

NC 280 CORRIDOR STUDY, TOWN OF MILLS RIVER AND TRANSYLVANIA COUNTY



PREPARED BY ALTA PLANNING+DESIGN AND KOSTELEC PLANNING
FOR THE TOWN OF MILLS RIVER AND TRANSYLVANIA COUNTY

JUNE 23 2014



The NC 280 corridor intersects with existing designated NCDOT bike routes.

TABLE OF CONTENTS

SECTION ONE: INTRODUCTION	1
SECTION TWO: STUDY PROCESS AND BACKGROUND	5
SECTION THREE: CORRIDOR ANALYSIS AND CONCEPT ALTERNATIVE DEVELOPMENT	9
SECTION FOUR: RECOMMENDED CONCEPTS.....	15
SECTION 5: PLAN IMPLEMENTATION	21



Turkey Pen Road provides a direct connection to Pisgah National Forest with parking, hiking, biking, and other amenities.

SECTION ONE: INTRODUCTION

MILLS RIVER & TRANSYLVANIA COUNTY

NC 280 RUNS THROUGH THE HEART OF MILLS RIVER, connects to Transylvania County and Brevard and serves a variety of purposes:

- » It is the “Main Street” for the Town of Mills River
- » An important north-south connector between Asheville and Brevard
- » A major gateway to the Pisgah National Forest and the City of Brevard
- » A primary connector to and the front door for the Asheville Regional Airport
- » Will serve the new Sierra Nevada brewery and other major employers on the corridor. Many of the Sierra Nevada employees are potential bicycle commuters
- » Key cycling link between Brevard and the rest of the region

The NC 280 corridor has the potential to safely serve both motor vehicles and bicycles and pedestrians. Currently much of the roadway within the study area lacks sidewalks, bike lanes, and effective access management. This plan provides a basis for evaluating the benefits and trade-offs associated with accommodating active (bicycle and pedestrian) and motorized transport, and give the Town and NCDOT a foundation for planning improvements to the corridor.

The corridor is listed in the region’s Comprehensive Transportation Plan as a “boulevard, needs improvement” project. The

corridor is also highlighted and prioritized in the *Blue Ridge Bicycle Plan* and the *WalkBikeNC: Statewide Bicycle and Pedestrian Plan’s* state bicycle route analysis. A section of NC 280 through Mills River is part of the new WalkBikeNC recommendations for North Carolina State Route #11 (Mountain Route). Increased momentum and interest in bicycling in the corridor has occurred because of the new Sierra Nevada Brewery located in Mills River. With the brewery’s commitment to sustainability and plans for an on-site trails network, NC 280 will be a key route for potential bicycle commuters.

“A 280 [BIKEWAY]...WILL BE A CATALYST FOR WELL-PAYING, GOOD CLEAN JOBS...IT WILL GIVE US AN EDGE AND WILL TRANSLATE INTO EXCELLENT JOBS FOR MILLS RIVER.” – PARTICIPANT AT THE PUBLIC WORKSHOP

Due to NC 280 being called upon to serve so many roles, this study was funded by the French Broad Metropolitan Planning Organization and the Land of Sky Regional Council and commissioned by the Town of Mills River and Transylvania County to investigate the feasibility of providing active transportation facilities (bicycle and pedestrian) along its length. This study is an opportunity to evaluate the corridor in great depth, analyzing the current traffic mix and future travel demand for all modes, and recommending strategies to enhance the corridor for all current and potential

users. This report documents the analysis and community engagement that resulted in the recommended plan to enhance bicycle and pedestrian connectivity along the NC 280 corridor.

Background/Purpose of Study

The purpose of the corridor study is to determine the best way to accommodate bicycle users in the NC280 corridor. In addition to being a professional study of travel demand and recommended facility design, the planning process was designed to engage stakeholders including the adjacent property owners, residents, and business owners, representatives of NCDOT and the community as a whole in a meaningful discussion of the future design of this corridor through a series of stakeholder interviews and public workshops.

PROJECT GOALS:

Analyze current traffic mix and future travel demand for all modes

Analyze the current facility for motorized and non-motorized users and recommend strategies to improve on the status quo

Analyze access to and interconnection of abutting properties to minimize potential conflict points for bicycles

Address aesthetics, and context-sensitive roadway design

Develop perspective and plan view illustrations and renderings of recommendations

Produce a document that can be used as a blueprint for public and private sector decisions concerning improvements and development

Develop cost estimates, a project phasing strategy and prioritize implementation actions

Analyze the core study focus – the NC 280 corridor in Mills River – and the potential for future connections to other bicycle/pedestrian routes



The NC 280 and Highway 64 intersection in the City of Brevard proves difficult for pedestrian and biking connectivity; however, this connection is vital in the on and off-road connections to Pisgah National Forest, existing City of Brevard multi-use trail facilities, and the proposed Ecusta Rail Trail.



**BIKE
XING**



SECTION TWO: STUDY PROCESS AND BACKGROUND

MILLS RIVER & TRANSYLVANIA COUNTY

Description of Study Process

The study process, which began in November of 2013, had the following major task elements. The outcomes of each task are described in the sections that follow.

1. Data Collection and Base Map Development
2. Kick-off Meeting, Site Visit, Stakeholder Interviews
3. Existing Conditions
4. Future Travel Demand
5. Design Charrette and Workshop
6. Draft Plan and Map
7. Final presentations and Deliverables

Existing Conditions

NC 280 Summary Corridor Description: Physical configuration and context

The NC 280 Corridor Study Area begins in the Town of Fletcher at the intersection of Old Fanning Bridge Road and ends at the intersection with US 276 at the northern entrance into the Town of Brevard in Transylvania County. Along that route it serves as the main street through the Town of Mills River and also affords access to the Pisgah National Forest. Characteristics of the corridor are summarized as follows.

EXISTING CROSS-SECTION: NC 280 through Mills River is a five-lane highway with little to no shoulder width today, accommodating only the “Strong and Fearless” bicyclist user type that typically represents a very low percentage of the population (less than 1%).

At Lakeland Drive, the cross sections changes from five lanes (4 travel lanes/1 two-way left turn lane) to 4 lanes (4 travel lanes) with minimal shoulder width.

TRAFFIC VOLUMES: Generally run from 15,000 to 19,000 through the corridor, with volumes being higher on the northern end and declining as the corridor moves south toward Brevard.

SPEED LIMITS: 45mph and 55mph. The speed limit of the road varies between 55 mph in the rural sections and 45 mph through the Town of Mills River and Brevard.

ROADWAY CONFIGURATION: Four travel lanes with a continuous left turn lane in some segments and a grassed median in other segments. Drainage



is accomplished through open swales in the rural sections and curb and gutter in the Town of Mills River and at the north entry to the Town of Brevard. Sidewalks exist sporadically within the built-up sections within Brevard and Mills River, but are not provided elsewhere. Designated bikeway features along the corridor are nonexistent, although bike lanes are provided on Fanning Bridge Road at the north end of the corridor to access Westfeldt Park and the Sierra Nevada brewery.

The road is a state-owned and maintained facility, and the portion to the north near the airport is designated as an access-controlled segment.

Data collection efforts

The Alta team collected GIS data and maps from Henderson and Transylvania Counties, the French Broad River MPO, the Land of Sky Regional Council, the Town of Mills River, the City of Brevard, NC OneMap, and NCDOT. Alta collected existing GIS base data for the NC 280 corridor including street centerline, jurisdictional, topography, hydrologic, parcel ownership, land use, school, park, employment site, crash data, and other destination data. In addition, the Alta team requested existing roadway conditions data (ROW line, lane configurations, medians, presence of curb), existing traffic signals and controllers, street lights, utilities, traffic volumes, and pavement condition.

We utilized the current *Comprehensive Transportation Plan* (CTP) as a guide for projected

area transportation conditions and initiatives. The Alta team also collected pertinent North Carolina and regional bicycle route data along with planned bicycle route networks including data from the Blue Ridge Bicycle Plan and Bicycling Henderson County routes.

Using the acquired GIS data discussed above, Alta developed a draft project base map to be utilized at the kickoff meeting and during fieldwork. The Alta team also request pertinent planning, land use, and ordinance documents and study their impact to this NC 280 corridor study. In addition to the French Broad MPO CTP and the plans noted above, these planning documents also included:

- » *NCDOT Complete Streets Planning and Design Guidelines*
- » *WalkBikeNC: NCDOT Statewide Pedestrian and Bicycle Plan*
- » 2030 Long Range Multi-Modal Plan
- » Mills River Park PARTF Application
- » *Town of Mills River Comprehensive Plan*
- » Future pedestrian and bike projects for City of Brevard

FIELD REVIEWS. The Alta team conducted multiple field reviews to supplement existing data provided and fill key data gaps. Field investigations were documented using field notes, measurements, and digital photography. Inventory results were catalogued graphically on GIS base maps and in a summary description. The following items were

noted during field review:

- » Existing and proposed bike routes and trails
- » General configuration of any sidewalks, crosswalks, and curb ramps
- » Locations of traffic signals
- » Landscape and street furniture features and conditions
- » Location of typical advisory, directional, and regulatory signs
- » Typical pavement markings
- » Presence of drainage grates, utility boxes, overhead poles and lines and other observable elements
- » Locations of schools, parks, and other trip generators
- » Sites of vehicular and bicyclist crashes

In addition, the Alta team observed motorist and bicyclist behaviors along NC 280.

STAKEHOLDER INTERVIEWS: The Alta team also conducted stakeholder interviews with key individuals and groups, including the following:

- » Staff and elected officials of Mills River
- » Staff of City of Brevard and the French Broad MPO
- » Business owners and key land owners
- » NCDOT

Mills River
RESTAURANT



PRIME RIB
10oz RIBEYE STEAK \$11.99
FULL RACK of RIBS \$11.99
LAMB OR CHICKEN GYRO

SOUP Sandwich 11-3pm
You Bites M-F

GRATE
SERVERS

EAST

280

NORTH

191

SERVING
BREAKFAST
DAILY



**SECTION THREE:
CORRIDOR ANALYSIS AND CONCEPT
ALTERNATIVE DEVELOPMENT**

MILLS RIVER & TRANSYLVANIA COUNTY

Identified Transportation Issues and Opportunities

The analysis of the existing condition of the corridor, coupled with the input from stakeholders, revealed a clear direction to determine issues and opportunities related to enhanced bicycle accessibility along the corridor. This analysis is summarized as follows.

Attractions connected by corridor

- » Westfeldt Park and River Trail Access: The Town of Fletcher operates Westfeldt Park along the French Broad River. Westfeldt Park offers natural surface paths, pervious parking, picnic amenities, and blueway/river access.
- » Asheville Airport and Sierra Nevada Brewery: Potential connection points exist from Westfeldt Park to Sierra Nevada through Asheville Airport property (+/- 1 mile). The Asheville Airport has communicated to the Town of Mills River that they would be open to utilizing property to provide pedestrian connections.
- » Pisgah National Forest Access:
 - North Mills River Road, signalized intersection at Ingles, is the primary cycling access to Pisgah National Forest (+/- 6.7 miles).
 - Turkey Pen Road (unsignalized intersection) provides mountain bike access into Pisgah National Forest. There
- is also an on-street parking pull-off that could be developed into an on-street trailhead.
- » Blueway/River Trail Connection: There is an existing historic depot and future blue trail trailhead at the intersection of Mills River and South Mills River Road.
- » Marlow Elementary School Connection: Signalized intersection at Butler Bridge Road provides connection to Glenn C Marlow Elementary School.
- » Brevard/US 64 Intersection Destinations: The intersection at Hwy 64 provides direct on-road access to Davidson River access, Pisgah National Forest, Hendersonville, proposed Ecusta Trail, and proposed City of Brevard greenway network.
- » Commercial Nodes:
 - Mills River: The primary commercial hub for the Town of Mills River existing within the gateways of South Mills River Road, Haywood Road, and Old Turnpike Road.
 - Goldmine Road (unsignalized intersection) is identified as a 'small commercial nook' in the *Town of Mills River Comprehensive Plan (2005)*.
 - US 64, Brevard: Commercial development at the southern end of the corridor around the intersection of NC280 and US 276/US 64 in Brevard includes big box retail,

a bicycle shop and an outdoor outfitter and connections to Brevard's existing greenway network.

- » Mills River Municipal and Recreation Complex: This civic and recreational hub provides trailhead opportunities and on-street connections to the Town of Mills River municipal and recreation complex (+/- 1.0 miles).
- » Mills River Elementary, Community Building and Future Park: Presbyterian Church Road (unsignalized intersection) provides on-street connections to 25 acres of Town of Mills River property (potential future park), Mills River Elementary School, and the Mills River Community Building.

Existing and proposed trails and bike routes:

- » Future Multi-Use Trail along Mills River: Mills River is identified in the *Town of Mills River Comprehensive Plan (2005)* as a multi-use trail corridor to the Town of Mills River Municipal Complex (+/- 1.5 miles).
- » The proposed Ecusta Trail follows US 64 from Hendersonville to Brevard through Etowah.
- » Cycling Route to Asheville: Old Haywood Road (Highway 101) is the primary cycling route to Asheville for on-road cyclists.
- » NCDOT Bike Route: Old Turnpike Road (signalized intersection) is a NC designated bike route that connects to South Mills River Road.

Other Opportunities and Constraints on the Corridor

Crossings, Topography, Major Intersections and Planned Projects

- » Crossing French Broad River: Crossing the French Broad River poses significant challenges due to the span. Potential opportunities exist to use existing bridge or other infrastructure to develop a dedicated bicycle and pedestrian crossing the River.
- » Controlled Access: NC 280 is considered a controlled access highway from Old Haywood

Road to Old Fanning Bridge Road (+/- 2.2 miles).

- » Challenging Intersections:
 - Haywood Road intersection has multiple turning movements and long pedestrian crossings.
 - NC 280 at US 64/US 276 is also a multi-lane intersection with multiple turn movements and limited bicycle or pedestrian facilities
- » Topography impacting Cyclists and Walkers:

- The corridor is relatively flat (+/-2%) from Squirrel Ridge to East View Drive.
- Piney Meadow Drive (unsignalized intersection) is the ridgeline where the grade increases to +/- 5-8%. The next signalized intersection occurs at Hwy 64 in Brevard, NC (+/- 6.75 miles).
- The downhill decent (+/- 5%) into the City of Brevard begins at Old NC 280 Highway. Old NC 280 Highway was the original highway into Brevard.
- » Planned Widening of Brickyard Road: Brickyard Road (unsignalized intersection) is planned to be widened to 4 lanes and is an on-road bicycle connection route to US 64 in Etowah.

Analysis of Current Facility for Motorized and Non-Motorized/Active Transportation Users

Speeds, Traffic Volumes

PEDESTRIAN LEVEL OF SERVICE: A segment-based Pedestrian Level of Service Analysis (PLOS) for this corridor measuring pedestrian safety using four factors: posted speed limit, roadway width (number of travel lanes), pedestrian buffer (on-street parking or bicycle lanes), and the presence of sidewalks would yield a level of service of D or E on an A-E scale where A is the highest level of service.

NCDOT's *Complete Streets Planning and Design Guidelines* defines various elements that



MILLS RIVER & TRANSYLVANIA COUNTY

contribute to “Pedestrian Quality of Service” (QOS). Key elements of Pedestrian QOS as defined by the Guidelines include sidewalks and multi-use paths, buffer area between pedestrians and motor vehicle traffic, pedestrian crossings, signage, lighting, and accessibility features. Based on these elements, Pedestrian QOS for the subject corridor would rank very low.

BICYCLE LEVEL OF SERVICE: According to the Bicycle-Level-of-Service (BLOS) analysis from the WalkBikeNC Plan, this section of NC 280 would score BLOS D or E primarily based on factors of motor vehicle volumes and speeds. A portion of State Bike Route 11 follows NC 280 through Mills River.

Traffic volumes on this corridor far exceed the state bike route goal for the system of average daily traffic (ADT) less than 1,200 and make cycling uncomfortable for most cyclists in the current conditions.

NCDOT’s *Complete Streets Planning and Design Guidelines* defines various elements that contribute to “Bicycle Quality of Service” (QOS). For “low access, high speed facilities like parkways... multi use paths should be considered” (p. 41) for “good” (p. 39) bicycle quality of service. (NC280 would be defined as a parkway based on the NCDOT criteria; see Section 4 below.)

MOTOR VEHICLE LEVEL OF SERVICE: With current traffic volumes in the range of 15,000 to 19,000 vehicles per day on NC 280, the current LOS “D” threshold for the facility is 29,100 vehicles per day

(according to CTP). Current volumes represent 50-65% of this LOS “D” threshold. Therefore, the facility meets its goal for vehicular level of service today and well into the future.

Projected Future Conditions: Analysis of current traffic mix and future travel demand for all modes

NC 280 has been widened within the past 20 years to accommodate significant traffic growth in the corridor between the 1960’s and early 2000. The result is a four to five lane roadway that should accommodate in the range of 29,100 vehicles per day (per CTP Table 2.1). As stated previously, the roadway currently carries between 12,000 vehicles per day (at the Transylvania County line) and 17,000 vehicles per day on the north end of the corridor at NC 191.

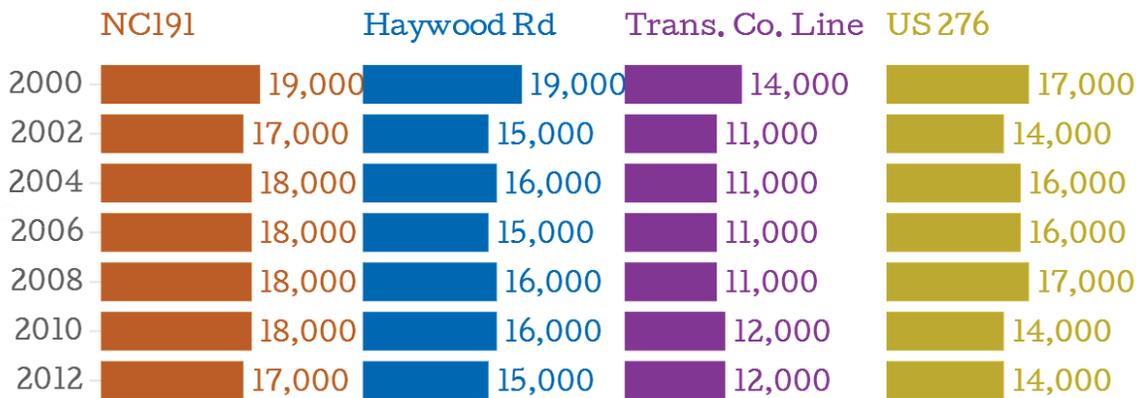
The forecasted traffic volumes included in

NCDOT’s CTP for the region (*Comprehensive Transportation Plan for French Broad River MPO and Rural Areas of Buncombe and Haywood Counties*, January 2008) for the corridor show a projected ADT in 2030 of 24,800 vehicles per day, which is about 85% of the calculated capacity of the facility. This forecast represents an approximate 45% growth in corridor traffic over a 15 year planning horizon (between 2012 and 2030). This forecast is likely conservative given the lack of growth (or even negative growth) in traffic volumes over the time period between 2000 and 2012 as evidenced by the NCDOT count history shown below.

In conclusion, the current number of travel lanes on the facility are adequate for the foreseeable future of NC 280 through this corridor, and it is unlikely that any widening would be needed.

The CTP recommends access management in the

NC 280 Traffic Volumes (2000–2012)



Made with Chartbuilder

Data: NCDOT Traffic Volume Maps

conversion of the center turn lane into a divided median, which will afford an opportunity to create a streetscape more in concert with the desired Town character for Mills River, and the median will allow refuge areas for crossing pedestrians and cyclists.

Design Charrette/Public Workshop

The cornerstone of the study process was a multi-day, public, on-site planning and design workshop held at the Mills River Town Hall March 25-27, 2014. The Alta team facilitated workshop with attendance by stakeholders and the general public. (Specific stakeholder groups are noted below in the Data Collection Efforts section.) Alta prepared corridor maps, boards, and visual displays and developed concepts for review and refinement during the workshop. This charrette was interactive in nature with the goal of developing recommendations with the residents and stakeholders of Mills River, Brevard, and surrounding areas to hear their concerns, needs, and ideas for NC 280. The Alta team will further update existing mapping and tables with information gathered from the Steering Committee, stakeholders, and fieldwork evaluation. Context-sensitive study alternative concepts were presented using illustrations and photo renderings with accompanying cross sections.

Approximately 50 people attended the public workshops and the workshop presentation.

town of mills river, nc
workshop

be part of the "brainstorming"
and be part of the transformation of mills river
into a bikeable and walkable community

mark the calendar



tuesday, march 25 4:00pm -7:00pm	town hall 124 town center drive
wednesday, march 26 10:00am -2:00pm	community center 120 schoolhouse road
thursday march 27 9:00am -2:00pm	town hall 124 town center drive

what is this workshop ?

The Town of Mills River with help from landscape architects, engineers, and planners from Alta Planning + Design, will hold a public workshop to explore ways to **improve the NC280 Corridor** and make it more **bicycle and pedestrian friendly** for the community. Come when you can during the three days to see how they work and offer your input. Make sure you're back to Mills River Town Hall by 7:00pm on Thursday to see a formal presentation of their findings and conceptual drawings. Please come and be part of this important event and help **make a difference in Mills River!**



for more information contact blake sanders @ blakesanders@altaplanning.com



Westfeldt Park is a natural terminus of the proposed multi-use facilities, providing direct connections to existing and proposed multi-use trails, blue trails along the French Broad, and Sierra Nevada.



SECTION FOUR: RECOMMENDED CONCEPTS

MILLS RIVER & TRANSYLVANIA COUNTY

Recommended Alternatives

Description of developed, context-sensitive project alternatives

The primary recommended bikeway alternative for the NC280 corridor is a multi-use sidepath along one side of the roadway from the north end of the corridor at Westfeldt Park to the NC280/US 64 intersection and existing greenway in Brevard.

A typical section of the recommended alternative is shown below.

Analysis of the feasibility of alternatives

The development of the Recommended Alternative is based on the following factors:

- » Existing and projected roadway and traffic conditions along the corridor

- » Existing right-of-way
- » Public and stakeholder input
- » Recommendations in previous state, local, and regional policy plans
- » State, national and international bikeway design guidance

EXISTING CONDITIONS – ROADWAY CAPACITY:

As noted above, the NC 280 corridor can accommodate projected motor vehicle traffic within existing roadway section for the foreseeable future without roadway widening.

In the long term, if traffic volume trends remain consistently low or in a downward trajectory, the stakeholder communities, agencies, and NCDOT could consider road diet alternatives that would increase roadway safety along the corridor as well

as provide additional space for medians and/or separated bikeway facilities between the curbs.

EXISTING CONDITIONS – RIGHT OF WAY: Through field work and data mapping and discussions with key stakeholders, the consultant determined that sufficient right-of-way exists for a multi-use path for the majority of the corridor. Detailed recommendations for where the path would go are noted in the maps and sections that follow.

PUBLIC PREFERENCE FOR SHARED USE PATH ALTERNATIVE IN NC 280 RIGHT-OF-WAY:

At the project design workshop, the public and stakeholders were presented with a number of bikeway alternatives for NC 280 including: roadway shoulders, bike lanes, and physically separated bikeways and greenways. The overwhelming response from the workshop attendees was a preference for a separated shared-use path adjacent to the roadway.

POLICY AND DESIGN BASIS FOR PROJECT ALTERNATIVES:

The recommended alternative follows the policy intent and recommendations of previously adopted plans and policy guidance, including:

- » The AASHTO *Guide to Bicycle Facilities, 4th Edition (2012)* states that “sidepaths [shared use path adjacent to roadway] may be considered where”:
 - adjacent roadway has relatively high-volume and high-speed motor vehicle traffic



- the sidepath can be built with few roadway and driveway crossings
 - the sidepath can be terminated at each end onto streets that accommodate bicyclists, onto another path, or in a location that is otherwise bicycle compatible (p. 5-10)
- » Other national and international bikeway design guidance recommend a bikeway physically separated from the roadway where roadway speeds generally exceed 40mph and volumes exceed 10,000-12,000 vehicles per day. (See *Bicycle Facility Selection: A Comparison of Approaches*, PBIC, 2002.)
- » *WalkBikeNC: Statewide Pedestrian and Bicycle Plan's* recommendations for state bike routes and bicycle facilities: recommends a portion of State Bike Route 11 along NC 280; two other state bike routes cross NC 280.
- » The NCDOT *Complete Streets Planning and Design Guidelines* recommends a “multi-use path” as the recommended bikeway/ pedestrian facility along this type of roadway (see details below).
- » The French Broad River Comprehensive Transportation Plan recommends a median for access management

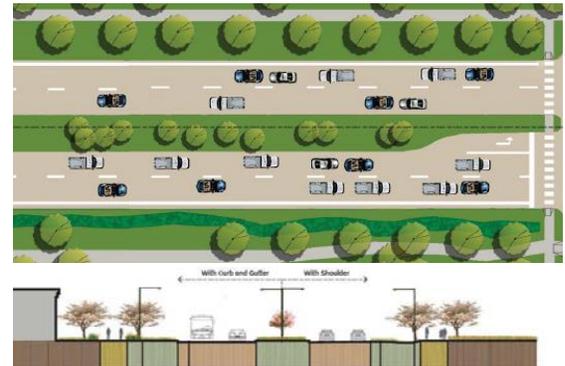
- » The Land of Sky Regional Council’s *Blue Ridge Bike Plan* recommends a buffered bike lane or greenway parallel to NC 280
- » The *Mills River Comprehensive Plan* recommends a greenway path along the Mills River, which would connect to NC 280

NCDOT Complete Streets Planning & Design Guidelines (2012)

In 2013, the French Broad River MPO adopted its Complete Streets policy and identified logical starting points to identify NCDOT Complete Streets cross sections for projects and corridors identified in the Transportation Improvement Program (TIP), Long-Range Transportation Plan (LRTP) and the Comprehensive Transportation Plan (CTP).

The NC 280 Bicycle Corridor Study used the existing cross sections defined in NCDOT’s *Complete Streets Planning & Design Guidelines* as a starting point for defining potential design solutions for incorporating bicycle facilities into the existing NC 280 corridor.

The two cross-sections included in Chapter 4 of the NCDOT Guidelines that were identified as a best-fit for the context of the NC280 corridor are:



URBAN / SUBURBAN PARKWAY, defined as an urban or suburban thoroughfare often characterized by landscaping or natural vegetation along roadsides and medians with land uses set back from the street and not typically oriented toward the parkway.



RURAL PARKWAY, defined as a rural thoroughfare designed to carry vehicles at moderate to high speeds and with land uses set back from the street with landscaping or natural vegetation along roadsides and medians.

MILLS RIVER & TRANSYLVANIA COUNTY

In each context, NCDOT's Guidelines states that a "multi-use path is the preferred treatment for bicycles and pedestrians on a parkway." The Guidelines also suggest a "Green Zone" between the edge of the travelway and the multi-use trail and that the green zone should "provide a minimum width equal to the clear zone requirements, typically 30'." The green zone may include landscaping and, in areas beyond the clear zone, large maturing trees. The design schematics shown for these types of roadways include a multi-use path zone as one design option, with a width ranging from ten to twelve feet for the pathway.

Estimated Project Cost

To implement the entire 15 miles of shared use path within the existing NC 280 right of way, construction costs are estimated at \$500,000 per mile, or \$7,500,000. Three crossings of NC 280 would be required as well; if signalized using HAWK signals, these crossings would add \$50,000 per crossing. Additionally, enhanced streetscape would be required at the north and south terminating points of the trail, and also within the Town of Mills River is estimated at an additional \$500,000, bringing the total project cost to \$2,400,000. A potential phasing plan is outlined in the sections presented in the Appendix.

Analysis of possible outcomes for bicyclists and effectiveness of facility to improve status quo and see increase in bicycling

National research and experience from other locations around the country and around North Carolina indicates that the provision of a multiuse path along NC 280 will not only increase safety for cyclists and pedestrians, but will also lead to increased number of cyclists and pedestrian using the corridor for transportation, recreation, and fitness.

Currently, there are no dedicated bicycle or pedestrian facilities on the corridor. There is currently limited evidence of usage by cyclists or pedestrians on the corridor in its existing condition except for occasional confident sport or fitness cyclists. There are no current counts of bicycle and pedestrian users on the corridor.

DEDICATED BICYCLE AND PEDESTRIAN FACILITIES INCREASE SAFETY: National research indicates that provision of dedicated bicycle and pedestrian infrastructure increases safety for cyclists and pedestrians. Various studies cited in the NCDOT Statewide Pedestrian and Bicycle Plan indicate that provision of a sidewalk or path will reduce pedestrian crashes by 65-89% (source: FHWA) and provision of protected bikeways or cycle tracks (bikeways physically separated from the roadway) have been shown in various studies to reduce bicycle injuries and in some cases crashes

for all roadway users by 28-40% (see WalkBike NC report page 4-16, <http://www.ncdot.gov/bikeped/download/WalkBikeNCPlanChapterslowres.pdf>).

MOST CYCLISTS PREFER DEDICATED BIKEWAYS: Citizens from across North Carolina who participated in the on-line public involvement process for the WalkBikeNC Plan indicated that greenways and multi-use pathways along roadways are among the four most preferred bikeway types. Physically separated bike lanes and on-street bike lanes were also among the top four preferred facility types.

This is consistent with nationally accepted frameworks for types of cyclists that indicate that the majority of the US population (estimated at 60%) would be most comfortable bicycling on low traffic roadways or physically separated bikeways or multi-use trails.

In addition to national and international professional roadway design guidance on the need to provide separated bikeways along higher volume and higher speed roadways like NC 280, there is also researched-based evidence that as motor vehicle volumes on a roadway increase the number of cyclists who choose to ride in the roadway decreases.

Types of Bicyclists

<p>Strong and Fearless (approximately 1% of population)</p> <p>Characterized by bicyclists that will typically ride anywhere regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes and will typically choose roadway connections -- even if shared with vehicles -- over separate bicycle facilities such as shared use paths.</p>	→	1%	Strong and Fearless
<p>Enthusied and Confident (5-10% of population)</p> <p>This user group encompasses bicyclists who are fairly comfortable riding on all types of bikeways but usually choose low traffic streets or multi-use paths when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreationalists, racers and utilitarian bicyclists.</p>	→	5-10%	Enthusied and Confident
<p>Interested but Concerned (approximately 60% of population)</p> <p>This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low traffic streets or multi-use trails under favorable weather conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become "Enthusied & Confident" with encouragement, education and experience.</p>	→	60%	Interested but Concerned
<p>No Way, No How (approximately 30% of population)</p> <p>Persons in this category are not bicyclists, and perceive severe safety issues with riding in traffic. Some people in this group may eventually become more regular cyclists with time and education. A significant portion of these people will not ride a bicycle under any circumstances.</p>	→	30%	No Way, No How

Source: Four Types of Cyclists. (2009). Roger Geller, City of Portland Bureau of Transportation. Supported by data collected nationally since 2005.

MILLS RIVER & TRANSYLVANIA COUNTY

Based on latent demand theory that applies to roadways as well as to bicycle and pedestrian infrastructure, the simple provision of a bikeway/walkway along NC 280 will lead to greater walking and bicycling along the corridor. Couple this with data on safety and user preferences for separated bikeways and it is expected that construction of a multi-use pathway will actually attract new bicycle and pedestrian trips along NC280.

Additionally, a recent study by Portland State University shows evidence that “where protected bike lanes [bikeways physically separated from motor vehicle lanes] are added to a street, bike traffic rises - by an average of 75% in their first year alone” in the projects studied. This study is the most extensive of its kind of separated bikeways in North America. (*Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S.*, June 2014, National Institute for Transportation and Communities, Portland State University.)

SECTION 5: PLAN IMPLEMENTATION

MILLS RIVER & TRANSYLVANIA COUNTY

The Town of Mills River and Transylvania County have a unique opportunity to enhance bicycle connectivity along the NC 280 corridor while connecting important regional destinations such as the brewery area, Downtown Mills River, Town Center Park, the Pisgah National Forest, and the Town of Brevard. The following section outlines a plan and strategy to carry this vision forward toward reality, positioning the project to take advantage of the various streams of public and private funding available.

Next Steps: Prioritize implementation actions

ADOPT THIS STUDY. The Town of Mills River, by adopting this study via resolution, indicates its willingness to work toward implementation of the study. Further, the methods employed by NCDOT and FBRMPO methods for prioritizing projects awards additional points for projects that are part of an endorsed plan or study. Therefore, adoption of the study positions Mills River for higher ranking with the state's evaluation processes and thus in a better position to take advantage of potential funding sources.

REQUEST INCLUSION IN THE LONG-RANGE TRANSPORTATION PLAN. FBRMPO is updating the LRTP in 2014. To be eligible for federal funding, projects must be identified or be consistent with the LRTP document. Mills River should request the NC 280 project be included as a project in the LRTP.

PURSUE FUNDING FOR DESIGN OF PHASE I. The first phase of the corridor identified as a priority segment is from Fanning Bridge Road to NC 191 in the heart of Mills River. An additional connection is recommended in this phase to connect the Mills River Town Complex along NC 191. The estimated construction cost for this Phase would be approximately \$1,650,000 for the segment on NC 280 and an additional \$500,000 for the segment along NC 191 to the Town Complex. The Corridor Study provided baseline parameters by which Mills River can then secure funding for engineering services for the corridor.

The estimated cost of designing this phase of the project is \$200,000. Funding may be sought through various sources beyond NCDOT and FBRMPO. Foundations, non-profit organizations, hospital foundations and other entities may be willing to provide all or part of the funding for design, or the federal 20% matching funds if federal funds are awarded.

WORK WITH NCDOT TO IMPROVE INTERSECTIONS. The intersection of NC 280 and Haywood Road (NC 191) at the town center area of Mills River is in need of enhancements to increase safety for pedestrians and gateway treatments to reduce vehicle speeds and crashes as motorists enter this area of town. Mills River, per state law, may reduce the speed limit along sections of NC 280 within its municipal boundaries following a traffic study. This could be pursued for this gateway area between South Mills River Road and Parsonage Drive.

Design and Funding

Moving the project toward a 30% level of design will increase the competitiveness of the project for the various funding streams available from sources such as FHWA, NCDOT, the French Broad River MPO, and Town and County capital and developer-associated fees. Furthermore, many private foundations offer grants for funding the design and construction of these type facilities. Finally, corporate sponsors such as local businesses and health care organizations can often be tapped for contributions that can be leveraged toward funding sources that require a local match.

Conclusion

The Town of Mills River and Transylvania County understand the value of enhancing bicycle accessibility along the NC 280 corridor. This study has presented a feasible, community-backed concept that will accomplish that goal. By following the strategy outlined for implementation, the NC 280 bikeway can become a reality and economic development amenity for the region and afford true choice for residents and visitors to this remarkable region for mobility.

APPENDIX: SECTION MAPS

nc 280 corridor | westfelt park



nc 280 corridor |



nc 280 corridor |



nc 280 corridor | haywood road



nc 280 corridor |



nc 280 corridor |



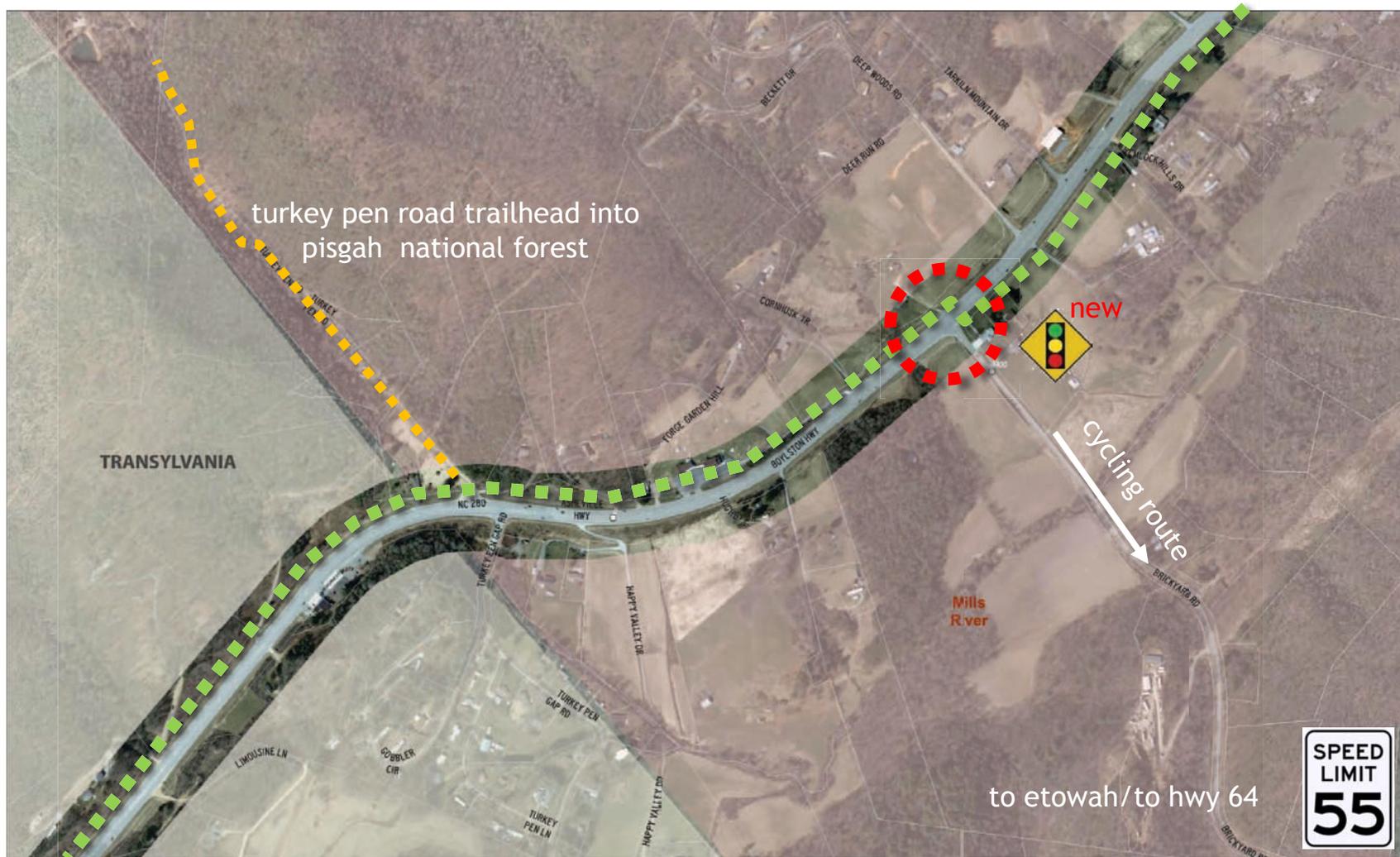
nc 280 corridor |



nc 280 corridor |



nc 280 corridor | brickyard road



nc 280 corridor |



nc 280 corridor |



nc 280 corridor |



nc 280 corridor |



nc 280 corridor | highway 64

