately 0.28% of commuters across the state of North Carolina chose to commute to work by bicycle as their primary mode. This was an increase of 40% from 2005. Nationally, 0.6% of commuters bike to work. Raleigh, North Carolina, has one of the highest bicycle commuter populations in the state (1.0%).

The Commute to Work by Bicycle Share summarizes the percentage of commuters bicycling to work for each county in the study region. The map of bicycle commuters highlights the uneven distribution across the region. The highest percentage of bicycle commuters coincide with urban centers or college/university campuses.



COMMUTE TO WORK BY BICYCLE SHARE

GEOGRAPHIC AREA	PERCENT COMMUTING BY BICYCLE
US Average	0.60%
NC State Average	0.28%
7-County Average (Buncombe, Haywood, Henderson, Jackson, Madison, Swain, Transylvania)	0.287%
Buncombe County	0.495%
Haywood County	0.143%
Henderson County	0.065%
Jackson County	0.086%
Madison County	0.061%
Swain County	0.000%
Transylvania County	0.077%
City of Asheville and immediately surrounding area**	0.602%

US and NC State Average Source - 2012 1-year ACS Data* As cited in the League of American Bicyclists, 2013. We Ride: Analysis of Bicycling in American Cities. Accessed November 2013 from http://bikeleague.org/sites/lab.huang.radicaldesigns.org/files/ACS_report_final_forwebpdf.pdf

County and City of Asheville Source - 2007-2011 5-year ACS Data

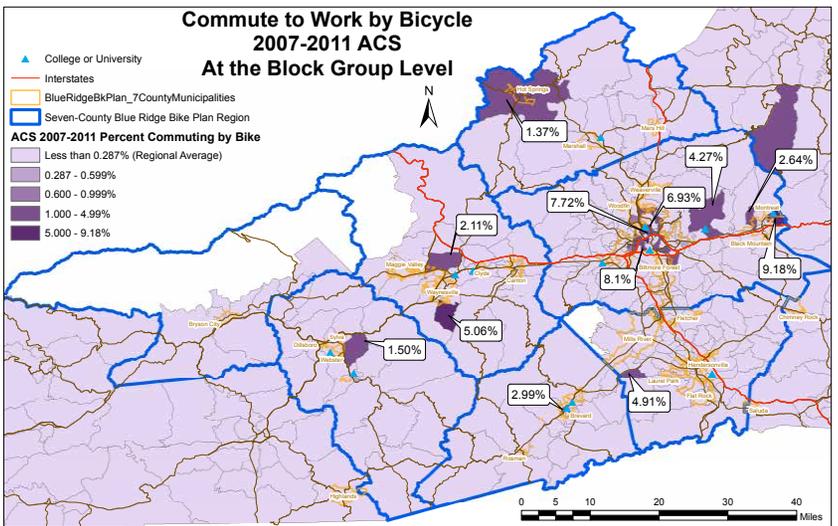
**ACS 2007-2011 Blog Group data were utilized. The block group boundaries do not fall along the municipal boundaries. The number above is a result of selecting all block groups which fall within or intersect the municipal boundary for the City of Asheville, so this includes an area slightly larger than the City of Asheville.

While the American Community Survey data are valuable, the margin of error for these data is fairly high, especially in rural communities. Taking into account only primary commute mode by bicycle undercounts the importance of bicycle trips—many commute trips represent the longest trip that an individual has to take in the course of their typical week, and yet commute to work data account for only 19% of overall miles traveled. Many trips for social, shopping and other purposes can be shorter and more easily accomplished by bicycling. In addition, some bicycle trips can be a destination in themselves (for exercise/recreation) and replace a potential trip to the gym. There is a great potential in Western North Carolina to encourage bicycling for transportation outside of trips to work—for errands, school, shopping, socializing, etc.

COUNTING BICYCLE COMMUTERS

Regular bicycle count data collection remains a challenge in Western North Carolina. Some initial bicycle counts have been collected by the City of Asheville and by the French Broad River MPO, with assistance from volunteers. Additional counts have been collected by staff in the City of Brevard. Below is a table summarizing results based on hand counts performed by volunteers in the fall of 2011. The manual counts allow collection of some important characteristics, such as percent male vs. female riders (78.3% male based on local counts), percent wearing helmets and utilization of bike lanes and riding with direction of traffic.

Automated counters have recently been purchased and have been used in select locations to collect bicycle and pedestrian data.



COUNTY, MUNICIPALITY	COUNT LOCATION AND DATES	Highest 24-Hour Cyclist Count
HAYWOOD COUNTY		
Waynesville	Vance Street near intersection with Walnut Street, July 18 - 24, 2013	4
Waynesville	Richland Creek Greenway near the Waynesville Rec Center, July 18 - 24, 2013	N/A
Waynesville	Richland Creek Greenway near the Waynesville Rec Center, July 26 - July 31, 2013	17

Automated counts have been collected in Buncombe, Haywood, Henderson and Transylvania Counties. The highest pedestrian count was observed on a sidewalk in West Asheville, and the highest bicycle count was observed on a greenway in Carrier Park in Asheville. The list of automated count locations is by no means comprehensive at this point and was selected based on a combination of some likely presence of bicyclists and pedestrians, and a request from local government staff for a count. At the highest bicycle count location, on the French Broad River Greenway in Carrier Park, as many as 187 bicyclists were counted over a 24-hour period. In Flat Rock, as many as 145 bicyclists were counted over a 24-hour period (only counting cyclists traveling on one side of the road). Additional counts, including during fall and spring

timeframes, will be required to get a better picture in the future. In the future, combining manual counts with automated counts could provide more in-depth information on bicycling and pedestrian activity trends.

BICYCLE CRASH RATES

In the absence of high-quality bicycle count data, bicycle crashes can serve as a flag indicating where bicycling occurs and the conditions are dangerous. Below is a figure for the crash data collected in our region from July 1, 2006 to June 30, 2011. A total of 148 bicycle crashes were reported that resulted in injury or fatality.

Right: Bicycle Tube Counter installation on the Oklawaha Greenway in Hendersonville.

Below: An example from the detailed Bike Counters across the region. See Appendix ? for the full listing.



CRASH DATA

144 Injuries
4 Fatalities



Indicate Which Day Used for 14-Hour Cyclist Count	Highest 2-Hour Cyclist Count	Indicate which Day/Time Used for 24-Hour Count	Highest 24-Hour PYRO Combined Bike Ped Count	Indicate Which Day Used for 24-Hour PYRO Count	Highest 2-Hour Combined Bike/Ped Count	Indicate Which Day/Time Used for 24-Hour PYRO Count	Daily Average PYRO Combined Bike/Ped Count	Bike Lane Present (Y/N)	Mult-Use Path or Greenway Present (Y/N)	Downtown/CBD Area (Y/N)
Tuesday, July 23	3	Monday, July 22, 12 noon - 2 pm	N/A	N/A	N/A	N/A	N/A	N	N	N
N/A	N/A	N/A	262	Tuesday, July 23	65	Tuesday, July 23, 8 - 10 am	162	N	Y	N
Tuesday, July 30	5	Tuesday, July 30, 1 - 3 pm	390	Sunday, July 28	85	Sunday, July 28, 1 - 3 pm	231	N	Y	N



According to the National Association of Realtors and Transportation for America, **89% OF AMERICANS** believe that transportation investments should support the **GOAL OF REDUCING ENERGY USE**.

ENVIRONMENT

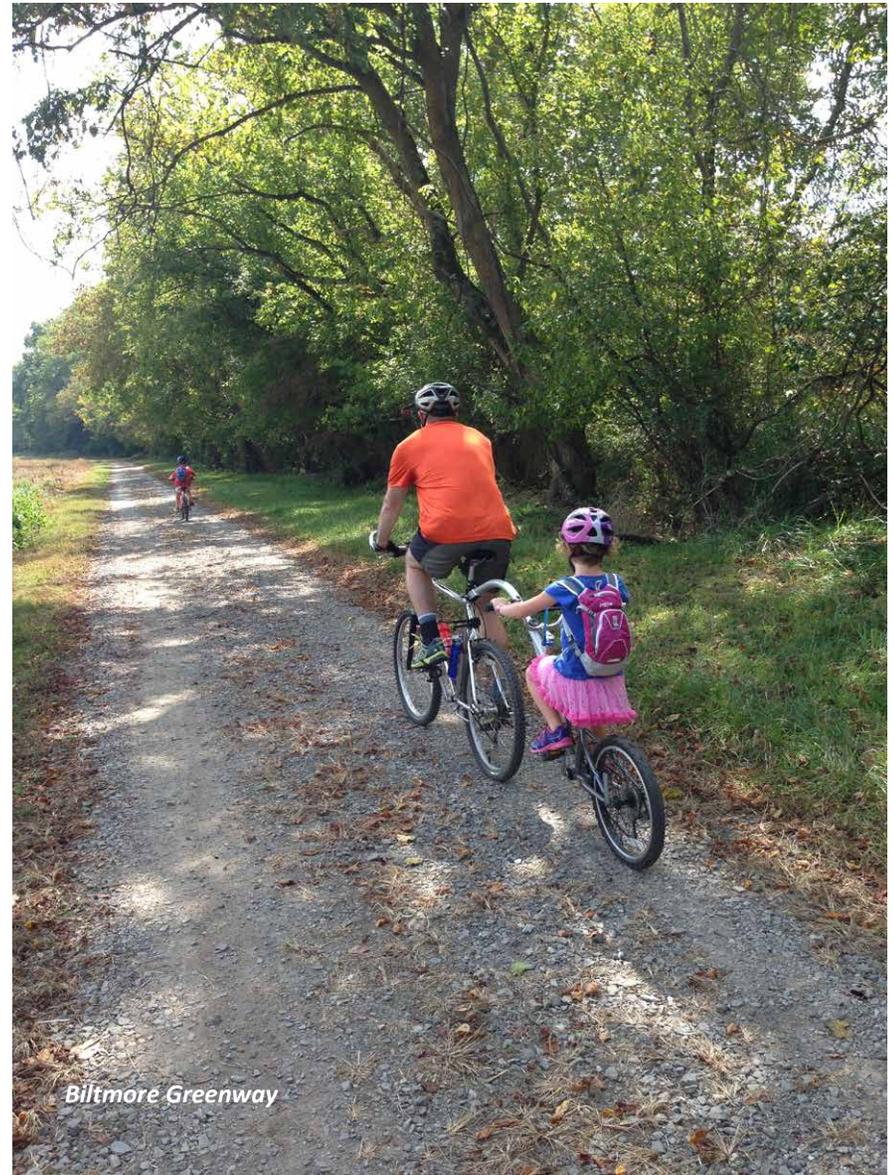
TRENDS

- The Strive Not to Drive event is one of the larger encouragement events in Asheville and Buncombe County. In 2012, 333 individuals with 31 companies participated in Strive Not to Drive, and an additional 138 senior citizens were involved through the Senior Activity Centers. This was an increase of 116% from 218 participants in 2011. An estimated 8054 miles of solo driving were avoided by 2012 Strive Not to Drive participants, saving 4.5 tons of greenhouse gas emissions from reaching the atmosphere.

BENEFITS

- “Trails and Greenways can reduce air pollution by providing safe and enjoyable alternatives to automobiles which reduces the burning of fossil fuels. Greenways improve water quality by creating a natural buffer zone that protects streams, rivers, and lakes preventing soil erosion and filtering pollution caused by agricultural and road runoff.”
- Improved Water Quality: among the different types of bicycle facilities, greenways produce the highest benefits with regards to water quality improvement due to stream buffer effect. When a green buffer is preserved along the river to create a greenway corridor, this greenway buffer typically results in reduced soil erosion and better filtration of stormwater runoff.
- Fuel consumption reduction and resulting air quality pollution reduction: a portion of the trips by bicycle reduce Single Occupancy Vehicle trips, which results in reduced petroleum consumption and improved air quality. In an urban environment, relatively high values can be associated with air pollution reduction due to bicycle and pedestrian

trips when considering that walking and cycling tend to reduce short urban trips. In the U.S. communities that participating in the Non-Motorized Transportation Pilot Program, studies estimate that between 2007 and 2011, bicycling and walking increased by 67 percent and 31 percent respectively. Results indicate that in 2011, residents of the pilot communities walked or bicycled nearly 72 million miles instead of driving, saving over three million gallons of gas.



Biltmore Greenway



- 65% of adults in North Carolina are either overweight or obese. The state is also ranked **5TH IN THE NATION FOR CHILDHOOD OBESITY**.
- Recent reports have estimated the **ANNUAL DIRECT MEDICAL COST OF PHYSICAL INACTIVITY** in North Carolina at **\$3.67 BILLION**, plus an additional \$4.71 billion in lost productivity. However, every dollar invested in pedestrian and bicycle trails can result in a savings of nearly \$300 in direct medical expenses. Source: WalkBikeNC

HEALTH

TRENDS

- The Community Transformation Grant is a regional effort focusing on healthy, active living in WNC. These projects are divided into regions to support local health departments and community priorities
- Healthy Buncombe, a working group under the umbrella of Buncombe County Health Department, is an active partner in local bicycle and pedestrian planning initiatives.
- The Strive Not to Drive event includes active living proponents and raises awareness about the health concerns of physical inactivity.

CHALLENGES

- Most communities do not have a dedicated bicycle and pedestrian planner. County Health Programs often allocate staff time to bicycle and greenway work.

BENEFITS

- Increase opportunity for more active lifestyles, promote safe places to exercise (particularly for seniors), and increase physical and mental well-being.
- Air Quality improvements due to less traffic congestion.
- Lower asthma rates due to improved air quality.



Over 30 students biked and walked to Hominy Valley Elementary during Strive Not To Drive in 2013. Photo from Strive Not To Drive



In the United States, bike commuting **INCREASED** 71% from 2000 to 2009 in the 31 largest Bicycle-Friendly Communities, 62% in the 70 largest cities, and **44% ACROSS THE UNITED STATES**.
Source: WalkBikeNC

MOBILITY

TRENDS

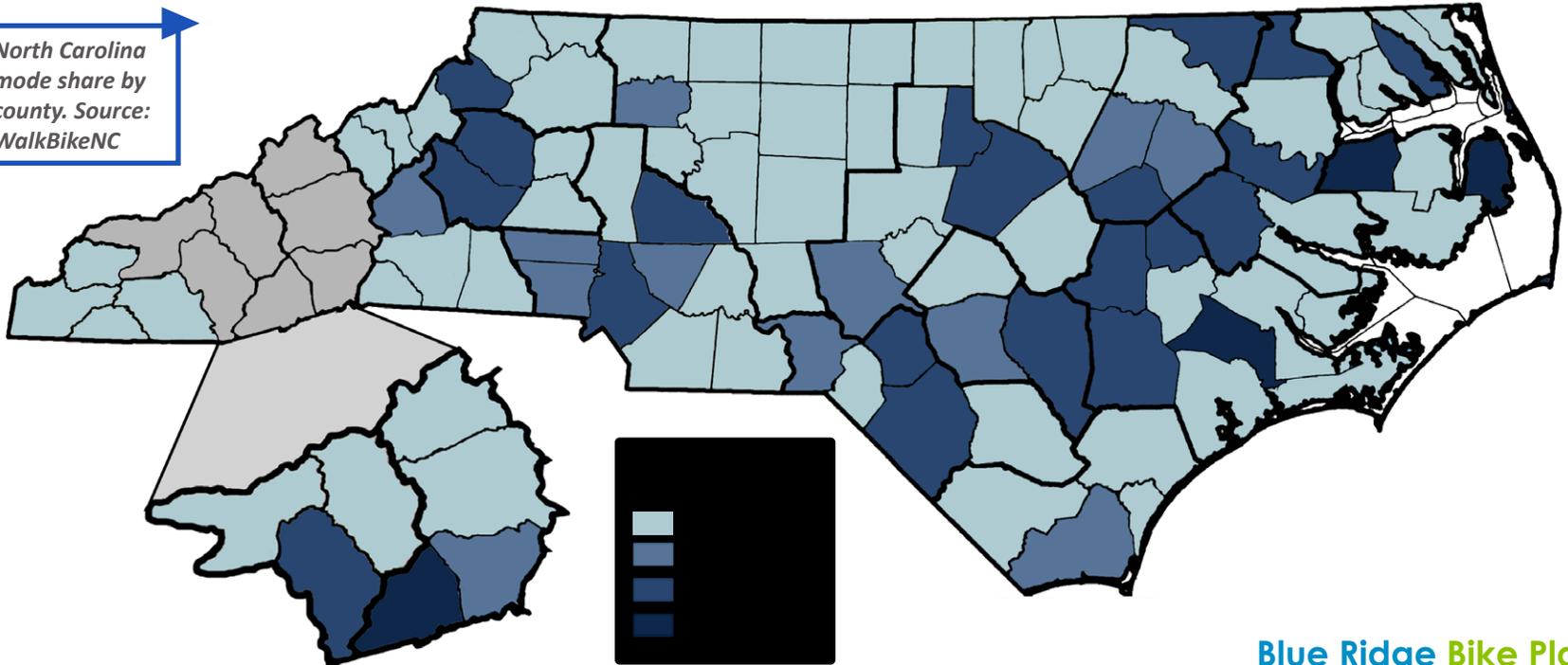
- The City of Asheville has adopted a strong bicycle parking policy: bicycle racks are required for all new commercial and multi-family developments above a duplex size. The City has also installed a number of on-street bicycle parking racks, including at civic locations such as libraries and parks. Bicycle lockers have been installed in all city-owned parking decks; the lockers can be rented out a month at a time. Currently there are 20 bike lockers throughout Asheville. These policies can be used as models for other jurisdictions.
- Bicycles and transit complement each other. Bicycles can be placed on racks on the front of Transit buses (up to 3 bikes on some frames), and bicycle parking racks can be installed

at Transit stations and stops. This is being implemented in Asheville, Hendersonville, and Henderson County.

CHALLENGES

- Most local governments have not adopted a complete streets policy. Many do not have any development ordinances requiring installation of bicycle parking racks in new developments.
- No bike lanes or sharrows currently exist in most jurisdictions. Multi-use paths are present in some communities but are limited due to Right of Way and overall cost.
- Most counties do not have a stand-alone bicycle or greenway plan or a dedicated bicycle and pedestrian planner position. County Comprehensive Plans reference greenways at varying levels.
- NCDOT has identified several designated bicycle routes throughout the region, not all of them are officially signed.
- There are few currently adopted complete streets policies or other policies requiring addition of bicycle racks and bike lanes as part of new development.

North Carolina mode share by county. Source: WalkBikeNC





In North Carolina, there are **10 BICYCLE FATALITIES PER 10,000 DAILY BICYCLISTS** (which ranks sixth worst in the country). Source: WalkBikeNC

SAFETY

TRENDS

- Police officers in North Carolina attend a 40-day training program about the rights and responsibilities of all road users, including bicyclists and drivers of motor vehicles.
- In some counties, staff working on greenways for the Parks and Recreation Department are also involved in other bicycle and pedestrian issues, such as Safe Routes to School, teaching bicycle safety to youth, and annual events. Bicyclists are among the user groups who benefit from greenways and multi-use paths particularly for young riders.
- Healthy Buncombe and Bicycle Haywood NC are two of the groups, along with Blue Ridge Bicycle Club and Asheville Bicycle and Pedestrian Task Force, co-sponsoring bicycle safety classes taught by League of American Bicyclists-certified instructors in the area. These groups can be used as models for future programs.
- A variety of bicycle rodeos for school-aged children take place throughout the year, in large part thanks to leadership from the Blue Ridge Bicycle Club.
- Several towns have received Safe Routes to School grants.

CHALLENGES

- Under North Carolina law bicycles are considered vehicles and are expected to follow the rules of the road. While many do, some do not, causing tensions to escalate with all road users.
- Many cyclists do not know the NC laws requiring lights and safety gear. Bicyclists under the age of 16 are required to wear a helmet. A front white light and a rear red

light or reflector are required for bicyclists riding in dark conditions. For example, the City of Asheville has four bicycle-mounted police officers assigned to downtown Asheville. The Asheville Bicycle and Pedestrian Task Force has been working with the Asheville Police Department to implement outreach to cyclists, where police officers could stop bicyclists observed riding unsafely, recommend modifications (e.g. helmets, lights) and pass out lights. The lights for the most recent program have been donated by the Western North Carolina Bicycle Dealers Association.

- Many roads in rural areas of Western North Carolina today remain at 18 to 20 feet wide. Few roads have shoulders wide enough to fit bicyclists.
- Maintenance should be incorporated into bike facility planning. The City of Asheville has a policy to sweep bicycle lanes twice as often as regular streets get swept. There is no policy for snow clearance, since snow in Asheville is infrequent and rarely stays on the ground more than 24 hours.

BENEFITS:

- Increased bicycle safety due to higher visibility and separate travel lanes.
- Awareness of road rules for bicyclists.
- Increased presence of law enforcement.
- Increased connectivity and safer routes for all users.



Family biking on Haywood Road in Asheville.

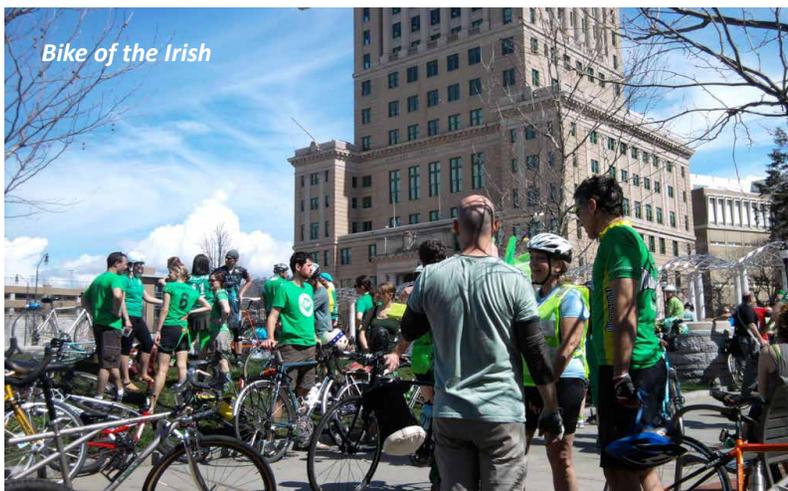


Overall contribution to US Economy - The bicycling industry contributes an estimated **\$133 BILLION ANNUALLY** to the US economy, supporting approximately **1.1 MILLION JOBS** and generating \$17.7 billion in federal, state and local taxes. Additionally, \$46.9 billion is spent on meals, transportation, lodging, gifts and entertainment as a result of bike trips and tours. Source: Outdoor Industry Foundation, "The Active Outdoor Recreation Economy," 2006

ECONOMY

TRENDS

- In the summer of 2012, the first "Cycle to Farm" fully-supported bicycle ride took place, a 63-mile ride connecting Black Mountain to surrounding farms. "Cycle to Farm" has begun branching out and is expected to become an annual event series. Planned for 300 riders, this ride was at capacity in 2012.
- Bicycling weekend events are increasing in population. For example, Blue Ridge Breakaway brings hundreds of attendees to ride in Haywood County on an annual basis with rides between 24 to 100 miles. Proceeds benefit the Haywood County Chamber of Commerce.
- Another example is the Tour de Cashiers, an annual ride through Jackson County (starting in Cashiers, at the southern tip of Jackson County) which takes place in early May and attracts approximately 200 participants. Initially the ride was started in 1992 as an 11-mile ride. A metric century option was added in 2004. Quarter century, metric century and century (100 miles) ride options are now offered.



BENEFITS:

- Communities are looking at the ability of a child to safely walk or bicycle to school or to a local store as an important feature of a desirable neighborhood. Property values in these neighborhoods have been shown to hold value.
- The bicycling industry contributes an estimated \$133 billion annually to the US economy. Supporting approximately 1.1 million jobs and generating \$17.7 billion in federal, state and local taxes. Additionally, another \$46.9 billion is spent on meals, transportation, lodging, gifts and entertainment as a result of bike trips and tours. For example in the Outer Banks, NC, bicycling supports 1,407 jobs and brings an estimated \$60 million annually into the local economy.
- Greenways are proving to be worthy investments. In Upstate SC, the Swamp Rabbit Trail connects the communities of Travelers Rest and Greenville. Dianna Turner, City Administrator to Travelers Rest says, "we looked at this trail as one facet of our efforts to bring people back to Main Street in Travelers Rest to shop, dine, relax, or recreate." Ty Houck, Director of Greenways, National and Historic Resources at Greenville County Recreation District, stated, "Travelers Rest Wal-Mart's bike sales increased by 300%" after the trail opened. Businesses like Williams Hardware located on the trail for the sole purpose of being on the trail, and now have 7 full time employees"
- In Damascus, VA, on the Virginia Creeper Trail, locals and non-locals spend approximately \$2.5 million in Washington and Grayson Counties annually. Damascus has a population of approximately 900. The trail supports 7 bike rental and shuttle services, 40 lodging facilities including an RV Park (within 2 to 17 miles of the town), and 7 restaurants. Damascus, VA meal and lodging tax revenues have shown

an increase, from \$42,000 in 2001/2002 to \$104,150 in 2007/2008. A 60% increase in six years. Business Tax Revenues also increased from \$23,000 in 2003 to \$52,000 in 2008, a 56% increase in just years. In 2009, the revenues surpassed \$55,000.

- Locally, “The Blue Ridge Breakaway”, is a one-day cycling event in Haywood County, with a fee ranging from \$29-\$54. In 2011 (the 2nd year of the event), “Breakaway” drew more than 400 participants. In 2011 efforts began to gather survey data from event participants to quantify the economic impact on Haywood County. The survey participation was low, but from the available numbers, 86% of participants planned to stay in the area over night, with an average party size of 3.3 persons with 2.3 persons riding in the event. The average length of stay for out-of-town participants was 4.3 days, with an average spending of \$30-400/day for accommodations.

Bicyclist relax after the Hotdoggett in 2012.



Cycle to Farm

EMERGING TRENDS

PERFORMANCE MEASURES

Measuring performance of transportation investment is becoming an increasingly important element of Metropolitan Planning Organization and State Department of Transportation planning and programming efforts. Luckily, transportation-based projects, programs and policies are some of the most measurable aspects of the built environment. Organizations—public, private and non-profit—can help the region track the progress of investments and policy changes stemming from the Blue Ridge Bike Plan.

Measuring performance of bicycle-related efforts is increasingly important as the French Broad River MPO, Land of Sky RPO and Southwestern RPO generate local prioritization methods for transportation investments, including bicycling. Currently, there is limited local data related to bicycling to incorporate into these prioritization methodologies. The performance measures identified in this section include several metrics that can assist in these ranking methods.

It is important to note that performance should not be confused with prioritization. Performance is measured as a change over a period of time, not a ranking of strategies or projects. Performance for bicycling and related endeavors can fall into many categories, each of which is in turn measured by some criterion. Prioritization may use data generated from measuring performance, while performance of a multi-modal transportation system can be measured to determine funding priorities.

Performance measures are also useful in the following circumstances:

- Illustrating the importance of bicycling as part of a cohesive multi-modal transportation investment strategy.
- Identifying the overall performance of not just bicycling in terms of number of bicyclists, but participants in a variety of education, encouragement and enforcement programs.
- Reporting to committees and elected officials as to the state

of bicycling in the region and progress in implementing the Blue Ridge Bike Plan.

- Showcasing the importance of bicycling to organizations and agencies such as NCDOT, economic development commissions, chambers of commerce, county and municipal officials, and non-profits.
- Incorporating data collected to measure performance in grant applications and other funding efforts.
- Providing readily-available data for communities pursuing Bicycle-Friendly Community status.

The table on the following page contains several potential performance measures that can be used to track progress toward a more bikable Western North Carolina.



The following **COMMUNITY** and **BUSINESSES** in the area have received Bicycle-Friendly awards:

- | | |
|--|--------|
| • City of Asheville | Bronze |
| • Shuler Funeral Home / Forest Lawn Funeral Home | Bronze |
| • Liberty Bicycles | Bronze |

PERFORMANCE MEASURE	FREQUENCY (EVERY X YEARS)
ENGINEERING	
Jurisdictions with Complete Streets Policies/Ordinances	1
Percentage of Bicycle Facilities Addressed from Plan	2
Miles of Designated Bicycle Routes	2
Miles of Bikable Shoulders / Bicycle Lanes	2-5
Miles of Multi-Use Trails / Greenways	2-5
Miles of Mountain Bike Trails	2-5
Number of Intersections Improved for Bicyclists	2-5
Number of Bicycle Racks	2-5
Miles of Signed Bicycle Routes / Share the Road Routes	2-5
Miles of Scenic Bikeways	2-5
ENCOURAGEMENT	
Participants in Bike to Work Rides	1
Number of Bicycling Events / Participants in Bicycling Events	1
Schools with Safe Routes to Schools Programs	1-3
Safe Routes to Schools Events & Number of Participants	1-2
Number of Bicycle Route Maps Distributed	1
ENFORCEMENT	
Number of Bicycle Crashes (by location, normalized for population & other features)	1-3
Meetings with Law Enforcement	1-3
Public Service Announcements	2-5
EDUCATION	
Bicycle Rodeos / Participation	1-2
Adults in Traffic Skills 101 & other League of American Bicyclists courses	1-2
Students participating in Driver's Ed module	1-2
EVALUATION	
Bicycle Counts at Benchmark Locations	1-2
Economic Impact Survey	Every 5 years
Funding allocated to Bicycle-related Expenditures (MPO TIP, Municipal Budgets, Non-profits)	1 to 2
Corridor Design & Safety Audits for Bicycling	As needed
Incorporation of BRBP recommendations with other Municipal, Corridor & Regional Plans	Ongoing
Incorporation of BRBP recommendations into design and construction projects	Ongoing
Report on progress of BRBP Recommendations and Performance Measures	Every 2 years





Photo Courtesy of Beth Brown Photography



BIKE ROUTES

NORTH CAROLINA BIKE ROUTES

Two state bicycle routes exist within the Blue Ridge Bike Plan study area and NC 2 has recently been rerouted:

- NC 2 – Mountains to Sea is currently routed along US 23/74 and US 19/23 (previously routed along the Blue Ridge Parkway) through much of Western North Carolina. In total, the route connects Murphy to Manteo and spans 700 miles across the state;
- NC 8 – Southern Highlands spans 120 miles, crossing Transylvania, Henderson and Polk Counties with a 15-mile descent of the Blue Ridge escarpment. It begins at the Blue

Ridge Parkway and US 276. The route links Brevard, Flat Rock, Saluda and Tryon.

North Carolina's bicycle route system was developed on the heels of the 1974 Bicycle and Bikeway Act and was one of the first of its kind in the United States. NC 2 – the Mountains to Sea route is considered the main artery of the system, but is oftentimes confused with the Mountains-to-Sea Trail, a hiking trail that links Clingmans Dome in the Great Smoky Mountains National Park to the coast of North Carolina.

In 2013, NCDOT's WalkBikeNC effort was tasked with making recommendations to modernize the state bicycle route system. The initial routing in the 1970s located state bicycle routes along corridors considered safe for cycling based on 1970s development patterns.

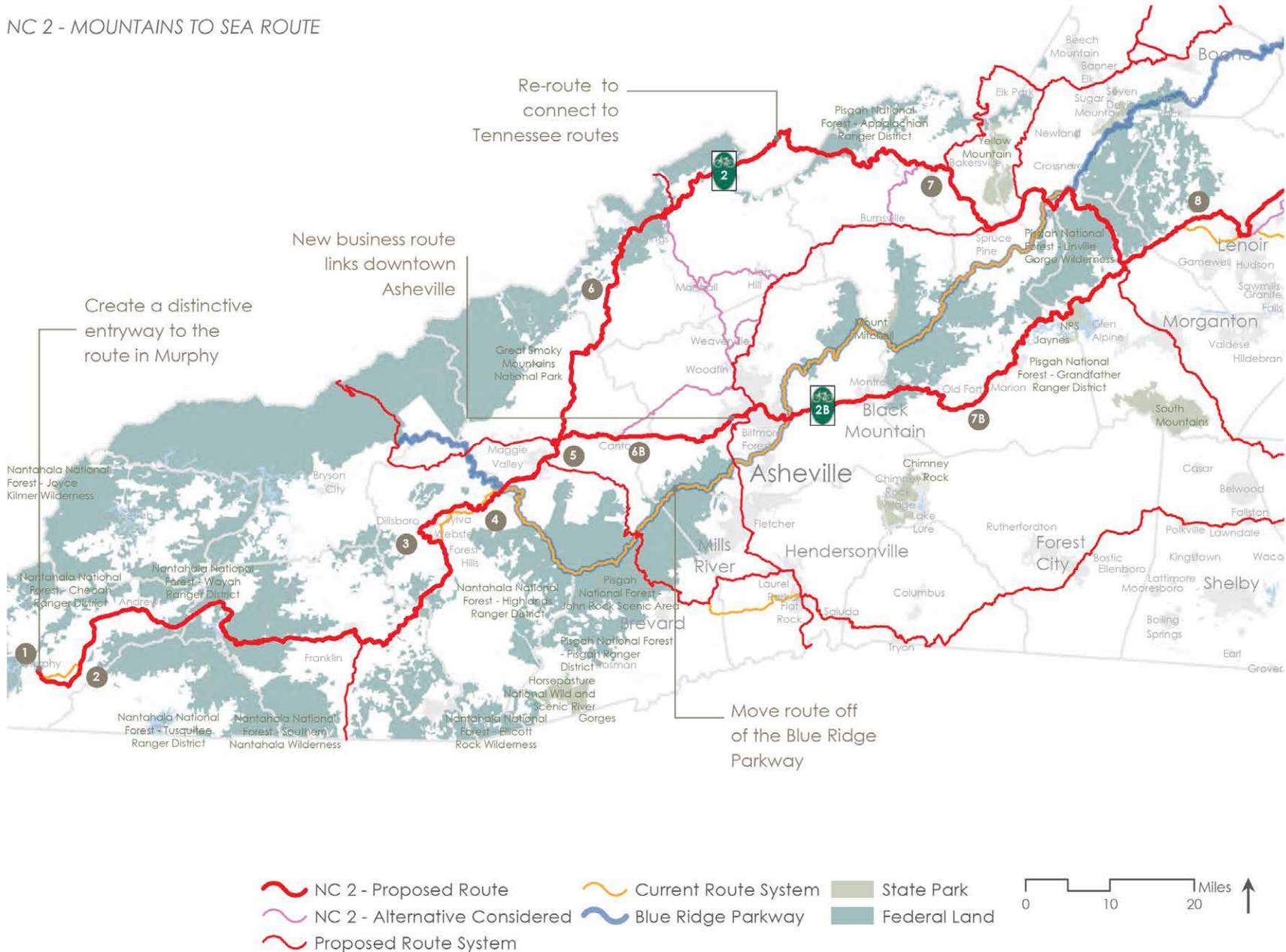
NC 2 - MOUNTAIN TO SEA ROUTE

ID	SEGMENT	CURRENT CONDITIONS	RECOMMENDATION
2	Murphy to Cullowhee	Quality route from Murphy past Cullowhee to the intersection of 107 and River Rd. While a back route alternative exists going through Cullowhee, which the higher-traffic current route on 107 skips, 107 has bike lanes until River Rd.	Re-route small section east of Murphy, utilizing new US 64 rather than Old US 64 - use NC 141 to reconnect with current NC 2. Show links to Cullowhee.
3	107 & River Rd to north of Sylva	Current NC 2 on 107 north of River Rd is a high traffic section with little to no space for cyclists.	Eliminate this current section. Re-route via River Rd to the west. Although this alternative adds distance, it is more scenic and connects through downtown Sylva.
4	North of Sylva to Balsam Gap and the intersection of US 23/74 and the Blue Ridge Parkway	US 23/74 Expressway is carries high volume and high speed traffic	Re-route using parallel county roads that are now paved and offer an alternative to the current route on the US 23/74 Expressway toward Balsam Gap.
5	Balsam Gap heading northeast from the intersection of US 23/74 and the Blue Ridge Parkway to Lake Junaluska	Existing route runs along the Blue Ridge Parkway. A lack of shoulders, pavement deterioration, and significant touring traffic make this road difficult for cyclists. In addition, the Blue Ridge Parkway is a well-known signed route, so those cyclists interested in riding it can easily access information about the route whether or not it is a designated state bike route.	Re-route NC 2 off of the Blue Ridge Parkway. Route through Waynesville, Lake Junaluska, Clyde, and Canton. From west to east, take Old Balsam Rd from near Balsam Gap toward Waynesville. From east to west, must take US 23/74. If bicycle facility improvements are implemented along the N Main St corridor in the future, consider utilizing the N Main St corridor through Waynesville rather than the greenway.
6	Lake Junaluska to Spruce Pine via Tennessee	Tennessee is currently updating their state bike route system and interested in establishing connections to North Carolina's updated statewide bike route system. This would provide a link in addition to linking scenic, rural, and rugged mountainous terrain in western NC.	Route on NC 209 north from Lake Junaluska to Hot Springs. Significant climbing but spectacular route. From Hot Springs, head north through very scenic but challenging route to Spruce Pine via Tennessee connection and Bakersville, NC. This skips Asheville, Weaverville, and Burnsville but serves as a regional connector to eastern Tennessee and rural western NC. Aligns with segment 7 of the (Draft) High Country Regional Bike Plan route from Bakersville to Spruce Pine

NC 2 - MOUNTAIN TO SEA ROUTE

WalkBikeNC details the re-route of NC 2 - Mountain to Sea Route in the table shown on page 40 and the map below.

NC 2 - MOUNTAINS TO SEA ROUTE



BRBP



Growth in the state over the past 40 years has caused the need for changing these initial routing assumptions as traffic volumes have grown and investment in bicycle facilities (e.g. shoulders or bicycle lanes) along state bicycle routes has been limited.

A major change for Western North Carolina is the re-routing of NC 2 – Mountains to Sea to move the route off of the Blue Ridge Parkway and eliminate confusion for travelers given the existence of the Mountains-to-Sea Trail for hiking. The new route of NC 2 follows US 23/74 which is a fast moving five-lane highway.

LOCALLY-DESIGNATED STATE BIKE ROUTES

In Western North Carolina, Henderson, Transylvania and Macon County each have a system of state-designated routes with special signage to mark recreational loops. These routes are typically designated with double-digit route numbers. Communities have expressed interest in identifying similar routes in other counties. Currently, there is no set process for this designation but getting them identified and designated has typically followed this approach:

- Identify popular loop or “out and back” recreational bicycle routes that begin/end in towns, at popular meeting places such as regional parks, or at other state-designated bicycle routes. Local cue sheets are a good start to identify these routes.
- Request consideration for designation and signage from the Bicycle and Pedestrian Transportation Division and meet with local NCDOT Division staff to refine route recommendations.
- Seek funding through existing NCDOT sources or local tourism development authority (TDA) sources to purchase and install signage.
- Promote the routes.

A special section on Scenic Bikeways, which are similar but have economic development goals beyond what has typically occurred with state bike routes or scenic byways, is included in the next section of the Blue Ridge Bike Plan.

Top: WalkBikeNC illustrates the evolution of goals for identifying and promoting the state bicycle route system.
Bottom: Locally-Designated State Bicycle Route Signage in Macon County

1975 System Goals

- Low Traffic Volumes
- Low Speed Limits
- Good surface conditions
- Wide lanes or shoulders
- Minimal grade and curvature
- Connect to points of interest
- Connect to services

2013 System Goals

- Provide suitable roadway conditions: traffic volumes, speed limits, surface, lane width, shoulder width, grade, and curvature
- Connect to points of interest and services
- Connect major urban centers
- Link the system to state parks and other significant tourism attractions
- Integrate the system into regional and local route networks
- Provide detailed, easy-to-access online route information
- Provide highly visible signage and wayfinding to routes and along routes
- Coordinate with other state and national bike route systems



A SCENIC BIKEWAY IS DEFINED AS:

A designated route suitable for bicycle travel that has intrinsic scenic, historic, and/or cultural values, typically connecting small towns and rural areas on low volume roadways for purposes of promoting economic development in small towns and rural areas.

SCENIC BIKEWAYS

Scenic Bikeways are gaining momentum in the United States as bicycling is increasing and bicycle-based tourism has become an economic development strategy for states, regions, local communities and chambers of commerce. The idea of Scenic Bikeways in Western North Carolina emanated from work in Haywood County stemming from the county's bicycle plan and a visit from Russ Roca and Laura Crawford of *The Path Less Pedaled* to Haywood County. *The Path Less Pedaled* is a bicycle touring, blog and advocacy effort that has been working with Travel Oregon to designate and promote Scenic Bikeways.

Scenic Bikeways are similar to Scenic Byways in some ways:

- Routes have intrinsic value beyond its ability to move people through it;
- Both promote seeing and doing things at a slower pace than pass-through travel.
- Both are intended to capture economic activity along a scenic route.
- Both highlight area attractions and natural features.
- Both include signage and special publications to promote attractions and businesses along the route.

But there are also several differences:

- Scenic Byways, particularly in North Carolina, primarily follow state highways and other cross-regional routes; Scenic Bikeways are better suited for local routes or routes parallel to state highways to allow bicyclists to escape from high speed and higher volume roads and streets.

- Scenic Bikeways promote a slower pace of travel, thus resulting in the opportunity for higher economic return per individual than a Scenic Byway. A motorist traveling along a 120-mile Scenic Byway can cover the entire route in half a day and might stop for a meal or gas along the route. A bicyclist traveling that same route will require, at minimum, a full-day (for the most hardy cyclists) to cover that length (two or three days is more likely), prompting the need for an overnight hotel stay and additional meals compared to the motorist.
- Many Scenic Bikeways are designated as loop routes or have loops within them so bicyclists can embark on their journey and return to the same place, particularly if they reach the destination to begin their journey by car.
- Scenic Bikeways should have special programs with local businesses to make accommodations and provide supplies for bicyclists to optimize the Bikeway's economic potential.

TOWARD SCENIC BIKEWAYS IN WESTERN NORTH CAROLINA

The Blue Ridge Bicycle Plan was tasked by the North Carolina Department of Transportation (NCDOT) to identify parameters by which Scenic Bikeways could be established in the state, which stemmed from a request from Haywood County's Economic Development Commission to consider allowing establishment of local Scenic Bikeways. The remainder of this chapter outlines some considerations and methods to establish Bikeways in a model similar to what has occurred in Oregon and inspired by *The Path Less Pedaled*. In North Carolina, the state DOT manages all public roads in unincorporated areas, which is where most of the mileage along Scenic Bikeways would be located. Some streets managed by towns and cities could be along Bikeway routes.

It is important to note that the designation of a Scenic Bikeway should not be seen strictly as a transportation endeavor by a transportation agency along a transportation route. Churchill Downs is a horse racing venue but it is not famous because it is a race track; there are hundreds of those just as there are hundreds of miles of roads and highways. Churchill Downs is famous because once a year it hosts the most famous horse race in the world, the Kentucky Derby. People flock to Churchill Downs for the experience



of the Kentucky Derby; the remainder of the year it is just another race track. The Scenic Bikeway should be seen as the Kentucky Derby for its attractions and the reason why people come to ride it; the roads are simply the venue.

A Scenic Bikeway can and should differ from a state-designated bicycle route, of which there are many in North Carolina. Many of the state bicycle routes are designated along state and US highways to link town to town in a similar function as state highways. In some areas, the state bicycle routes follow local roads, but that is not the norm. Primary state bicycle routes are not loops (some secondary state-designated bicycle routes in places such as Macon County do form loops). A Scenic Bikeway should be seen as a local bicycle route that links towns and natural areas and could link one county to another, but is not likely to connect regions like many state-designated bicycle routes.

Highway agencies and municipal departments will likely be required to accept signage along a Scenic Bikeway to designate the route, but much of the other activities to effectively promote a Scenic Bikeway requires participation and support from chambers of commerce, tourism boards, economic development organizations, local businesses, bicycle advocacy organizations and individuals.

Once the Blue Ridge Bicycle Plan is adopted, it is recommended that NCDOT and Land of Sky Regional Council convene a working group to identify more specific actions to designate a pilot Scenic Bikeway (or set of Scenic Bikeways) in Western North Carolina.

ELEMENTS OF A SCENIC BIKEWAY

As noted above, a Scenic Bikeway encompasses much more than just the roads and streets along which it is designated. In fact, if a community wanted to designate a Scenic Bikeway for promotional purposes only, it would not need any type of buy-in or support from the DOT or a local government. An example of this are cue sheets published by groups such as the Blue Ridge Bicycle Club. While cue sheets are important and some visitors do seek them out when planning a ride in the area, they are limited to route maps and may advertise existing businesses but will not cohesively brand a corridor to help attract new businesses into the local economy.

The following steps are essential in designating, promoting and maintaining a Scenic Bikeway.

IDENTIFY THE ROUTE.

Local cyclists, visitors (if you can access them) and community leaders should be engaged in identifying suitable routes for Scenic Bikeways. As noted earlier, the route should be either a loop or a linear route that begins and ends in a community with services to accommodate bicyclists. Priority should be given to routes that link communities as direct as possible but balanced with considerations for motorized vehicle speed, volume and constrained areas. In some cases, a short distance for travel may be required along heavier traveled highways, particularly in the mountains, in order to link the route. Alternative routing options should be identified, if available, to help determine which route options have the most potential to designate the safest route, attract visitors, link communities and promote economic development. Off-road routes, including gravel roads and multi-use trails can and should be considered as part of the Bikeway or as alternate routes.

IDENTIFY ATTRACTIONS, BUSINESSES AND OTHER NOTABLE FEATURES ALONG POTENTIAL ROUTE(S).

A Scenic Bikeway is all about the features along it. In tandem with identifying the route, the features along the route should be identified to tell a story. Scenic Byways are organized because communities want to promote their natural, cultural and historical assets; the same is true for Scenic Bikeways. In Western North Carolina, the mountains offer many scenic vistas, waterfalls, short hikes, mountain bike trails and historical features that make it an ideal area for Scenic Bikeways. The attractions along the Bikeway should lead to identifying the most preferred route and be evaluated for their potential to attract bicyclists, not just general visitors.

Once the scenic values of the route are identified, the next step should include identifying businesses and services along the route, with particular attention given to the needs of bicyclists of all abilities. Places to eat, replenish supplies, seek shelter from a storm, camp or stay overnight, shower and find entertainment are all important to consider (some more than others). For example, a Scenic Bikeway that does not have services (e.g. a convenience

store) for more than a 30-mile stretch is a challenge for many bicyclists who cannot ride that distance without re-stocking supplies or those on a day trip who don't want to carry such supplies.

TEST THE ROUTE.

Once the route and alternative routing options have been identified, it is imperative to test the route. Testing the route by riding it not only evaluates the basic feasibility of the route, but also helps communities identify features, problem areas and other opportunities along the route. In testing the route, a broad cross-section of bicyclists should be recruited to assist. For example, a long-distance road cyclist may be able to cover a 60-mile Scenic Bikeway in three or four hours but a family or a group of older adults may take all day or choose to stop at the midpoint. Getting feedback from different user types is also important to understand their needs. How often do they need water? Are they comfortable climbing the hills and descending from them? What do they perceive as challenge areas that should be documented for publishing in Scenic Bikeway promotional materials? Where do they feel uncomfortable riding? Are there places to install "Fix-it" stations and bicycle parking at popular attractions?

Logical termini for daylong trips should be identified and considered when designating and testing the route. If there is a gap of more than 20 miles between towns, campsites, or stores to replenish supplies, then an alternate route may be more suitable for designation.

SEEK DESIGNATION OF THE ROUTE.

Once the route and attractions have been identified and tested, a preferred route should be identified to work with the DOT and municipalities to develop an understanding of the route. There may be an alternate route or several deviations to see different sites. If Scenic Bikeways are to be a concerted effort by the DOT and travel groups, then an official designation process should

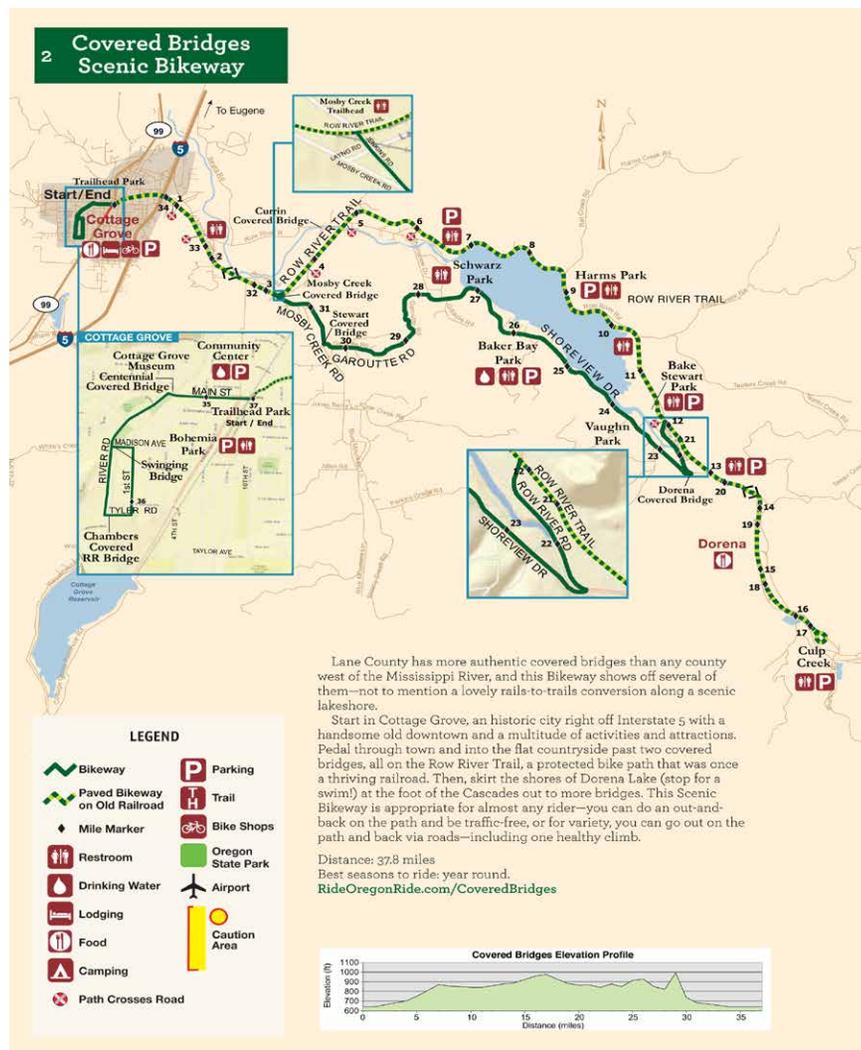
Scenic Bikeways T-B: Oregon (photo by The Path Less Pedaled); Kristin Armstrong Bikeway in Boise, ID (photo by Don Kostelec); Sonoran Bikeway in Phoenix, AZ (photo by Don Kostelec)





occur. It is important to note however that a Scenic Bikeway's designation should not require the physical route to meet strict engineering criteria. While transportation agencies seek consistency in how motoring routes are signed and designated, Scenic Bikeways should be allowed some level of local identity and designation, even if they are part of a statewide Scenic Bikeway system. The uniqueness of each route is what sets it apart from others and this uniqueness should be enhanced and promoted.

Scenic Bikeway Route Map from the Oregon Scenic Bikeway Guide



NAME THE ROUTE.

Scenic Bikeways should tell a story through the experience of those who use them. Ideas related to the naming of the Bikeway will likely emerge during the identification of the route and attractions as well as testing of the Scenic Bikeway route. The name of the Scenic Bikeway is probably just as important as the route itself. It is what identifies the route, attracts bicyclists to ride the route and entices local businesses to support bicycle tourism.

During the evaluation of attractions, the Scenic Bikeway should be considered for how it fits into categories for Bikeways or Byways. Is it the natural features along the route that make it unique? Is the value of the Bikeway realized through something historical or cultural that happened or occurs along the route? Either way, the naming of the route is the first step in telling the story of the route.

Bikeways can be named for people, places or things. In Oregon, the Old West Scenic Bikeway highlights small towns in eastern Oregon that evoke a sense of pioneering by bike while the state's Covered Bridge Scenic Bikeway showcases a route in an area with more covered bridges than any place in the western US. The Kristin Armstrong Bikeway in Boise, Idaho, makes a 4,000 foot climb that is the favorite training ride of the local two-time Olympic Gold Medal cyclist for which it is named. The Sonoran Bikeway near Phoenix takes bicyclists through scenic desert landscapes in the Sonoran Desert and along the South Mountain preserve.

MAP AND SIGN THE ROUTE.

Mapping the route is an obvious step for promoting the Scenic Bikeway. In the mapping effort, special attention should be given to how the route is configured, what preferred directions of travel might be for loop routes, where challenge areas exist, where attractions are located and where businesses are present along the Bikeway. The image below is an example of a route map from Oregon's Scenic Bikeways. It includes features such as:

- Route description;
- Route profile;
- Difficulty, in terms of terrain, routes, alternate routes and/or route segments;

CYCLE-FRIENDLY BUSINESS PROGRAM FOR THE CONFEDERATION TRAIL ON PRINCE EDWARD ISLAND

- Local street names;
- Inset maps for key intersections and within towns;
- Identification of destinations, attractions and services; and
- Type of route/surface (e.g. paved road, gravel road, multi-use trail).

The signing of the route involves two major efforts:

1. **Route insignia:** It is recommended that each Scenic Bikeway seek to brand itself with a unique name, logo and signage. There are different approaches to doing this and ultimate authority over the type of signage may rest with NCDOT. A unique logo for a Scenic Bikeway is what sets it apart from other signage along the corridor and can help raise awareness of the presence of bicyclists. In the same manner that many towns are now installing unique wayfinding signage along streets and highways for visitors, Scenic Bikeway signage should be viewed in a similar way.
2. **Wayfinding:** The signage along the route is most important to help users navigate the route. Placing bikeway signage along a route should occur at regular intervals (at least every one mile) along the route and at intersections where signage is accompanied by directional arrows. It is critical to note the importance of installing signage along the route and not just at intersections. When bicyclists are riding along unfamiliar routes they seek comfort in knowing they are still on the route. Signage can be vandalized, stolen or knocked over; regularly-placed signage tells the bicyclist they are still on the route and did not miss a turn.

If special signage is accepted, communities and organizations promoting the Bikeway should consider the maintenance of signage to be their responsibility and not the responsibility of the state DOT. The benefit of this is that the design (within certain parameters) is led by the local community and sign replacement is more of a priority. If NCDOT opts for “white on green” route signage that is similar to what is placed along state bicycle routes, then sign maintenance should be the responsibility of the DOT. Replacement of missing signs along the route should be seen as a priority for whichever organization maintains it.

Quality Tourism Services is an independent, non-profit incorporated company which combined inspection/rating service to Prince Edward Island tourist establishments. Accommodations, campgrounds, that rent nightly or weekly, must be licensed to operate in PEI.

The “Cycle Welcome” program is a program that recognizes businesses that take the needs of cyclists into consideration and make their properties welcoming and easy for our visiting cyclists to use. Regardless of the type of tourism or retail property you operate, you can participate and welcome this growing visitor sector.

Criteria for the Program:

- secure bicycle rack or secure storage
- information and maps of local bike trails and Confederation Trail made available
- information on local bicycle repair and rental outlets as well as regional tourist information centers
- pump and tools for making minor repairs
- first aid kit
- secure, covered location to store bikes at night
- if food is served, nutritional needs taken into consideration including offering generous portions of fruits and vegetables as well as a selection of high carbohydrate dishes
- potable water available to replenish supply or water for sale
- a place to camp, even without a reservation, if visitor is traveling exclusively by bicycle
- a covered shelter for meals
- upon request, provide temporary storage of personal belongings

Please refer to the map(bike symbol) for accommodations/eating establishments who are part of the cycle friendly program.



PROMOTE THE ROUTE.

As noted earlier, the Bikeway should not be seen only as its route but the attractions and manner in which it is promoted. A major goal of designating Scenic Bikeways is to attract a new type of visitor to an area to dine at local restaurants, stay at local hotels and campgrounds, and patronize other area businesses. In Haywood County, BicycleHaywoodNC has produced banners to identify local businesses who support bicyclists as “Bicycle Friendly Outposts.”

Methods to promote the Scenic Bikeway include:

- Publishing brochures and route guides for the Scenic Bikeway that include the insignia for the route, maps and other route information;
- Placing kiosks containing route maps at parks or Bikeway “park-and-pedal” lots where bicyclists are likely to begin their journey;
- Recruit businesses that will support bicyclists through efforts such as stocking bicycling supplies (e.g. tubes), providing secure bicycle parking, allowing bicyclists to take refuge during inclement weather or giving bicyclists priority reservations for campsites or rooms;
- Finding online travel sites and smart phone apps that target bicycle tourism interests;
- Developing a state or local Scenic Bikeway website, which can be its own independent site and part of a local chamber of commerce or tourism board’s online presence;
- Conducting events along the Scenic Bikeway, such as cycling events, family rides, camping trips, guided tours, culinary tours; and “sub 24 hour overnight” (S240’s) trips; and
- Integrating the Scenic Bikeway and bicycling themes into other promotional materials.

MAINTAIN AND SUPPORT THE ROUTE.

While major maintenance activities such as repaving and adding shoulder or bike lanes are the responsibilities of the DOT and municipalities, other maintenance practices along the Scenic Bikeway should be conducted by local organizations and volunteers. Sweeping of shoulders, removal or trimming of roadside vegetation, conducting a regular sign inventory to fix or

replace signs, and providing input to highway agencies on how to conduct bicycle-friendly maintenance practices are roles these organizations and volunteers can play in promoting the Bikeway.

When construction occurs along a Bikeway, it is important to notify users that the route is under construction and may, at times, be impassable for bicyclists. It is important to identify bicycle detour routes and update online information when this occurs.

MEASURE USAGE, SURVEY USERS AND BUSINESSES.

Before and after the Bikeway is established, conducting user counts and user surveys are important efforts to document the popularity of the route and identify ways to enhance it. Businesses along the route can also be surveyed to gauge how much economic impact they have experienced through the Bikeway designation. Feedback from users is also important to identify areas where they perceive problems or have experienced harassment from motorists.

RECOMMENDATIONS FOR PILOT SCENIC BIKEWAY ROUTES

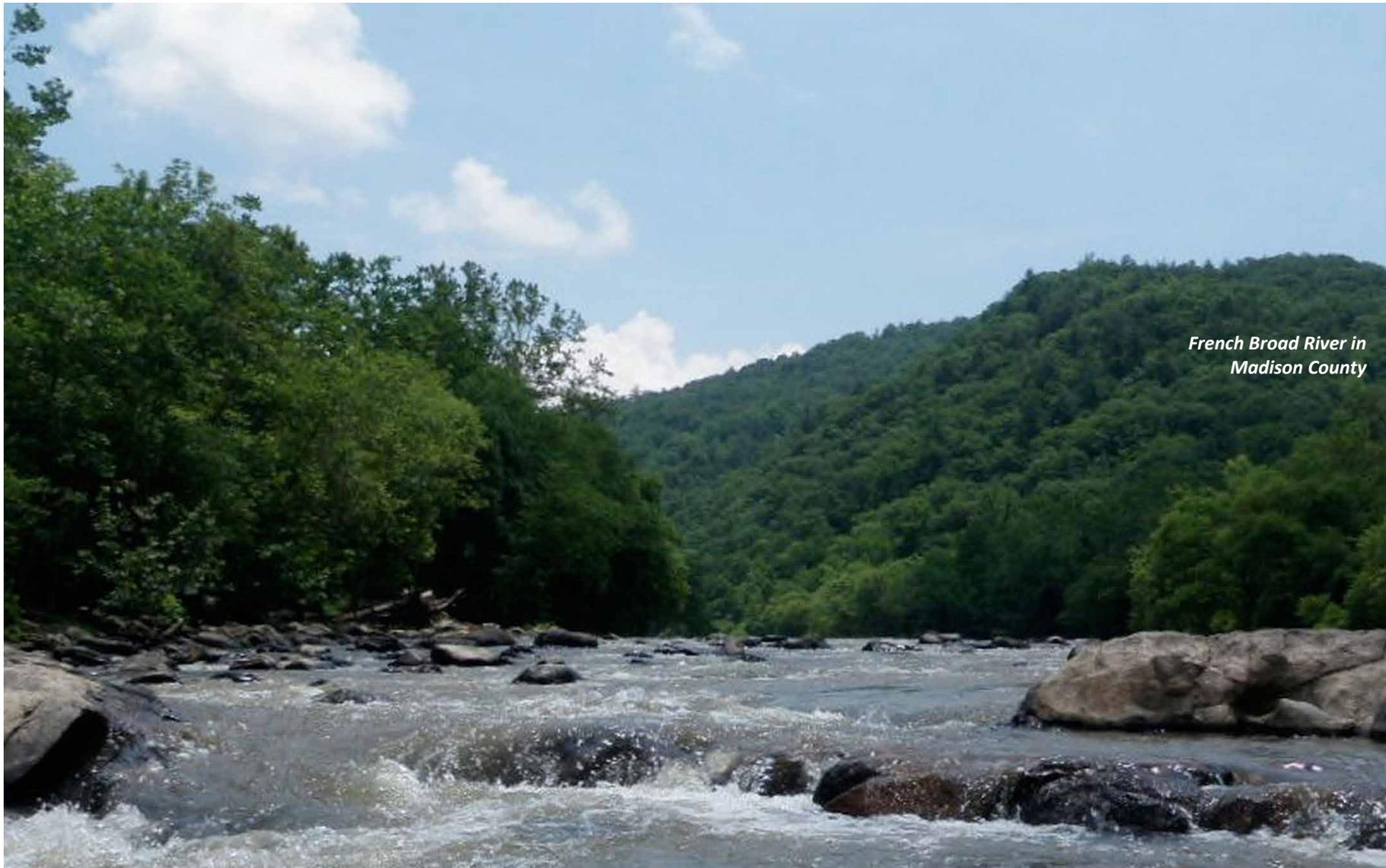
It is not recommended that a full system of Scenic Bikeways be designated until a select number of routes can be piloted to better identify methods to establish and promote the Bikeways. Based on experience, feedback from bicyclists and previous efforts in Western North Carolina, the following corridors should be considered for a pilot effort to designate Scenic Bikeways:

- **NC 251 FROM ASHEVILLE TO MARSHALL ALONG THE FRENCH BROAD RIVER:** This route is the most popular recreational bicycling route in Western North Carolina. Its proximity to Asheville drives much of its usage and it is considered a desirable route due to its relatively flat route along the river, scenic value and low volume of vehicular traffic on weekends. Ledges Park in unincorporated Buncombe County is a popular starting point along the route to and from Madison County. The Bikeway would be a 21-mile “out and back” route from downtown Asheville to Marshall and has several alternative routes to create loops on the return journey. Services for bicyclists between Asheville and Marshall are limited.

- **PIGEON RIVER VALLEY LOOP:** This Haywood County route has many roads that are suitable for a wide array of cyclists, including routes along the Pigeon River from Canton to the Bethel Community. This Scenic Bikeway can be a 45-mile loop that connects to the Blue Ridge Parkway, or a flat 11-mile loop to Canton and back. Bethel is home to the region's first locally-designated Bicycle Friendly Outpost—Bethel Grocery—which stocks supplies for bicyclists and serves as a hub for bicyclists to park. From here, bicyclists can climb to the Blue Ridge Parkway or

reach scenic Lake Logan. A side trip for this route features the natural beauty of the Little East Fork and serves as the entrance to the Camp Daniel Boone facility for Boy Scouts.

- **US 276 TO BLUE RIDGE PARKWAY:** The 15-mile scenic climb from Brevard to the Blue Ridge Parkway via US 276 is recommended for bikable shoulders and/or climbing lanes, signage and/or pulloff areas for bicyclists to allow motorists to pass. The route connects to the Brevard Bike Path. US 276 is the Forest Heritage Scenic Byway.



*French Broad River in
Madison County*





*Photo Courtesy of Beth Brown
Photography*



CYCLISTS & FACILITIES



CYCLISTS & FACILITIES

UNDERSTANDING BICYCLE USERS

Throughout the bicycle and pedestrian planning profession there is recognition of common elements to creating a comprehensive plan for non-motorized travel. This stems from the experience of the users of bicycle and pedestrian systems, which differs greatly from the experience of motorists. The operator of a car, truck or motorcycle experiences the transportation system and communities through which he or she travels at rates of speed higher than 25 mph. Even the most ardent bicyclists rarely travel at an average speed greater than 25 mph and most utilitarian cyclists move at speeds of 12 mph or less. The rate of speed for pedestrians is measured in feet per second instead of miles per hour.

The bicycle operator or pedestrian sees things at a different scale. The world moves slower and elements of the transportation

system that may go unnoticed by motorists can be discouraging at best to the bicyclist or pedestrian; deadly at worst.

Even among experienced bicycle users there exists great variation in skill and comfort level. Designers of transportation systems should consider the various user types when determining the best fit solution to accommodating bicycle traffic. AASHTO attempted to organize users into two key categories, which are summarized below and outlined further in the table below.

Experienced and Confident bicyclists are those who are comfortable riding on almost any type of bicycle facility. These include utilitarian and recreational riders of many ages with a high level of confidence when riding on busy streets and navigating their way through traffic. These riders may prefer routes that lead them along low-speed, low-volume residential streets or greenways; or they seek alternative routes than the most direct route to reach their destination. According to AASHTO, experienced bicyclists include commuters, long-distance road bicyclists, racers, and those who regularly participate in rides organized by bicycle clubs.



EXPERIENCED / CONFIDENT RIDERS	CASUAL / LESS CONFIDENT RIDERS
Most are comfortable riding with vehicles on streets, and are able to negotiate streets like a motor vehicle, including use of the full width of a narrow travel lane when appropriate and using left-turn lanes.	Prefer shared-use paths, bike boulevards, or bike lanes along low-volume, low-speed streets.
While comfortable on most streets, some prefer on-street bike lanes, paved shoulders or shared-use paths (greenways) when available.	May have difficulty gauging traffic and may be unfamiliar with rules of the road as they pertain to bicycles; may walk bike across intersections.
Prefer a more direct route.	May use less direct route to avoid primary streets with heavy traffic volumes.
Avoid riding on sidewalks. Ride with the flow of traffic on streets.	If no on-street facility is available, may ride on sidewalks. Should always ride with flow of traffic.
May ride at speeds of up to 20 mph on flat ground, up to 45 mph on steep descents.	May ride at speeds around 8 to 12 mph.
May cycle longer distances.	Cycle shorter distances; 2 to 5 miles is a typical trip distance.



Casual and Less Confident bicyclists include a majority of the population and a wider range of people than those that listed above. They may ride frequently for a variety of reasons and enjoy bicycling occasionally. They prefer more favorable conditions for bicyclists such as greenways, other paths or low-volume, low-speed streets. This group also includes bicyclists who ride for recreation or with children. Population groups who are most dependent on bicycling as a mode of transportation are included in this category. AASHTO notes “in order for this group to regularly choose bicycling as a mode of transportation, a physical network of visible, convenient and well-designed bicycle facilities is needed.”

AASHTO has also outlined common characteristics for recreational and utilitarian trips to help designers, lawmakers and others understand the difference related to user types. These are outlined in the table below.

The age of the user also has a major influence on how projects, programs and policies should be developed. This is particularly important for our region, as 19% of its population was identified as being 65 years old or older in the 2010 Census (North Carolina’s population of persons 65 years old or older is 12.7%).

Seniors require different accommodations and rely on different cognitive and perceptual abilities to operate a bicycle. They travel at a slower pace and are less able to overcome hilly terrain. The reaction time of seniors is often slower than in younger adults as is their judgment of speed and distance of approach vehicles.

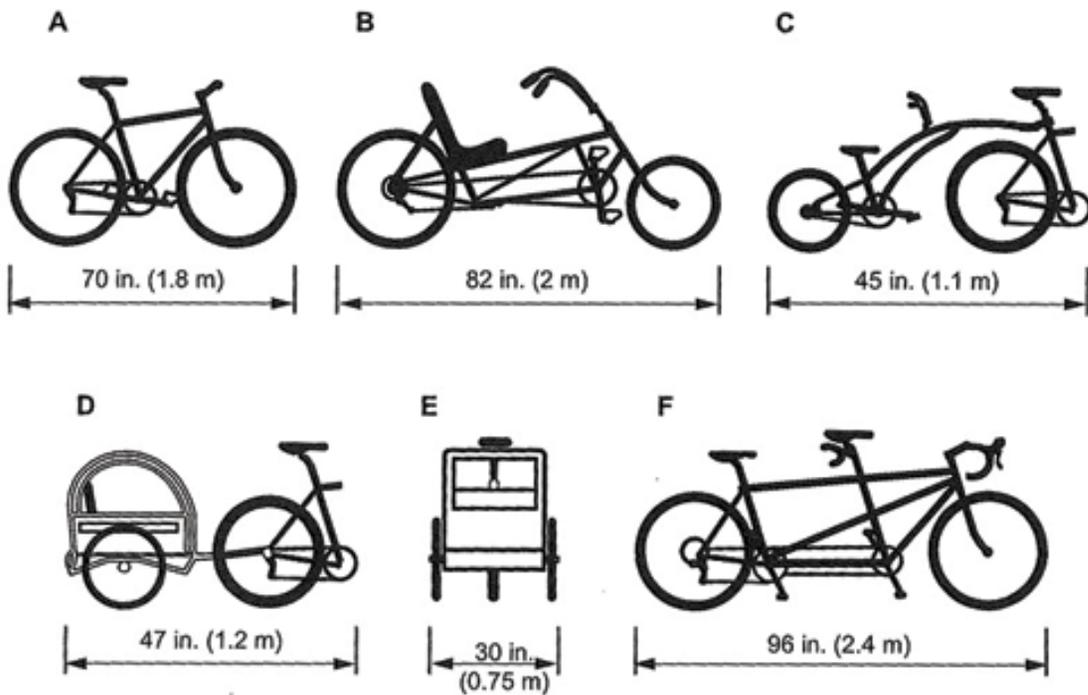
Children also require accommodations and are further limited by where their parents will allow them to ride a bicycle. Our region’s rate of children under 18 years old (20.0%) is lower than the state of North Carolina (24.3%), however parents and health organizations are promoting bicycling as a way to help combat childhood obesity and related health problems.

Children have greater difficulty understanding the level of danger posed by the roadway system and other motorists and do not have the on-road knowledge of how to operate a vehicle. Bike Rodeos are one way children and parents can learn proper riding skills.

RECREATIONAL TRIPS	UTILITARIAN TRIPS
Directness of route not as important as visual interest, shade, and protection from wind.	Directness of route and connected, continuous facilities more important than visual interest, etc.
Loop trips may be preferred to backtracking; start and end points are often the same.	Trips generally travel from residential areas to schools, shopping or work areas and back.
Trips may range from under a mile to more than 50 miles.	Trips are generally 1 to 5 miles in length.
Short-term bicycle parking is needed at recreational sites, parks, trailheads and other recreational activity centers.	Short-term and long-term bicycle parking is needed at stores, transit stations / stops, schools and workplaces.
Varied topography may be desired, depending on the fitness and skill level of the bicyclists.	Flat topography is desired.
May be riding in a group.	Often ride alone.
May drive with their bicycles to the starting point of a ride.	Use bicycle as primary transportation mode for the trip; may transfer to public transit; may or may not have access to a car for the trip.
Typically occur on the weekend or on weekdays before morning commute hours or after evening commute hours.	Some trips occur during morning and evening commute hours (to school and/or work), but bicycle commute trips may occur at any hour of the day.



Common dimensions for various types of bicycles.
Source: AASHTO



- A. Adult Typical Bicycle
- B. Adult Single Recumbent Bicycle
- C. Additional Length for Trailer Bike

- D. Additional Length for Child Trailer
- E. Width for Child Trailer
- F. Adult Tandem Bicycle

BICYCLE FACILITIES DESIGN GUIDELINES

Until recently, on-road bicycle facilities design has been primarily guided by the Manual on Uniform Traffic Control Devices and the AASHTO Guide for the Development of Bicycle Facilities. Many American Cities felt constrained by the limited number of bicycle design solutions provided in those documents. The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide and the Institute of Transportation Engineers (ITE) Designing Urban Walkable Thoroughfares were two additional guides developed as a response to the lack of appropriate solutions provided by the more mainstream guides. In August of 2013, Federal Highway Administration has published a memo supporting a flexible approach to the bicycle and pedestrian facility design, and endorsing the use of NACTO Urban Bikeway Design Guide and ITE Designing Urban Walkable Thoroughfares. As per the memo, FHWA encourages agencies to appropriately use these guides and other resources to help fulfill the aims of the 2010 US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations : "...DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate."

Below is a brief description of the available bicycle facility design guidance manuals, which are available for reference by the local jurisdiction staff, MPO and RPO staff and NCDOT engineers.

- AASHTO, Guide for the Development of Bicycle Facilities 2012, Fourth Edition (AASHTO Bike Guide) provides detailed planning and design guidelines on how to accommodate bicycle travel and operation in most riding environments. It covers the planning, design, operation, maintenance, and safety of on-road facilities, shared use paths, and parking facilities. Flexibility is provided through ranges in design values to encourage facilities that are sensitive to local context and incorporate the needs of bicyclists, pedestrians, and motorists.
- NACTO, Urban Bikeway Design Guide. First released in 2010. This guide was designed to address more recently

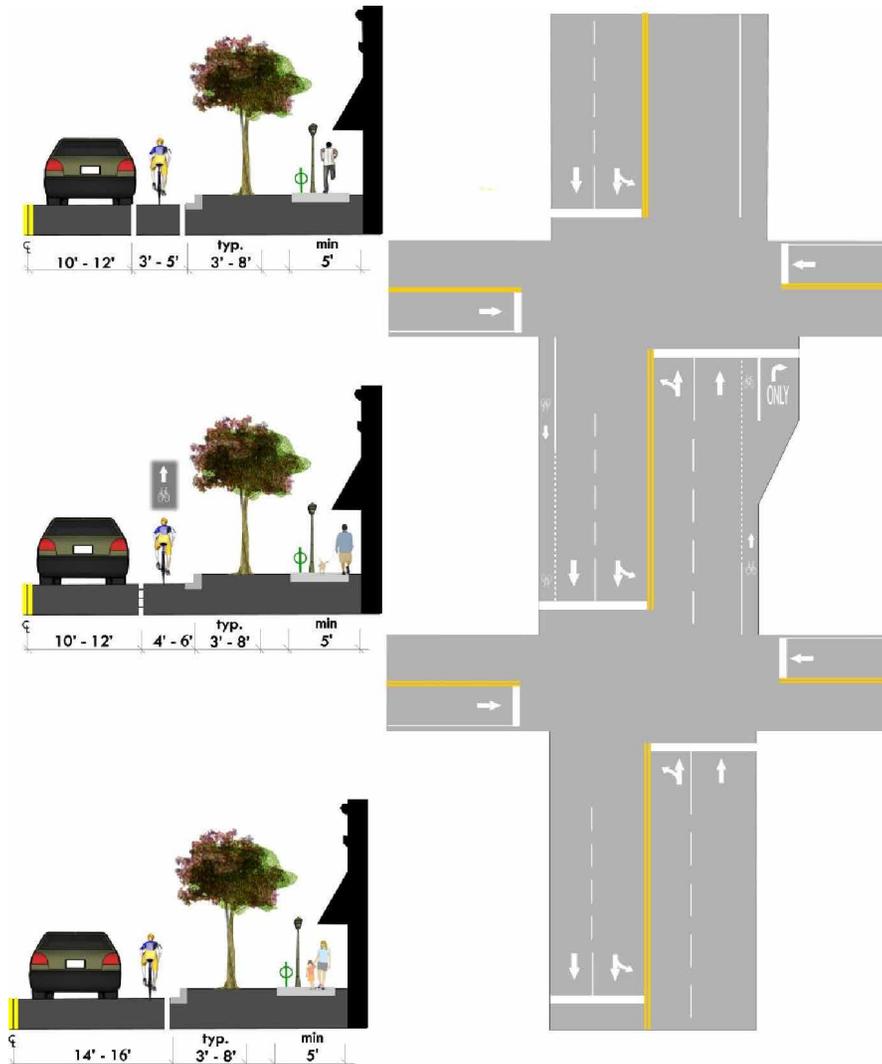
developed bicycle design treatments and techniques. It provides options that can help create "complete streets" that better accommodate bicyclists. While not directly referenced in the AASHTO Bike Guide, many of the treatments in the NACTO Guide are compatible with the AASHTO Bike Guide and demonstrate new and innovative solutions such as green bicycle lanes, bicycle boxes and cycletracks, which have been tried in a variety of urban settings across the U.S. The vast majority of treatments illustrated in the NACTO Guide are either allowed or not precluded by the Manual on Uniform Traffic Control Devices (MUTCD). Non-compliant traffic control devices may be implemented as an experimental treatment pilot.

- NACTO, Urban Street Design Guide. First released in 2013. The Urban Street Design Guide goes beyond the Urban Bikeway Design Guide and provides engineering guidance on a variety of innovative street design measures, from pedestrian crossings and parklets to contra-flow bus lanes (bicycles optional) and slow zones (speed humps, tables, and cushions). The Guide is meant to reconsider the typical street design thinking geared toward suburban and rural areas for the urban street DNA.
- ITE, Designing Walkable Urban Thoroughfares: A Context Sensitive Approach. This guide provides an understanding of the flexibility that is inherent in the AASHTO "Green Book," A Policy on Geometric Design of Highways and Streets. The chapters describe how to balance the needs of various users in order to design thoroughfares appropriate for "walkable communities" - compact, pedestrian-scaled villages, neighborhoods, town centers, urban centers, urban cores and other areas where walking, bicycling and transit are encouraged.
- Whether recommended by an AASHTO Guide or the NACTO Guide, a bicycle facility design has to be considered through the lens of the local context. The seven-county study region is very large and diverse, and bicycle design solutions appropriate for downtown Asheville will not always be appropriate for a rural road in Madison County or for a small college town such as Montreat. While facility type recommendations have been



provided for the priority corridors as part of this plan, further refinement might be needed due to the changing local context and preferences over time. Some examples of typical bicycle facility types are provided below.

Common design treatments for bicycle facilities at intersections.



This section provides a synthesis of common treatments that may not be expressed in many of these guidebooks but are important to bicyclists in Western North Carolina.

ACCOMMODATING BICYCLING

As noted in the introduction, understanding the unique needs of bicyclists greatly impacts how to decide what facility works best, how that facility should be designed, and what types of maintenance and operations practices should be followed to promote the safe usage by all users and all abilities.

The practice in the United States for providing and maintaining facilities for bicyclists is fragmented, but is largely dominated by guidance released from the American Association of State Highway and Transportation Officials (AASHTO) and the Institute of Transportation Engineers (ITE). The recommendations from these organizations have been incorporated to some degree in the Manual on Uniform Traffic Control Devices (MUTCD). The National Association of City Transportation Officials (NACTO) has also released design recommendations but they have not been endorsed by AASHTO or incorporated into MUTCD.

Western North Carolina is largely rural with sharp changes in terrain as well as weather patterns. Given these conditions, the practice of bicycling in the mountains may indicate the need for guidance on everything from proper attire to special considerations relevant to snow removal. Complicating matters further is that accurate guidance on bicycling facility design and programs is not “set in stone;” that is, the guidance for “best practice” varies by authoring agency or individual. In other words, there is no one “best” type of facility, and the proper choice of a bicycle facility has to consider traffic volumes, speeds, roadway design, grade, land uses, and other factors. The increase in bicyclists on roads and streets over the past decade is another reason why new research could result in more immediate changes to design standards as more bicyclists provide researchers with larger data sets to evaluate.

The North Carolina Department of Transportation (NCDOT) has developed standards for new and improved roadways, and is often

in the process of creating updates to those standards, like the new “Complete Streets” guidelines. These guidelines reflect what is recommended from AASHTO.

BIKE PLANNING CHALLENGES

INTERSECTION AND CROSSING TREATMENTS

Anyplace where two streets, a street and a driveway, a trail and a railroad track, or a street and a trail meet is an intersection. Intersections may have traffic signals, stop signs, or no traffic signal control at all. Intersections with ramps for limited access highways are special cases but can still be designed to be bicycle-friendly. Problems occur when a traffic signal is not sufficiently sensitive to detect cyclists; greenway crossings are poorly signed for either the cyclist or motorists; or large intersections are poorly designed with little thought of how cyclists can safely make turning movements.

The traditional detectors used at intersections can be fairly insensitive to bicycles, particularly those that have little ferrous metals (e.g., carbon frame bikes). A position indicator indicates the optimal position for a cyclist to place her bicycle to get a “read” from the detector.

Creating transition opportunities for on-road bicycle facilities as they approach an intersection can be challenging. The bicyclist is frequently asked to merge back into traffic but with a number of intersections in close proximity that exercise can be daunting, especially for a relatively inexperienced bicyclist. MUTCD contains illustrations that denote how a bicycle lane and other related facilities should be configured at an intersection.

CROSSING RAILROAD TRACKS

Most railroad tracks and on-road bicycle paths will cross at a near-90 degree angle. Bicycles crossing tracks at a less than 45 degree angle should consider the treatment which calls for a realignment of the bicycle path to create a more perpendicular approach angle.

Some communities have begun using shared-lane markings (sharrows) to indicate to bicyclists the most suitable way to cross a railroad track within an urban street where large-scale improvements are not feasible.

Blue Ridge Bike Plan

DRAINAGE GRATES & UTILITY COVERS

Drainage grates can pose a serious hazard for bicyclists, particularly on older streets where the design and placement of drainage grates did not consider the potential use of bicyclists. Grates with openings that are parallel to the curb cause the wheels on bicycles (particularly those with narrow tires) to fall into the grates and result in a crash.

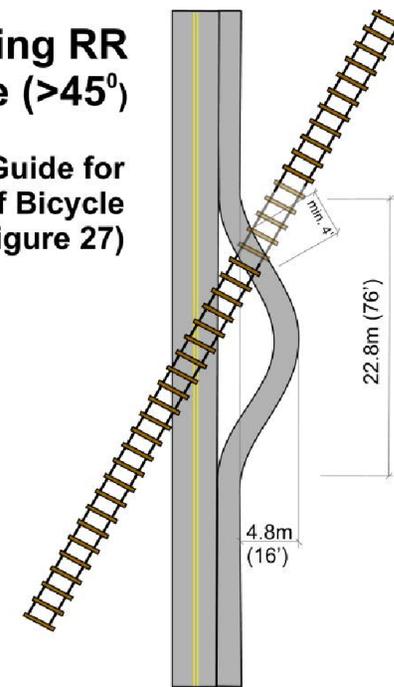
On new construction projects, grates should be placed only within the gutter pan of the street with grate openings that are perpendicular to the curb and direction of travel. On older streets, the jurisdiction in control of that street should be requested to retrofit the grates with openings that are perpendicular to the curb. Another retrofit treatment is the welding of straps across the grate perpendicular to the direction of travel, which narrows the opening of the grate to prevent the bicycle wheel from falling into the opening.

Grates and utility covers (“manholes”) create different problems for bicyclists as roadways sink or are re-surfaced. Grates and utility covers should be flush with the roadway and should be replaced or reconfigured when NCDOT or a municipality resurfaces a street so they remain flush with the pavement.

Bicycle Path Crossing RR at Acute Angle (>45°)

Source: AASHTO Guide for the Development of Bicycle Facilities (Figure 27)

Sample treatment for bicycle lane or shoulder crossing of a railroad track.





Utility covers can pose problems on greenways as many of them are constructed along sewer easements. As with roadways, the utility covers should be flush with the trail surface and, where possible, outside of the travelway.

RUMBLE STRIPS

The addition of rumble strips along highways causes great concern among bicyclists due to the way in which these rumble strips are placed on the shoulders of high speed roadways. The shoulders are the only suitable area for bicyclists to travel due to the speed differential.

To account for the needs of bicyclists, rumble strips should be placed as close to the edge line or white line of the highway to maximize the space available for the bicyclist along the highway. Design standards for most four-lane highways leave enough room along the shoulder (typically 5-feet or greater) for the bicyclists to operate outside the area of the rumble strips.

A local best practice for placement of rumble strips is along US 23/74 in Jackson County where the rumble strips were placed as close as possible to the travel lane along NC Bicycle Route 2.

Another consideration in the design of rumble strips to properly accommodate bicyclists is the placement of regular gaps in the rumble strips to allow the bicyclists to emerge from the shoulder to make a turn or maneuver away from debris on the shoulder.

Georgia's DOT has a policy for gaps in rumble strips that allows for 28-feet of continuous rumble strips followed by a gap of 12-feet in between continuous rumble strips. These are recommended for highways with speed limits greater than 50 mph. Some states reduce the width of the rumble strip in areas where the shoulder width is less than 6-feet. NCDOT's Division 14 is using a 60-foot cycle, with 48-feet of rumble strips followed by a 12-foot gap. The rumble strip policy for NCDOT can be found at the Traffic Engineering Policies, Practices, and Legal Authority.

CHIP SEALS

Highway agencies are utilizing the application of sealcoats or chip seals to roadways as cost-effective preventive maintenance. The application of chip seals (small pieces of gravel laid over existing

pavement and then sealed to the road with binding materials) can create discomfort for bicyclists, both during construction and after application.

Agencies can modify their chipseal applications to better accommodate bicyclists by:

- Using smaller chips (smaller than 3/8-inch);
- Conducting an extra roll of the chips after application;
- Not applying chipseals to shoulders; and
- Providing advance warning of chipseal applications during construction.



TYPE OF BIKEWAY	BEST USE	MOTOR VEHICLE DESIGN SPEED	INTENDED USE / TRAFFIC VOLUME	OTHER CONSIDERATIONS
<p>PAVED SHOULDER</p> 	<p>Rural highways that connect towns and other major attractors.</p>	<p>Variable. Typical posted rural highway speeds (40-55 mph)</p>	<p>Rural roadways; inter-city highways.</p> <p>Variable traffic volumes.</p>	<p>Provides more shoulder width for roadway stability. Width dependent on adjacent motor vehicle traffic (i.e. wider shoulder on higher-speed roads).</p>
<p>SHARED ROADWAYS - NO SPECIAL PROVISIONS</p> 	<p>Minor roads with low speeds / volumes, where bicycles can share the road with no special provisions.</p>	<p>Speed differential between motorists and bicyclists is typically 15 mph or less. Speeds limits less than 30 mph.</p>	<p>Neighborhood or local streets.</p> <p>Generally less than 1,000 vehicles per day.</p>	<p>Can provide alternative to busy streets. On a grid network, may be circuitous or discontinuous.</p>
<p>SHARED LANES - WIDE OUTSIDE LANES</p> 	<p>Major roads where bike lanes are not selected due to space constraints or other limitations.</p>	<p>Variable. Use as the speed differential between bicyclists and motorists increases. Generally any road where the design speed is more than 25 mph.</p>	<p>Arterials and collectors intended for major motor vehicle traffic movements.</p> <p>Generally more than 3,000 vehicles per day.</p>	<p>Explore opportunities to provide parallel facilities for less confident bicyclists.</p>



TYPE OF BIKEWAY	BEST USE	MOTOR VEHICLE DESIGN SPEED	INTENDED USE / TRAFFIC VOLUME	OTHER CONSIDERATIONS
<p>SHARED LANE—SHARED LANE MARKINGS</p> 	<p>Space constrained roads with narrow travel lanes, or road segments where bicycle lanes are not selected due to space. Also known as “sharrows”.</p>	<p>Variable. Use where speed limit is 35 mph or less.</p>	<p>Collector or minor arterials.</p> <p>Variable. Useful where there is high turnover in on-street parking to prevent “dooring” crashes.</p>	<p>May be used in conjunction with wide outside lanes. Where on-street parking is present, ensure markings placement reduces conflict with opening car doors.</p>
<p>BIKE LANES</p> 	<p>Major roads that provide direct, convenient, quick access to major lane uses. Also can be used on collector roads and busy urban streets with slow speeds.</p>	<p>Generally, any road where the design speed is more than 25 mph.</p>	<p>Arterials and collectors intended for major motor vehicle traffic movements.</p> <p>Variable traffic volumes. Speed differential is generally a more important factor than volume.</p>	<p>Where on-street parking is present, ensure bike lane placement reduces conflict with opening car doors. Analyze intersections to reduce bicycle / motorized vehicle conflict.</p>
<p>SHARED-USE / MULTI-USE PATH</p> 	<p>Linear greenways or along waterways, highways, active or abandoned rail lines, or utility rights-of-way. May be a short connection between two cul-de-sacs.</p>	<p>No vehicular traffic. Bicyclists should be encouraged to travel at speeds lower than 12 mph to avoid conflicts with other users.</p>	<p>Provides a separated path for non-motorized users. Advanced riders may still prefer on-street facilities.</p> <p>Traffic Volume: N/A</p>	<p>Analyze intersections to anticipate and mitigate conflict points between path and roadway users. Design path with all users in mind and width to accommodate expected usage.</p>

INNOVATIVE FACILITIES

Our topography poses unique challenges that necessitate unique solutions. The following images provide examples our region can incorporate when planning for bike facilities.



Clockwise from above to center:

- Stair Bike Rail Retrofit in Toronto;
- Railroad Crossing in Seattle WA;
- Buffered Lane Transition in Cambridge MA;
- Stairs With Bicycle Rails in Chicago, IL;
- Track and Trail Connection in Homestead, PA;
- Greenway Speed Limit in Huntington Beach, CA;
- Downtown Contraflow Green Lane in Boise, ID







PRIORITY CORRIDORS

CORRIDOR PLANNING PROCESS

CORRIDORS PRIORITIZATION METHODOLOGY

The Blue Ridge Bike Plan staff went through a variety of steps to identify the Regional Bicycle Network made up of priority regional corridors, priority county corridors and other bicycle corridors. The Plan includes a seven-county region in Western North Carolina, which presents significant planning and implementation challenges due to the variety of conditions and facility recommendations appropriate for each corridor. Some of the priority corridors identified will need follow-up feasibility studies to provide more details on how to overcome specific topographic, right-of-way and roadway connectivity constraints.

Initially, the Plan staff researched existing bicycle plans and maps, including the following:

- Asheville Bicycle Plan
- Haywood County Comprehensive Bicycle Plan
- FBRMPO CTP 2008 Bicycle Layer (including “existing”, “needs improvement” and “recommended” sub-layers)
- Henderson and Transylvania County Bicycle Routes Map
- Madison County Recreational Bike Routes Map
- Madison County CTP Bicycle Routes
- Jackson County CTP Bicycle Routes
- Swain County CTP Bicycle Routes
- Transylvania County CTP Bicycle Routes
- ArcGIS shapefiles of existing greenways across the region
- Geocoded Popular Bicycle Routes adopted from Blue Ridge Bicycle Club Cue Sheets

In addition, major corridors which would connect important destinations and activity centers were identified through the initial survey to the general public and received nearly 500 responses. Attendees at the kick-off event and Community Input meetings recommended additional routes and modifications based on their knowledge of the terrain and typical group ride routes.

In the early stages of the process, the Plan staff were trying to keep a distinction between “commuter” and “recreational” routes identified as part of the Regional Bike Plan Network. This distinction was later dropped. Mapping important community centers and destinations—including schools, parks, colleges and universities, hospitals, libraries, grocery stores, and major employers helped identify certain corridors that were important from the transportation perspective, or whether they were primarily recreational. The majority of priority corridors identified through the Blue Ridge Bike Plan can serve both commuter and recreational functions, if the appropriate improvements were made.

The survey responses and further input from the Steering Committee and the public was used to identify dangerous (“hot”) corridors. In order to obtain more data on the bicycle corridors, the selected bicycle corridor network was linked to the NCDOT Roadway Characteristics File. This includes the Average Daily Traffic (AADT), Number of lanes, posted speed and other data points typically kept for major roads across the state of North Carolina. Crash data was also factored in to determine each priority corridor.

LEVEL-OF-SERVICE ANALYSIS

As part of documenting existing bicycling conditions on the regional bicycle network, a Bicycle Level of Service (LOS) analysis was performed at the road segment level. Similar to Vehicular LOS, Bicycle LOS indicates user experience, with “A” being the best and “E” the worst. Similar to Vehicular LOS Bicycle LOS is dependent on roadway capacity and traffic volumes. Unlike Vehicular LOS, Bicycle LOS is more oriented toward a feeling of safety that bicycle users might perceive on a certain roadway; higher traffic volumes, more narrow outside lanes with no shoulder and higher traffic speeds negatively contribute to a Bicycle LOS.

Research and formulas documented in NCHRP Report 616: Multimodal Level of Service Analysis for Urban Streets were used as the basis for the Bicycle LOS Analysis on a roadway segment level. Specifically, the segment Bicycle LOS formula on p. 24 of NCHRP 616 was used for the segment Level of Service calculations: $SegLOS=0.507*\ln(Vol15perLn)+0.199*(Spt_1)*((1+10.38*HV2)^2)+7.066*((1/PC5)^2)-0.005*((We)^2)+0.76$

Where

- Vol15 = volume of directional traffic in 15-minute time period; Vol15per LN=Vol15 divided by the number of peak direction traffic lanes
- Spt = effective speed limit = $1.12\ln(\text{SPP} - 20) + 0.81$
- SPP = Posted speed limit (mi/h)
- HV = percentage of heavy vehicles, assumed to be at 0.015 based on statewide data
- PC5 = FHWA’s five point surface condition rating, not available and assumed to be at “4” on a scale of 1 to 5
- We = average effective width of outside through lane (i.e. outside lane plus shoulder)

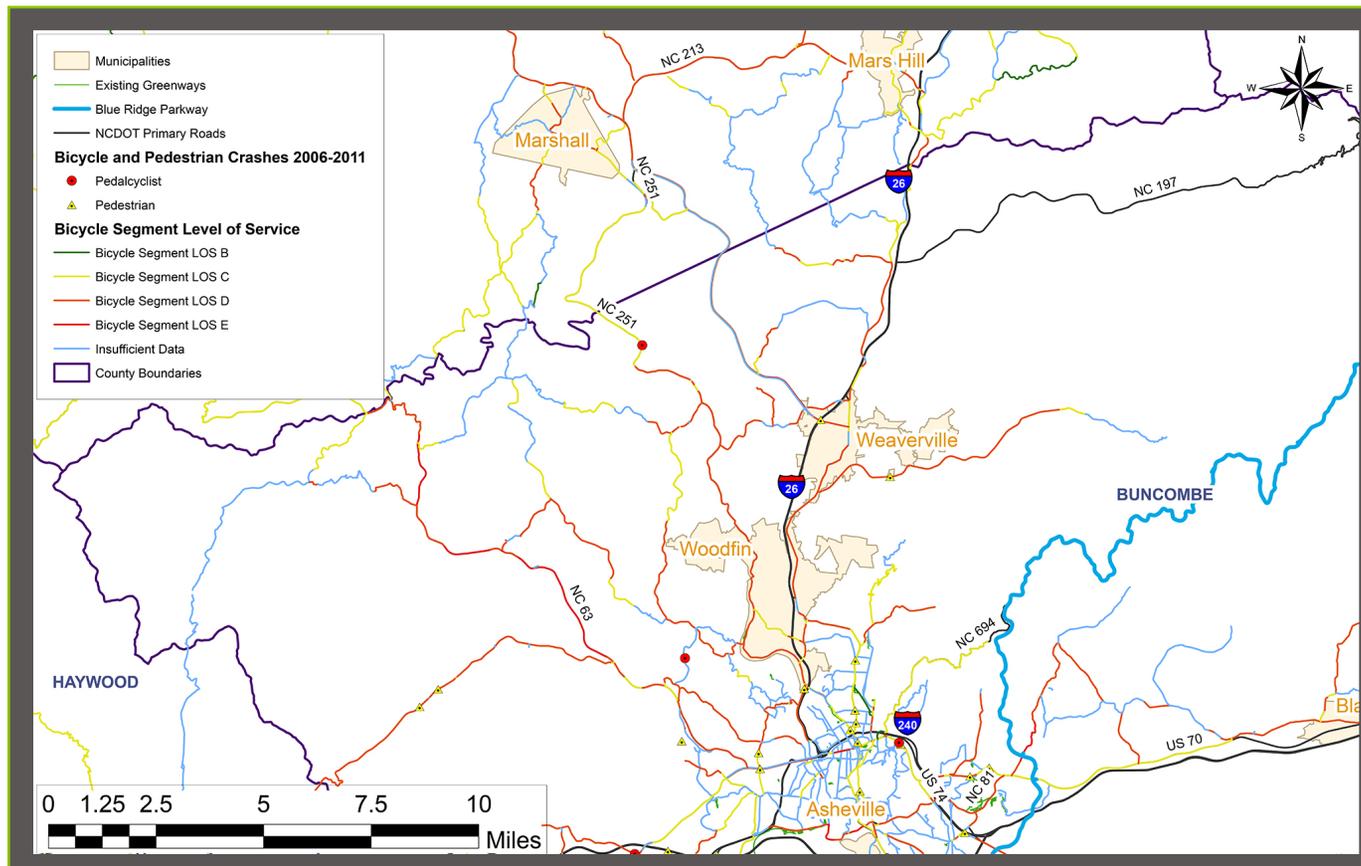
Formula numeric results are interpreted as follows: A ≤ 1.5; B ≤ 2.5; C ≤ 3.5; D ≤ 4.5 and E ≤ 5.5.

A number of assumptions had to be made in order to perform the Bicycle LOS Analysis. The NCDOT roadway characteristics file

was used which included a number of needed data points, such as posted speed limit, AADT (Annual Average Daily Traffic), number of lanes, width of shoulder. However, other data were not readily available—such as width of outside lane, roadway condition rating, heavy vehicle volume.

The resulting calculations were linked back to the Regional Bicycle Network file, with an example map shown to the right. Unfortunately, for many corridor segments roadway characteristics data such as posted speed limit and AADT were not available, and they are marked in blue on the maps —“Insufficient data available.”

Approximately one third of roadway segments selected for the Regional Bicycle Network had insufficient data for LOS Analysis results. More data needs to be collected before an accurate Bicycle LOS can be completed. See the Appendices for additional details about the Bicycle Level of Service Analysis and maps of results.



Portion of Buncombe County Bicycle Level Of Service Analysis Map





PRIORITY COUNTY AND REGIONAL CORRIDORS

Input from the public, Steering Committee, and community staff was used to narrow down the list of priority corridors for the Blue Ridge Bike Plan. First, a list of potential priority corridors by county was made available during the fall 2012-winter 2013 Community meetings. The same list was posted on the Blue Ridge Bike Plan website where responses could be submitted electronically. The votes were tallied and an initial selection of 5-10 corridors per county was presented to the Steering Committee during the February 2013 meeting. Additional data were also presented including:

- Right of Way availability, safety or dangerous conditions;
- Estimated length and cost of needed facility improvements;
- Number of pedestrian and bicycle crashes during 2006-2011 time frame;
- AADT; and
- Access to specific community centers and destinations served by the corridor such as multi-family residential development, schools, major employment centers, parks, hospitals, libraries and civic destinations within a half-mile buffer of the corridor.

The Steering Committee selected the final list of priority corridors, based on public input, additional data provided and local knowledge. The priority corridors were assigned numbers, which do NOT represent a ranking order of preference. The expectation of the Steering Committee and the Plan staff was that the priority corridor bicycle improvements would be implemented over time, some as part of roadway projects and some as stand-alone projects, subject to state, federal and local funding availability.

There are two levels of priority corridors: county and regional. The process outlined above identified priorities for each county. Priority corridors that crossed county lines or municipal jurisdictions and are major commuter routes were elevated to regional priorities.

COST ESTIMATE METHODOLOGY

Cost estimates are shown for project implementation along priority corridors. Basic cost assumptions were made based on local and national experience with implementing bicycle facilities. A lack of recent bicycle projects on major arterial roadways makes it more challenging to document the true cost of retrofitting a multi-lane arterial roadway to be more bicycle-friendly. Most of the costs listed below are very general, do not take into consideration topographic constraints or the cost of putting in new bridges, and

make an assumption that the bicycle facility would be implemented as part of a roadway project, unless indicated otherwise. Those cost estimates would probably be an under-estimation of true costs if the projects were to be implemented as stand-alone bicycle projects.

The following cost estimate assumptions were utilized to estimate the cost of implementation for priority corridors: (k = thousands)

- \$1 million/mile for locations with a variety of bicycle improvements being implemented (such as bicycle lanes and greenways in RADTIP segments of the Wilma Dykeman Riverway) where ROW is already available
- \$750k/mile for greenway or multi-use path if not accounting for ROW purchase or significant bridge projects
- \$300k/mile to add a bike lane or bikeable shoulder during road widening project; \$1.25 million/mile for a bike shoulder as a stand-alone construction project based on SPOT office estimate of cost to widen 18-ft roadway section to 24-ft roadway section with shoulders
- \$50k/mile for a bike lane as part of a road diet (on existing pavement, with removal of existing striping)
- \$10k/mile for sharrows (shared lane markings) to be installed on existing pavement during repaving
- \$2k/mile for bicycle route signage

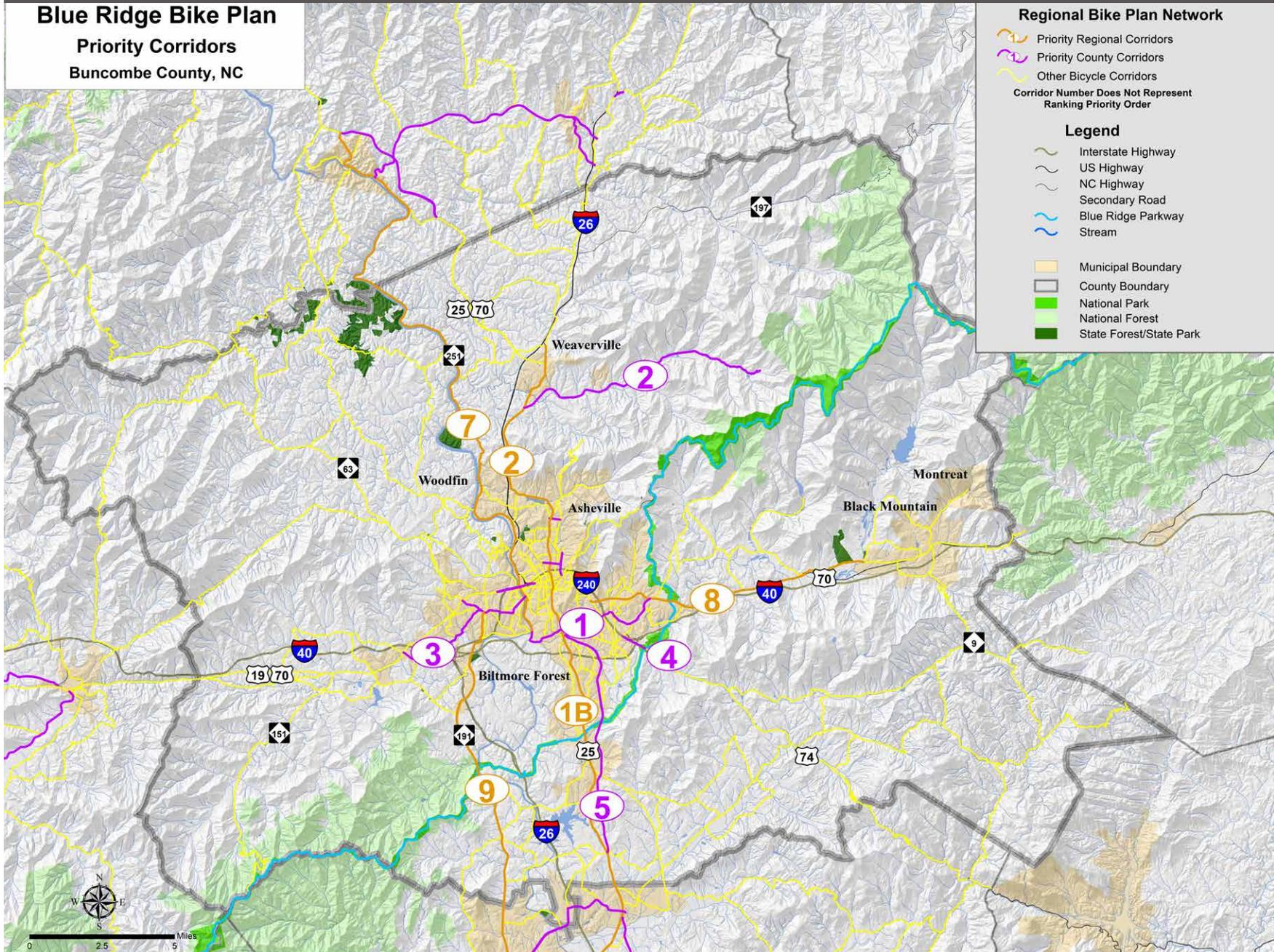
OTHER BICYCLE CORRIDORS ON THE REGIONAL BICYCLE NETWORK

The other bicycle corridors in the Regional Bicycle Network, which were not selected as part of priority regional or priority county corridors, are shown in yellow on the county maps and had a general set of recommendations assigned based on municipal limits. Corridors inside municipal boundaries were considered appropriate for bicycle lanes, or sharrows depending on the speed limit. Corridors outside of municipal boundaries were assigned a recommendation of bikeable shoulder. These corridors were identified as those used by the many bicyclists in the region in some form. It is not expected that all of these corridors will be retrofitted with bicycle facilities. It is illustrated to highlight the breadth of our regional bicycling networks.

It is expected that the bicycle facilities on the Regional Bicycle Network apart from priority corridors would be implemented in a slow and incremental fashion, as part of roadway projects through “complete streets” implementation as it suits each community.

BUNCOMBE COUNTY PRIORITY CORRIDORS

Blue Ridge Bike Plan
Priority Corridors
Buncombe County, NC





Buncombe County Priority Corridor 1 SWANNANOA RIVER ROAD TO TUNNEL ROAD

This 4-mile corridor connects Biltmore Avenue to US 70 (Tunnel Road), including Biltmore Village, the Biltmore Estate, Azalea Park, the WNC Nature Center, the VA Hospital and the mall area. Bicycle lanes are recommended along with the greenway as part of the Wilma Dykeman RiverWay.

FEATURES:

Length: 3.91 miles
Cost: \$3.911 million

COMMUNITIES:

Biltmore Village
East Asheville



Buncombe County Priority Corridor 2 REEMS CREEK ROAD TO BLACKBERRY INN ROAD

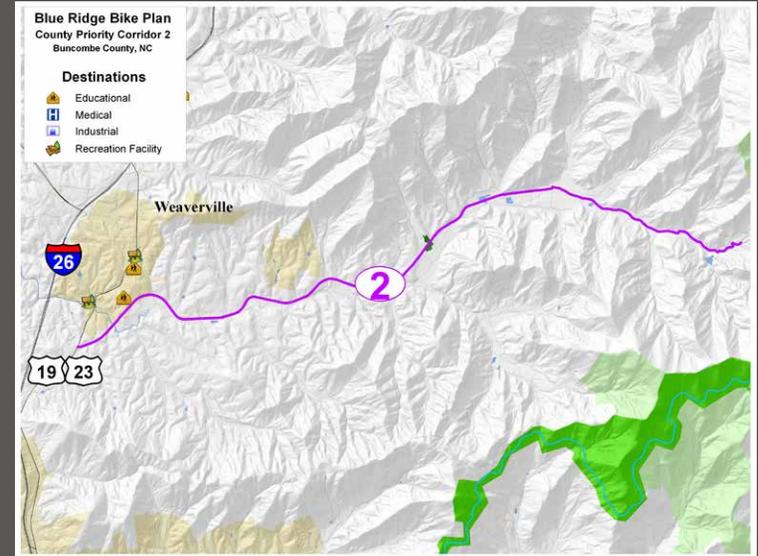
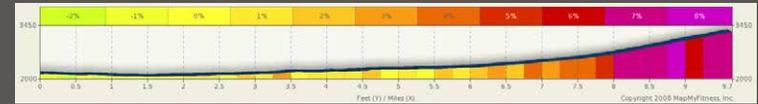
This 9.4-mile route is a popular recreational route to reach the Blue Ridge Parkway. Downtown Weaverville, Lake Louise and the Weaverville Nature Park are nearby. Bike lanes (in-town) and bikable shoulders are recommended for recreational riders. A greenway is planned from Weaverville to Karpen Fields and the Vance Birthplace.

FEATURES:

Length: 9.47 miles
Cost: \$2.84 million

COMMUNITIES:

Weaverville



Buncombe County Priority Corridor 3 SAND HILL ROAD TO US 19/23

The 3.6-mile corridor connects the West Asheville town center to the AB Tech Enka campus. Bicycle lanes and shared lane markings are recommended along the route with a parallel greenway in some areas. The route links the Hominy Creek Greenway, Buncombe County Sports Complex, Sand Hill Venable Elementary School, Enka Village, the Enka School complex and Biltmore Lake.

FEATURES:

Length: 3.63 miles
Cost: \$1.089 million

COMMUNITIES:

West Asheville



Buncombe County Priority Corridor 4 US 74A TO BLUE RIDGE PARKWAY

The .9-mile segment along US 74A in East Asheville is a problem area for bicyclists attempting to access the Blue Ridge Parkway and point east from the City of Asheville. Greenway and on-street linkages have been evaluated as part of the Buncombe County Greenways & Trails Master Plan to bypass US74A while providing a connection. A feasibility study is required to determine best use of existing streets as well as I-40 and Blue Ridge Parkway right-of-way.

FEATURES:

Length: .88 miles
Cost: \$75k*

COMMUNITIES:

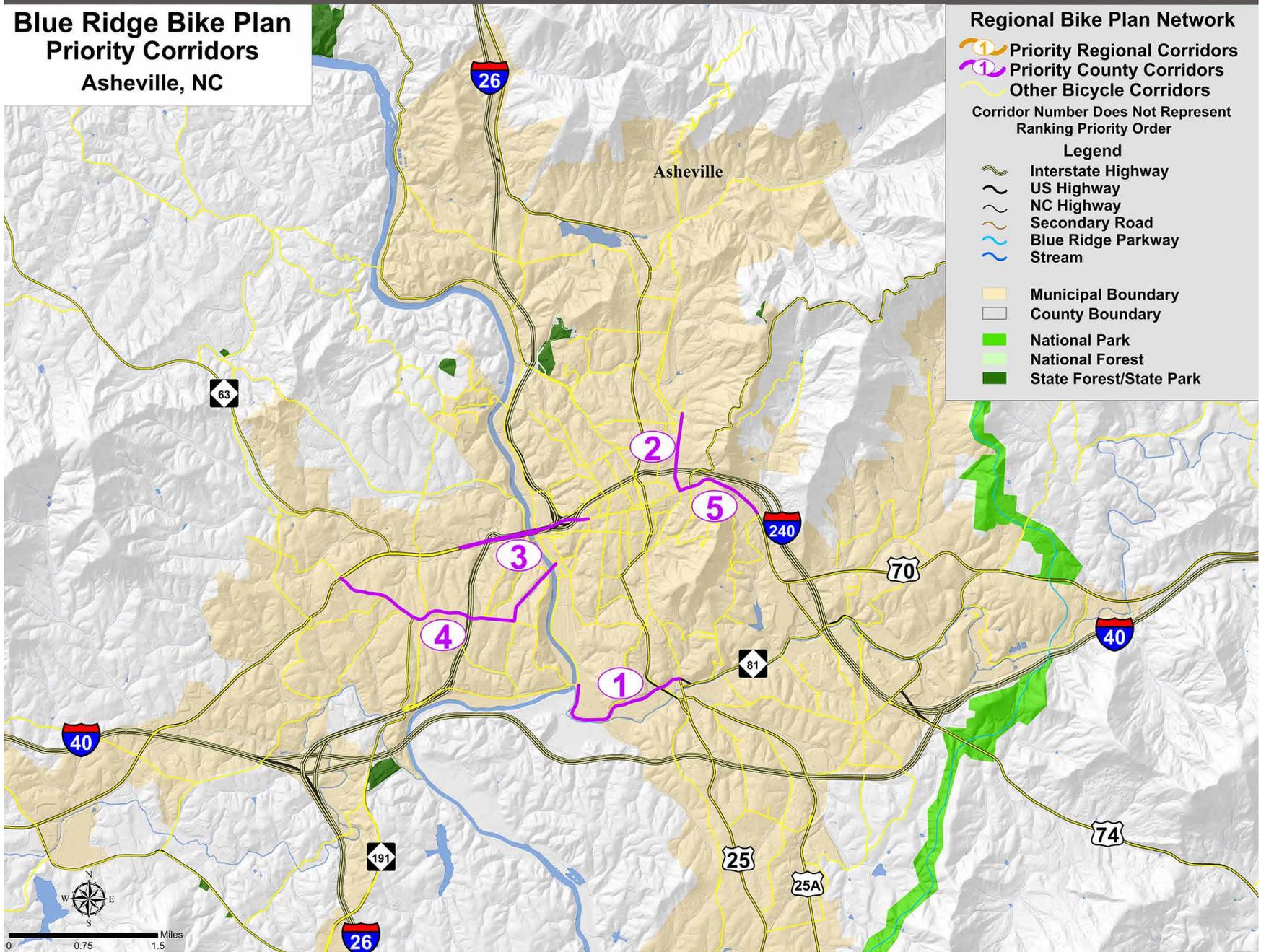
East Asheville

*For feasibility study, cost of future capital project unknown



ASHEVILLE PRIORITY CORRIDORS

Blue Ridge Bike Plan Priority Corridors Asheville, NC





Asheville Priority Corridor 1 LYMAN STREET TO BILTMORE AVENUE

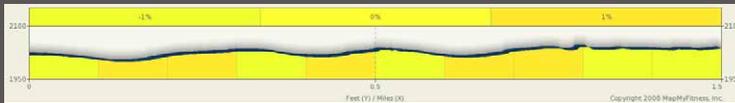
This 1.5-mile linkage in the bicycle route along Meadow Road near the River Arts District links Biltmore Village, AB Tech and West Asheville to South Asheville. Bicycle lanes similar to what exists along Lyman Street north of Amboy are recommended in addition to the planned greenway as part of the Wilma Dykeman RiverWay.

FEATURES:

Length: 1.54 miles
Cost: \$1.538 million

COMMUNITIES:

Biltmore Village
West Asheville
River Arts District



Asheville Priority Corridor 2 CHARLOTTE STREET TO EDWIN PLACE

The nearly 0.8-mile segment of Charlotte Street links the bicycle lane on College Street in downtown Asheville to popular neighborhood routes in North Asheville. Charlotte Street is under study for a road diet with bicycle lanes and/or shared lane markings considered as part of the reconfiguration. The route also links popular recreational routes that climb to the Blue Ridge Parkway via Town Mountain Road, Sunset Road and Old Toll Road.

FEATURES:

Length: .78 miles
Cost: \$11.65k

COMMUNITIES:

Asheville
North Asheville



Asheville Priority Corridor 3 PATTON AVENUE TO HAZEL MILL ROAD

The 2 mile route crosses the French Broad River as part of US 19/23/74A, I-240 and future I-26. Proposals to reconstruct the I-240/I-26 interchange may provide an opportunity for an on-street connection in this area to link West Asheville to downtown Asheville. A feasibility study is required to identify appropriate facility type(s).

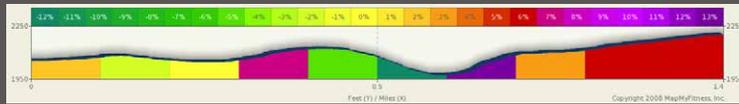
FEATURES:

Length: 2.08 miles
Cost: \$75k*

COMMUNITIES:

Downtown Asheville
West Asheville

*For feasibility study, cost of future capital project unknown



Asheville Priority Corridor 4 HAYWOOD ROAD TO PATTON AVENUE

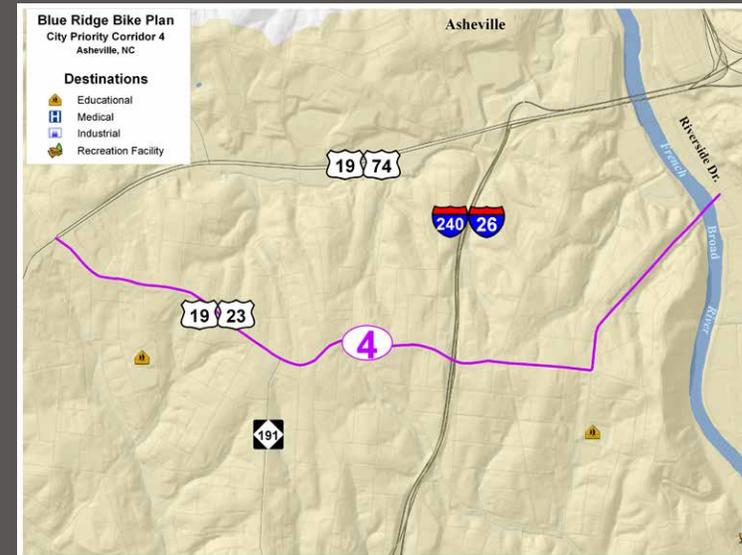
Haywood Road is a popular recreational and commuter bicycle route linking bike lanes on Clingman Avenue and Hillard Avenue to the River Arts District, downtown Asheville and West Asheville. The City Bicycle Plan recommended climbing lanes, shared lane markings and lane diets to accommodate bicycle lanes on this route.

FEATURES:

Length: 2.63 miles
Cost: \$131.33k

COMMUNITIES:

Downtown Asheville
River Arts District
West Asheville





Asheville Priority Corridor 5

COLLEGE STREET TO BEAUCATCHER TUNNEL

This 0.6-mile section of College Street and Tunnel Road is a gap in the bicycle route system that is the only surface street linkage to areas of Asheville east of Beaucatcher Mountain. A feasibility study is needed to determine design options through the Tunnel. The route links the popular Town Mountain routes, bike lanes along Martin Luther King, Jr Drive, the Greyhound station and the Kenilworth neighborhood to existing bike lanes along College Street west of Charlotte Street.

FEATURES:

Length: .6 miles

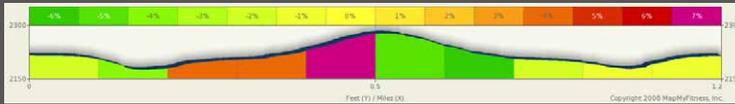
Cost: \$75k*

COMMUNITIES:

Kenilworth

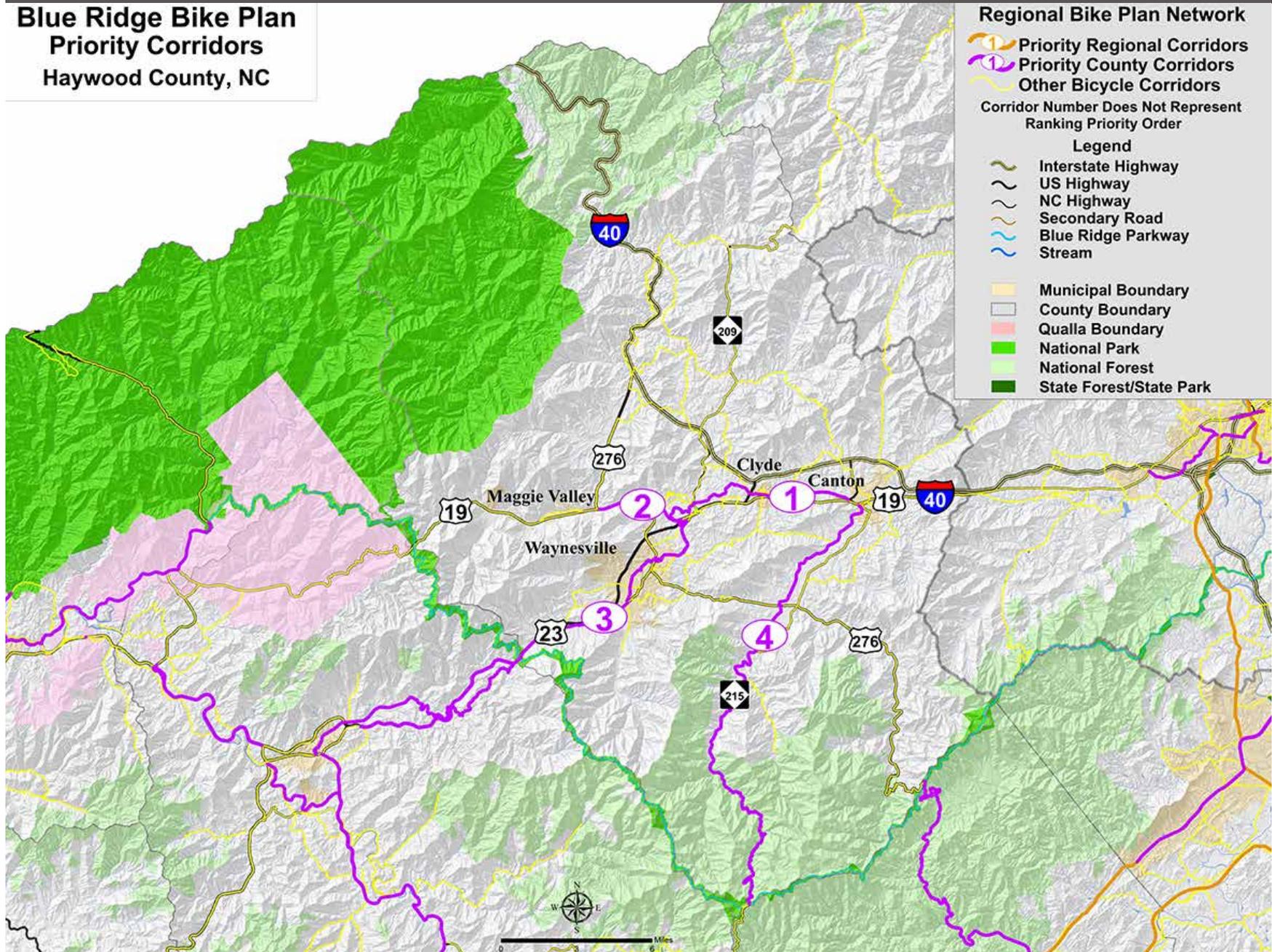
Downtown Asheville

*For feasibility study, cost of future capital project unknown



HAYWOOD COUNTY PRIORITY CORRIDORS

Blue Ridge Bike Plan
 Priority Corridors
 Haywood County, NC





Haywood County Priority Corridor 1 OLD CLYDE ROAD TO NC 209

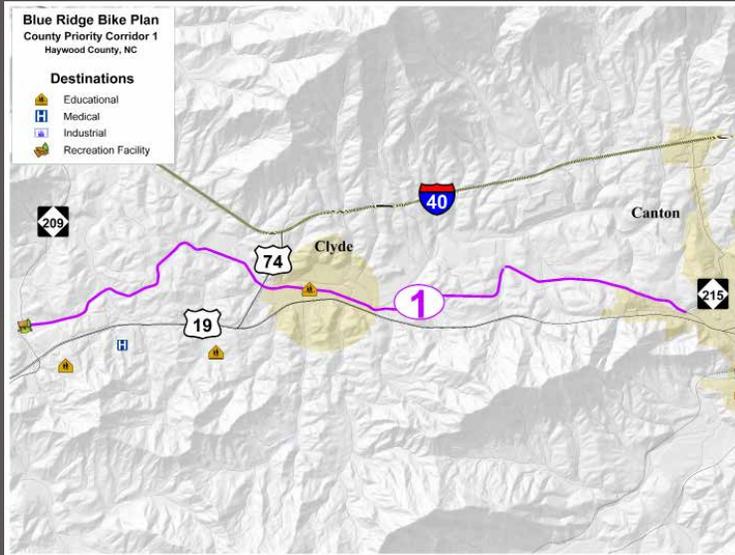
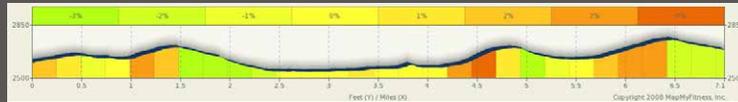
The 7-mile route is parallel to US 19/23 and connects the Town of Canton to the Lake Junaluska area. Old Clyde Road was identified as part of the Haywood Hub bicycle route in the Haywood County Comprehensive Bicycle Plan. Bikable shoulder and signage is recommended along the route.

FEATURES:

Length: 6.98 miles
Cost: \$2.094 million

COMMUNITIES:

Canton
Lake Junaluska



Haywood County Priority Corridor 2 DEILWOOD ROAD TO US 276

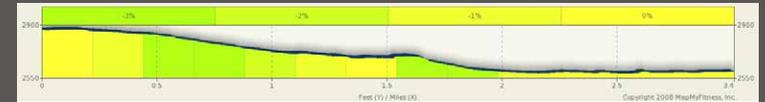
US 19 is the only roadway link between Maggie Valley and Lake Junaluska as well as Waynesville. Recommendations for this 3.63-mile corridor include designating bicycle lanes. Land of Sky RPO has requested that NCDOT restripe sections of US 19 west of US 276 to include bicycle lanes.

FEATURES:

Length: 3.63 miles
Cost: \$1.088 million

COMMUNITIES:

Maggie Valley
Lake Junaluska
Waynesville



Haywood County Priority Corridor 3 HAYWOOD HUB TO OLD CLYDE ROAD

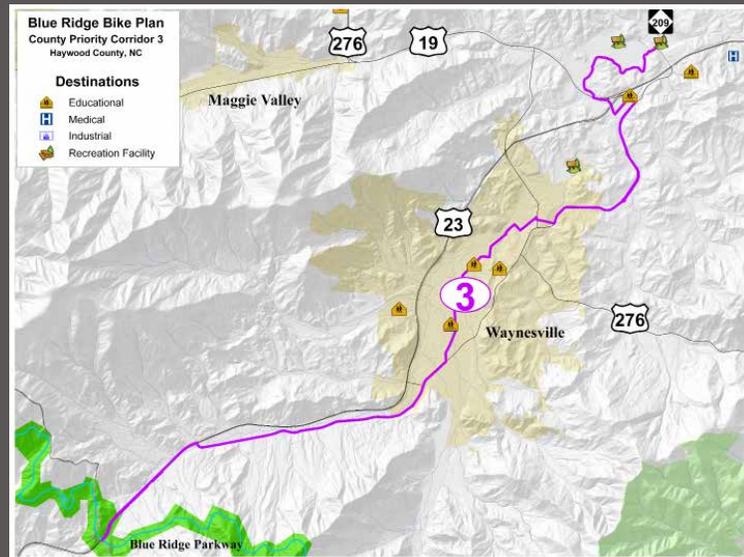
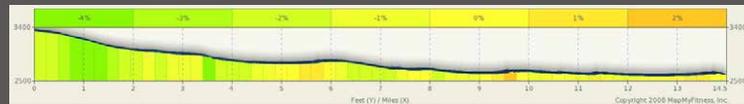
The 12-mile western section of the Haywood Hub Route connects Balsam and the Blue Ridge Parkway to Hazelwood, Downtown Waynesville and Lake Junaluska. The route is on-road for much of its length with a greenway connection near Lake Junaluska to cross US 23/74.

FEATURES:

Length: 12.85 miles
Cost: \$3.855 million

COMMUNITIES:

Lake Junaluska
Waynesville
Balsam
Hazelwood



Haywood County Priority Corridor 4 NC 215 TO BLUE RIDGE PARKWAY

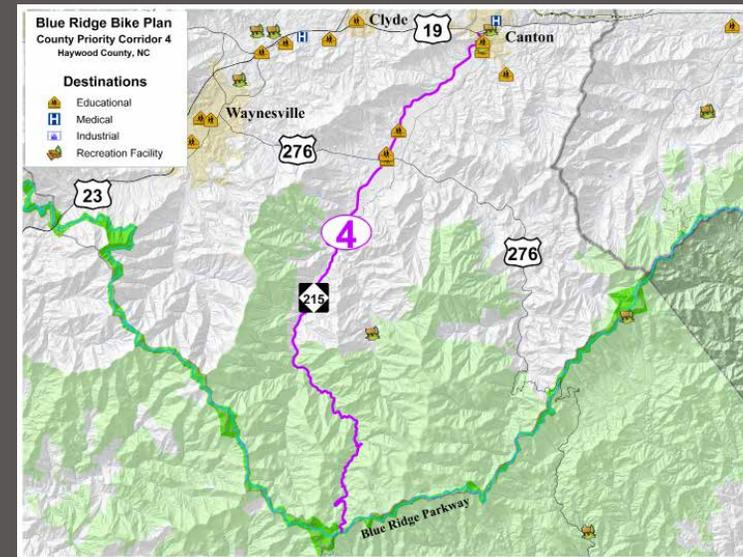
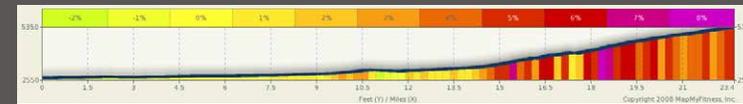
Bike lanes are recommended from downtown Canton to the Bethel community (6 miles). The remainder of the 23-mile route from Canton to the Blue Ridge Parkway (17 miles) is recommended for bikable shoulder, possible climbing lanes and pull offs.

FEATURES:

Length: 23.24 miles
Cost: \$6.972 million

COMMUNITIES:

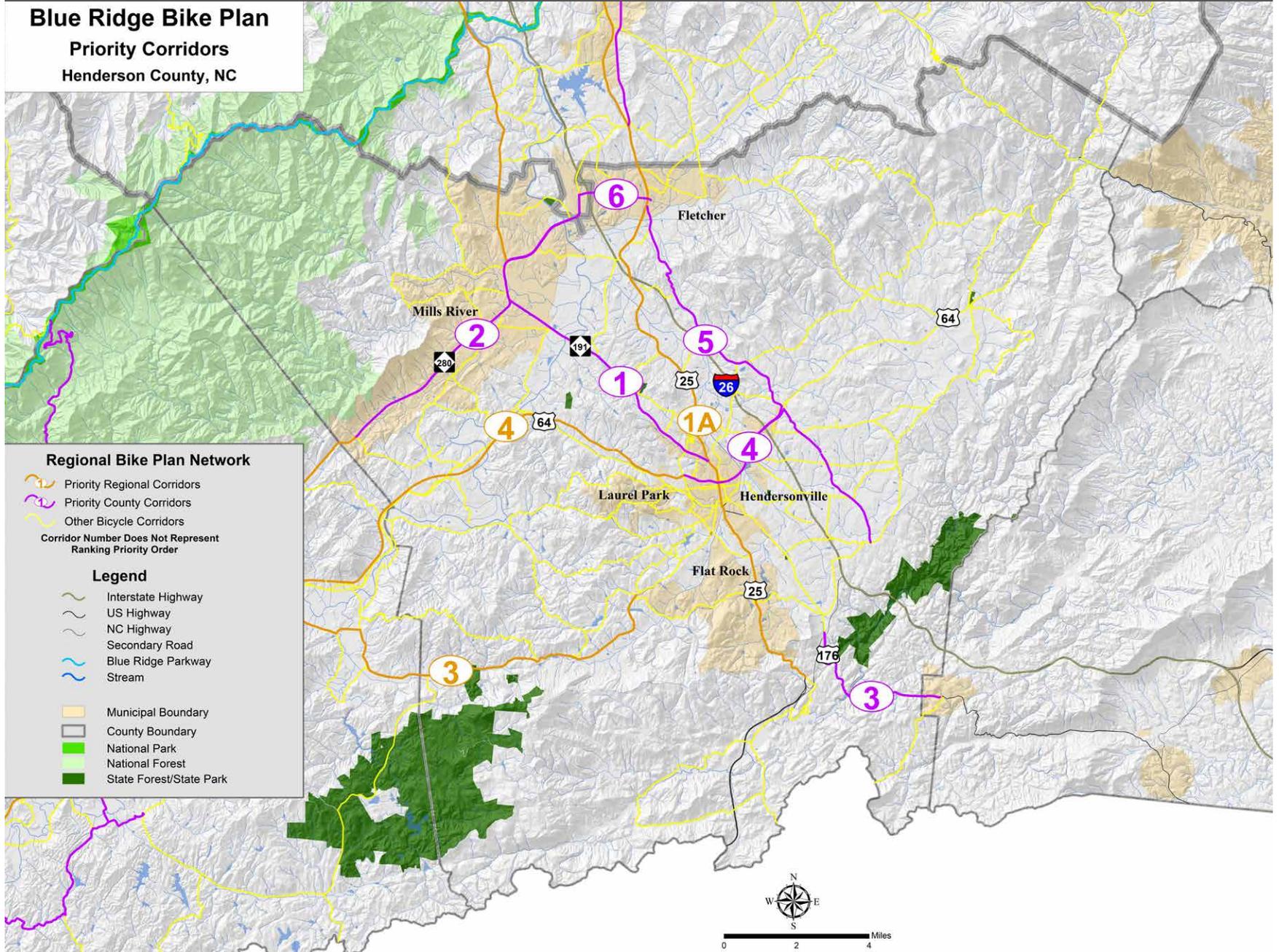
Canton
Bethel





HENDERSON COUNTY PRIORITY CORRIDORS

Blue Ridge Bike Plan
Priority Corridors
Henderson County, NC



Henderson County Priority Corridor 1 US 191 TO US 25/HENDERSONVILLE ROAD

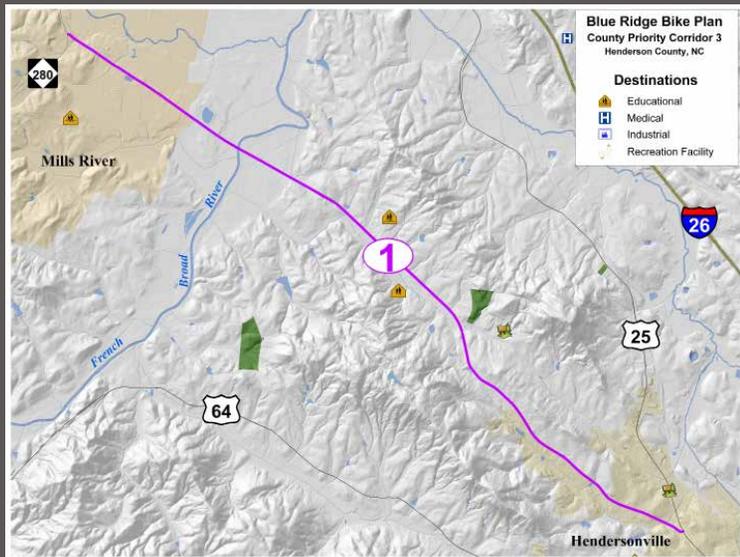
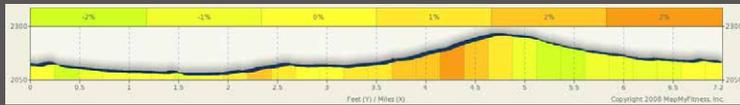
This 7-mile corridor is recommended for bicycle lanes along much of the route with shared lane markings within Hendersonville. The route links NC 280 in Mills River to downtown Hendersonville as well as the West Henderson Schools complex.

FEATURES:

Length: 7.17 miles
Cost: \$2.150 million

COMMUNITIES:

Hendersonville
Mills River
West Hendersonville



Henderson County Priority Corridor 2 NC 280 TO BRICKYARD ROAD

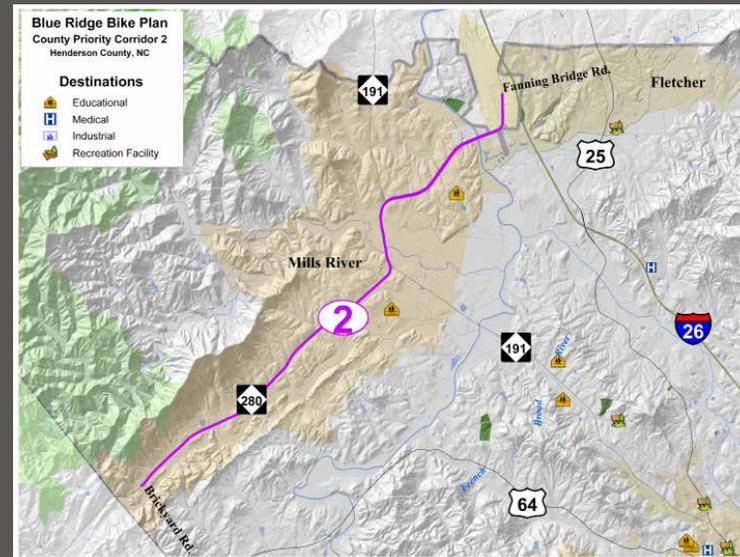
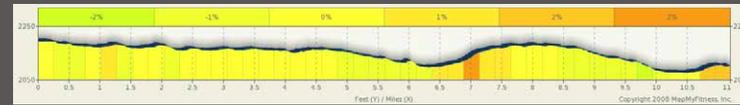
The 12-mile corridor connects Fletcher and the airport area to Mills River and points southwest via NC 280. The route is recommended for a buffered bicycle lane or greenway and could connect to the Sierra Nevada facility. It connects to a regional priority route along NC 280 south of Brickyard Road to Brevard.

FEATURES:

Length: 12.08 miles
Cost: \$9.062 million

COMMUNITIES:

Fletcher
Mills River





Henderson County Priority Corridor 3 US 176/SPARTANBURG HWY TO GREENVILLE STREET - SALUDA

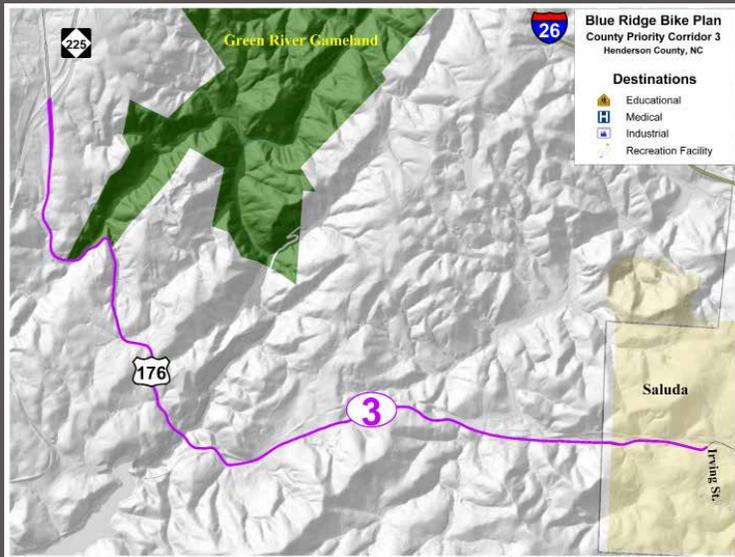
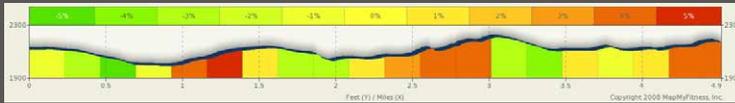
The US 176 route is a popular recreational route connecting Saluda to Hendersonville. The 5.3-mile section from Saluda to Spartanburg Highway is recommended for bikable shoulders and signage. It links Saluda to the regional priority route along US 176 to Hendersonville.

FEATURES:

Length: 5.3 miles
Cost: \$1.591 million

COMMUNITIES:

Hendersonville
Saluda



Henderson County Priority Corridor 4 US 64 TO HOWARD GAP ROAD

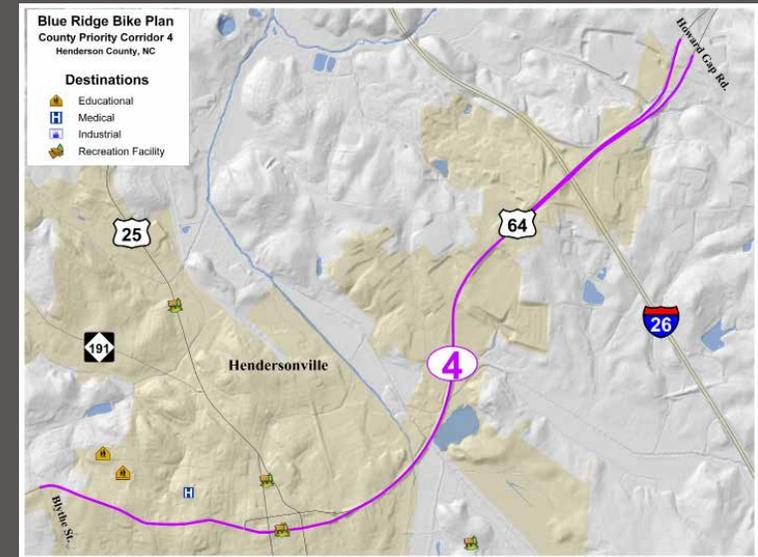
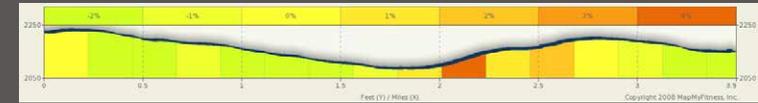
The nearly 5-mile route through downtown Hendersonville to Howard Gap Road along US 64 is recommended for bicycle lanes or parallel greenway (shared lane markings on segments through downtown). US 64 is a heavily-traveled vehicular corridor that links commercial areas east of Hendersonville. The Oklawaha Greenway crosses under this corridor and presents an opportunity for additional bicycle network linkage

FEATURES:

Length: 4.94 miles
Cost: \$1.481 million

COMMUNITIES:

Hendersonville



Henderson County Priority Corridor 5**

HOWARD GAP ROAD TO UPWARD ROAD

The northern 6-mile portion of this 12-mile section of Howard Gap Road (from US 64 to US 25) is already programmed for improvements by NCDOT to add bike lanes as part of R-5207. Signage should also be added to this route that links Fletcher to the Dana community and areas south of Hendersonville.

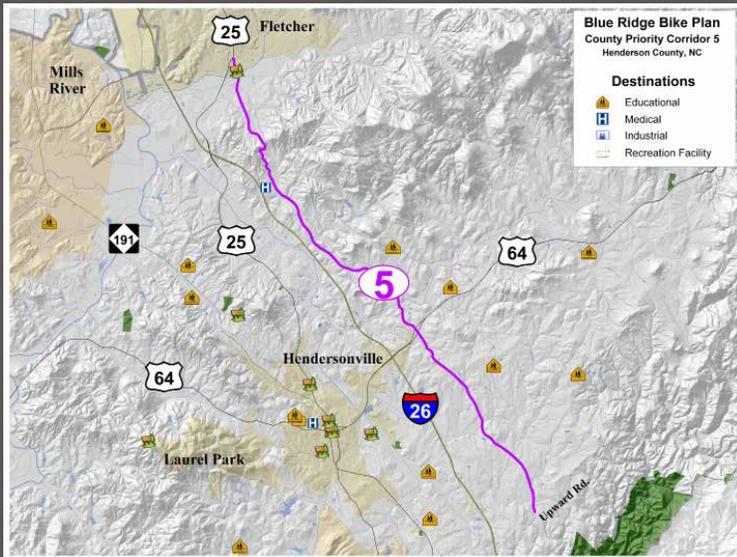
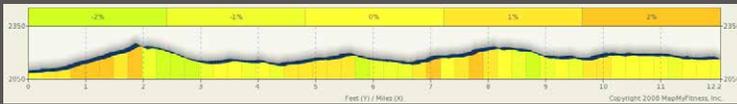
FEATURES:

Length: 11.92 miles
Cost: \$3.577 million

COMMUNITIES:

Fletcher
Dana
Hendersonville

**Corridors partially on the TIP & contracts have been let



Henderson County Priority Corridor 6

FANNING BRIDGE ROAD TO OLD CANE CREEK ROAD

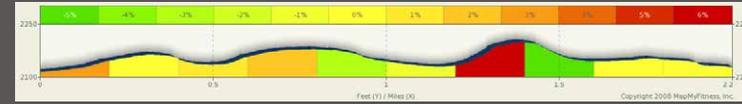
This 2.26 mile east-west route bisects Fletcher and links the Airport to neighborhoods near Fletcher Community Park. It is the only two-lane, low speed, low volume route in this area of Buncombe County that crosses I-26.

FEATURES:

Length: 2.26 miles
Cost: \$678k

COMMUNITIES:

Fletcher





JACKSON COUNTY PRIORITY CORRIDORS

Blue Ridge Bike Plan Priority Corridors Jackson County, NC

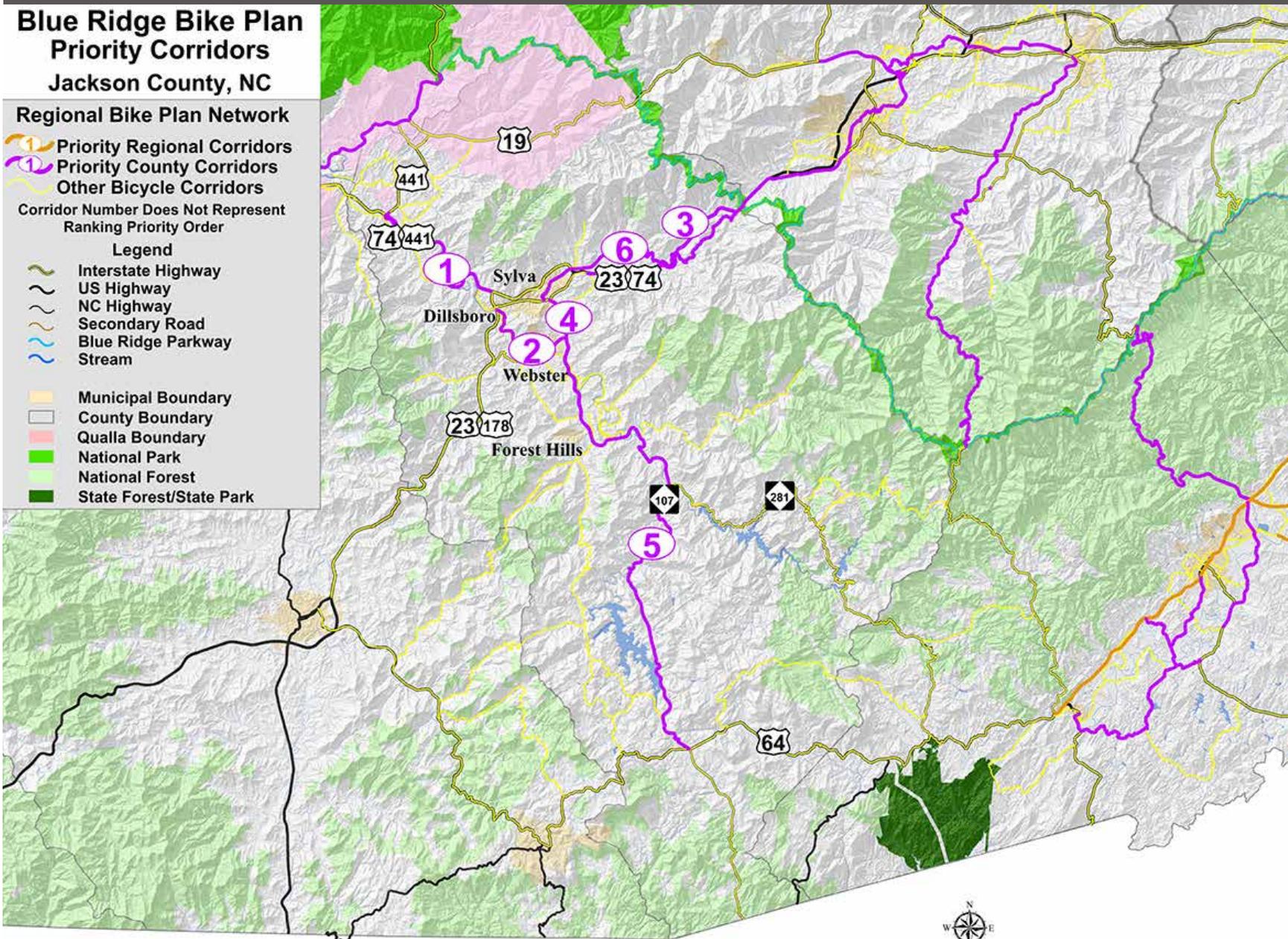
Regional Bike Plan Network

- Priority Regional Corridors
- Priority County Corridors
- Other Bicycle Corridors

Corridor Number Does Not Represent Ranking Priority Order

Legend

- Interstate Highway
- US Highway
- NC Highway
- Secondary Road
- Blue Ridge Parkway
- Stream
- Municipal Boundary
- County Boundary
- Qualla Boundary
- National Park
- National Forest
- State Forest/State Park



Jackson County Priority Corridor 1 US 74/GREAT SMOKY MTNS EXPRESSWAY FROM EXIT 81 TO 74

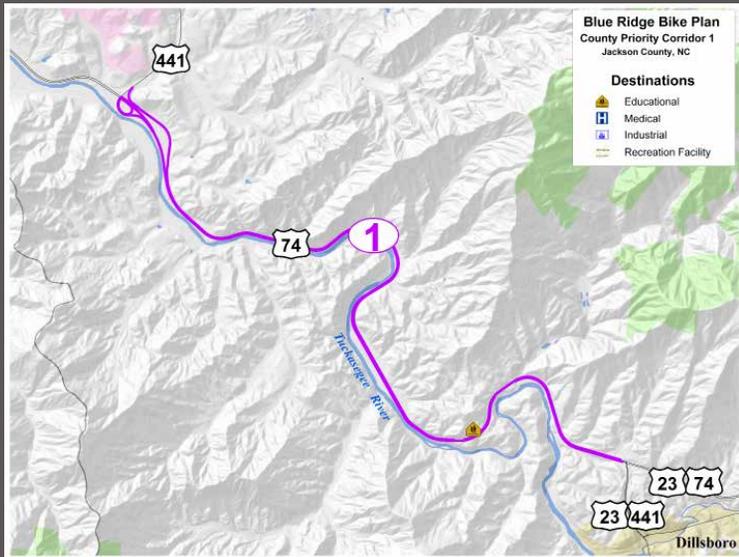
This 7-mile section of the Great Smoky Mountains Expressway (US 74) restricts bicycle use due to its status as a limited access highway. It is the only continuous connection between Exits 74 and 81. RPO and local jurisdictions have been working with with NCDOT to obtain an exception to the restricted use to allow bicycle travel and modify rumble strips where needed.

FEATURES:

Length: 7 miles
Cost: \$4.69 million

COMMUNITIES:

Great Smoky Mtns
Dillsboro



Jackson County Priority Corridor 2 RIVER ROAD FROM US 441 - DILLSBORO TO NC 107

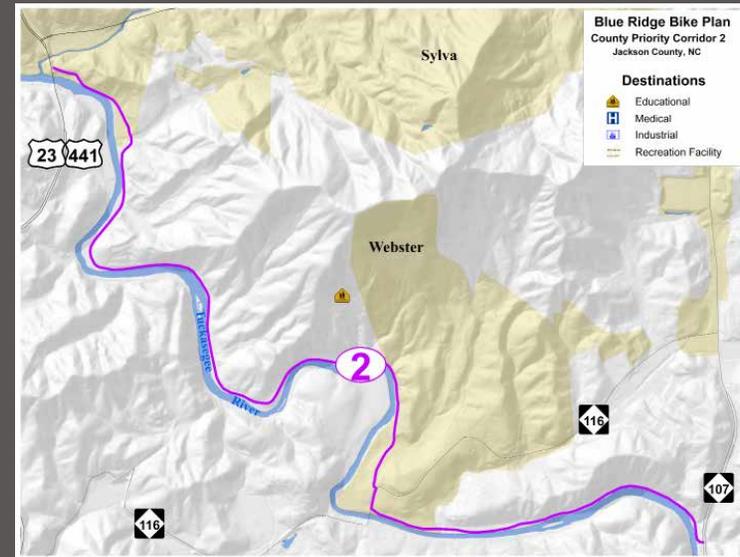
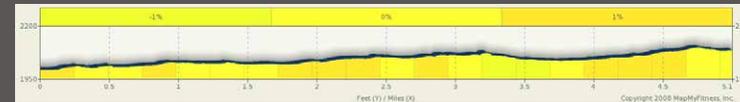
The 5-mile section of River Road provides a scenic connection between Dillsboro, Webster and NC 107 near Cullowhee. Recommendations are to add bikable shoulders and signage along the route, which will connect to planned greenways near Cullowhee.

FEATURES:

Length: 5.09 miles
Cost: \$1.528 million

COMMUNITIES:

Dillsboro
Webster
Cullowhee





Jackson County Priority Corridor 3 US 74/23 FROM BLUE RIDGE PARKWAY TO STEEPLE ROAD/COPE CREEK ROAD

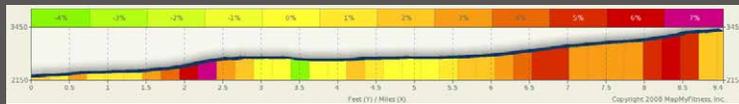
The 10-mile section of US 23/74 is also designated as State Bicycle Route 2; it connects Sylva to the Blue Ridge Parkway near Balsam and the Town of Waynesville. Bikeable shoulder and signage are recommended as well as modifications to rumble strips where needed.

FEATURES:

Length: 10 miles
Cost: \$4.748 million

COMMUNITIES:

Sylva
Balsam
Waynesville



Jackson County Priority Corridor 4 NC 107 TO NC 116/FAIRVIEW ROAD

A bicycle lane is recommended along this 2-mile section of NC 107 that links Sylva to Webster and Cullowhee. This section would connect to existing bicycle lanes on NC 107 between Fairview Road and Old Cullowhee Road (east of WCU). NC 107 improvements should address bicyclist needs along this route that connect downtown Sylva, Southwestern Community College, Sylva's main commercial corridor and the school complex.

FEATURES:

Length: 1.87 miles
Cost: \$560k

COMMUNITIES:

Sylva
Webster
Cullowhee



Jackson County Priority Corridor 5 NC 107 TO US 64 - CASHIERS

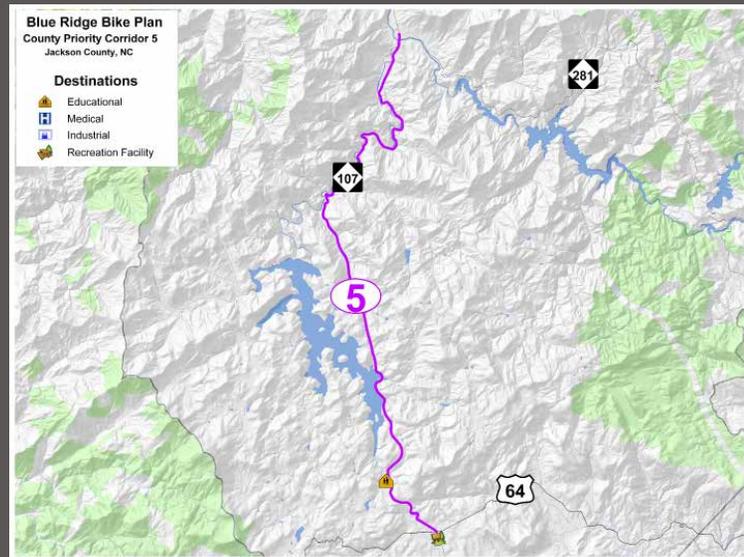
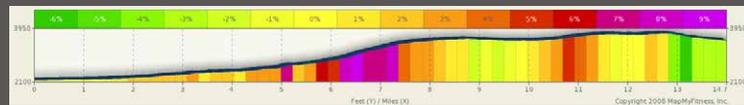
This 14.5-mile section of bikable shoulders and signage would connect to existing NC 107 bicycle lanes near Cullowhee to provide a link to Cashiers. In combination with Cullowhee Mountain Road, this route comprises the Ring of Fire route, a popular recreational ride and a candidate for Scenic Bikeway designation.

FEATURES:

Length: 14.55 miles
Cost: \$4.364 million

COMMUNITIES:

Cullowhee
Cashiers



Jackson County Priority Corridor 6 SKYLAND DRIVE/DARK RIDGE ROAD TO US 23 BUS

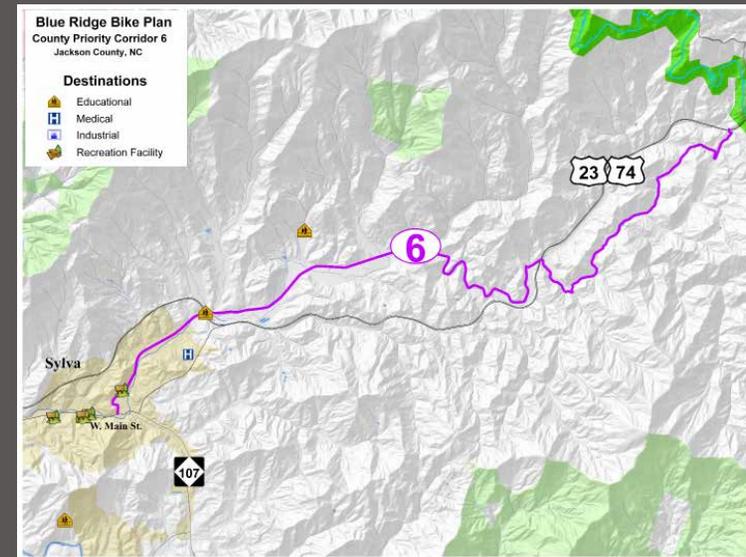
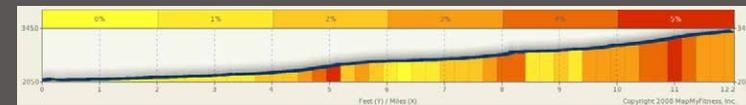
The 12-mile connection between Sylva and Balsam runs parallel to US 23/74 along winding two-lane roads. It serves as an alternate route to the four-lane highway and is a popular recreational route. Bikable shoulders and signage are recommended in unincorporated areas; bike lanes are recommended within Sylva's ETJ.

FEATURES:

Length: 12.2 miles
Cost: \$3.66 million

COMMUNITIES:

Sylva
Balsam





MADISON COUNTY PRIORITY CORRIDORS

Blue Ridge Bike Plan Priority Corridors Madison County, NC

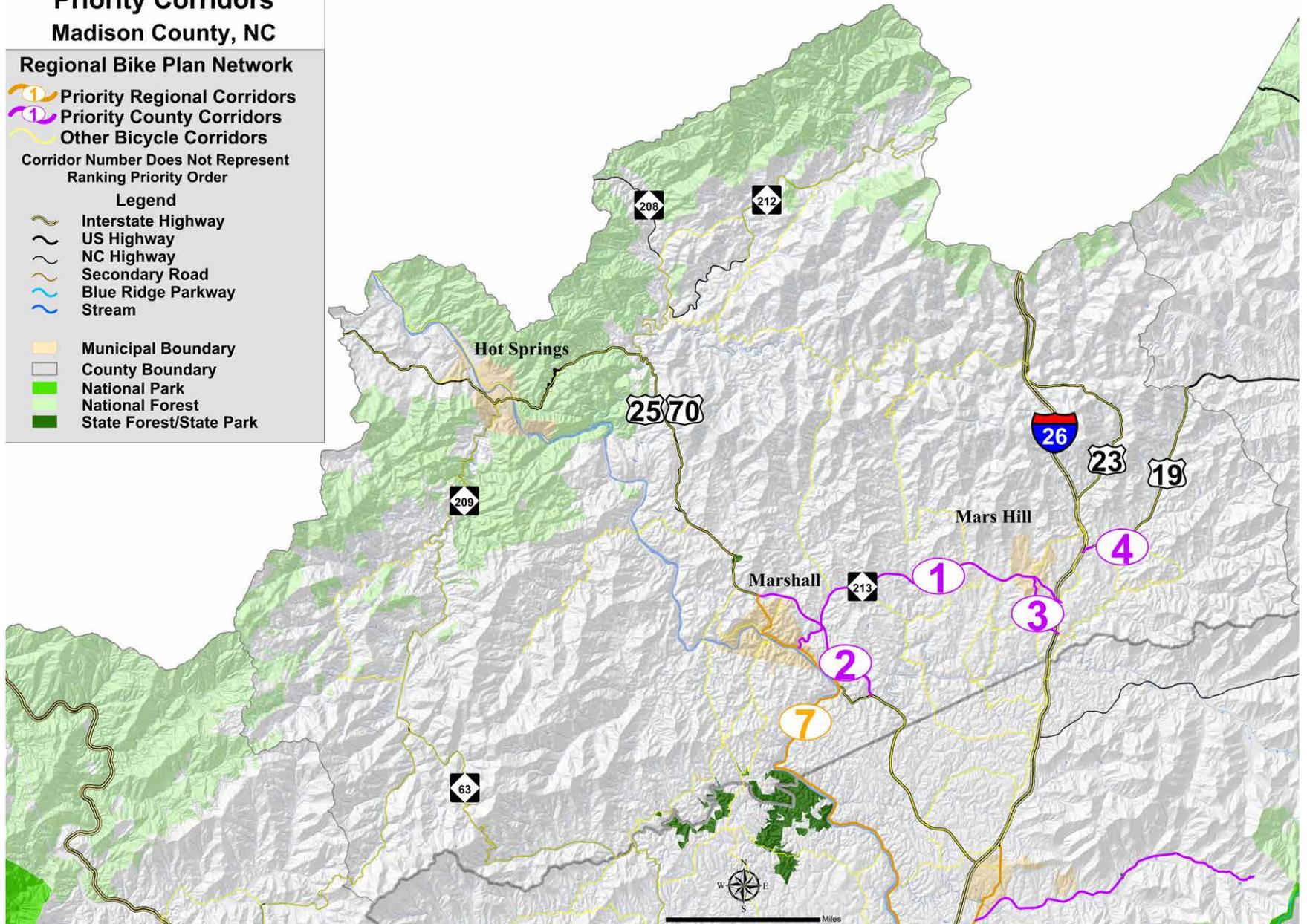
Regional Bike Plan Network

- Priority Regional Corridors
- Priority County Corridors
- Other Bicycle Corridors

Corridor Number Does Not Represent Ranking Priority Order

Legend

- Interstate Highway
- US Highway
- NC Highway
- Secondary Road
- Blue Ridge Parkway
- Stream
- Municipal Boundary
- County Boundary
- National Park
- National Forest
- State Forest/State Park



Madison County Priority Corridor 1 NC 213/HAYES RUN ROAD TO SOUTH MAIN STREET

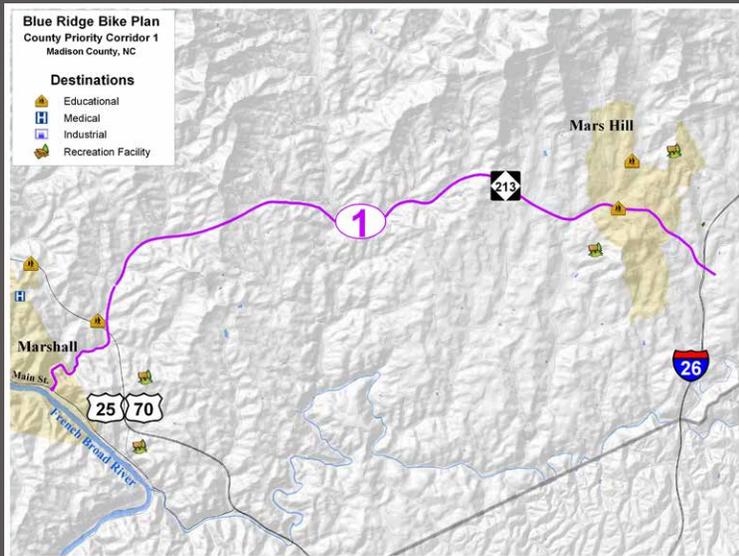
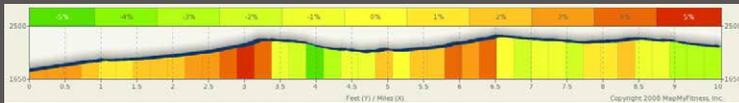
This 10-mile route connects the towns of Marshall and Mars Hill and provides an east-west bicycle route in central Madison County. Recommendations include a bicycle lane in the Mars Hill vicinity from Calvine Edney Road to Bull Creek Road; bikable shoulders and signage in the Marshall area and between US 25/70 and Bull Creek Road.

FEATURES:

Length: 9.89 miles
Cost: \$2.967 million

COMMUNITIES:

Marshall
Mars Hill



Madison County Priority Corridor 2 NC 25/70 TO IVY RIVER ROAD

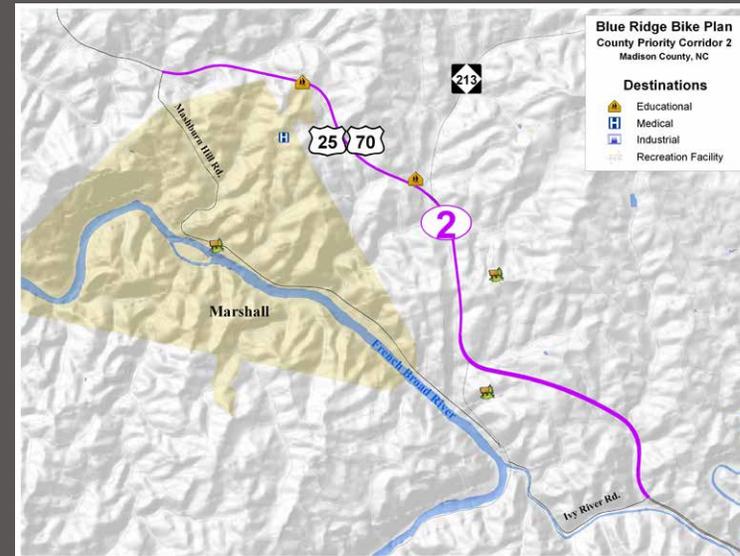
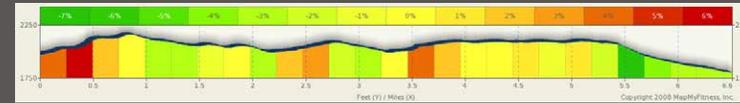
The project would add buffered bike lanes along US 25/70 in this 7-mile segment around the Town of Marshall. The route connects Madison High School and shopping areas along US 25/70 with local street connections to neighborhoods and downtown Marshall.

FEATURES:

Length: 7 miles
Cost: \$5.252 million

COMMUNITIES:

Marshall





Madison County Priority Corridor 3 SOUTH MAIN STREET TO BEECH GLEEN ROAD

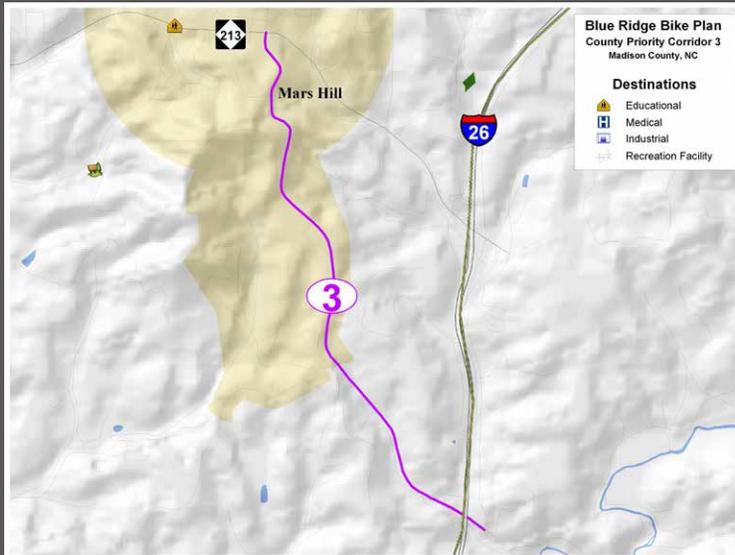
Adding bicycle lanes to this 2-mile section of South Main Street will link downtown Mars Hill, Mars Hill College, the library, shopping areas and to popular recreational routes in eastern Madison County and Weaverville.

FEATURES:

Length: 1.95 miles
Cost: \$584k

COMMUNITIES:

Mars Hill
Weaverville



Madison County Priority Corridor 4 I-26 INTERSECTION AT OLD CROSSROADS PARKWAY

Improve the intersection of Old US 19/23 and Crossroads Parkway near the I-26 interchange (Exit 9) to improve visibility of bicyclists due to high speed ingress and egress of vehicles at I-26.

FEATURES:

Length: .42 miles
Cost: \$125k

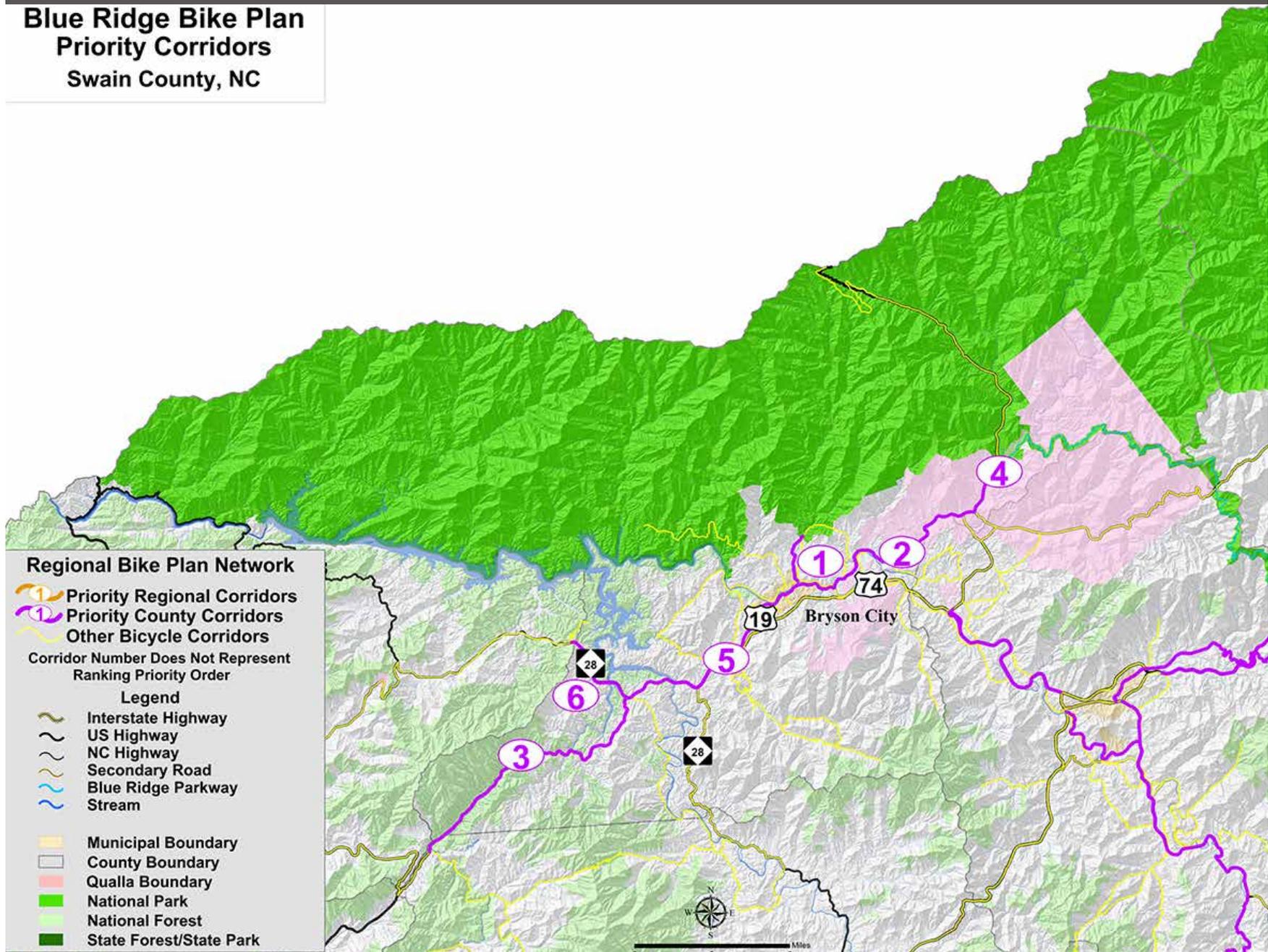
COMMUNITIES:

Mars Hill



SWAIN COUNTY PRIORITY CORRIDORS

Blue Ridge Bike Plan
Priority Corridors
Swain County, NC



Regional Bike Plan Network

- Priority Regional Corridors
- Priority County Corridors
- Other Bicycle Corridors

Corridor Number Does Not Represent Ranking Priority Order

Legend

- Interstate Highway
- US Highway
- NC Highway
- Secondary Road
- Blue Ridge Parkway
- Stream
- Municipal Boundary
- County Boundary
- Qualla Boundary
- National Park
- National Forest
- State Forest/State Park





Swain County Priority Corridor 1 WEST DEEP CREEK TO GREAT SMOKY MTNS NATIONAL PARK

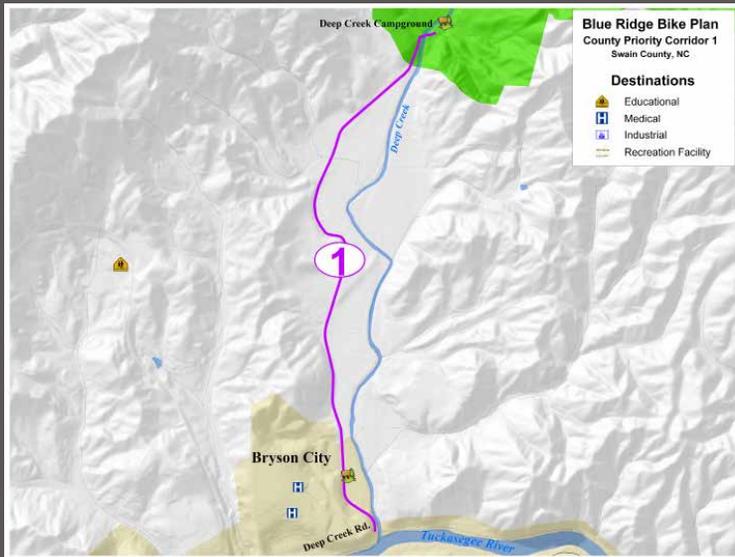
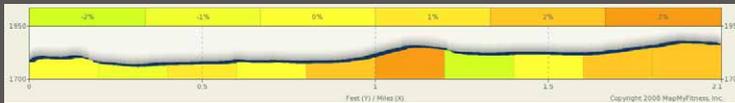
This 2-mile route is a popular riding route that connects downtown Bryson City to the Great Smoky Mountains National Park and the many campgrounds near the park entrance. Recommendations include adding bicycle lanes and signage along the route.

FEATURES:

Length: 2.04 miles
Cost: \$612k

COMMUNITIES:

Bryson City
Great Smoky Mtns



Swain County Priority Corridor 2 US 441 TO ALARKA ROAD

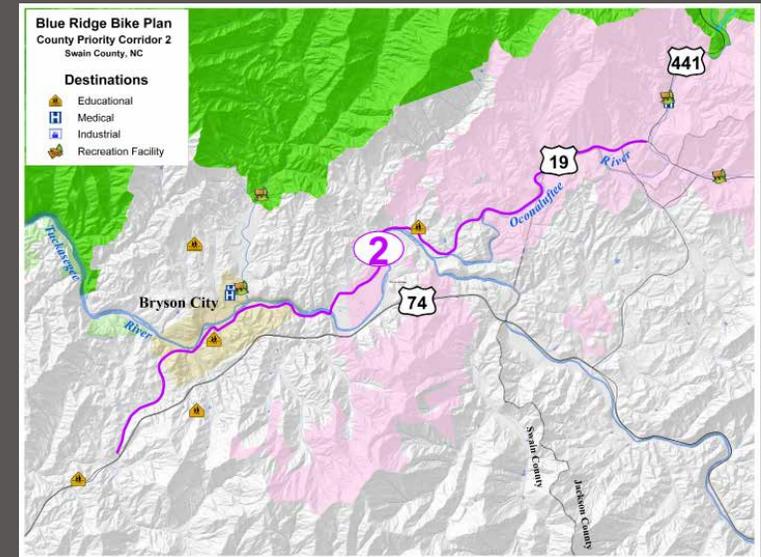
The 13-mile route from US 441 in Cherokee to the Alarka Road (Exit 64) of the Great Smoky Mountains Expressway follows US 19 through downtown Bryson City. Bikable shoulders and signage are recommended with bicycle lanes through Bryson City. The route follows the Tuckasegee and Oconaluftee River from Cherokee through Bryson City.

FEATURES:

Length: 13.05 miles
Cost: \$3.915 million

COMMUNITIES:

Cherokee
Bryson City



Swain County Priority Corridor 3 US 19/74 - NANTAHALA TO MACON COUNTY

This 12-mile bicycle route runs through the Nantahala Gorge and connects areas west of Bryson City to the Nantahala Outdoor Center. It is along the Nantahala Byway. Bikable shoulders, signage and rumble strip modifications are recommended along with a feasibility study to determine likely facilities for bicyclists through the Gorge area.

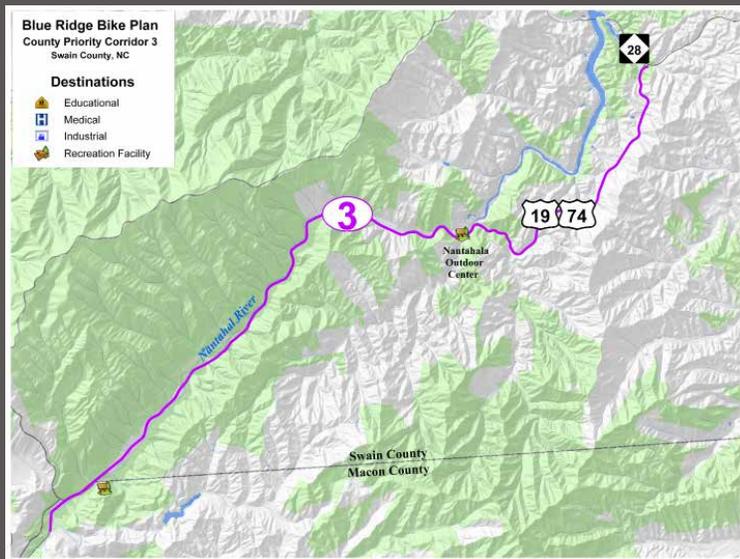
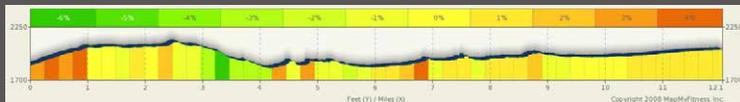
FEATURES:

Length: 12.05 miles
Cost: \$363k plus 75k*

COMMUNITIES:

Bryson City

* For feasibility study to address the Nantahala Gorge



Swain County Priority Corridor 4 US 441 TO BLUE RIDGE PARKWAY

Recommendations for this corridor through Cherokee include adding a bicycle lane and signage along US 441 through a heavily traveled corridor to link to the Blue Ridge Parkway. Several schools, the Museum of the Cherokee Indian and other attractions are along US 441.

FEATURES:

Length: 2.94 miles
Cost: \$882k

COMMUNITIES:

Cherokee





Swain County Priority Corridor 5 US 19/74 TO NC 28

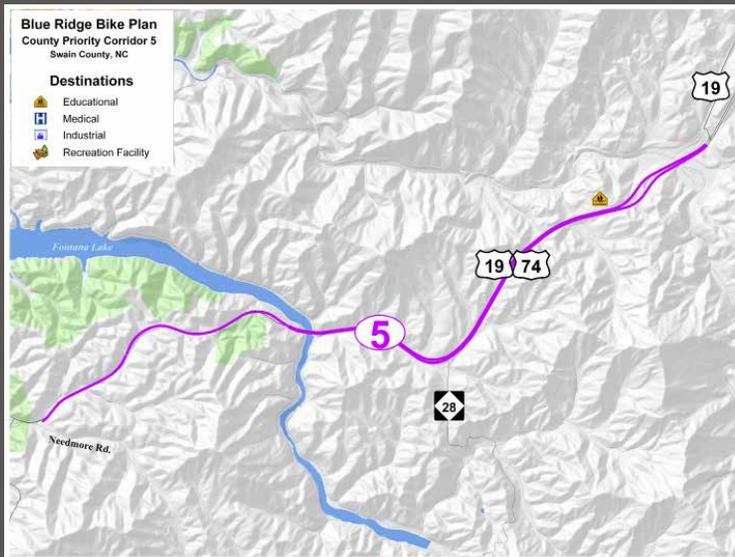
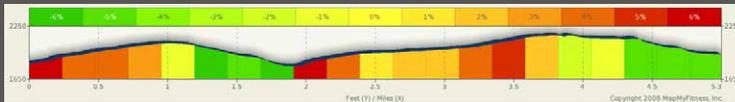
Bikeable shoulders, signage and rumble strip modifications are recommended along this 5.4-mile segment of the Great Smoky Mountains Expressway / Nantahala Byway that links to other Swain County recommendations east and west of the project. This linkage connects, with other projects, Bryson City to the Nantahala Outdoor Center and NC 28.

FEATURES:

Length: 5.4 miles
Cost: \$1.62 million

COMMUNITIES:

Bryson City
Great Smoky Mtns
Nantahal Byway



Swain County Priority Corridor 6 NC 28 AT NEEDMORE ROAD TO GRAHAM COUNTY LINE

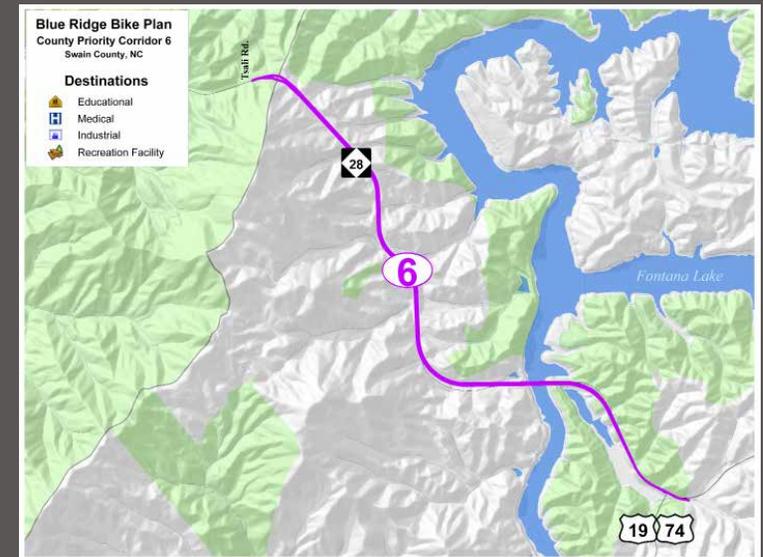
The route along NC 28 from Needmore Road to Lower Panther Creek Road is a 5.8-mile route through the Almond community to the shores of Fontana Lake. Bikable shoulders and signage is recommended along the route, which also passes by a Swain County park near Almond.

FEATURES:

Length: 5.8 miles
Cost: \$1.74 million

COMMUNITIES:

Almond
Fontana Lake



TRANSYLVANIA COUNTY PRIORITY CORRIDORS

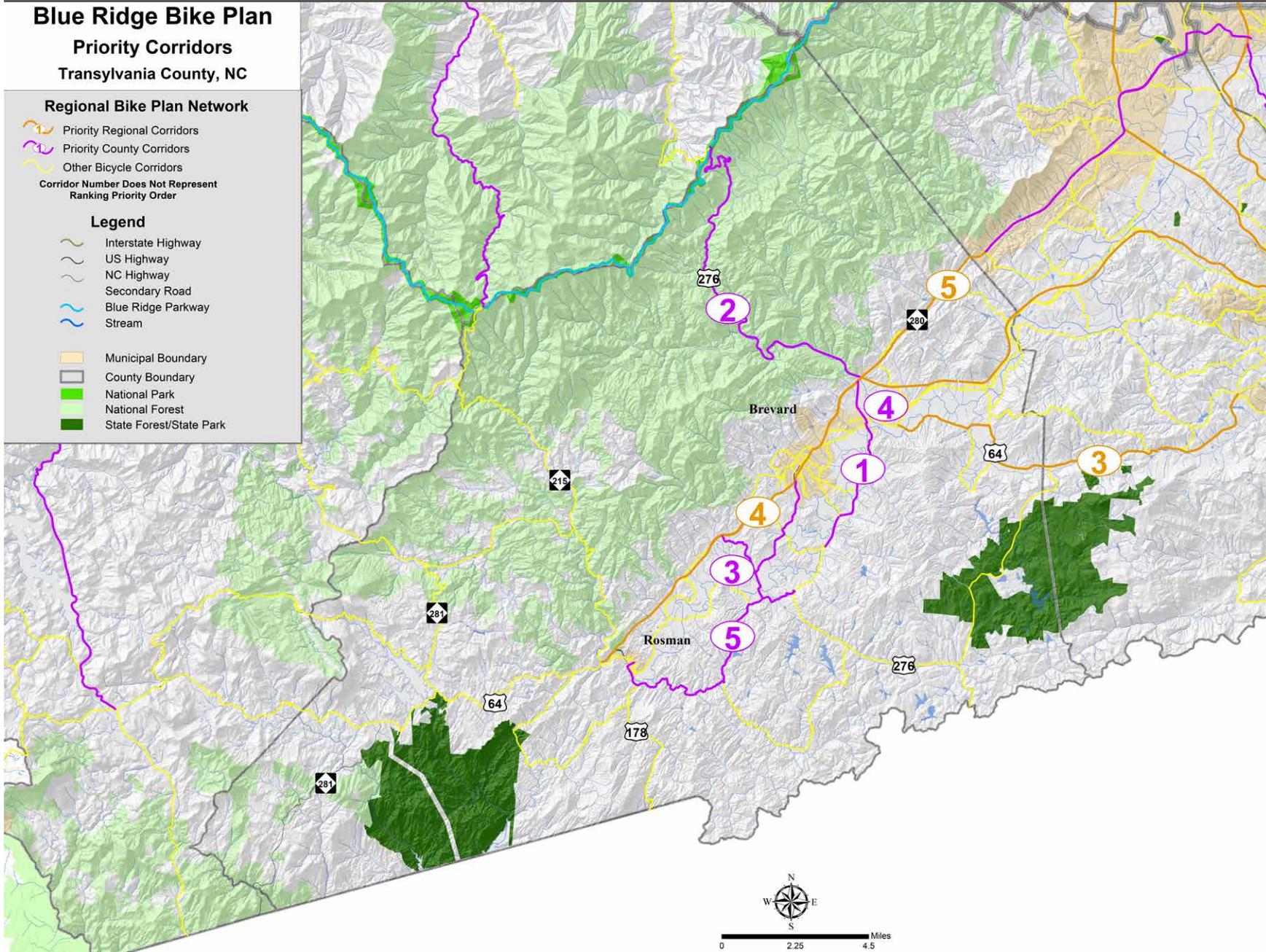
Blue Ridge Bike Plan Priority Corridors Transylvania County, NC

Regional Bike Plan Network

-  Priority Regional Corridors
 -  Priority County Corridors
 -  Other Bicycle Corridors
- Corridor Number Does Not Represent Ranking Priority Order

Legend

-  Interstate Highway
-  US Highway
-  NC Highway
-  Secondary Road
-  Blue Ridge Parkway
-  Stream
-  Municipal Boundary
-  County Boundary
-  National Park
-  National Forest
-  State Forest/State Park





Transylvania County Priority Corridor 1 US 276/WILSON ROAD TO BARCLAY ROAD

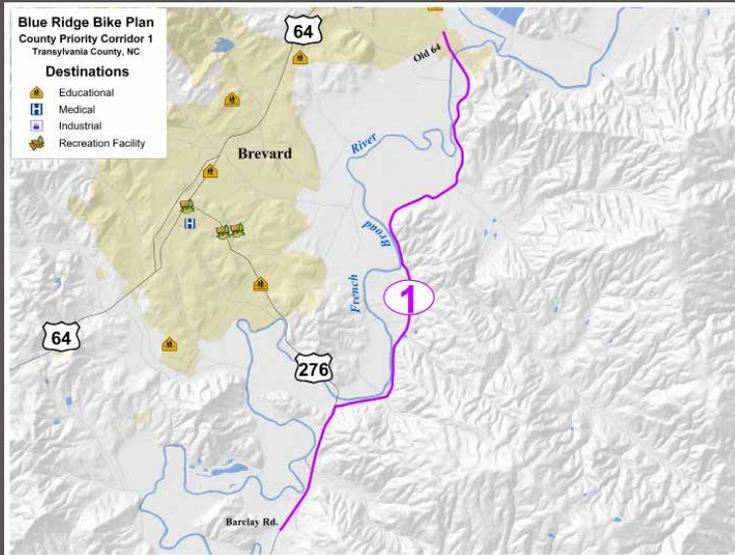
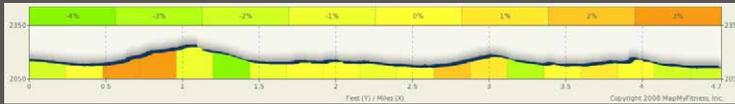
This corridor is recommended for bicycle lanes within Brevard ETJ limits and bikable shoulders in unincorporated areas. The 4.6-mile route link the proposed Brevard bike path, Pisgah Forest Elementary School and the Transylvania Activity Center.

FEATURES:

Length: 4.6 miles
Cost: \$1.38 million

COMMUNITIES:

Brevard
Pisgah Forest



Transylvania County Priority Corridor 2 US 276 TO BLUE RIDGE PARKWAY

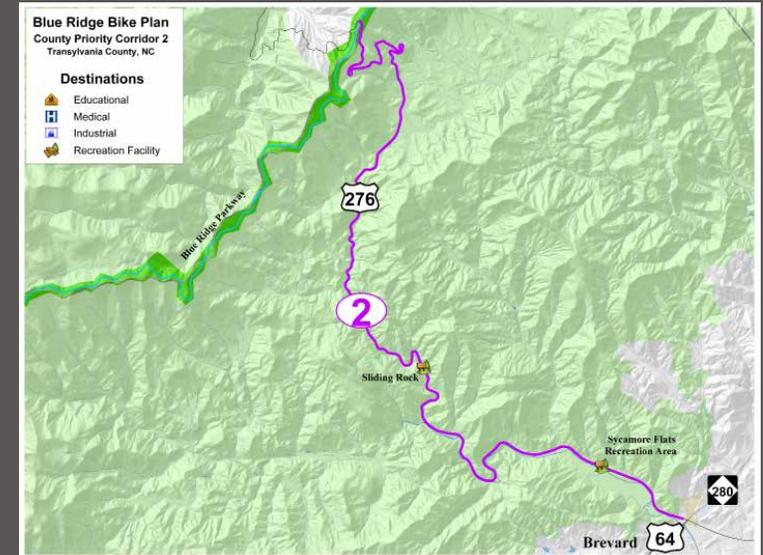
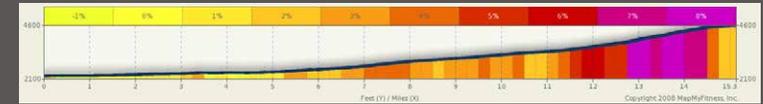
The 15-mile scenic climb from Brevard to the Blue Ridge Parkway via US 276 is recommended for bikable shoulders and/or climbing lanes, signage and/or pulloff areas for bicyclists to allow motorists to pass. The route connects to the Brevard Bike Path. US 276 is the Forest Heritage Scenic Byway.

FEATURES:

Length: 14.95 miles
Cost: \$4.484 million

COMMUNITIES:

Brevard
Blue Ridge Parkway



Transylvania County Priority Corridor 3 ISLAND FORT ROAD TO US 64W

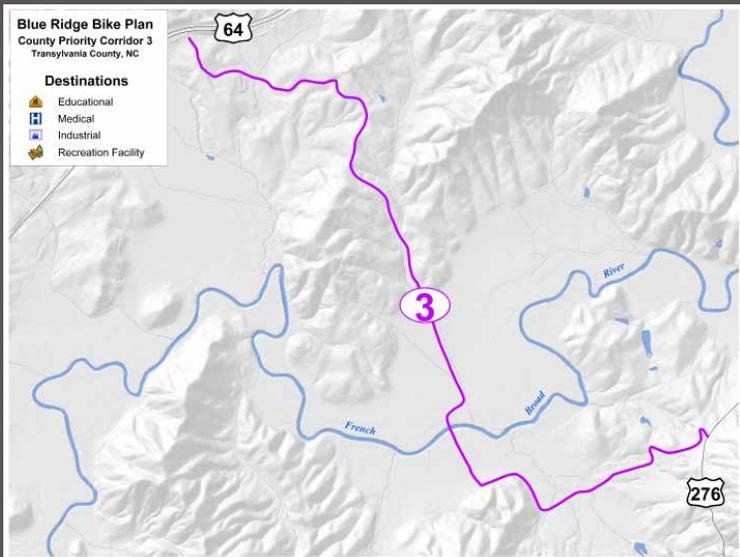
The 4-mile route between US 64W and US 276 is a recreational route halfway between Brevard and Rosman. It links to other popular recreational routes, including Transylvania County Corridor #5. Bikable shoulders and signage are recommended along the route.

FEATURES:

Length: 4.02 miles
Cost: \$1.205 million

COMMUNITIES:

Brevard
Rosman



Transylvania County Priority Corridor 4 ECUSTA ROAD TO OLD US 64

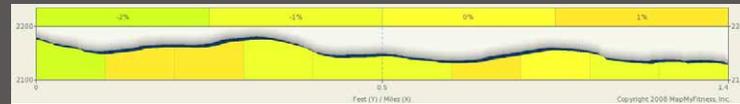
Ecusta Road includes a multi-use sidepath along a portion of this segment and is recommended for bicycle lanes or shared lane markings for the remaining segment of this 1.3-mile corridor north of Brevard.

FEATURES:

Length: 1.3 miles
Cost: \$389k

COMMUNITIES:

Brevard





Transylvania County Priority Corridor 5 COUNTRY CLUB ROAD - BREVARD TO ROSMAN

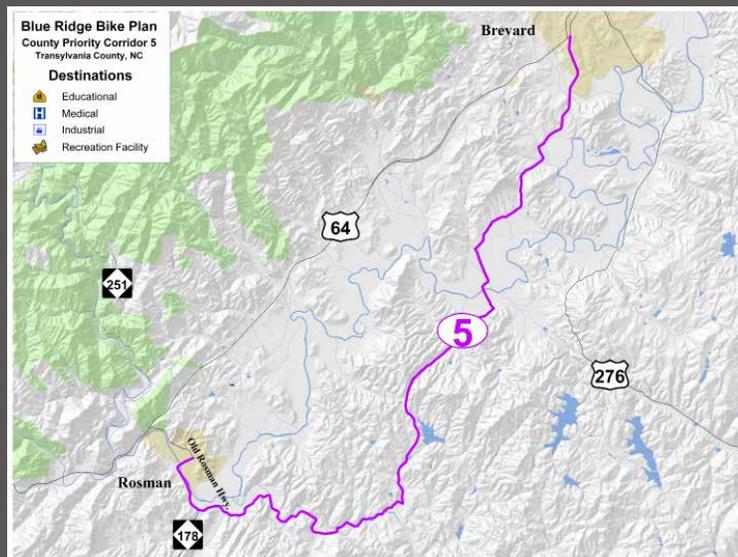
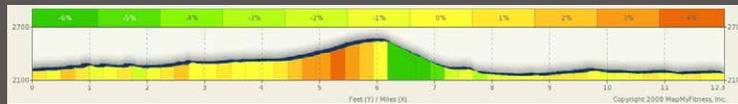
This route is a 12.2-mile link between Brevard and Rosman that allows bicyclists to avoid US 64. Downtown Rosman and downtown Brevard serve as bookends for the route, which bisects Transylvania County Corridor #3. Bikable shoulders and signage is recommended, with shared lane markings or bicycle lanes within municipal ETJ limits.

FEATURES:

Length: 12.23 miles
Cost: \$3.668 million

COMMUNITIES:

Brevard
Rosman



Regional Priority Corridor 1a NC 225/US 25 FROM FLETCHER TO FLAT ROCK

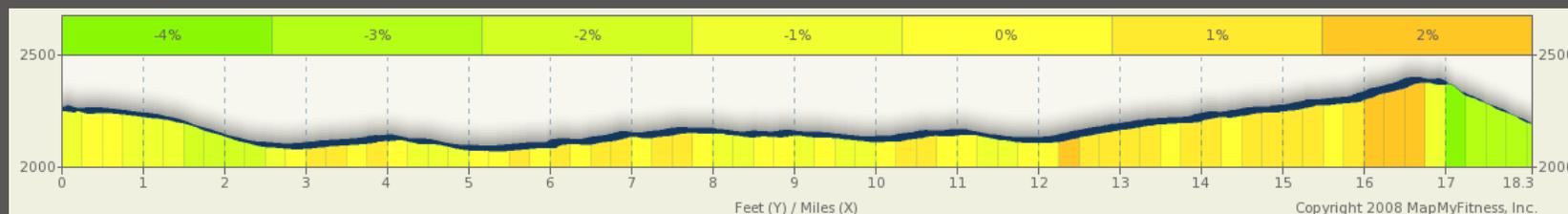
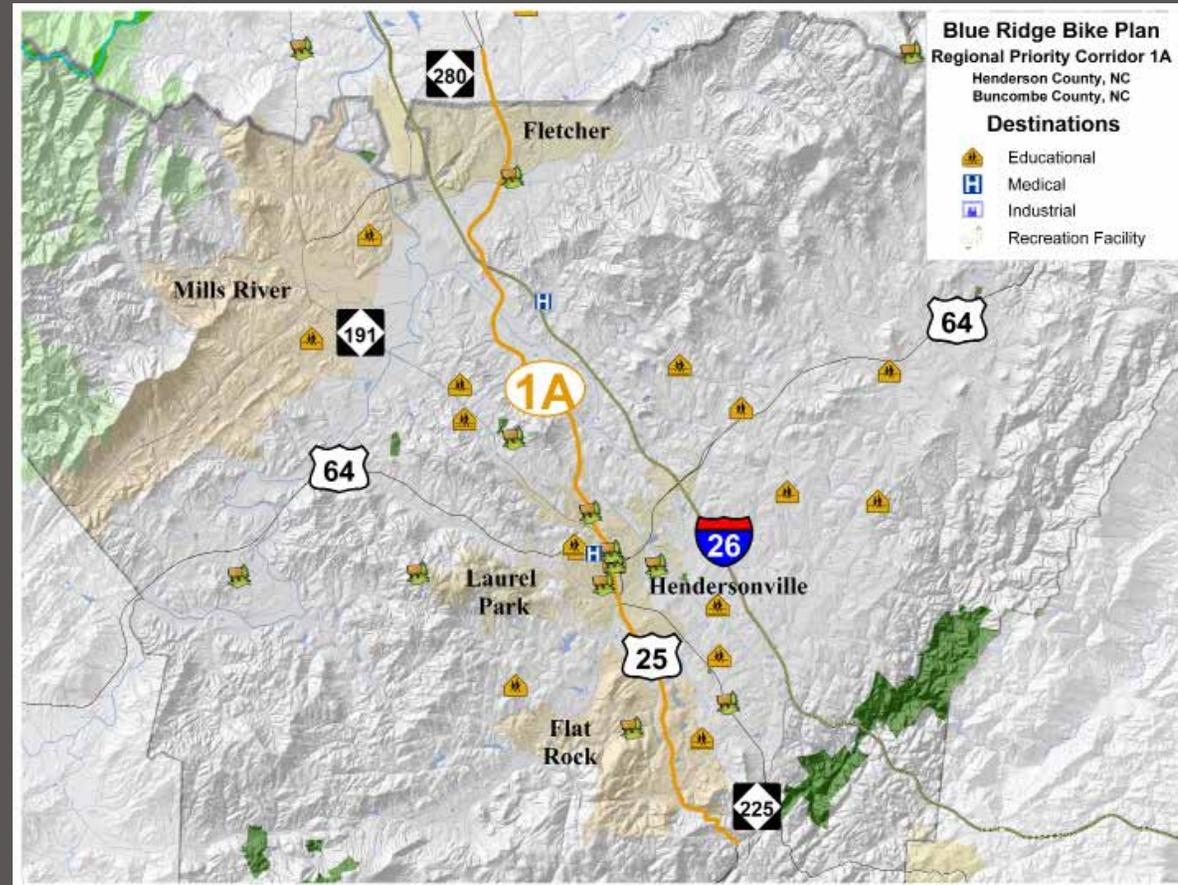
FEATURES:

Length: 16.5 miles
Cost: \$4.95 million

COMMUNITIES:

Fletcher
Flat Rock
Hendersonville

Recommendations for this regional corridor include bike lanes through urban sections and bikable shoulders and signage outside municipalities along the 16.5-mile route that spans Henderson County. The project is a continuation of Regional Priority Route #1b in Buncombe County. The route is a heavily traveled vehicular corridor without bicycle facilities for users of all ages and abilities. Portions of the route contain curb and gutter while others are a rural cross section. The route links the communities of Fletcher, Hendersonville and Flat Rock. Destinations along the corridor include downtown areas, grocery stores, public facilities and parks, and several apartment complexes and residential developments.





Regional Priority Corridor 1b US 25 FROM FLETCHER TO ASHEVILLE

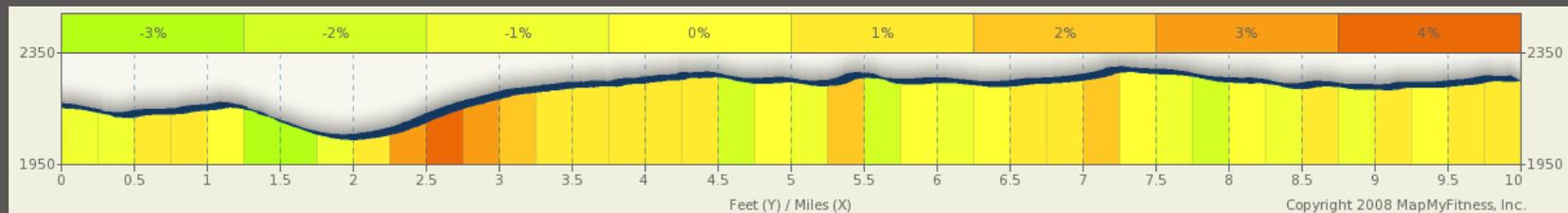
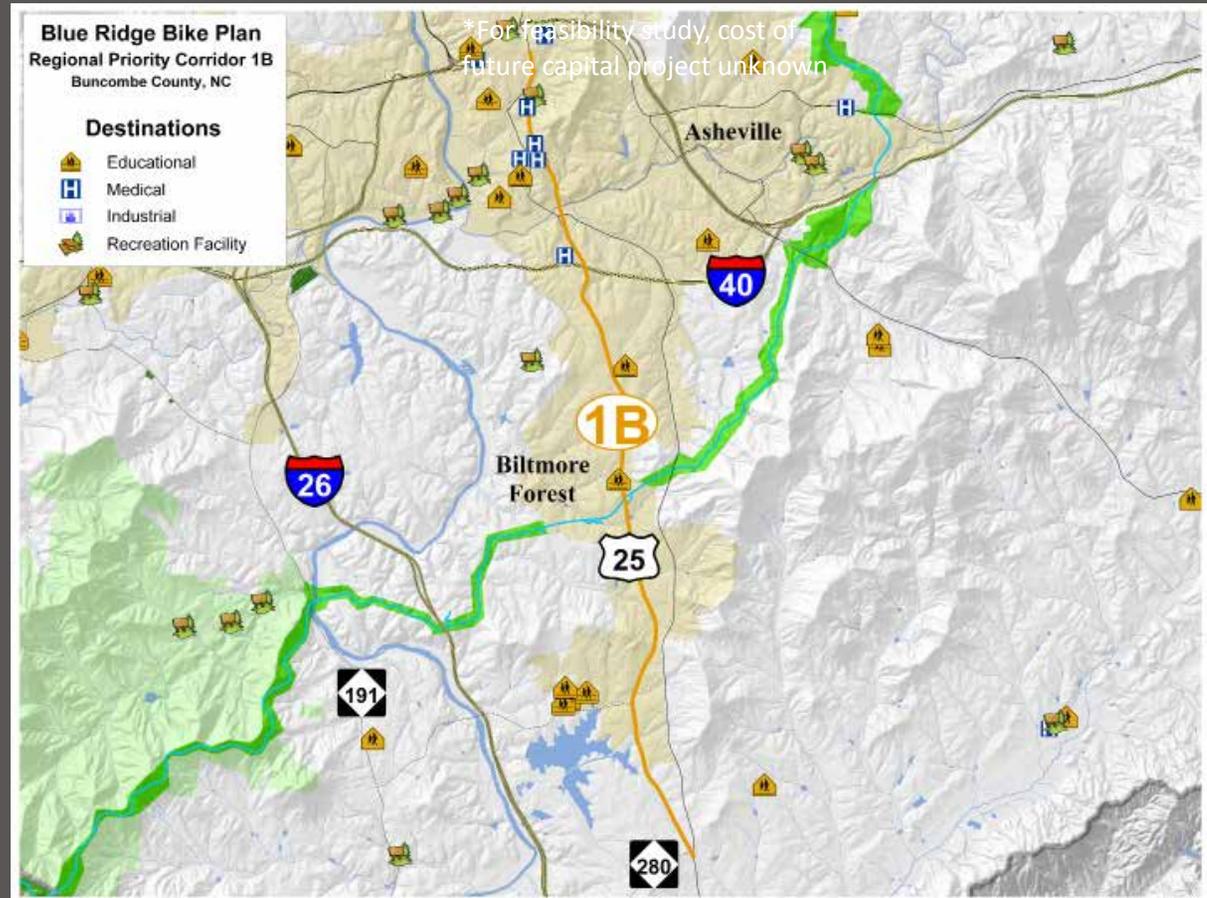
FEATURES:

Length: 11.25 miles
Cost: \$8.439 million

COMMUNITIES:

Asheville
Biltmore Village
Fletcher
Shiloh

This 11-mile regional corridor links downtown Asheville to Fletcher along the heavily-traveled US 25 route that includes destinations such as Pack Square, Biltmore Village, the Biltmore Estate, the Blue Ridge Parkway, the Shiloh community and several residential and commercial areas along the corridor. Facility recommendations along the route vary based on context and include bicycle lanes through the northern section, buffered bicycle lanes or greenways from I-40 to Airport Road (NC 280), and bikable shoulders south of Airport Road. The route is an extension of Regional Priority Route #1a in Henderson County.

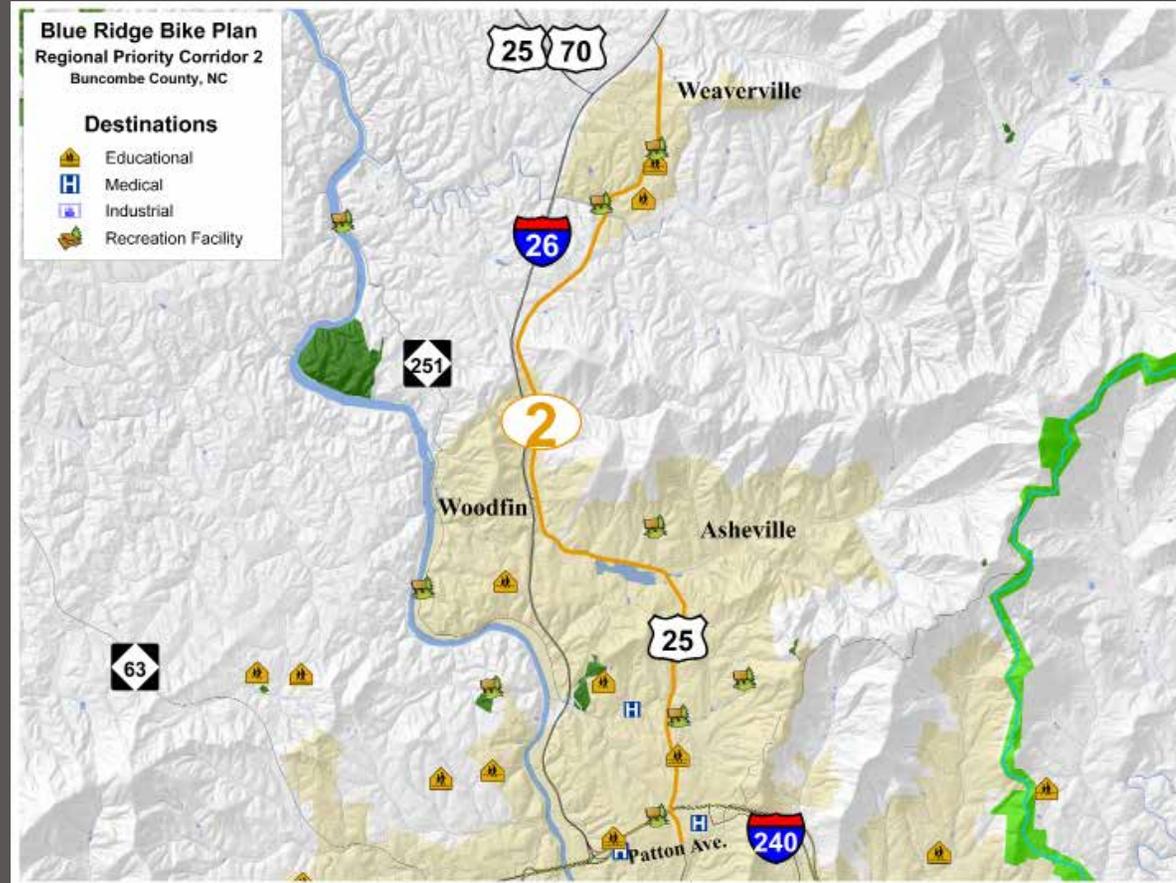


Regional Priority Corridor 2 US 25 FROM ASHEVILLE TO WEAVERVILLE

FEATURES:
Length: 9.69 miles
Cost: \$2.906 million

COMMUNITIES:
Asheville
Weaverville
Woodfin

The 9.7-mile route along US 25 from downtown Asheville to Weaverville via Woodfin links many residential and commercial areas along the corridor. US 25 in this area of Buncombe County is the only non-Interstate route that links the three communities, which makes it a regional priority. Recommendations along the route include adding bicycle lanes along most of the route, with shared lane markings along low speed, low volume segments in downtown Weaverville. Destinations include downtown Weaverville, Woodfin and Asheville, as well as UNC Asheville, two YMCA facilities, the Reynolds Mountain mixed-use development and several commercial and residential areas.





Regional Priority Corridor 3

KANUGA ROAD - FLAT ROCK TO OLD 64 - BREVARD

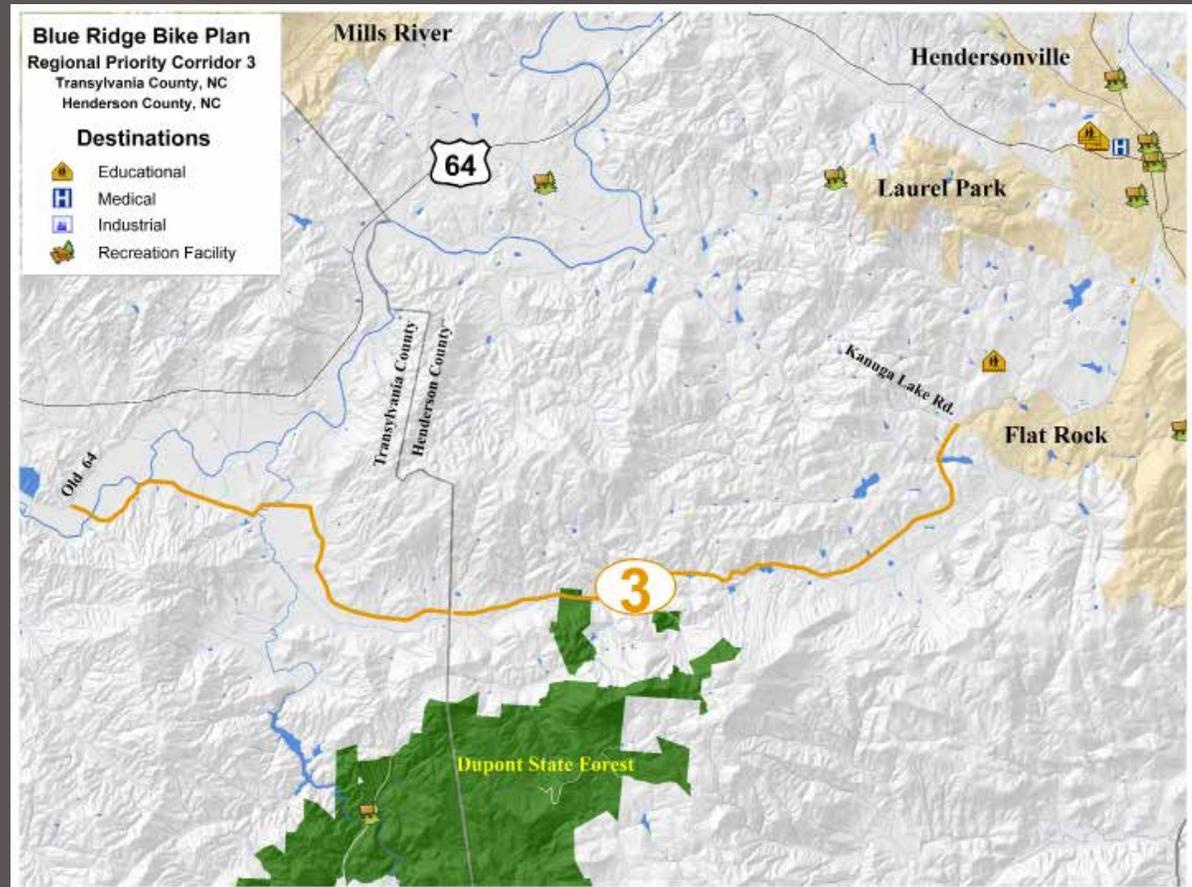
FEATURES:

Length: 13.16 miles
Cost: \$3.947 million

COMMUNITIES:

Brevard
Flat Rock

Adding bikable shoulders along this 13-mile route from Flat Rock to Brevard will provide an important east-west bicycle route link to connect Transylvania and Henderson Counties. The route traverses rolling terrain in central Henderson and Transylvania Counties and is a popular recreational route.



Regional Priority Corridor 4*

US 64 - ROSMAN TO HENDERSONVILLE

FEATURES:

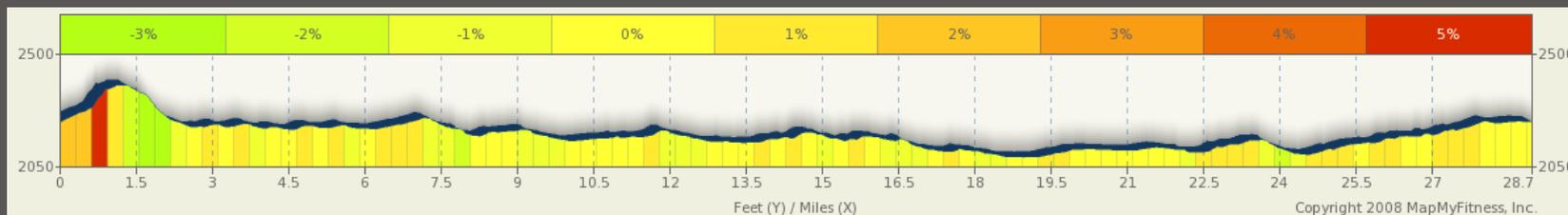
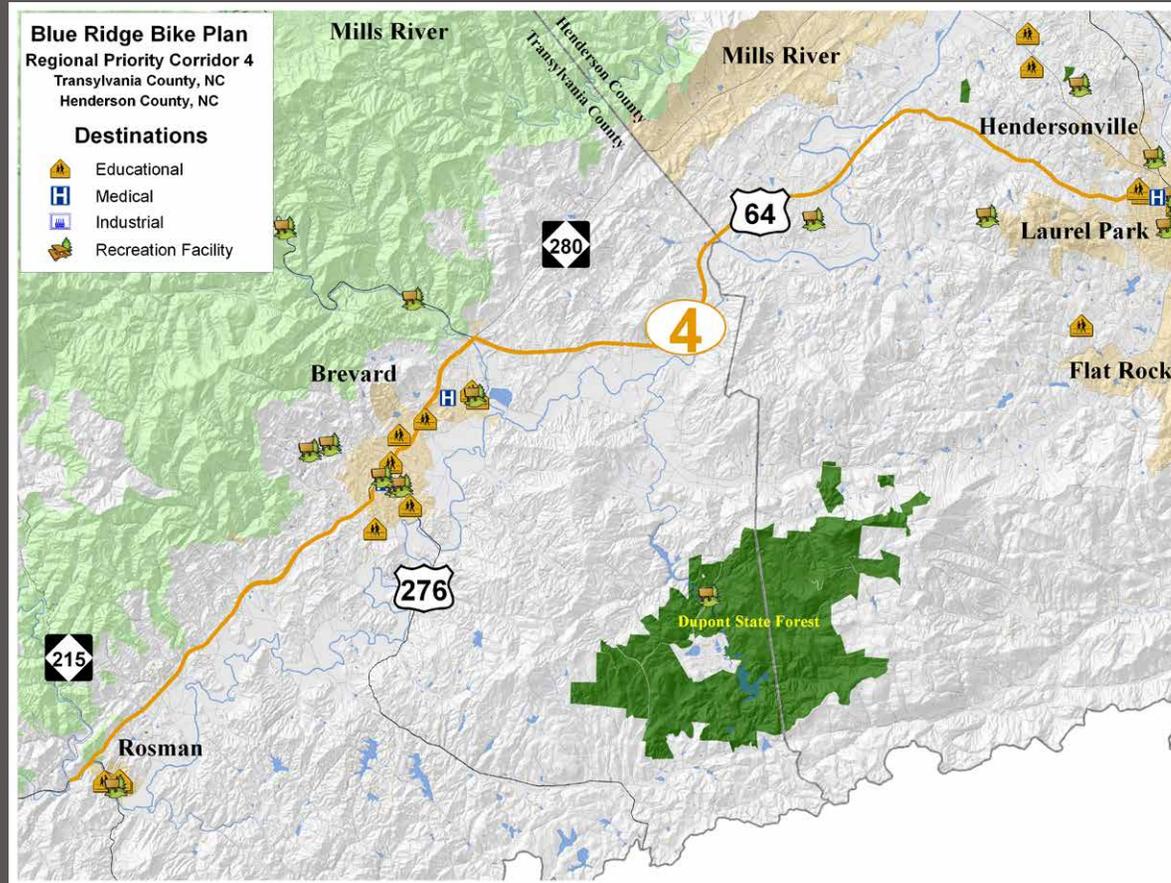
Length: 28.2 miles
 Cost: \$8.46 million

COMMUNITIES:

Brevard
 Etowah
 Hendersonville
 Rosman

The 28-mile regional corridor from Rosman to Hendersonville follows US Highway 64 and connects these communities as well as Etowah and Brevard along a heavily-traveled vehicular route. Destinations include the town centers of Rosman, Brevard and Hendersonville, as well as Brevard College, Blue Ridge Community College, numerous parks and other public facilities, as well as several shopping and residential areas. Route recommendations vary based on context, including bikable shoulders in rural areas, bicycle lanes within town limits and shared lane markings on low volume, low speed streets within town centers. Greenways could serve a similar function for some bicyclists, but road cyclists are likely to remain off-trail and along other streets between these communities.

* Ecusta Rail/Trail from Hendersonville to Brevard is Included in the US 64 Corridor



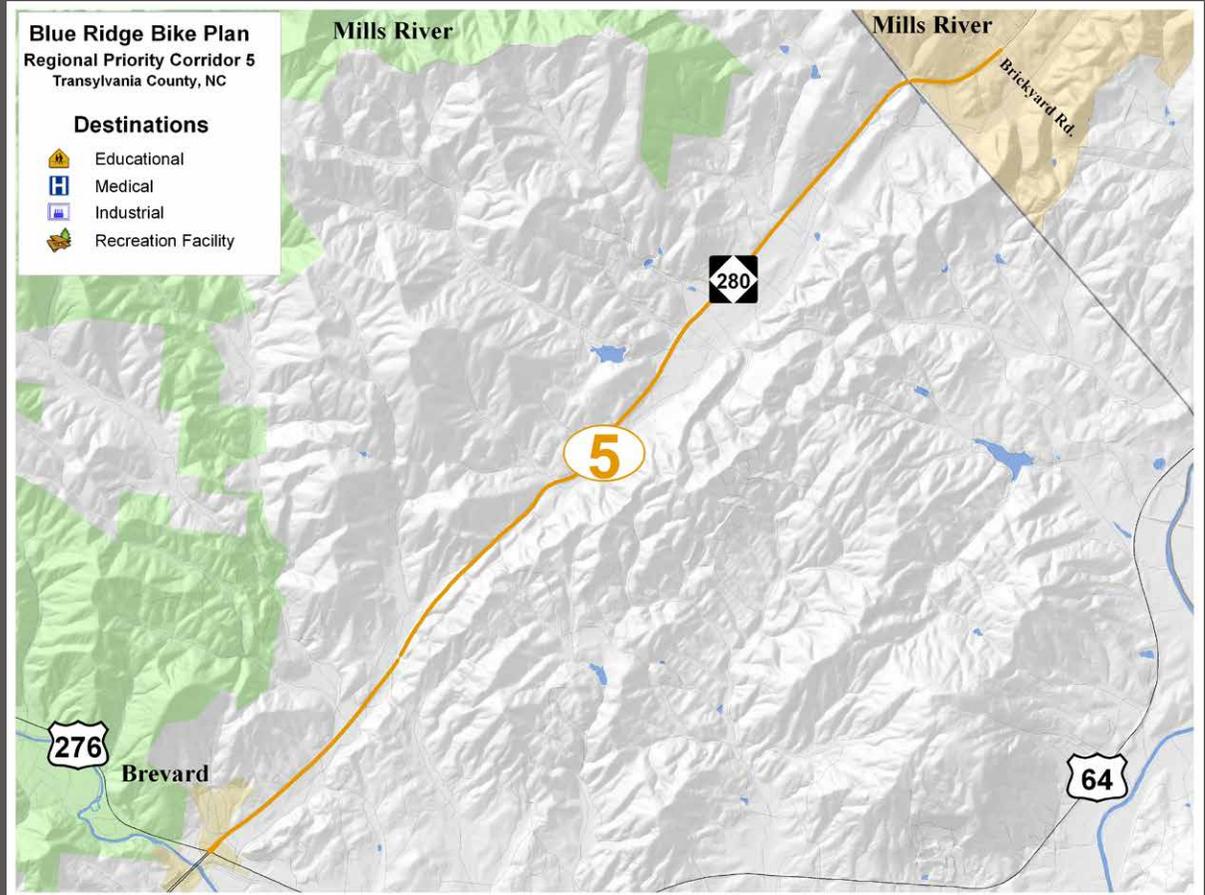


Regional Priority Corridor 5
NC 280 - MILLS RIVER TO US 64 -
BREVARD/PISGAH FOREST

FEATURES:
 Length: 5.5 miles
 Cost: \$4.128 million

COMMUNITIES:
 Brevard
 Mills River

This 5.5 mile project would include a buffered bicycle lane or greenway parallel to NC 280 in this difficult stretch of highway between Mills River and Brevard. The route is a direct link between Brevard and Mills River with connections to emerging destinations such as Sierra Nevada Brewing and Oscar Blues Brewing. The project links to Brevard's existing multi-use trail along US 276 (Asheville Highway).



Regional Priority Corridor 6 NC 251 FROM ASHEVILLE TO MARSHALL

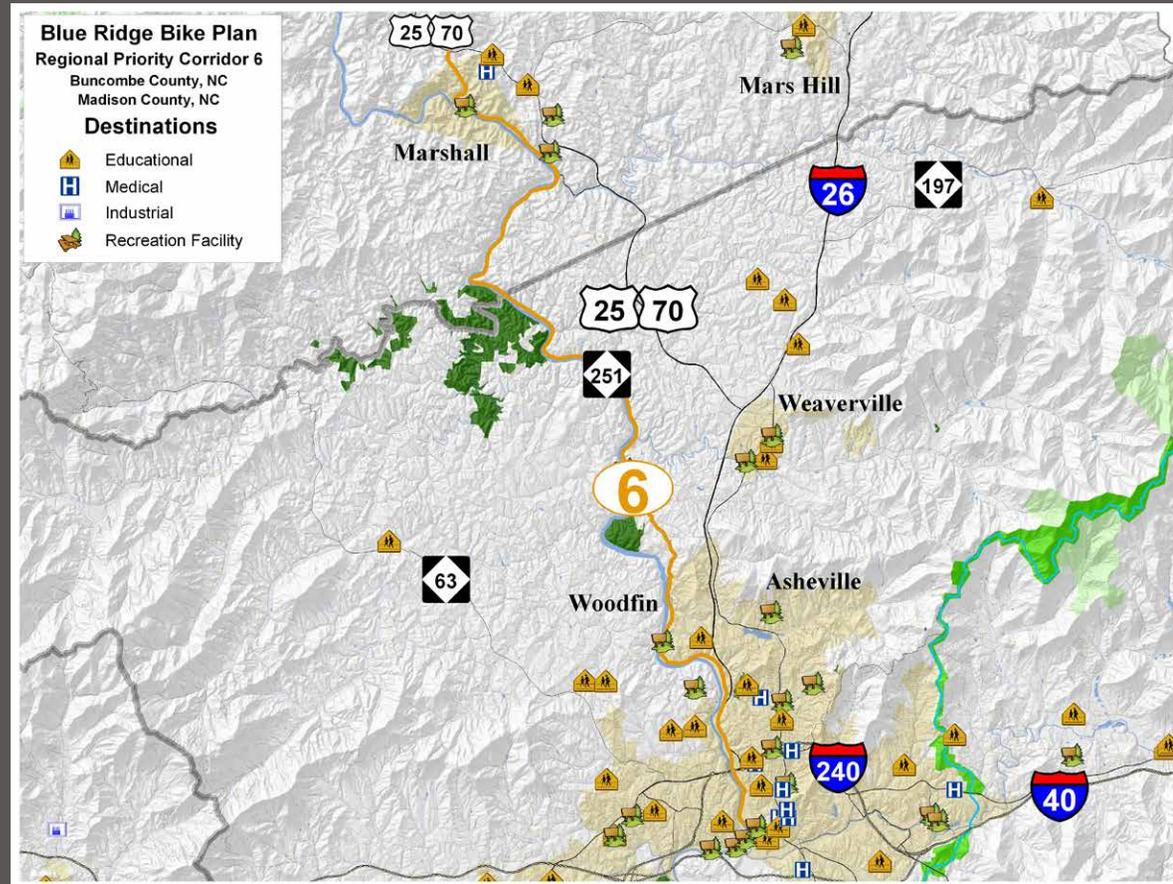
FEATURES:

Length: 24.61 miles
Cost: \$15.994 million

COMMUNITIES:

Asheville
Woodfin

This nearly 25-mile route is one of the most popular recreational bicycling routes in Western North Carolina. It provides a relatively flat ride along the French Broad River and links Asheville's River Arts District to Woodfin, Ledges Park, mountain bike trails near Alexander and Marshall. Portions of the route are planned to have a parallel greenway. Bikable shoulders are desired in unincorporated areas with bicycle lanes or shared lane markings within town or city limits. Route is proposed for designation as a Scenic Bikeway.

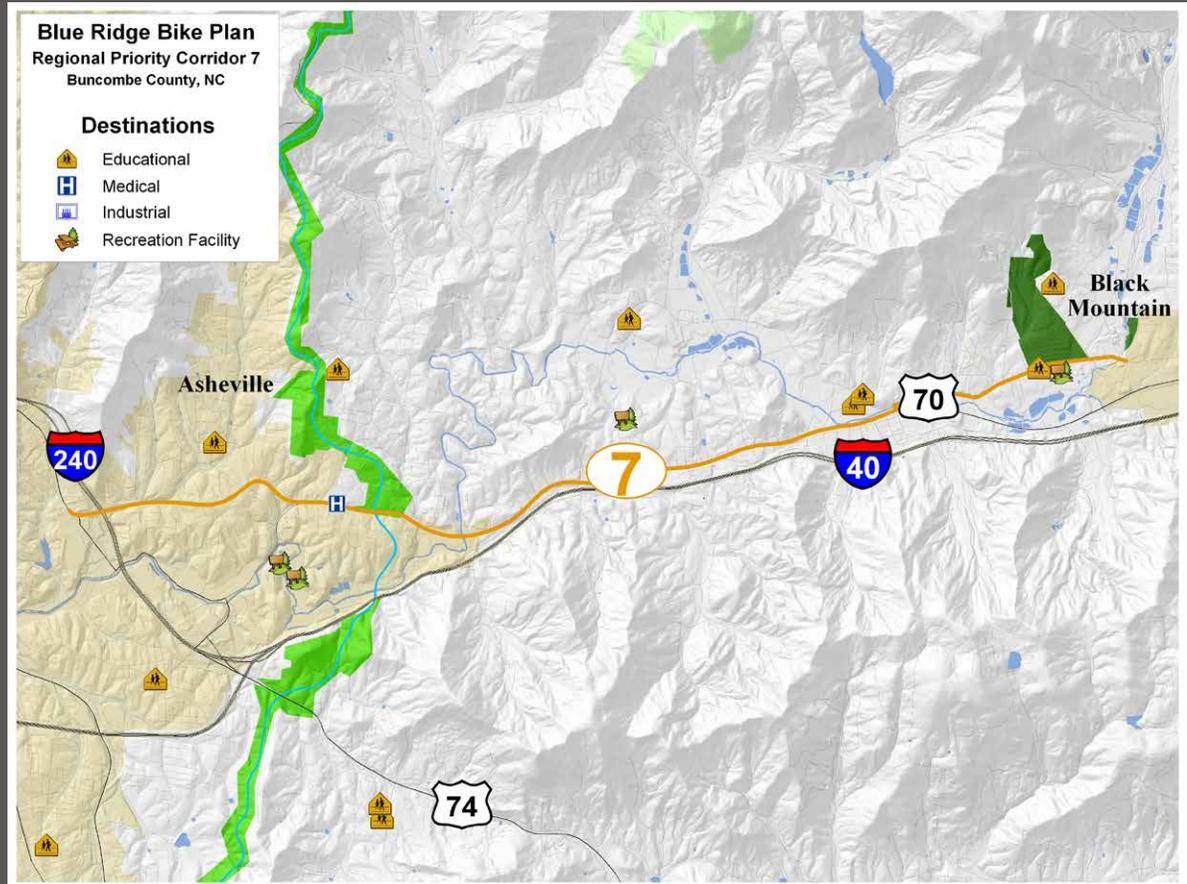




Regional Priority Corridor 7 US 70 FROM ASHEVILLE TO BLACK MOUNTAIN

This 10-mile route links Asheville to downtown Black Mountain via US Highway 70 and the Old US 70 route along the only non-Interstate east-west connection in eastern Buncombe County. The corridor recommendations include bikable shoulders and signage for the full distance. The corridor links the Tunnel Road/Mall area of Asheville to the Blue Ridge Parkway, the Swannanoa community and the town of Black Mountain. Nearby destinations include Warren Wilson College, Azalea Park and the VA Medical Center. Buncombe County has conducted a feasibility study for a parallel greenway along much of US 70 to link the Wilma Dykeman RiverWay to the Point Lookout Trail in McDowell County.

* For a feasibility study (US 70 at I-240 transition)

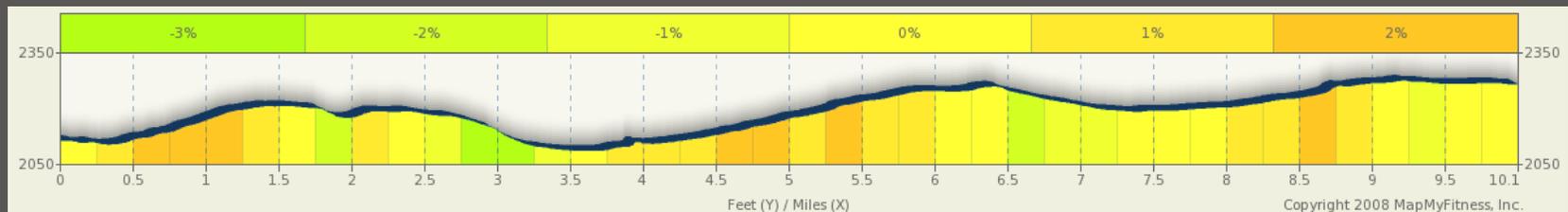


FEATURES:

Length: 9.96 miles
Cost: \$2.998 million
plus \$75*

COMMUNITIES:

Asheville
Black Mountain
Swannanoa



Regional Priority Corridor 8 NC 191 FROM ASHEVILLE TO MILLS RIVER

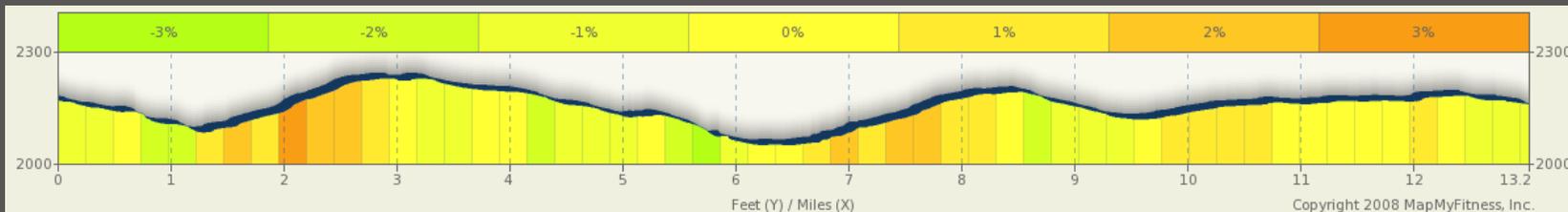
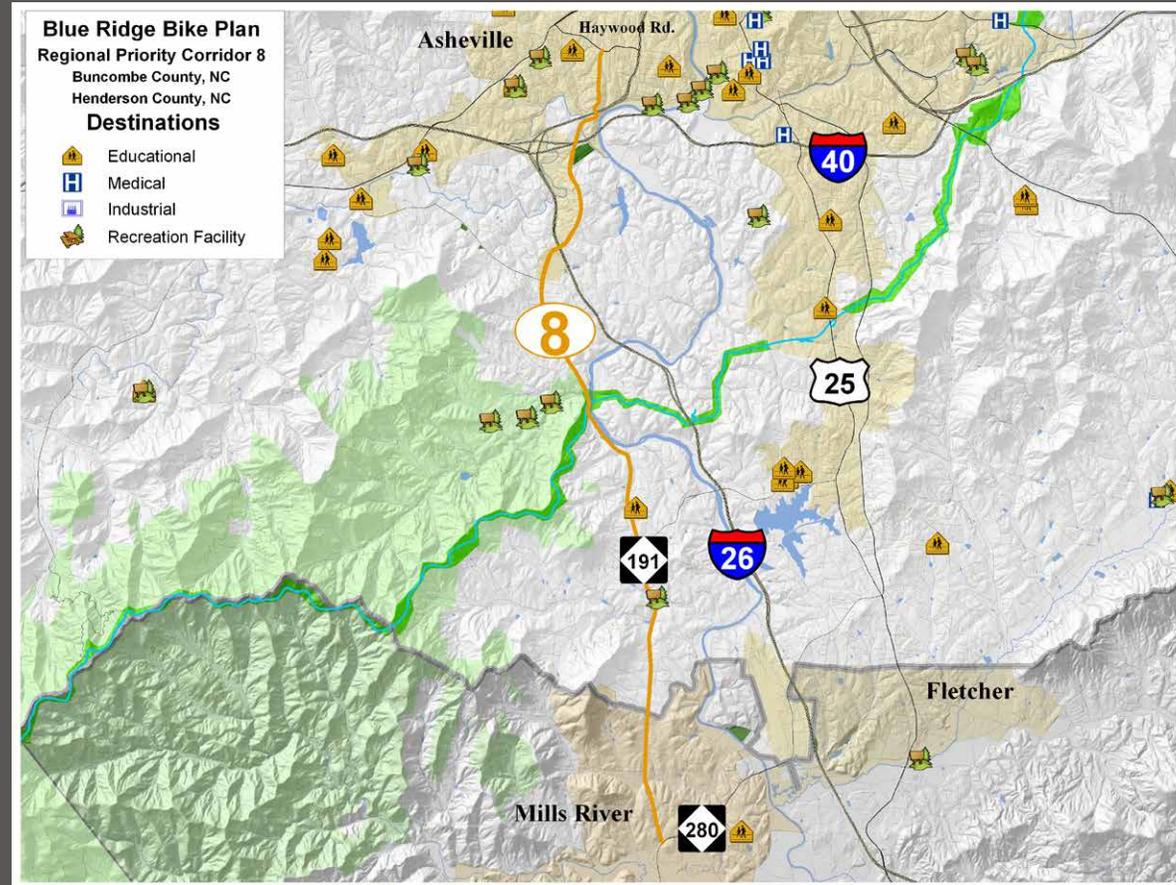
FEATURES:

Length: 13.2 miles
Cost: \$3.960 million

COMMUNITIES:

Asheville
Mills River
West Asheville

Due to constraints created by I-26, I-240, I-40, the Brevard Road/I-26 interchange, and the Biltmore Estate, the 13-mile Brevard Road (NC 191) bicycle route from Haywood Road in West Asheville to NC 280 in Mills River is the only north-south surface street route in Buncombe County that links these communities. Destinations along the route in West Asheville, the WNC Farmers Market, Bent Creek Recreation Area, the NC Arboretum, Sierra Nevada Brewing Company and nearby Biltmore Park Town Square. A combination of bike lane, bike shoulder and greenway facility types is planned for this corridor. A greenway is planned along portions of the route linking Carrier Park in West Asheville to the Arboretum and points south along the French Broad River.







RECOMMENDATIONS

RECOMMENDATIONS



Staff collected a series of possible policies from prior public input, Steering Committee input and research from other plans and asked people to indicate which ones should be high priorities in the regional plan. The Steering Committee then provided additional input at their February 2013 meeting.

Below is a summary of the recommended policies and programs.

FAST TRACK RECOMMENDATIONS



- Formation and support of an active bike advocacy group in each county
- Develop and adopt local Greenways Plans to complement other transportation and parks and recreation plans.
- Promote bicycle and pedestrian coordinator positions. Form county Task Force to discuss issues and provide recommendations to staff and Councils.
- Organize Bike to Work events, where citizens are encouraged to ride to commemorate the National Bike to Work Day.
- Organize bicycle rodeos in towns, cities and counties every year. The rodeos give children the opportunity to practice and test their riding skills.
- Support Safe Routes to School, Bike to Work Day (or week) and bicycle parking.
- Support education, enforcement and encouragement programs. See Chapter 7 of the WalkBikeNC Plan.

HIGH PRIORITY RECOMMENDATIONS

1. **Develop, implement and maintain a core network of safe and well-connected bicycle facilities (bike lanes and greenways).** This was the highest priority recommendation overall from both the public input and the Steering Committee.



2. **Adopt city, county and region-wide “complete streets” policies, so streets and roads are built to accommodate all users.** NCDOT adopted a Complete Streets policy in 2009, followed by the issuance of NCDOT Complete Streets Planning and Design Guidelines in 2012. The French Broad River MPO has a Complete Streets committee and has adopted a Complete Streets policy in February 2013. The City of Asheville adopted a Complete Streets policy in 2011.



3. **Work towards having a comprehensive bicycle plan for each town/city and county.**



4. **Provide up-to-date bicycle maps (regional and local) to the public, that include safety- and skill level-appropriate recommendations.** The Buncombe County Bicycle Map is a good example/model – the routes are color coded according to skill level and it provides safety-related information.



5. **Incorporate bicycle safety elements into Driver’s Education to ensure drivers know the rules, rights and responsibilities of both drivers and cyclists.** This recommendation also includes educating bicyclists about their rights and responsibilities as road users.



6. **Provide additional training opportunities for bicyclists on rules, rights and responsibilities of sharing the road.**



7. **Provide additional training for law enforcement officers on rights and responsibilities of all road users.**



MEDIUM PRIORITY RECOMMENDATIONS

8. **Hold more community cycling events that are welcoming to families and younger riders and to entry-level riders.** The region has some very successful and long-standing regional events (e.g., Fletcher Flyer, Blue Ridge Breakaway, Hot Doggett) but could include more events tailored to beginning riders and families.



9. **Incorporate bicycle and pedestrian safety education into district-wide physical education curriculum for both elementary and middle schools.** This could be tied-in with bicycle rodeos, bicycle clubs, and Let's Go NC.



10. **Hold bicycle rodeos several times a year for elementary and middle school children.** Build on the existing programs in each county where available to include more schools and events in more counties.



11. **Encourage formation and support of an active bike advocacy group in each county.** The Asheville Bike and Pedestrian Task Force and Asheville on Bikes are separate organizations in Buncombe that often work together on advocacy and education activities. The Blue Ridge Bicycle Club is a regional organization covering Western North Carolina.



12. **Institute more police officers on bicycles, especially in downtown areas.** The City of Asheville has a number of officers who regularly patrol on bicycle, primarily in the downtown area. Other towns in the region are encouraged to consider this for their downtown or urbanized areas, where it makes sense. Bicycles help officers move around more freely in areas that experience traffic congestion.



LOWER PRIORITY RECOMMENDATIONS

13. **Require bicycle parking as part of new and renovated commercial and multi-family developments.**



14. **Provide more bicycle parking facilities throughout the community, including racks, bike lockers, "Fix-it" stations, etc.**



15. **Start or strengthen Safe Routes to School programs.** These programs identify safety issues and promote walking and biking to and from schools and surrounding neighborhoods.



16. **Support creation of local bicycle, or bike and pedestrian, advisory committees that meet regularly and informs local decisions.** This could be modeled after the Asheville Bike and Pedestrian Task Force, which meets monthly and works on bike and pedestrian issues, plans and education.



17. **Hold events during National Bike Month (May), such as Bike to Work Day/Week, and promote through local and regional media.** A local example of this is the annual Strive Not to Drive event in Buncombe County, which typically lasts for a week and encourages people to get around walking, bicycling, riding the bus, carpooling, etc.



18. **Encourage the presence of police officers at bicycle rodeos, bike classes and other bike safety and related events to build community engagement, relationships and understanding of the rules and issues.**



19. **Develop and adopt local greenways plans to complement other transportation and parks and recreation plans.** Greenways can act as connectors in areas where on-road facilities are difficult.





Photo Courtesy of Beth Brown Photography



IMPLEMENTATION

IMPLEMENTATION

Completion of the Blue Ridge Bike Plan is only one step in creating a bicycle-friendly region and empowering communities to plan for a future that includes bicycling as a major element of the transportation and recreation system. The implementation of the Plan will require a coordinated effort among Land of Sky Regional Council, the French Broad River MPO, Land of Sky RPO, Southwestern Commission, Southwestern RPO, NCDOT, Counties and Towns, elected leaders, advocacy organizations and citizen volunteers. Additional plans and studies for corridors, communities, and hot spots will be required, and can use the Blue



Ridge Bike Plan as a foundation. This chapter provides a series of actions steps for moving forward with the recommendations of the Plan, as well as agency and stakeholder responsibilities, and potential funding sources and partners for proposed projects.

The implementation strategies of the Bike Plan are closely aligned with the “Bicycle and Pedestrian Safety Strategies” that were identified by the state of North Carolina through a series of summits in early 2011, as well as the statewide WalkBikeNC plan. The major action initiatives identified in WalkBikeNC to help guide NCDOT and other state agencies through the next decade were:

- Fully implement Complete Streets;
- Address multi-modal funding;
- Retrofit existing facilities;
- Require more from all road users;
- Increase public awareness through education;
- Connect transportation and land use; and
- Improve law and strengthen enforcement.

Each of these themes is addressed to some degree within the Blue Ridge Bike Plan. This can help stakeholders across Western North Carolina articulate to local, regional and state leaders that the implementation of this Plan is consistent with what has been identified at the state level.

PRIORITY ACTIONS

Completing the Priority Actions illustrated will help guide development of the proposed bicycling network and create a supportive program and policy environment for a bicycle-friendly Western North Carolina. If fully realized, these steps could lead to more communities receiving designation as League of American Bicyclist Bicycle-Friendly Communities and continue to make the case to NCDOT and other funding sources for a critical examination of how to appropriately incorporate bicyclists’ needs into projects.

An example of a buffered bike lane in Vancouver.

1 ADOPT THE PLAN

This is the first stage of implementation. The Plan should be forwarded to regional and state decision-makers, such as the RPOs, MPO and NCDOT Division office, for inclusion in regional planning and development processes. Each local government in the BRBP planning region should also receive a copy for consideration when local plans or ordinances are updated. **PARTNERS:** Local Governments MPO/RPOs, NCDOT

2 MEET REGULARLY WITH STAKEHOLDERS & ORGANIZATIONS

The planning effort engaged citizens and organizations in visioning, goal-setting and identification of projects, programs, and policies. Some communities are ready for action, others may need to hear more about the benefits of a bicycle-friendly future. Keeping citizens and organizations engaged in regular conversation about implementation is vital. The meetings and conversations, particularly with NCDOT Divisions, often lead to identification of mutual interests and projects or funding sources. **PARTNERS:** Blue Ridge Bicycle Club, NCDOT, Local Governments, MPO/RPOs

6 BE INVOLVED IN COMPLEMENTARY PLANNING EFFORTS

Incorporate the recommendations of the BRBP into future and existing plans developed and updated at the local, regional and statewide level. For instance, the corridor network identified in this Plan can be evaluated for overlapping routes in adjacent planning efforts while recommendations can be incorporated into the statewide WalkBikeNC Planning process. **PARTNERS:** Blue Ridge Bike Club, NCDOT, Local Governments, MPO/RPOs

7 DEVELOP SUPPORTIVE EDUCATION, ENCOURAGEMENT & ENFORCEMENT PROGRAMS

Bicycle facilities alone will not lead to a bicycle-friendly community. A variety of program recommendations are highlighted in this plan to promote a bicycling culture. Ideally, programs and policy priorities should be implemented alongside infrastructure improvements, but the community should recognize that programs such as installing signage or wayfinding can occur several years before major infrastructure projects. **PARTNERS:** Blue Ridge Bicycle Club, Local Governments, City/County/Private Schools, Health Departments, Universities/Community Colleges, Law Enforcement

8 MEASURE PERFORMANCE

This chapter identifies methods stakeholders, local governments and others can use to track the performance in implementation of the Plan, which can help justify funding pursuits and strengthen the ability of the community to gain funding from various sources. **PARTNERS:** Blue Ridge Bicycle Club, Local Governments, MPO/RPOs, NCDOT

3 PURSUE EFFICIENT INVESTMENTS

The region has now identified the extensive bicycling network and priority corridors. Local governments, the MPO and RPOs are in a position to work closely with NCDOT to implement appropriate bicycle facility projects on many state and US highways. These improvements can develop from long-range projects or from annual operating and maintenance expenditures identified by NCDOT Divisions 13 or 14. **PARTNERS:** Blue Ridge Bicycle Club, NCDOT, Local Governments, MPO/RPOs, Health Departments, Chambers of Commerce, TDAs

4 ADOPT POLICY CHANGES TO THE BICYCLE PLAN

Proposed ordinance changes will be crucial to balancing the public/private burden of implementing this Bike Plan. Local planning staff is in the best position to inform stakeholders on the proper methods to pursue these changes as each municipality can have a difference process. **PARTNERS:** Local Governments, MPO/RPOs

9 SUPPORT APPLICATIONS FOR BICYCLE FRIENDLY COMMUNITY

Interested communities should complete and submit a BFC application to the League of American Bicyclists. The application requires input from a variety of data sources, many of which are included in this Plan. Even if the community does not receive BFC status on its first attempt, the feedback from the League and potential for Honorable Mention status can inspire local leaders to implement other Plan recommendations. **PARTNERS:** Blue Ridge Bicycle Club, Local Governments

10 BE UNIQUE. THINK BIG.

The BRBP is unique in the region and state—it is a regional bicycle plan in a predominantly rural and mountain environment, it applies Complete Streets, focuses on commuters and on-road corridors. The Plan has identified Regional Priorities connecting our towns and cities to create a robust network for bicycling in the region. **EVERYONE.**



MEASURING PERFORMANCE

Transportation-based projects, programs and policies are some of the most measurable aspects of the built environment in that an organization or municipality can track the progress of investments and policy changes. Given the economic uncertainty in many communities and within funding sources, non-profits, cities, MPOs and DOTs are finding value in tracking the performance of a variety of actions. Recent updates (and likely future changes or adjustments) to NCDOT's Strategic Prioritization Process will continue to rely on local and regional data that also forms the basis for performance measures.

For stakeholders such as the Blue Ridge Bicycle Club, Asheville on Bikes, and other cycling groups, project, program, and policy performance tracking methods can assist with "Bicycle-Friendly Community" applications and grant proposals, by showing measurable progress in the implementation of plans.

One of the overarching recommendations of this study is to track performance on an annual basis and promote this performance through an annual report and presentation to municipalities and other organizations. Communities can make progress toward becoming more bicycle-friendly through programs and outreach, while Western North Carolina works toward more long-term implementation projects (e.g. new bicycle lanes or bikeable shoulders).

Bike corral at Downtown After Five event in Asheville NC.



PARTNERSHIP OPPORTUNITIES

Many education, encouragement and enforcement programs can be carried out by partnerships between Town and County departments, local nonprofit and civic organizations, business owners, developers, and others. Creating strong partners in the county-wide effort to improve safety and increase bicycling awareness helps spread awareness of the importance of bicycling in the community, and can lead to programs that withstand the test of time.

Potential partners for implementation of the Blue Ridge Bike Plan include:

- Blue Ridge Bicycle Club
- French Broad River MPO / Land of Sky RPO
- NCDOT's Division of Bicycle and Pedestrian Transportation
- NCDOT's Division 13 and Division 14
- Universities and Community Colleges
- Chambers of Commerce
- County Departments of Social Services
- Farmers' Markets
- City and County School Systems
- Sheriff's Departments
- Tourism Development Authorities
- Hospitals and their foundations
- Healthy Carolinian chapters such as Healthy Buncombe and Healthy Haywood
- North Carolina Department of Commerce;
- Service Clubs, such as Rotary, Kiwanis, and Lion's Club
- SORBA (Southern Off-Road Bicycle Assn.)
- Town Police Departments
- Trips for Kids WNC
- Veterans groups
- The Community Transformation Grant
- Major employers

IMPLEMENTATION ROLES AND RESPONSIBILITIES

A variety of federal, state, regional and local government agencies and stakeholders will be playing a role in implementing the recommendations spelled out in the Blue Ridge Bike Plan. Citizens also have a role through participation in the local, regional and state transportation planning processes.

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

The Federal Highways Administration (FHWA) is responsible for the transportation planning and implementation rule-making based on the Federal Transportation Bill and other appropriate federal laws and statutes. Currently, MAP-21 is the Federal Transportation Bill. FHWA publishes funding amounts for federal transportation programs which are then allocated to the state DOTs, tribal DOTs and to MPOs for some programs. FHWA representatives participate on MPO and RPO committees and ensure that public participation and other transportation planning requirements are met.

EASTERN BAND OF CHEROKEE INDIANS (QUALLA BOUNDARY) DEPARTMENT OF TRANSPORTATION

The Eastern Band of Cherokee Indians (EBCI) Department of Transportation has a broad responsibility to plan and implement transportation projects inside the Qualla Boundary. Affirmed in treaties, Supreme Court decisions, and executive orders, the Federal Highway Administration (FHWA) has a government-to-government relationship with Indian Tribal Governments and requires that the FHWA and other Federal agencies consult with Tribes regarding policy and regulatory matters. Additionally, 23 USC 134 and 23 USC 135 establish consultation requirements with tribes through the Statewide and Metropolitan planning and programming processes.¹

Recognized tribes such as the Eastern Band of Cherokee Indians receive a direct allocation of federal transportation dollars from the FHWA, without those funds going through NCDOT allocation process. EBCI DOT, Division 14 and Southwestern RPO coordinate on major roadway projects on US and state highways which are inside or bordering the Qualla Boundary.

NC DEPARTMENT OF TRANSPORTATION (NCDOT)

North Carolina Department of Transportation has official transportation planning, programming, and project implementation responsibilities for the state. In North Carolina, this includes all public roads and streets outside of incorporated cities, and some major routes within cities. In addition, NCDOT has responsibilities for the design, construction, operation, or maintenance of state facilities for multiple modes of transportation (including rail and ferry). As part of transportation planning functions, NCDOT prepares and maintains a Long-Range Statewide Transportation Plan, a Statewide Transportation Improvement Program (STIP) and involves the general public and affected communities to obtain input on future transportation projects. NCDOT Board of Transportation is made up of 19 members appointed by the Governor to make high-level policy decisions, and to adopt the STIP and Long-Range Statewide Transportation Plan. There are a variety of departments (divisions and units) within NCDOT focused on different aspects from planning and environmental documents to operations and maintenance. For example, the NCDOT Roadway Design Unit is responsible for the preparation of roadway design plans and engineering cost estimates for highway construction projects in North Carolina.

The Project Development and Environmental Analysis Branch (PDEA) was formed in response to the National Environmental Policy Act of 1969. The PDEA oversees the environmental permitting for state projects, including the Section 404 NEPA Merger Process. Merger is a process to streamline the project development and permitting processes for large or environmentally challenging projects. The Merger process provides a forum for appropriate agency representatives to discuss and reach consensus on ways to facilitate meeting the regulatory requirements of Section 404 of the Clean Water Act during the NEPA/SEPA decision-making phase of transportation projects.²

NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) was created in 1973 and is the oldest program of its kind in the nation. The role of DBPT is to integrate bicycle and pedestrian safety, mobility and accessibility into the overall NCDOT transportation program through engineering, planning, education and training. Through its Planning Grant Initiative, DBPT has been encouraging municipalities to develop comprehensive bicycle plans



and pedestrian plans. DBPT has allocated funding to support the creation of the Blue Ridge Bike Plan and other regional bicycle plans across the state. One of the latest most important steps has been the development of the NCDOT Statewide Pedestrian and Bicycle Plan, which required a large amount of time, technical analysis and public input to assemble a list of bicycle and pedestrian recommendations for the entire state. Currently WalkBikeNC is in draft form, expected to be adopted later in 2013. Additional information about this plan is available at www.ncdot.gov/bikeped/planning/walkbikenc/.



NCDOT has adopted a Complete Streets policy in 2009, and a set of Complete Streets Planning and Design Guidelines in 2012. The Division of Bicycle and Pedestrian Transportation has been working with other NCDOT units to help implement the complete streets policy and guidance across the state.

NCDOT POLICIES include:

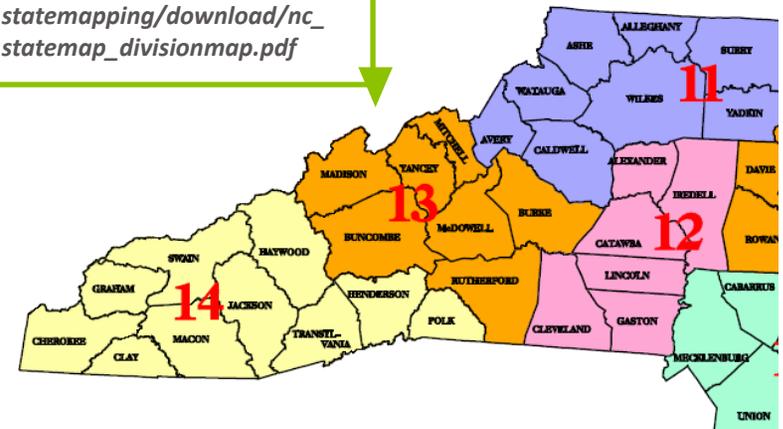
- Complete Streets Policy
- NCDOT Bicycle Policy
- NCDOT Greenway Policy
- Bridge Policy

NCDOT DIVISION 13 AND DIVISION 14

NCDOT Division of Highways is spread across the 14 NCDOT transportation divisions. The Blue Ridge Bike Plan region includes counties in Division 14 (Haywood, Henderson, Jackson, Swain, and Transylvania) and Division 13 (Buncombe, Madison).

NCDOT Divisions 14 and 13 administer those construction projects not administered by the central office in Raleigh, and carry the responsibility for operations and maintenance of state-maintained networks within their boundaries. As part of maintenance, specific bicycle-friendly improvements can be made at a relatively low cost - if the conversation is initiated early in the process. NCDOT Divisions work with local governments to help administer bicycle and pedestrian projects funded with federal dollars, including Safe Routes to School projects. NCDOT Division staff participate on MPO and RPO committees and provide input into the SPOT prioritization process to help select projects for inclusion in the TIP/STIP.

NCDOT Division 14 and Division 13 Boundary. Source: NCDOT, http://www.ncdot.gov/travel/statemapping/download/nc_statemap_divisionmap.pdf



FRENCH BROAD RIVER METROPOLITAN PLANNING ORGANIZATION (FBRMPO)

The French Broad River MPO is a partnership between local and state government that makes decisions about transportation planning in the Asheville Urbanized Area. The MPO meets planning requirements established by federal authorizing legislation for transportation funding. Local governments belonging to the MPO

include Buncombe, Haywood, Henderson and Madison Counties, and Asheville, Biltmore Forest, Black Mountain, Canton, Clyde, Flat Rock, Fletcher, Hendersonville, Laurel Park, Maggie Valley, Mars Hill, Mills River, Montreat, Waynesville, Weaverville, and Woodfin.

The FBRMPO Board is made up of local elected officials and the Technical Coordinating Committee (TCC) is made up of local government staff. FBRMPO Committees meet to discuss regional transportation issues and to prioritize future transportation improvements. Among the MPO responsibilities are holding calls for projects for Surface Transportation Program-Direct Attributable Funds (STP-DA) and Transportation Alternatives (TA) funds, as well as prioritizing projects for inclusion in the Transportation Improvement Program (TIP/STIP) to be implemented with federal and state transportation dollars.

FBRMPO Committees, with support from FBRMPO staff, will have the following direct impact and responsibilities with regards to implementing the Blue Ridge Bike Plan recommendations:

- Prioritize roadway, transit, bicycle and pedestrian projects to be funded with STP-DA: (approximately \$3.5 million/year allocated for Asheville Region; a 20% local match required; can cover PE, ROW and Construction phases; on-road facilities limited to collector and above; bicycle and pedestrian projects compete with roadway and transit capital projects at the regional level
- Prioritize bicycle and pedestrian projects to be funded with TA funds: Transportation Alternatives, approximately \$300,000/year allocated for Asheville Region; a 20% local match required
- Work through NCDOT SPOT prioritization process to recommend roadway, bicycle and pedestrian projects for inclusion in the TIP/STIP—bicycle and pedestrian improvements not part of a larger roadway project would require a local 20% match
- Work with NCDOT and local government members to ensure recommended bicycle facilities are provided as part of larger roadway projects being implemented in the region-including as part of interstate widening and

interchange projects

- Consider Blue Ridge Bike Plan recommendations when working on updates to the Comprehensive Transportation Plan and the Metropolitan Transportation Plan (previously Long Range Transportation Plan)
- When MPO transportation planning funds are available for special studies, consider funding feasibility studies and detailed corridor studies for priority corridors identified in the Blue Ridge Bike Plan—planning studies require a 20% local match
- Continue to serve as a transportation planning information center and data collection center with regards to bicycle facilities inventory, bicycle counts and bicycle plans in the FBRMPO region
- Support education and outreach initiatives to promote more bicycle-friendly facilities and policies in the region
- Provide an opportunity for public input as part of the regional transportation planning process

LAND OF SKY RURAL PLANNING ORGANIZATION

The Land of Sky Rural Planning Organization (LOSRPO) is a voluntary organization of local governments working cooperatively with the North Carolina Department of Transportation (NCDOT) and local officials to enhance transportation planning opportunities for rural areas in the Land of Sky region. LOSRPO transportation planning region includes all of Transylvania County and rural portions of Buncombe, Haywood and Madison Counties. Together, the members of the LOSRPO develop long range transportation plans for the region, provide transportation-related information and data to local governments, develop and prioritize projects for the State Transportation Improvement Program (STIP) and provide a forum for public involvement in the transportation planning process. LOSRPO is comprised of Transportation Advisory Committee (TAC) made up of local elected officials, Technical Coordinating Committee (TCC) made up of local member governments staff, and RPO staff.

LOSRPO will have the following direct impact and responsibilities with regards to implementing Blue Ridge Bike Plan





recommendations:

- Work through NCDOT SPOT prioritization process to recommend roadway, bicycle and pedestrian projects for inclusion in the TIP/STIP—bicycle and pedestrian improvements not part of a larger roadway project would require a local 20% match
- Work with NCDOT and local government members to ensure recommended bicycle facilities are provided as part of larger roadway projects being implemented in the region-including interstate widening and interchange projects
- Consider Blue Ridge Bike Plan recommendations when working on updates to the county-level Comprehensive Transportation Plans
- Continue to collect and support bicycle and pedestrian planning documents and data
- Provide an opportunity for public input as part of the regional transportation planning process

SOUTHWESTERN RURAL PLANNING ORGANIZATION

Similar to Land of Sky RPO, the Southwestern Rural Planning Organization (RPO) is an agency that provides transportation planning to Cherokee, Clay, Graham, Jackson, Macon, and Swain counties, and the municipalities therein. Of the seven counties included in the Blue Ridge Bike Plan, Jackson and Swain Counties are part of the Southwestern RPO planning area. The Southwestern RPO serves as a forum for local officials and citizens to interact with NCDOT staff on a regular basis, and for NCDOT to obtain substantial and meaningful local input on transportation plans and projects. The Southwestern RPO works with the NC DOT Transportation Planning Branch and a local task force to produce a Comprehensive Transportation Plan (CTP) for each county. The Southwestern RPO is comprised of the Transportation Advisory Committee (TAC), the Technical Coordinating Committee (TCC) and RPO administrative staff.

Southwestern RPO will have the following direct impact and responsibilities with regards to implementing Blue Ridge Bike Plan

recommendations:

- Work through NCDOT SPOT prioritization process to recommend roadway, bicycle and pedestrian projects for inclusion in the TIP/STIP in Jackson and Swain Counties
- Work with NCDOT and local government members to ensure recommended bicycle facilities are provided as part of larger roadway projects being implemented in the region-including major highway widening and interchange projects
- Consider Blue Ridge Bike Plan recommendations when working on updates to the county-level Comprehensive Transportation Plans
- Continue to collect and support bicycle and pedestrian planning documents and data
- Provide an opportunity for public input as part of the regional transportation planning process

COUNTY GOVERNMENTS

Counties in North Carolina typically do not maintain roadways or participate in roadway construction. However, counties are involved in transportation planning and implementation in the following ways:

- Provide input to NCDOT Divisions on road resurfacing needs
- Counties are members of MPOs and RPOs and provide critical input regarding transportation needs for CTPs, Metropolitan Transportation Plan update, SPOT prioritization and TIP/STIP adoption
- Some counties have development regulations which require that certain facilities such as sidewalks are put in as part of new developments
- Counties can be a local sponsor providing a 20% match to initiate a transportation planning study funded with 80% federal dollars
- Counties can help administer a Safe Routes to School project (Safe Routes to School is no longer a stand-alone program under MAP-21, current federal transportation bill) or a project funded with TA (call for projects through



the state or through MPO) or with STP-DA federal transportation dollars allocated by the MPOs

- Counties can build and maintain parks, and some counties are starting to plan for, build and maintain greenways
- Many counties in our region operate their own community transportation systems, and county staff interface with a variety of transportation needs in the community; public transit can support transportation by bicycle by providing a link on a longer trip or an alternative in case of inclement weather

MUNICIPAL GOVERNMENTS

Municipalities in North Carolina typically maintain some roadways and participate in roadway construction. Municipalities receive Powell Bill funds allocation from the state to help offset the cost of maintaining the roads. Municipalities can help implement the Blue Ridge Bike Plan recommendations in a variety of ways:

- Municipalities adopt a Capital Improvement Program for each budget year and can directly allocate funding to bicycle and pedestrian projects out of the municipal budget and build those facilities on non-NCDOT roads; on NCDOT roads municipalities can help cover the cost of bicycle or pedestrian facilities to be implemented at the same time as a roadway construction project
- Providing input to NCDOT Divisions on road resurfacing needs
- Municipalities are members of MPOs and RPOs and provide critical input regarding to transportation needs for CTPs, LRTP update, SPOT prioritization and TIP/STIP adoption
- Some municipalities have development regulations which require that certain facilities such as sidewalks and bicycle parking are put in as part of new developments
- Municipalities can be a local sponsor providing a 20% match to initiate a transportation planning study funded with 80% federal dollars
- Larger municipalities have traffic engineering staff and can prepare a traffic impact study or contract with a private firm

to complete a traffic impact study (for example, to ensure that a road diet and bike lane project would not have detrimental impact on traffic flow)

- Municipalities can be a local sponsor for (by providing a 20% match) and administer a project funded with federal transportation dollars, such as a Safe Routes to School project, a project funded with TA funds(call for projects through the state or through MPO) or with STP-DA federal transportation dollars allocated by the MPOs
- Municipalities can build and maintain parks and plan for, build and maintain greenways
- In cases where a municipality operates a public transit system, transit staff can ensure that public transit is also supportive of transportation by bicycle
- Some municipalities choose to set up a Greenways Commission or a Bicycle and Pedestrian Advisory Group, to discuss bicycle and pedestrian issues and provide additional input for Council decisions

PRIVATE FUNDERS

In some cases, a private funder can provide the local match for a bicycle or pedestrian transportation project or a planning study partially funded with federal dollars. A private funder would typically work out an agreement with a local government, which would serve as a local sponsor for the transportation project, administer it and process the reimbursement paperwork. As an interesting example, Blue Cross Blue Shield of North Carolina is one of the sponsors and supporters of Charlotte bicycle share system, Charlotte B-cycle.³ Commercial businesses sometimes work with a non-profit bicycle advocacy group to support bicycle outreach and education efforts.

ADVOCACY GROUPS AND PRIVATE CITIZENS

Advocacy groups and private citizens can provide their input and communicate the need for bicycle improvements to the local elected officials, to NCDOT and to the RPOs and MPOs. In some cases private citizens can do some of the research for a potential future project—i.e. identifying particularly dangerous locations and alerting municipal or NCDOT staff; sketching out bicycle routes appropriate for signing. Often avid cyclists who get involved in

bicycle advocacy have a deep knowledge of roads appropriate for bicycle route designation around the area as well as dangerous “hot spots”, and can share their expertise with local and regional staff.



BICYCLE PLANNING AND CONSTRUCTION FUNDING RESOURCES

Bicycle facilities are constructed – and therefore funded – through a number of avenues. Funding is generally divided into five categories of sources: federal, state, local, non-profit and private funding. The following sections describe some of the more prominent sources in each category that Western North Carolina stakeholders could tap into. Funding allocations for bicycling improvements are based on actions by the NC General Assembly, NCDOT and the Federal government; therefore a simple internet search can yield more up-to-date information on specific details than this planning document.

FEDERAL FUNDS

STP-DA FUNDS: SURFACE TRANSPORTATION PROGRAM-DIRECTLY ATTRIBUTABLE

- FHWA Surface Transportation Program funds allocated to Asheville Urbanized Area
- Approximately \$3 million/year available for FBRMPO region
- Local government members of FBRMPO can apply (cities and counties)
- 20% local match required; this is a reimbursement program
- Project type-very flexible: roadway, transit, bicycle and pedestrian capital projects eligible (transit operations not eligible); other projects including truck parking facilities, ITS capital improvements, environmental restoration and pollution abatement, advanced truck stop electrification, electric and natural gas vehicle charging infrastructure, ADA sidewalk modifications, etc.
- Covers planning, engineering and construction drawings as well as construction.
- Projects on rural minor collectors and local roads generally not eligible except for bike/pedestrian projects
- June 2014 submittal deadline for FY 2016/2017 funding; FBRMPO Prioritization Subcommittee to decide on competitive selection criteria
- Most recently funded projects include Hendersonville Road sidewalks (CST in 2014), New Leicester Highway sidewalks (CST in 2015) and Hendersonville Transit Center (CST in 2015)

- Additional info about the program eligibility at <http://www.fhwa.dot.gov/map21/stp.cfm>

TAP (TRANSPORTATION ALTERNATIVES PROGRAM)

- The Transportation Alternatives Program (TAP) is a set-aside of FHWA STP funds, similar to the program formerly known as TE (Transportation Enhancements)
- Geared towards bicycle and pedestrian projects, including Safe Routes to School and greenway projects; also eligible are projects for scenic lookouts, rehabilitation of historic transportation structures, community improvement and environmental mitigation; SRTS non-infrastructure, traffic education and enforcement activities; and planning or construction of boulevards in the right-of-way of former Interstate system routes or other divided highways
- Who can apply: local government members in the FBRMPO Planning Area including: cities and counties; other government entities such as regional transportation authorities, transit agencies, natural resource or public land agencies, school districts, tribal governments or any other local or regional government entity with responsibility for oversight of transportation or recreational trails that the State determines to be eligible
- A portion of TA funds are allocation to Transportation Management Areas, i.e. to MPOs with over 200,000 in population; NCDOT to allocate the balance of funding through STI/STIP process
- FBRMPO will have \$283,000/year for FY 2013 and FY 2014 to allocate locally; call for projects will take place along with STP-DA, applications due in June 2014; FBRMPO Prioritization Subcommittee to decide on competitive selection criteria
- Additional info and eligibility details at <http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm>

MPO PLANNING FUNDS ALLOCATED THROUGH THE UNIFIED PLANNING WORK PROGRAM (UPWP)

- Federal transportation planning funds, require a 20% local match

- Who can apply: local government members of FBRMPO (cities and counties)
- 20% local match required; this is a reimbursement program
- Can not be used for full Preliminary Engineering, although can touch on some engineering considerations as part of a feasibility study
- Can not be used for construction
- Competitive bidding required for most planning studies; funding amounts vary from \$10,000-\$250,000, with the \$30,000-\$35,000 range being most typical.
- Have been used for Ecusta Rail-Trail Study, Haywood Bicycle Plan, Waynesville S. Main Street Corridor Study, NC 251 Greenway Feasibility Study, Buncombe Greenways Master Plan, Asheville Multi-Modal Transportation Study, Weaverville-Reems Creek Greenway Feasibility Study, Mills River NC 280 Complete Streets Corridor Study, Fletcher US 25 Heart of Fletcher Corridor Study and several others
- Currently not available for additional studies; more funds might become available in the future
- Local non-profit groups can support a local government application by helping to raise the local match

STATE FUNDS

The North Carolina Department of Transportation (NCDOT) is the single largest source of funding available in Western North Carolina for bicycle facilities. The adoption of North Carolina's Complete Streets policy and development of related design criteria have great potential to capitalize on state funding sources to improve conditions for bicyclists. As noted above, actions by the General Assembly and decisions by NCDOT's Board of Transportation have greatly changed the agency's ability to fund and manage such projects, even when there are dedicated federal funding sources for them.

Throughout the Complete Streets effort, NCDOT has consistently referenced past DOT and General Assembly actions aimed at supporting bicycle infrastructure, including the Bicycle and Bikeway Act of 1974—passed by the General Assembly— which authorized NCDOT “to spend any federal, state, local or private





funds available to the Department and designated for the accomplishment” of fulfilling the duties laid out through the Act. The Act states that bicycle facilities “are a bona fide highway purpose, subject to the same rights and responsibilities, and eligible for the same considerations as other highway purposes and functions.”

It is critical that government agencies and stakeholders understand these past policies—as well as policies such as NCDOT’s Transportation & Public Health policy (passed 2012) to continually send strong messages as to the importance of funding bicycling improvements.

It is important to track changes or adjustments in these programs through the French Broad River MPO, Land of Sky RPO, and Southwestern RPO as funding allocations and programs are in flux on a regular basis and partially driven by the status of the Federal government’s transportation funding acts that are intended to be updated every six years (the current Act—MAP-21—will soon expire and will likely be subject to continuing resolutions prior to passage of a new bill).

NCDOT SPOT PROCESS FOR FUNDING PROJECTS IN THE STIP

The STIP is the overall document outlining funding programs and projects for study, design, and construction of major transportation facilities in the state. The MPO and RPO has input for project identification and adoption of the STIP.

- In 2009, NCDOT embarked on a new process to identify and prioritize all types of projects managed through the STIP, known as strategic prioritization or “SPOT”. Every two years, MPOs, RPOs, Division offices, and other NCDOT departments can submit projects for prioritization through SPOT. This process has changed several times since its inception. The MPO and RPO remain plugged into these processes to position the communities for maximum success through SPOT-based pursuits. NCDOT will allocate federal TAP dollars in the STIP through the SPOT process. Some additional parameters of this funding program are as follows: Local government members (cities and counties) can apply and submit their projects

through the RPOs and MPOs

- The state of North Carolina is no longer providing a local match for bicycle and pedestrian projects funded in the STIP, local match of 20% required for CST and PE; ROW acquisition assumed to be the local sponsor responsibility
- Projects have to be identified on a local or regional adopted plan, such as a CTP (Comprehensive Transportation Plan), L RTP (MPO Long Range Transportation Plan), regional bicycle and pedestrian plan such as the Blue Ridge Bike Plan, or a local bicycle/pedestrian plan
- Prioritization process going on in 2013-2014 will result in project being funded in the 2016-2023 STIP
- Safe Routes to School projects are eligible; however there is no a break-out category for SRTS under MAP-21 Federal Transportation Bill adopted in July of 2012; SRTS projects funded with TAP will require a 20% local match

NCDOT BICYCLE AND PEDESTRIAN PLANNING GRANT PROGRAM

- Federal transportation planning funds allocated through NCDOT
- Municipalities can apply for either a bicycle or a pedestrian planning grant; municipalities under 5,000 in population can apply for a combined bicycle/pedestrian plan
- Requires a 20-40% local match (depending on municipality size and the expected cost of the study)
- Greenway plans and county-wide plans not eligible
- Applications typically due in December (December 19, 2013)
- MPO/RPO letter of support required
- Match depends on size of municipality (typically 20-40%)
- Councils of Government and private consulting firms could bid to work on a bicycle or pedestrian planning study under this grant
- More info at <https://connect.ncdot.gov/municipalities/PlanningGrant/Pages/default.aspx>



Lake Louise Park in Weaverville

NC RECREATIONAL TRAILS PROGRAM

The Recreational Trails Program (RTP) 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.

- 10% of Transportation Alternatives (TA) federal funds set-aside for Recreational Trails
- Managed by NC Division of Parks and Recreation
- All public agencies and non-profit organizations are eligible to apply
- For FY 2014-2015 funding, applications are due February 28, 2014
- 2014 RTP funding has been authorized at \$1.5 million, future funding for 2015 is pending federal reauthorization of the RTP program
- RTP requires a 25% match and is a reimbursement grant program.
- Funding amounts between \$10,000 and \$100,000
- Eligible project types include new trail/greenway construction; approved trail/greenway facilities; trail head/trail markers;

purchase of tools to construct and/or renovate trail or greenway; land acquisition for trail purposes; planning, legal, environmental and permitting costs-up to 10% of grant amount

- http://www.ncparks.gov/About/trails_RTP_project.php

NC PARKS AND RECREATION TRUST FUND (PARTF)

The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year are available to local governments to fund the acquisition, development and renovation of recreational areas. PARTF funds are allocated through the North Carolina Trails Program to help fund beach accesses, state trail systems, and local trail construction efforts.

- This is a state grant program. The Parks and Recreation Trust Fund is funded with the excise tax on real estate transfers (37.5% of excise tax charged at \$2 per \$1,000 valuation goes into PARTF). The Parks and Recreation Authority was established to distribute the revenues. The board consists of nine members appointed by the governor, the Senate president pro tem and the House speaker.
- The Parks and Recreation Trust Fund (PARTF) provides dollar-for-dollar matching grants to local governments for the acquisition and/or development of park and recreational projects to serve the general public.
- North Carolina counties and incorporated municipalities are eligible for PARTF grants. Public authorities are also eligible if they are authorized to acquire land or develop recreational facilities for the general public.
- Eligible project types include purchase of land to use as recreational projects for the public or to protect the natural or scenic resources of the property; also building or renovating recreational and support facilities. A project must be located on a single site.
- For 2013-2014 funding cycle, applications are due by January 31, 2014
- Maximum application of \$500,000, 50% local match required;



the appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match.

- More info at http://www.ncparks.gov/About/grants/partf_main.php

SAFE ROUTES TO SCHOOL PROGRAM

NCDOT's Safe Routes to School Program is a federally-funded program that was initiated by the passing of SAFETEA-LU. SRTS programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. In future years, NCDOT will allocate SRTS funding through the SPOT process in tandem with TA funding.

NORTH CAROLINA HEALTH AND WELLNESS TRUST FUND

The NC Health and Wellness Trust Fund was created by the General Assembly as one of three entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) established the Fit Community designation and grant program to recognize and rewards North Carolina communities' efforts to support physical activity and healthy eating initiatives, as well as tobacco-free school environments.

LOCAL FUNDS

Currently, most Counties and Towns do not have an annual budget line item specifically for bicycle improvements, due to in part the role NCDOT plays on many of the roadways in the region that are in the most need for bicycle-related improvements. Such improvements typically rolled into overall transportation or public works budgets. In the future, Counties and municipalities may wish to consider creating a specific annual budget item to set aside funds for improving bicycle facilities, especially for improvements such as signage and wayfinding.

A specific budget item is the most direct way to ensure that funding for bicycle facilities is available, but sometimes a municipality's budget may be too limited to finance this work. Bicycle facilities can also be built through "incidental" projects, by ensuring that bicycle-related features (e.g. bicycle racks or shoulders along the street frontage of a property) are constructed

with any new projects or improvements, such as parks and recreation facilities, libraries, schools, and new roads. In addition, future private development should be reviewed for adequate bicycle access, connections and parking.

Municipalities often plan for the funding of bicycle facilities or improvements through development of Capital Improvement Programs (CIP). Typical capital funding mechanisms include the following: capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds.

POWELL BILL FUNDS

Annually, state street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways.

In North Carolina, NCDOT allocates Powell Bill funds to municipalities for construction and maintenance of roads.

- Funds are disbursed to municipalities based on a formula linked to lane miles twice per year (on or before October 1st and January 1st)
- Municipalities further allocate the Powell Bill funds to specific local transportation projects
- Bicycle facilities (bikeways and greenways) and sidewalks are an eligible expense for Powell Bill Funds
- Additional info at <https://connect.ncdot.gov/municipalities/State-Street-Aid/Pages/default.aspx>

CAPITAL IMPROVEMENT PROGRAM

- Municipalities and counties can set aside a portion of the budget for the Capital Improvement Program to stand-alone bicycle facilities

- Since the local budgets are limited, it might be more effective to use the limited local dollars as a match in applying for state and federal grant programs
- Cities and counties can also ensure that bicycle facilities and bicycle parking are constructed with any new town projects or improvements, such as parks and recreation facilities, libraries, schools, and new roads.
- For NCDOT-maintained roads, NCDOT Divisions notify local jurisdictions of upcoming resurfacing projects. If a local match is available, it might be very cost-effective for a municipality to implement a bicycle project at the same time as a road resurfacing project
- On locally-maintained roads scheduled for resurfacing, a Planning Department can coordinate with Public Works to implement bicycle facilities at the time that a local resurfacing takes place

BONDS AND SALES TAX REFERENDUM MEASURES

- Bond measures and sales tax referendums could be a potential source of revenue for transportation at the local level
- A wider bond or sales tax referendum measure can incorporate multiple transportation projects and/or greenways in addition to on-street bicycle facilities and sidewalks
- Bonds and sales tax measures require strong support from the voting public; the local sales tax option in particular requires public approval through a referendum
- Counties have the option to increase the sales tax by one-quarter of a penny, (the Article 46 sales tax in N.C. G.S. 105-535), provided the referendum is successful

DEVELOPER-FUNDED FACILITIES

- Local jurisdictions can update the local land use and development ordinances to require that bicycle facilities and sidewalks are built as part of new developments of certain size and type.
- The requirement for bicycle facilities is frequently linked to specific street types (i.e. required for collector streets but not for alleys)

- As a best practice, the requirement for bicycle facilities in the land use and development ordinances can be linked to a specific adopted planning document, such as a local bicycle plan, with included maps of the streets or areas of town where bicycle facilities would be required. The Town of Davidson Planning Ordinance Section 11: Streets and Greenways identifies specific streets where new development would trigger a bicycle facility requirement.
- Bicycle parking requirement can be included as part of land use and planning ordinances for multi-use, commercial and office developments. The development ordinance language can also be adjusted to specify bicycle parking proximity and direct route to the front door, as well as bicycle parking requirements for new developments in downtown districts where off-street car parking would not be typically required. As an example, Chapter 7 of the Asheville UDO provides the following requirements for bicycle parking:

(3) Bicycle parking. Bicycle parking shall be provided for all uses except single-family and two-family dwellings. The minimum number of bicycle parking spaces required shall be equal to five percent of the total number of automobile parking spaces in the lot. Bicycle parking facilities shall include standard bike racks or other secured, lockable facilities.⁴





NON-PROFIT/ PRIVATE FUNDS

Another method of funding bicycle facilities is to partner with public agencies, private companies and/or nonprofit organizations. Most private funding sources offer limited grants and public-private partnerships engender a spirit of cooperation, civic pride and community participation.

The key to the involvement of non-profit and private partners is to make a compelling argument for their participation. Major employers and developers could be identified and provided with a “Benefits of Bicycling” handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners’ monetary support following a successful master planning effort.

Potential partners include major employers which are located along or accessible to bicycle routes or greenways. Name recognition for corporate partnerships could be accomplished through trailhead signage 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 legal counsel review the agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

BLUE RIDGE BICYCLE CLUB MICRO-GRANTS

- Blue Ridge Bicycle Club is a regional bicycle riding club and

advocacy organization (including Buncombe, Haywood and Henderson Counties)

- Blue Ridge Bicycle Club will sometimes allocate micro-grant funding for small bicycle projects from planning to education and signage—typically from \$500 to \$5,000
- Contact: <http://blueridgebicycleclub.org/>

PEOPLEFORBIKES COMMUNITY GRANT PROGRAM

- Available to communities nationwide, up to \$10,000/per project
- Funding for no more than 50% of the project
- Non-profit organizations and local governments can apply
- The PeopleForBikes Community Grant Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives.
- Does not fund planning and feasibility studies, maps, or trailheads and kiosks
- Typically 10-15% of applications received are funded
- More info at <http://www.peopleforbikes.org/pages/grant-guidelines>



Blue Ridge Breakaway 2012

ALLIANCE FOR BICYCLING AND WALKING ADVOCACY ADVANCE GRANTS

- Help for bicycle and pedestrian advocacy groups to build capacity, non-profit groups can apply
- Not for capital/construction projects
- Typical grant size--\$10,000-\$25,000
- More info at <http://www.peoplepoweredmovement.org/site/index.php/site/memberservices/C528>
- National Trails Fund/American Hiking Society Micro-grants
- Available to organizations nationwide; applications accepted from non-profit groups who are members of the Alliance of Hiking Organizations; non-profit fiscal agent accepted
- \$500-5,000 grant amounts funded out of the National Trails Fund (made possible by private sponsors)
- Primarily geared towards hiking trails; multi-purpose human-powered trail uses are eligible; land acquisition and volunteer recruitment and support eligible
- More info at <http://www.americanhiking.org/national-trails-fund/>

VOLUNTEER WORK

It is expected that many citizens will be excited about the development of a community bicycle system and this is already evident in the energy level of those involved with various advocacy groups across the region. 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 bicycle route and greenway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

PUBLIC HEALTH

In addition to the funding resources listed above, additional funding sources through private and community foundations might be available. The Public Health sector is becoming more involved in bicycle and pedestrian planning to strengthen the built environment-physical activity linkages. Blue Cross Blue Shield and

local hospitals, as well as organizations such as Kaiser Permanente could be potential partners in a bicycle project expected to increase physical activity.

OTHER PLANNING EFFORTS AND POLICY RECOMMENDATIONS

Implementation of the Plan to become a bicycle-friendly region will require other planning efforts to fully realize the goals and objectives identified in the plan. The initiatives outlined below will help refine the findings of the Bike Plan and allow for more specific exploration of these topics in the context of specific corridors, neighborhoods and greenway corridors.

COMPLETE STREETS / COMPLETE COMMUNITY POLICIES FOR THE COUNTY AND TOWNS.

The adoption of a Complete Streets policy is recommended by the American League of Bicyclists to be a Bicycle-Friendly Community. While NCDOT has adopted a Complete Streets policy, it may not be sufficient to meet specific local government goals and requirements as new projects come on-line. The adoption of Complete Streets policies at the local government level can go beyond design standards like those in the NCDOT Complete Streets guidance and can consider how subdivision, zoning, stormwater management and other ordinances meet the needs of all modes of travel.

Streets should not be deemed “complete” unless the design of the land uses adjacent to those streets is also complete in its consideration of bicycle and pedestrian modes. It does little to promote use of non-motorized modes to have a bicycle lane or a sidewalk if those users cannot safely reach the front door of a store or business, and park their bicycle, once they leave the street environment. Local governments can also pursue policies and design guidance for non-DOT streets and greenways that help connect complete streets to a variety of land use types.

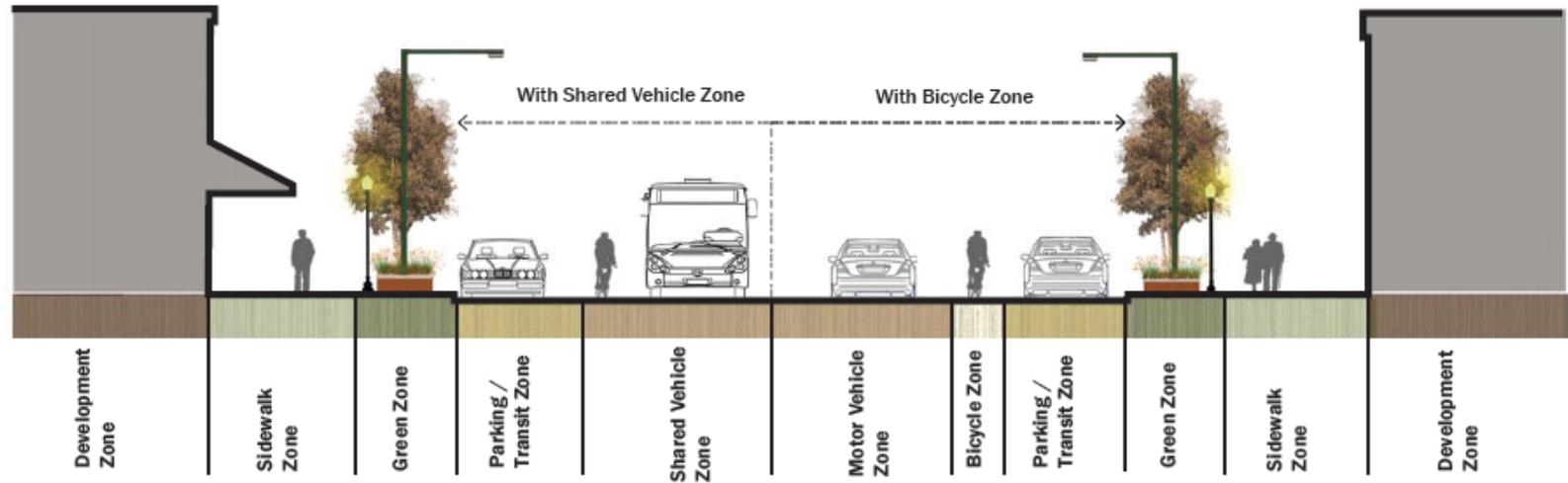
CORRIDOR-LEVEL BICYCLE & PEDESTRIAN SAFETY AUDITS.

Each corridor identified in the Plan contains various features that can greatly impact the ability to fully realize the recommended improvements. There will be tradeoffs within what is feasible due to competing interests for space within the built environment. Studies conducted for transportation improvements to corridors

URBAN/SUBURBAN MAIN STREET

From the North Carolina Complete Streets Planning and Design Guide

ILLUSTRATIVE STREET CROSS-SECTION



are oftentimes focused as a traffic engineering exercise, which can overlook many of the influences on pedestrian and bicycle travel. Including a bicycle and pedestrian safety audit in the context of these studies helps designers, DOT representatives and local government officials understand these unique needs and can influence the design process.

REGIONAL ECONOMIC IMPACT ANALYSIS OF BICYCLING.

The Bicycle Plan includes a limited assessment of the economic impacts of bicycling, however, a full-scale analysis similar to the NCDOT's Outer Banks study is needed for Western North Carolina. After completion of the regional bicycle plan, the region should embark on a study to define the economic impacts of bicycling on the region and engage the various chambers of commerce and tourism development authorities, along with partners such as colleges and universities.

SAFE ROUTES TO SCHOOLS ACTION PLAN.

Communities that have fared best in capitalizing on available Safe Routes to Schools funding have done so through first organizing an action plan for schools that clearly identifies roles and responsibilities for the county, towns, schools districts, organizations and citizens. The needs of both bicyclists and pedestrians and the ability of each mode to safely access a school need to be defined so that the users who are most in need are

addressed first. It is also important for the school districts to understand how site design and school placement impacts the ability of students to bike or walk to school. Each of these factors can be addressed in the Action Plan.

COUNTYWIDE GREENWAYS MASTER PLANS.

Greenways and trails have the potential to link communities and bicycle routes through a variety of facility types and necessitate a different set of programs and policies. The Blue Ridge Bike Plan was tasked with keeping much of the analysis to on-road facilities. However, a complete bicycling network that conforms to the major tenets of Complete Streets policies to accommodate all users of all abilities requires considering off-road bikeways and linkages to recreational areas and mountain bike trails. Studies such as the Buncombe County Greenways & Trails Plan and Land of Sky Regional Trails Plan have included ideas related to greenways and trails, but the same comprehensive analysis conducted as part of the Bike Plan should also be conducted for greenways, with an emphasis on regional partnerships given the geography of the area.

LOCAL BICYCLE PLANS.

Many municipalities in the region lack a bicycle plan or even a joint bicycle and pedestrian plan. One of the policy recommendations

is to work towards having a comprehensive bicycle plan for each municipality, and to also draft a bicycle plan for the largest counties. Existing local bicycle plans will need to be updated on a regular basis, at least once every ten years.

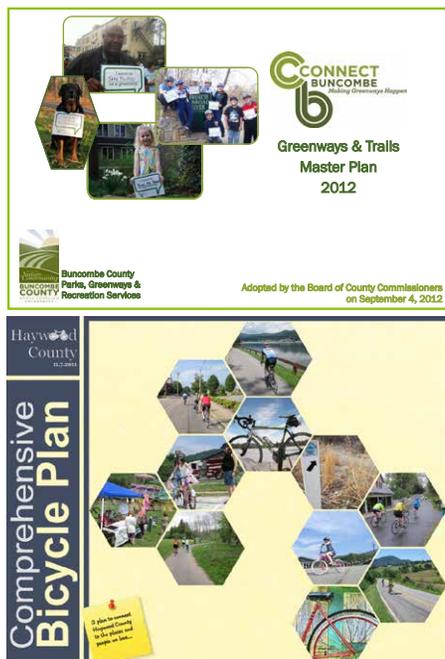
BICYCLE MAPS.

Providing up-to-date bicycle maps (regional and local) to the public, that include safety- and skill level-appropriate recommendations as well as key destinations and stops (parks, libraries, schools, downtowns) would encourage beginner and out-of-town cyclists to try new routes and destinations. The Buncombe County Bicycle Map is a good example—the routes are color-coded according to skill level and it provides safety-related information.

STRONGER LOCAL ADVOCACY INVOLVEMENT.

Citizens interested in bicycling could encourage formation and support of an active bike advocacy group in each county, to speak with a stronger unified voice and encourage implementation of the Blue Ridge Bike Plan. As an example, the Asheville Bike and Pedestrian Task Force and Asheville on Bikes are separate organizations in Buncombe that often work together on advocacy and education activities. The Blue Ridge Bicycle Club is a regional organization covering Western North Carolina.

Covers of a Greenway Plan - Connect Buncombe Greenways & Trails Master Plan 2012 and a Local Bicycle Plan - Haywood County Comprehensive Bicycle Plan 2011.



MAKE BICYCLING MORE FAMILY-FRIENDLY.

The region hosts a variety of successful long distance cycling events every year (such as the Fletcher Flyer and Blue Ridge Breakaway), yet there is a lack of organized fun rides and bicycle-themed events open to families with children and those new to cycling. Holding more community cycling events that are welcoming to families and to entry-level riders would grow local interest and support for bicycling.

BETTER EDUCATION FOR BICYCLISTS AND DRIVERS TO SAFELY SHARE THE ROAD.

While some adult bicycle safety education classes and bicycle rodeos for children already take place in the region, there is an opportunity to expand the number of education and outreach activities. More bicycle safety classes for adults and children, as well as outreach to drivers through billboards and Public Service Announcements (PSAs) could help create a safer roadway environment for all users.

¹<http://www.tribalplanning.fhwa.dot.gov/about.aspx>

²NCDOT Merger Process Guide. <https://connect.ncdot.gov/resources/Environmental/Pages/Merger-Process-Guide.aspx>

³<https://charlotte.bcycle.com/About/WhatisCharlotteBcycle.aspx>

⁴Asheville Unified Development Ordinance, Chapter 7. Accessible from http://library.municode.com/HTML/12499/level3/PTIICOOR_CH7DE_ARTXIDEDEST.html#PTIICOOR_CH7DE_ARTXIDEDEST_S7-11-2PALOACST

IMPLEMENTATION TABLE

Project staff and the Steering Committee gathered input from the public on regional recommendations throughout the second round of public input meetings (Fall-Winter, 2012-13). A total of eight meetings were held throughout the region and paper surveys were distributed in each county. 140 people attended the meetings, including follow-up outreach meetings in Black Mountain bicycling events in February 2013. Staff collected a series of possible policy recommendations from prior public input, the Steering Committee and research from other plans. Public and local government participants were asked to indicate which recommendations should be high priorities in the regional plan. The Steering Committee then provided additional input at their February, 2013 meeting.

Following is the Implementation Table, comprised of action steps identified and recommended through this planning process.



SHORT-TERM IMPLEMENTATION RECOMMENDATIONS (2014-2018)

ACTION ID	OVERARCHING GOAL	ACTION	CATEGORY: PLANNING, POLICY, EDUCATION, FUNDING OR FACILITY CONSTRUCTION
A-1	Adopt the plan	The Plan should be forwarded to regional and state decision-makers, including the RPO, MPO and NCDOT Division offices, for inclusion in regional planning and development processes. Each County and town in the region should also receive a copy for consideration when local plans or ordinances are updated.	Policy
A-2	Meet Regularly with Stakeholders & Organizations	An annual meeting of those who were most engaged in the Blue Ridge Bike Plan should be convened to update stakeholders on progress and upcoming opportunities.	Planning
A-3	Develop, implement and maintain a core network of safe and well-connected bicycle facilities	Follow-up feasibility studies for 3-5 of the priority corridors, based on local interest and available funding	Planning
A-4		Identify local government sponsors for several of the top priority corridor implementation projects and submit the projects for funding in the 2016-2023 STIP and in the 2018-2025 STIP	Funding and Facility Construction
A-5		Local governments and advocacy groups identify funding sources to serve as a local match for federal and state grants	Funding
A-6		Local governments apply for PE and Construction funding outside of the STIP process	Funding and Facility Construction
A-7	Adopt and emphasize city, county and region-wide "complete streets" policies so that streets and roads are built to accommodate all users	Local advocacy groups work with RPOs and local governments to have 3-5 more complete streets policies adopted in the region in the next five years	Policy
A-8	Work towards having a comprehensive bicycle plan for each town/city and county	Three to five jurisdictions to apply for funding, develop and adopt a bicycle plan	Planning
A-9	Provide additional training opportunities for bicyclists on rules, rights and responsibilities of sharing the road	Three to five jurisdictions to initiate bicycle rodeos for children on an annual basis; expand Asheville adult bicycle safety education program to at least one other municipality	Education
A-10	Provide up-to-date bicycle maps that include safety- and skill level-appropriate recommendations	Provide an updated bicycle map for 3-5 jurisdictions	Planning/ Education
A-11	Be Involved in Complementary Planning & Implementation Efforts	Incorporate the recommendations of the Blue Ridge Bike Plan into future and existing plans developed and updated at the local, regional and statewide level	Planning

AGENCY OR ORGANIZATION RESPONSIBLE	ESTIMATED COST	ESTIMATED TIMEFRAME	PRIORITY LEVEL	EARLY SUCCESS STORIES AND OTHER NOTES
FBRMPO, LOSRPO, LOSRC, Southwestern RPO, Local governments with support from other stakeholders and advocacy groups	None/staff time	FBRMPO LOSRPO and SRPO scheduled to endorse the BRBP in January-February 2014; others: TBD	High	
LOSRC, NCDOT, local governments, FBRMPO, LOSRPO, SWCRPO, Blue Ridge Bicycle Club	Staff time and travel time	Target: winter 2015	High	
Local governments in partnership with FBRMPO, LOSRPO, Southwestern RPO, NCDOT and other potential funders	\$30,000-\$120,000 per study depending on the corridor	2014-2018	High	NC 280 Corridor Study in Mills River has been initiated in late 2013, targeting one of the priority regional bicycle corridors
Local governments in partnership with FBRMPO, LOSRPO, Southwestern RPO and NCDOT	Varies	2016-2023	High	The first phase of Wilma Dykeman Riverway is moving closer to implementation with the completion of the RADTIP study; will require a PE study and \$13 million for implementation
Local governments and advocacy groups in partnership with LOSRC and Southwestern Commission			High	
Local government members of the FBRMPO can apply to STP-DA and TAP program through the FBRMPO	Varies	Call for STP-DA and TAP projects in June of 2014; CST in 2016-2017	High	
Local advocacy groups, willing local governments and possibly LOSRPO and Southwestern RPO	No cost	2014-2018	High	FBRMPO has adopted a complete streets policy in February of 2013
Local governments, NCDOT	\$15,000-\$100,000 per study	2014-2018	High	The Town of Black Mountain and the Town of Weaverville are applying for funding for a bicycle or a bicycle and pedestrian plan from NCDOT in 2014
Local advocacy groups with support from local governments and schools	Advocacy group volunteer time	2014-2018	High	
Local governments in partnership with FBRMPO, LOSRPO, Southwestern RPO and NCDOT	Cost TBD	2014-2018	High	Buncombe County Bicycle Map is a good example
LOSRC, local advocacy groups, NCDOT, local governments, FBRMPO, LOSRPO, Southwestern RPO			High	

SHORT-TERM IMPLEMENTATION RECOMMENDATIONS (2014-2018) CONTINUED

ACTION ID	OVERARCHING GOAL	ACTION	CATEGORY: PLANNING, POLICY, EDUCATION, FUNDING OR FACILITY CONSTRUCTION
A-12	Support Bicycle-Friendly Community Status for jurisdictions	LOSRC and its partners can work with other communities to support BFC applications to the League. Even if a community does not receive BFC status on its first attempt, the feedback from the League and potential for Honorable Mention status can inspire local leaders to implement other Plan recommendations and increase awareness for bicycling in their community	Planning/ Education
A-13	Pursue Project-Specific Initiatives for Corridors and Key Intersections/Hot Spots	Work with NCDOT on shoulder / bike lane projects on many state and US highways through modernization projects and other corridor improvements where large-scale investments are proposed	Planning
A-14	Hold more community cycling events that are welcoming to families and younger riders and to entry-level riders	Jurisdictions to follow the lead of bicycle events that have proven to be successful while creating events that appeal to families and younger riders	
A-15	Hold bicycle rodeos several times a year for elementary and middle school children	Three to five jurisdictions to initiate bicycle rodeos for children on an annual basis; expand Asheville adult bicycle safety education program to at least one other municipality	Education
A-16	Encourage formation and support of an active bike advocacy group in each county.	Three to five jurisdictions to initiate a Bicycle and Pedestrian Taskforce or a Greenways committee to work on bicycle and pedestrian issues	
A-17	Provide more bicycle parking facilities throughout the community	Local governments work with local advocacy groups to identify possible locations for bicycle parking facilities as well as possible funding sources	Policy
A-18	Support creation of local bicycle, or bike and pedestrian, advisory committees that meet regularly and informs local decisions	Local governments, LOSRC, and the Southwestern Commission to provide assistance while identifying members for advisory committees. Committees will work with RPO's, MPO's, and local governments.	Planning, policy, and education
A-19	Hold events during National Bike Month (May), such as Bike to Work Day/Week, and promote through local and regional media	Local governments along with advocacy groups will focus on public events in the Month of May in order to promote National Bike Month. Partner with local and regional media outlets in order to promote and provide coverage of public events.	Education
A-20	Encourage the presence of police officers at bicycle rodeos, bike classes and other bike safety and related events	Local governments partner with police departments in order to promote police attendance at public events and to assist with safety training.	Education
A-21	Measure Performance	Measuring bicycle performance metrics through bicycle crash analysis, bicycle counts and rider surveys. Publish metrics on MPO and RPO websites. Performance metrics can help identify underserved areas with highest facility needs, support the need for funding and strengthen the ability of the community to gain funding from various sources	Policy
A-22	Identify Scenic Bikeways	Convene a working group to identify more specific actions to designate a pilot Scenic Bikeway (or set of Scenic Bikeways) in Western North Carolina.	Policy



AGENCY OR ORGANIZATION RESPONSIBLE	ESTIMATED COST	ESTIMATED TIMEFRAME	PRIORITY LEVEL	EARLY SUCCESS STORIES AND OTHER NOTES
Local advocacy groups, NCDOT, local governments, FBRMPO, LOSRPO, Southwestern RPO		2015	High	Brevard, Black Mountain and Haywood County may be interested in submitting an application. Members of the Bicycle & Pedestrian Task Force for the City of Asheville may be able to assist these applicants based on their experience.
NCDOT, local governments, FBRMPO, LOSRPO, Southwestern RPO, Stakeholders, and Advocacy Groups			High	
Local advocacy groups and willing local governments			Medium	Region already has several successful and long-standing events
schools, advocacy groups, Blue Ridge Bicycle Club	Staff and volunteer time	2014-2018	Medium	Existing programs in Buncombe County
Willing local governments, advocacy groups, Blue Ridge Bike Club			Medium	The Asheville Bike and Pedestrian Task Force and Asheville on Bikes are separate organizations in Buncombe that often work together on advocacy and education activities. The Blue Ridge Bicycle Club is a regional organization covering Western North Carolina.
Willing Local Governments			Low	
Willing Local Governments			Low	Asheville Bike and Pedestrian Task Force meets monthly and works on bike and pedestrian issues, plans, and education
Local Governments in partnership with local advocacy groups, FBRMPO, LOSRPO, Southwestern RPO and NCDOT			Low	Annual Strive Not to Drive event in Buncombe County, which encourages people to use alternate modes of transportation.
Local governments and local police departments in partnership with schools and local advocacy groups		2014-2018	Low	
LOSRC, FBRMPO, LOSRPO, Southwestern RPO, local governments, local advocacy groups	Staff and volunteer time	Update metrics on an annual basis as possible; 2014-2018	Medium	
NCDOT, local governments, FBRMPO, LOSRPO, Southwestern RPO, Stakeholders, and Advocacy Groups	Staff and volunteer time	2016	High	



MEDIUM-TERM IMPLEMENTATION RECOMMENDATIONS (2019-2023)

ACTION ID	OVERARCHING GOAL	ACTION	CATEGORY: PLANNING, POLICY, EDUCATION, FUNDING OR FACILITY CONSTRUCTION
B-1	Develop, implement and maintain a core network of safe and well-connected bicycle facilities	Local government planning staff, MPO and RPO staff to develop procedures and coordinate with NCDOT Divisions and Public Works to ensure that low-cost bicycle projects (lane restriping, sharrows) can be implemented at the same time as resurfacing projects	Funding and Facility Construction
B-2	Adopt city, county and region-wide "complete streets" policies so that streets and roads are built to accommodate all users	Local advocacy groups work with MPO, RPOs and local governments to have 5 additional complete streets policies adopted in the region in the 2019-2023 timeframe	Policy
B-3		Local governments with an existing complete streets policy to update development regulations and street design guidelines to reflect the new requirements	Policy
B-4	Provide additional training for law enforcement officers on rights and responsibilities of all road users	Initiate a one-day summit/professional development seminar for police officers across the region and invite speakers to explain the interaction of bicyclist and pedestrians with vehicles on the road; share best practices such as City of Asheville Police giving away the lights to bicyclists	Education
B-5	Incorporate bicycle and pedestrian safety education into district-wide physical education curriculum for both elementary and middle schools	Work with local school systems in order to compliment current physical education curriculum with additional bicycle and pedestrian safety training. Use events, such as bicycle rodeos, in this training, as well.	Education
B-6	Institute more police officers on bicycles, especially in downtown areas	Identify potential funding sources for any additional training, personnel, and equipment needed to increase the number of police officers on bicycles in downtown areas.	Policy
B-7	Require bicycle parking as part of new and renovated commercial and multi-family developments	Three to five jurisdictions to implement bicycle parking policy. Determine staff needs in order to enforce new policy.	Policy
B-8	Develop Supportive Encouragement and Education Programs	Bicycling encouragement and education programs and policy priorities can be implemented alongside infrastructure improvements, but some programs can occur several years before major infrastructure projects	Planning/ Education
B-9	Develop and adopt local greenways plans to complement other transportation and parks and recreation plans.	Local advocacy groups work with MPO, RPOs and local governments to draft and adopt 3-5 additional county-wide or municipal greenway plans with an intentional focus on complementing other existing plans	Planning/ Facility Construction
B-10	Incorporate bicycle safety elements into Driver's Education	Develop a bicycle safety segment for Driver's Education programs	Education

AGENCY OR ORGANIZATION RESPONSIBLE	ESTIMATED COST	ESTIMATED TIMEFRAME	PRIORITY LEVEL	EARLY SUCCESS STORIES AND OTHER NOTES
Local Governments in partnership with Southwestern RPO, FBRMPO, LOSRPO, and NCDOT	Varies	2019-2023	High	
Local advocacy groups, willing local governments	No cost/staff time	2019-2023	High	
Local advocacy groups, willing local governments	No cost/staff time	2019-2023	High	
Local advocacy groups, local governments, local police departments	\$1,000 plus staff and volunteer time	2019-2023	High	
Schools, PTOs, Regional SRTS Coordinator (when this position becomes filled), local advocacy groups,	Staff and volunteer time	2019-2023	Medium	
Willing Local Governments and local police departments	\$600 per bicycle plus additional cost for maintenance, storage and training	2019-2023	Medium	City of Asheville has a number of officers who regularly patrol on bicycle, primarily in the downtown area
Willing Local Governments	Staff time	2019-2023	Low	Can reference City of Asheville ordinances
Local Advocacy Groups, local governments, schools, local police departments	Support for a TDM Coordinator Position (\$100k/year); staff and volunteer time; marketing costs TBD	2019-2023	Medium	The region can build on success of Strive Not to Drive Campaign in Asheville-Buncombe Region to initiate more similar encouragement and education programs throughout the year
Land of Sky Regional Council, FBRMPO, Land of Sky RPO, Southwestern Regional Commission, Southwestern RPO, NCDOT	\$50,000-\$150,000 per plan	2019-2023	Low	Buncombe Greenways Master Plan was very successful in building public participation through an innovative public outreach campaign
Local governments and schools, advocacy groups, statewide advocacy groups such as NCATA	TBD	2019-2023	High	



LONG-TERM IMPLEMENTATION RECOMMENDATIONS (2023-2032)

ACTION ID	OVERARCHING GOAL	ACTION	CATEGORY: PLANNING, POLICY, EDUCATION, FUNDING OR FACILITY CONSTRUCTION
C-1	Work towards having a comprehensive bicycle plan for each town/city and county	Update the Blue Ridge Bike Plan as a joint plan or as two separate plans: one for the Land of Sky region (including FBRMPO and Land of Sky RPO) and one for the Southwestern Region (potentially including other Southwestern RPO counties in addition to Jackson and Swain)	Planning
C-2	Start or strengthen Safe Routes to School programs	Local governments to identify and apply for funding through SRTS funds. Local governments and advocacy groups identify funding sources to serve as a local match for federal and state grants	Planning/ Facility Construction
C-3	Develop and adopt local greenways plans to complement other transportation and parks and recreation plans.	Local advocacy groups work with MPO, RPOs and local governments to draft and adopt 3-5 additional greenways plans with an intentional focus on complementing other existing plans	Planning/ Facility Construction

ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials	FONSI	Finding of No Significant Impact
BTS	Bureau of Transportation Statistics	FTA	Federal Transit Administration
CAA	Clean Air Act	GIS	Geographic Information System
CE	Categorical Exclusions	HC	hydrocarbons
CMAQ	Congestion Mitigation and Air Quality Program	HOV	High-Occupancy Vehicle
CMP	congestion management process	I/M	Inspection and Maintenance
CO	carbon monoxide	IHS	Interstate Highway System
COG	Council of Governments	IM	Interstate Maintenance
CPI	Consumer Price Index	ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
CSS	context sensitive solutions	ITS	Intelligent Transportation Systems
CTP	Comprehensive Transportation Plan	LRSTP	Long-Range Statewide Transportation Plan
DEIS	Draft Environmental Impact Statement	LOS	Level of Service
DOT	Department of Transportation	LOSRC	Land of Sky Regional Council
EA	Environmental Assessment	L RTP	Long-Range Transportation Plan
EIS	Environmental Impact Statement	M&O	management and operations
EJ	Environmental Justice	MPO	Metropolitan Planning Organization
EPA	Environmental Protection Agency	MTP	Metropolitan Transportation Plan
FAA	Federal Aviation Administration	NAA	Nonattainment Area
FBRMPO	French Broad River Metropolitan Planning Organization	NAAQS	National Ambient Air Quality Standards
FHWA	Federal Highway Administration	NADO	National Association of Development Organizations
FEIS	Final Environmental Impact Statement	NCAMPO	North Carolina Association of Metropolitan Planning Organizations
FFY	Federal Fiscal Year	NCDOT	North Carolina Department of Transportation
FTA	Federal Transit Administration	NEPA	National Environmental Policy Act of 1969

AGENCY OR ORGANIZATION RESPONSIBLE	ESTIMATED COST	ESTIMATED TIMEFRAME	PRIORITY LEVEL	EARLY SUCCESS STORIES AND OTHER NOTES
Land of Sky Regional Council, FBRMPO, Land of Sky RPO, Southwestern Regional Commission, NCDOT as a potential funder	\$300,000-\$400,000	2023-2025 for a ten-year update	High	
Land of Sky Regional Council, FBRMPO, Land of Sky RPO, Southwestern Regional Commission, NCDOT, schools, PTOs, regional SRTS Coordinator (when in place)	Varies	2023-2032	Low	
Land of Sky Regional Council, FBRMPO, Land of Sky RPO, Southwestern Regional Commission, Southwestern RPO, NCDOT	\$50,000-\$150,000 per plan	2023-2032	Low	

NHS National Highway System
 NOI Notice of Intent
 NOx nitrogen oxide
 PL Planning Funds
 PM particulate matter
 PPM parts per million
 PTD Public Transportation Division
 ROD Record of Decision
 RPO Rural Planning Organization
 SAFETEA-LU Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
 SHSP Strategic Highway Safety Plan
 SIB State Infrastructure Bank
 SIP State Implementation Plan
 SOV single-occupancy Vehicle
 SPOT Strategic Planning Office for Transportation
 SPR State Planning and Research Funds
 STI Strategic Transportation Investment
 STIP Statewide Transportation Improvement Program
 STP Surface Transportation Program
 TAC Transportation Advisory Committee
 TCC Technical Coordinating Committee
 TCM Transportation Control Measure
 TDM Transportation Demand Management
 TEA-21 Transportation Equity Act for the 21st Century

TIFIA Transportation Infrastructure Finance and Innovation Act of 1998
 TIP Transportation Improvement Program
 TMA Transportation Management Area
 TMIP Travel Model Improvement Program
 TOD Transit-Oriented Development
 TPB Transportation Planning Branch
 TRB Transportation Research Board
 UA Urbanized Area
 UC Urban Cluster
 UPWP Unified Planning Work Program
 USDOT United States Department of Transportation
 V/C Volume/Capacity Ratio
 VOC Volatile Organic Compound





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